

Chapter One

Introduction

1.1 Background of the Study

Flooding is increasing globally due to climate change, with longer durations and intensified rainfall patterns, which contribute to increased surface runoff, drainage system overload, and floodplain encroachment, especially in urban areas¹. Between 1990 and 2022, floods affected over 3.2 billion people, resulting in more than 218,000 deaths, and caused economic losses exceeding US\$1.3 trillion globally, across 168 countries². In Africa, flooding affected over 11 million people and caused approximately 2,500 deaths in 2024 alone, in countries like Nigeria, Chad, Cameroon, and Niger, experiencing some of the worst events in decades³.

The recurring events of flooding increase the chances of spreading waterborne diseases particularly cholera and diarrhoea and worsen risks from food shortages and environmental degradation. These in turn affect long-term community recovery, livelihood, social wellness, and mental health⁴.

In Nigeria, flood events are both natural and human-induced. Studies show that poor drainage, land use mismanagement, and insufficient infrastructure as core causes⁵. According to the Joint Flood Assessment conducted by the National Emergency Management Agency (NEMA) in October 2024, over 320 people were confirmed dead and 1.3 million were affected by floods across 34 states in Nigeria. Flood incidents also contributed to an alarming rise in malnutrition in Borno, Adamawa, and Yobe States, with over half a million children under five treated for acute malnutrition between May and September 2024⁶. These incidents show a nationwide vulnerability, especially in fast-growing cities in Nigeria.

According to the Joint Post-Flood Situation Report, fourteen (14) local government areas (LGAs) in Lagos were assessed and identified over 275,000 individuals affected by the floods, including 2,313 displaced individuals⁷. These data indicate that many Nigerian cities are

vulnerable to flooding, though the degree of risk and impact varies based on the social identities of each population group.

Amongst the most critically affected social group is the city's street-life population. This group includes the homeless, street children, IDPs, migrants, and informal workers whose means of livelihood is from the street. For example, Hausa-migrants begging for alms, young adults living as thugs surviving on money collected from passersby, or other forms of livelihoods (hawking, load carrier '*alabaru*'). For this population group, their food support comes from offerings called "*saara*".

Beyond their economic fragility, they experience challenges such as lack of healthcare, social services, water, sanitation, and education. They are also exposed to discrimination, violence, exploitation, and risks of being kidnapped. For example, children who may have been abandoned or forced to work on the streets often struggle with being excluded and invisible⁸, making it difficult for them to have a voice in the policy that will impact them.

Street dwellers and other marginalized groups are recognized as vulnerable populations in disaster contexts. The Nigerian Disaster Management Policy outlines strategies to reduce exposure and risks in disaster-prone areas, including urban settlements. However, implementation remains hindered by infrastructural deficits, limited funding, poor inter-agency coordination, and weak stakeholder engagement⁹. These challenges undermine the policy's ability to effectively address the needs of at-risk populations.

The National Disaster Risk Management Policy and the National Disaster Management Framework (NDMF) guide Nigeria's disaster management policy. However, their effectiveness varies due to challenges like funding, coordination, and accessibility¹⁰. Despite these efforts, studies suggest that gaps remain in addressing the needs of vulnerable populations, such as displaced persons and low-income communities. Some reports highlight

the need for stronger local engagement, better funding mechanisms, and improved infrastructure to ensure disaster resilience^{10, 11}

It is evident from field realities and reviewed studies that this group lacks formal shelter, political voice, and is mostly underrepresented in national statistics, which makes it difficult to understand how this group copes and recovers from flood disasters. Their recovery is informal, autonomous, and undocumented, thereby posing a serious gap for urban planning, disaster risk management, and humanitarian response

Based on this context and understanding, this study investigates how these social groups cope, rebuild, and recover after flood events and what policies could help strengthen their resilience in future recovery efforts

1.2 Statement of the Problem

Flooding in Lagos has become more frequent and severe due to climate change, poor drainage, and the expansion of settlements into flood-prone areas. Studies has shown that existing disaster recovery frameworks do not adequately consider the unique challenges faced by street-life populations, including homeless individuals, hawkers, and migrants^{12, 13}. These groups are often excluded from city planning and social safety nets and left to navigate post-flood recovery without structured support.

Evidences from literature show that many studies fail to disaggregate flood impacts by social group, leading to blind spots in planning and intervention¹⁴. Migrants and informal workers are among the most vulnerable but least studied. They are often undocumented, politically voiceless, and spatially transient, thereby making it difficult for government agencies and non-governmental organizations (NGOs) to design inclusive recovery programs.

Meanwhile, reports show that these populations suffer extended displacement, livelihood loss, and exclusion from formal relief mechanisms^{15, 16}. In the absence of targeted recovery efforts,

there will be an increase in vulnerabilities, psychosocial stress, risks of exposure to disease, and long-term economic instability. Reports further reveal that statutory agencies such as NEMA, SEMA, LASEMA, and Local Government emergency desks seldom reach street-life populations during post-flood recovery, due to weak coordination, limited field presence, and a bias toward households with fixed addresses^{17, 18}.

In light of this, there is a need to understand how these groups cope, recover, and survive in the aftermath of flood disasters, and to develop new tools for understanding and measuring their recovery capacity. Current planning systems lack such data, and without it, urban resilience strategies will continue to ignore some of the most at-risk groups in Lagos. This study addresses this gap by investigating the lived recovery experiences of street-life populations and proposing a Street-Based Recovery Index (SBRI) as a framework for evaluating and enhancing their resilience.

1.3 Research Questions

In this study, the following questions were proposed:

- i. What are the socio-economic characteristics of the street-life population in Lagos?
- ii. What are lived experiences of the street-life population in relation to flooding disasters?
- iii. What coping strategies do street-life populations in Lagos following flood events most commonly employ, and how do these strategies contribute to resilience?
- iv. How do post-flood survival mechanisms differ across demographic categories such as age, gender, and migrant status?
- v. What are the roles of agency in building and strengthening support systems in post disaster recovery mechanism?

- vi. How can a Street-Based Recovery Index (SBRI) be designed to measure and compare recovery capacity among these groups?

1.4 Purpose of the Study

1.4.1. Aim of the study

The aim of this study is to investigate the post-flood recovery strategies of street-life populations in Lagos, with a view to evaluating the role of formal and informal support systems, and developing a Street-Based Recovery Index (SBRI).

1.4.2. Study Objectives

The objectives of this study are to:

- i. Examine the socio-economic characteristics of street-life populations in Lagos, including age, gender, education, income sources, and migrant status.
- ii. Investigate and document the lived experiences of the street-life population in relation to flood disasters.
- iii. Identify and analyze coping strategies commonly employed by street-life populations in Lagos following flood events and assess how these strategies contribute to their resilience.
- iv. Explore variations in post-flood survival mechanisms across different demographic categories such as age, gender, and migrant status.
- v. Evaluate the roles of agencies in building and strengthening support systems in post-disaster recovery mechanisms.
- vi. Develop a Street-Based Recovery Index (SBRI) to measure and compare recovery capacity across different segments of the street-life population.

1.5 Justification for the Study

Despite the increasing frequency and intensity of urban flooding in Lagos, post-flood recovery studies though limited, remains largely focused on formal communities, housing reconstruction, and physical infrastructure. This orientation has led to an almost exclusion of street-life populations. Recent literature identifies significant gaps in the understanding of post-flood resilience in informal urban contexts. Key oversights include the absence of street-dweller voices in research, neglect of their psychosocial and economic vulnerabilities, and a failure to track long-term recovery outcomes. In addition, studies are not abundant in informal and community-led support systems that emerge among street populations during crises. In addition, policy evaluations rarely address whether government disaster frameworks, such as the National Disaster Risk Management Policy or the National Disaster Management Framework, are actually reaching these marginalized groups^{15, 16}.

This study is justified on three levels:

1. For practitioners and policy mainstreaming, it provides evidence to guide policy stakeholders like LASEMA, NEMA, NGOs, and urban planners by revealing the lived realities and recovery challenges of underserved demographics. By mapping the street-based recovery journey, this study can inform more inclusive and sustainable policy interventions, better disaster planning, and targeted aid strategies for vulnerable populations in Nigeria's megacities.
2. Academically, the research contributes a novel, evidence-based tool which is the Street-Based Recovery Index (SBRI) to quantitatively assess the recovery capacity of street-life populations after flood events. This index will offer a practical framework for understanding the depth and dimensions of resilience in a context often left out of the main urban planning and disaster recovery literature.

3. Socially, the study provides an advocacy template to give a voice to the voiceless. It seeks to strengthen the perspectives of informal migrants, disabled street dwellers, and children deprived of shelter, education, and safety. By documenting and validating their survival strategies, this study helps make them visible to policymakers, accountable to policy, and recognized as citizens deserving of resilience, not just sympathy

1.6 Study Area – Lagos / Ogun Corridor

1.6.1 Geographical Location & Extent

Lagos State is in southwestern Nigeria, bounded by the Atlantic Ocean to the south and Ogun State to the north and east. It occupies a landmass of approximately 3,577 square kilometers, with over 22% of its area consisting of water bodies, including lagoons, creeks, and rivers¹⁹. The state has 20 Local Government Areas (LGAs), serves as the country's commercial area, and houses over 20 million residents, which contributes to nearly one-third of Nigeria's GDP²⁰.

The study focuses on three LGAs: Agege and Ifako-Ijaiye in Lagos State, and Ifo LGA in neighboring Ogun State. These LGAs lie along the Lagos–Ogun corridor, which is a rapidly urbanizing area that has witnessed significant demographic and infrastructural expansion over the past two decades. This corridor highlights Nigeria's urban sprawl, where administrative boundaries are shadowed and peri-urban settlements multiply without formal planning or service provision²¹.

Within these LGAs, six communities were purposively selected: Agege, Fagba, Abule-Egba, Iju-Ishaga, Agbado, and Adiyin. These neighborhoods show a mix of inner-city density and peri-urban informality. In particular, Agbado and Adiyin serve as transitional zones between Lagos and Ogun, where residents often commute across the state for work, education, and

business and trade. The flexibility of these communities alongside their infrastructural discrepancies makes these communities ideal for studying flood vulnerability in street-based and low-income populations.

The Lagos–Ogun corridor has become a hotspot for informal housing development, which is driven by population pressure, land scarcity, the search for affordable shelter, and close proximity to work for most residents. Satellite imagery and urban growth models show that built-up areas in this corridor expanded by over 40% between 2000 and 2020, often encroaching on wetlands and floodplains²². This unregulated expansion has reshaped the physical landscape and intensified exposure to environmental hazards.

1.6.2 Physical and Environmental Characteristics

The physical geography of the study area plays a central role in its flood vulnerability. Lagos State lies within the coastal lowland zone, with elevations ranging from sea level to about 60 meters above sea level. The selected LGAs, which comprises of Agege, Ifako-Ijaiye, and Ifo are situated within the Ogun River Basin, which is a hydrological catchment that drains into the Lagos Lagoon and the Atlantic Ocean²⁰. It has a flat terrain, with poor natural drainage and high water tables, making it prone to waterlogging during heavy rainfall.

In terms of rainfall, it is seasonal and intense, averaging between 1,500 mm and 2,000 mm annually, with peak precipitation occurring between May and October²³. Climate variability has led to increasingly irregular rainfall patterns, which include short-duration, high-intensity storms that disturbs the existing drainage systems¹⁹. The Ogun River flows through Ifo and borders parts of Agege and Agbado, and frequently overflows during peak rainy seasons, overflowing the adjacent communities and disrupting livelihoods.

Drainage infrastructure in the study area is largely inadequate, as many communities rely on open gutters, informal channels, and blocked culverts, which are often clogged with solid

waste due to poor waste management practices²⁴. Urban expansion has encroached on natural floodplains and wetlands, which has significantly reduced the land's absorptive capacity and increasing surface runoff. Satellite imagery shows that over 40% of natural drainage corridors in Agege and Ifo have been altered or obstructed by construction¹⁷.

1.6.3 Demographic and Social Features

The study area is marked by high population density, rapid urbanization, and a predominance of low-income and migrant populations. According to the National Population Commission, Agege alone hosts over 600,000 residents, while Ifako-Ijaiye and Ifo collectively account for more than 1.2 million people²⁵. These figures are conventional, as informal settlements and undocumented migration patterns often lead to underreporting. The population is mainly youth, with over 60% under the age of 35, and a significant proportion is engaged in informal labor²⁶.

Migration into these LGAs is driven by close distance to economic hubs, affordable housing, and access to roads. Many residents are internal migrants from other Nigerian states, seeking livelihood opportunities in Lagos's sprawling urban economy. This influx has led to the spread of informal housing clusters, often located in flood-prone zones with poor infrastructure and limited access to basic services¹⁷.

Social vulnerability is increased by the presence of street dwellers, single-parent households, and undocumented workers, many of whom lack access to health care, education, or legal protection. These groups are disproportionately affected by environmental hazards, as they often reside in marginal areas like under bridges, near drainage channels, or in unplanned settlements²⁷. During flood events, they face barriers to evacuation, shelter, and recovery, making them critical to understanding urban resilience.

Community cohesion varies across the study area. While some neighborhoods like Abule-Egba and Iju-Ishaga have established social networks and religious institutions that support recovery, others, particularly border communities like Agbado and Adiyin, experience fragmented governance and weak institutional presence. This uneven situation influences how different populations perceive risk, respond to disasters, and access support systems¹⁹.

1.6.4 Economic and Livelihood Conditions

The economic situation of the study area is dominated by the informal sector, which constitutes over 65% of employment in Lagos State²⁸. In Agege, Ifako-Ijaiye, and Ifo LGAs, residents rely heavily on street-based and mobile livelihoods, including hawking, okada (motorcycle) and keke (tricycle) operations, bus drivers/danfo drivers/ commuters, petty trading, waste picking, and artisanal services. These occupations are not only central to daily survival but also show the adaptive strategies of low-income urban populations navigating economic precarious situations.

Street hawkers and vendors operate in areas such as Abule-Egba junction, Fagba roundabout, Iju-Ishaga market, and Agbado Busstop, often occupying flood-prone spaces like road shoulders, drainage paths, and culverts. During flood events, these workers face immediate income loss, damage to goods, and increased exposure to waterborne diseases²⁴. Waste pickers, who scavenge recyclable materials from dumpsites and drainage channels, are particularly vulnerable, as flooding disrupts access to collection points and increases health risks due to contaminated water and debris²².

The informal economy in these LGAs is also gendered, with women dominating food vending, hairdressing, and domestic services, while men are more prevalent in transport, construction, and mechanical trades²⁹. These gendered roles influence exposure and recovery

patterns, as women often lack access to credit, insurance, or relocation support during disasters. Despite their economic contributions, informal workers remain largely excluded from formal planning, taxation, and social protection systems.

In border communities like Agbado and Adiyari, economic activity is shaped by cross-state mobility, with residents commuting between Lagos and Ogun for work. This flexibility creates hybrid economies where informal trade, transport, and services thrive in unregulated spaces. However, the lack of coordinated governance across state lines affects infrastructure development and disaster response, leaving these communities particularly exposed to flood-related disruptions¹⁹.

1.6.5 A Brief Profile of Recent Flood Disasters in the Study Context

Flooding is a recurrent and intensifying hazard across the study area, with Agege, Ifako-Ijaiye, and Ifo LGAs experiencing frequent inundation due to a combination of climatic, infrastructural, and urbanization factors. Lagos State has recorded major flood events in 2011, 2022, and 2024, each resulting in widespread displacement, property damage, and disruption of livelihoods³⁰. The July 2024 flood was caused by over 250 mm of rainfall in 48 hours and affected more than 15,000 households across Agege and Ifo, with informal settlements bearing the brunt of the impact²⁵.

Reports from the National Emergency Management Agency (NEMA) and the International Organization for Migration (IOM) highlight the disproportionate vulnerability of low-income and street-based populations. In Agege, over 65% of residents cited blocked drainage and poor waste management as primary causes of flooding in a survey³¹.

Flooding in these LGAs is often flash based, occurring within hours of intense rainfall due to poor drainage and impermeable surfaces. However, prolonged flooding also occurs, especially in low-lying zones where water stagnates for days. These conditions exacerbate

public health risks, including outbreaks of cholera, malaria, and skin infections, particularly among children and informal workers²².

Despite repeated flood events, institutional response remains fragmented. While Lagos State has developed a Climate Action Plan and early warning systems, implementation is weak in peri-urban zones like Ifo and Adiyin, where jurisdictional overlaps between Lagos and Ogun complicate disaster coordination³². Community-based coping strategies, such as sandbagging, elevated platforms, and informal drainage clearing, are now considered adaptive responses, but they remain insufficient in the face of escalating climate risks.

1.7 Scope and Limitation of the Study

The study focused on the Lagos–Ogun Corridor, specifically the communities spanning Agege and Ifako-Ijaiye LGAs in Lagos State, and Ifo LGA in Ogun State. This peri-urban fringe represents a transitional space where the urban sprawl of Lagos spills into less regulated terrain, making it particularly vulnerable to urban flooding and home to a significant street-life population. The target group includes homeless individuals, beggars, hawkers, informal migrants, and thugs/hoodlums, regardless of age or gender. These individuals typically rely on public spaces for survival and lack access to stable shelter, formal employment, or structured social services.

The research seeks to understand how these populations cope with, recover from, and adapt to post-flood events, drawing attention to their survival mechanisms, use of informal and autonomous support systems, and reliance on both formal aid and community-based strategies. In addition, the study proposes the development of a Street-Based Recovery Index (SBRI) to quantify and evaluate their recovery capacity, a dimension that is largely undocumented in current research and practice.

The study does not include individuals living in formal housing units, official IDP (Internally Displaced Persons) camps, or non-street populations such as transport workers, shop owners, schoolchildren, or general passersby. The intent is to maintain focus on populations that are most dependent on the streets for shelter and sustenance.

Major limitations to this study included language barriers, particularly when initiating conversations with Hausa migrants, which necessitated the assistance of interpreters. Some respondents were reluctant to participate due to negative past experiences with researchers or distrust of the study's intent. Gaining trust occasionally required incentives for the study participants. Additionally, security concerns or misinterpretation of the research purpose led to interruptions or restricted access in certain areas, especially when engaging with disabled persons.

1.8 Operational Definitions of Terms

This study employs the following operational definitions to clarify key concepts. Where applicable, definitions are adapted from existing literature, while others are original to this research, based on field observations.

The Street-Life Population: This refers to individuals who live, work, or survive on the streets of Lagos. This includes homeless persons, beggars, hawkers, hoodlums, and informal migrants who typically lack stable shelter and access to formal social services.

Post-Flood Recovery: This denotes the process through which affected individuals and communities rebuild, rehabilitate, or adapt to life after a flood event. It encompasses physical reconstruction, economic stabilization, emotional healing, and social reintegration^{33, 34}.

Agency: This refers to the capacity of individuals, groups, or institutions to act purposefully and influence outcomes in disaster recovery³⁵. In this study, agency includes both formal actors (such as government bodies and NGOs) and informal actors (such as community

leaders and peer networks) who contribute to building and strengthening support systems for vulnerable populations.

Flood Risks: This describes the potential for harm or loss resulting from flood events. This includes both the likelihood of flooding occurring and the severity of its impact on people, infrastructure, and the environment. Flood risk is shaped by factors such as rainfall intensity, land use patterns, drainage capacity and condition, and the exposure of the vulnerable communities³⁶.

Informal Support Systems: These are non-institutional networks that provide aid and comfort to vulnerable groups. These include peer groups, community elders, religious organizations, and street collectives that offer shelter, information, food, or psychological support.

Resilience: This is defined as the capacity of individuals or systems to absorb shocks such as flooding, adapt to changing conditions, and recover while maintaining or quickly regaining functionality³⁷.

Saara: This term describes a cultural and spiritual practice involving food offerings made on the streets. For many homeless individuals and hawkers, these offerings serve as a vital survival meals, especially during times of crisis.

Disaster Recovery: This refers to the broader framework of coordinated actions aimed at restoring normalcy in communities following disasters. This includes emergency relief, rehabilitation, and long-term reconstruction efforts³³.

Recovery Index: This is a composite, quantitative tool designed to measure the level or quality of recovery in specific domains such as housing, health, income, and social support after a disaster.

Autonomous Survival Systems: These are locally developed and culturally embedded strategies used by vulnerable populations to survive and recover from disasters. These systems often operate outside formal aid structures and reflect deep-rooted community knowledge.

Psychosocial Vulnerability: This captures the susceptibility of individuals to emotional, mental, or social stress due to trauma, displacement, or marginalization. This condition is particularly prevalent among street populations affected by flooding.

Economic Vulnerability: This refers to the risk of losing income, employment, or livelihood as a result of a disaster. It is especially acute among those who depend on informal, street-based work for daily survival.

Thugs/hoodlums: This term is used contextually in this study to describe a segment of the street population, often youth, engaged in informal or aggressive survival activities. The usage is descriptive rather than criminalizing, aimed at understanding their role within the broader street-life demographic.

1.9 Thesis Outline

This thesis was divided into five chapters. The first chapter introduced the study by presenting the background, statement of the problem, research questions, aim and objectives, justification, scope, limitations, and definitions of key terms. This chapter provided the foundation for examining post-flood recovery strategies among street-life populations in Lagos.

The second chapter reviewed relevant literature on flooding, street-life populations, disaster recovery, and resilience systems. It identified knowledge gaps, discussed theoretical frameworks such as Resilience Theory and Social Vulnerability Theory, and presented the

conceptual framework that guided the study, including the preliminary design of the Street-Based Recovery Index (SBRI).

The third chapter described the research methodology. It covered the research design, data collection methods, sampling techniques, research instruments, and ethical considerations. The chapter also explained the mixed-method approach and outlined the process used in developing and piloting the SBRI tool.

The fourth chapter presented the results of the study, integrating both quantitative (statistical analysis, SBRI scoring) and qualitative (interviews, focus group discussions, and observations) findings. The chapter was structured around the six objectives of the study, with results on socio-demographic characteristics, coping strategies, recovery outcomes, support systems, and the construction of the SBRI.

The fifth chapter discussed the findings in relation to existing studies, highlighted the contributions of the research, and drew conclusions. It also offered policy recommendations for inclusive disaster planning and proposed directions for future research.

Endnotes

- ¹ Andreas Klippe. *The Impact of Urbanization on Flood Risk*. February 15, 2023. <https://rsfloodcontrol.com/blog/urbanization-flood-risk/>
- ² Q. Liu et al., *Global, Regional, and National Trends and Impacts of Natural Floods, 1990-2022*, **Bulletin of the World Health Organization** 102, no. 6 (2024): 410.
- ³ Africa Center for Strategic Studies. *Record Levels of Flooding in Africa Compounds Stress on Fragile Countries*. December 10, 2024. <https://africacenter.org/wp-content/uploads/2025/01/Flooding-in-Africa.pdf>
- ⁴ Jeffrey Lewek, *Global Flooding Crisis 2024: Causes, Impact, and Relief Efforts* (CAF America, September 25, 2024)
- ⁵ Abubakar Said Saad, *Are Nigeria's Floods Caused by Humans or Climate Change?* Nature and Environment | Nigeria, September 20, 2024.
- ⁶ United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), Nigeria: Floods - Situation Report No. 5 (As of 1 November 2024), accessed May 30, 2025, <https://www.unocha.org/publications/report/nigeria/nigeria-floods-situation-report-no-5-1-november-2024>.
- ⁷ International Organization for Migration (IOM), DTM Nigeria — Joint Post-Flood Situation Report — Lagos State (30 December 2024) (Nigeria: IOM, 2024).
- ⁸ Alessia Canuto, *Mean Streets: When Living on the Street Means Being Invisible*, The Organization for World Peace, February 21, 2023, accessed May 30, 2025, <https://theowp.org/reports/mean-streets-when-living-on-the-street-means-being-invisible/>

- ⁹ Mariam Shola, Anifowose, and Ed Rollason. *Challenges in Implementing Flood Disaster Management Policies and Practices in Lagos State, Nigeria*. *International Journal of Anthropology and Ethnology Research Development* 6, no. 6 (December 31, 2024). <https://harvardpublications.com/hijaerd/article/view/194>
- ¹⁰ Nigerian Institute of Social and Economic Research (NISER), *Policy Brief: Disaster Mitigation* (Nigeria: NISER, 2024), accessed May 30, 2025, <https://niser.gov.ng/v2/wp-content/uploads/2025/02/NISER-Policy-Brief--Disaster-Mitigation--Daramola.pdf>
- ¹¹ S. A. Mashi, O. D. Oghenejabor, and A. I. Inkani, *Disaster Risks and Management Policies and Practices in Nigeria: A Critical Appraisal of the National Emergency Management Agency Act*, **International Journal of Disaster Risk Reduction** 33 (2019): 253–265.
- ¹² ActionAid Nigeria, *Policy Brief on Recurring Flood: Stemming the Tide* (Nigeria: ActionAid, 2023), accessed May 30, 2025,
- ¹³ O. M. Agbiji et al., *Statistical Assessment of Recent Flood Management Policies in Selected Flood-Prone Areas in Nigeria—Gaps and Opportunities for Improvement*, **International Journal of Innovative Research and Advanced Studies (IJIRAS)** 11, no. 4 (April 2024): ISSN 2394-4404.
- ¹⁴ A. O. Nwaokoro, *Social Vulnerability and Flood Resilience in Lagos State, Nigeria* (Doctoral diss., University of Portsmouth, 2024).
- ¹⁵ D. P. Dam et al., *An Assessment of Post-Flood Disaster Risk Recovery and Reconstruction Responses of Urban Households in Makurdi Metropolis, Nigeria*, Daniel Peverga Dam, 49–61 (2021)

- ¹⁶ B. Wilson, E. Tate, and C. T. Emrich, *Flood Recovery Outcomes and Disaster Assistance Barriers for Vulnerable Populations*, **Frontiers in Water** 3 (2021): 752307, <https://doi.org/10.3389/frwa.2021.752307>.
- ¹⁷ Lagos State Emergency Management Agency (LASEMA). (2024, July). *NEMA–LASEMA lead historic gathering on emergency preparedness in Nigeria*. National Economy. Retrieved November 22, 2025 from <https://nationaleconomy.com>
- ¹⁸ National Emergency Management Agency (NEMA). (2024, June). *NEMA DG calls for stronger SEMA collaboration to build resilient communities in Lagos*. Distinct News. Retrieved November 22, 2025 from <https://distinctnews.com.ng>
- ¹⁹ I. O. Adelekan, F. B. Olajide-Taiwo, and I. Ajibade, *Urban Expansion and Flood Risk in Lagos*, **Journal of Urban Studies in Africa** 6, no. 2 (2023): 77–95.
- ²⁰ UN-Habitat, *Urban Expansion and Planning Challenges in Lagos* (2022), <https://unhabitat.org..>
- ²¹ I. Ajibade and G. McBean, *Climate Change, Urban Sprawl and Flood Vulnerability in Lagos*, **Urban Climate** 39 (2021): 100962, <https://doi.org/10.1016/j.uclim.2021.100962..>
- ²² S. A. Raji, P. O. Adeniyi, and S. Odunuga, *Multicriteria Flood Risk Analysis of Lower Ogun River Basin*, **Journal of Environment and Earth Science** (2024), <https://www.iiste.org/Journals/index.php/JEES/article/download/14234/14542..>
- ²³ M. Yussif, *Microplastics Abundance, Characteristics, and Risk in Badagry Lagoon, Lagos State*, **Pollution** 8, no. 4 (2022): 1325–1337, <https://doi.org/10.22059/POLL.2022.342499.1462..>

- ²⁴ K. Georgiou, M. Yussif, and M. Raimi, *Microplastics Pollution and Ecological Risk in Lagos Lagoon: A Multidisciplinary Assessment*, **Ecological Safety and Balanced Use of Resources** 3, no. 1 (2024): 45–58, [https://doi.org/10.31471/2415-3184-2024-3\(1\)-45-58](https://doi.org/10.31471/2415-3184-2024-3(1)-45-58).
- ²⁵ National Population Commission (NPC), *Population Estimates for Lagos and Ogun States* (2023), <https://www.npc.gov.ng..>
- ²⁶ United Nations Development Programme (UNDP), *Urban Vulnerability and Resilience in Nigeria* (2023), <https://www.undp.org/nigeria/publications..>
- ²⁷ International Organization for Migration (IOM), *Nigeria Flood Response Update* (2024), <https://www.iom.int..>
- ²⁸ Heinrich Böll Stiftung, *Lagos' Informal Sector: Taxation & Contribution to the Economy* (2025) https://ng.boell.org/sites/default/files/uploads/2017/02/budgit_final_report_30.1.17.pdf.
- ²⁹ Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), *Informal Sector Statistics Report* (2025), <https://nairametrics.com/2025/01/14/over-50-million-informal-businesses-operating-in-lagos-smedan-manager/..>
- ³⁰ OCHA, *Nigeria: Floods – Situation Report No. 5 (As of 1 November 2024)* (2024), <https://www.unocha.org/publications/report/nigeria/nigeria-floods-situation-report-no-5-1-november-2024..>
- ³¹ O. Abolade, *Impacts of Flood Disaster in Agege Local Government Area Lagos, Nigeria* (2023), <https://www.academia.edu/65628214..>

³² Lagos State Government, *Lagos Climate Action Plan: Building Resilience in a Coastal Megacity* (2025), https://link.springer.com/chapter/10.1007/978-3-319-06388-1_6..

³³ Susan Cutter, Christopher Burton, and Christopher Emrich, “Disaster Resilience Indicators for Benchmarking Baseline Conditions,” **Journal of Homeland Security and Emergency Management** 5, no. 1 (2008).

³⁴ Kathleen Tierney, *The Social Roots of Risk: Producing Disasters, Promoting Resilience* (Stanford, CA: Stanford University Press, 2014).

³⁵ International Federation of Red Cross and Red Crescent Societies (IFRC), *Literature Review on Law and Disaster Recovery and Reconstruction* (Geneva: IFRC, 2020).

³⁶ United Nations Development Programme (UNDP), *Nigeria Flood Impact, Recovery and Mitigation Assessment Report 2022–2023* (Abuja: UNDP Nigeria, 2023).

³⁷ Nathalie Graveline and Stéphane Germain, “Rethinking Resilience in Disaster Recovery: A Socio-Political Perspective,” *International Journal of Disaster Risk Science* 13, no. 2 (2022): 123–135, <https://doi.org/10.1007/s13753-022-00419-0..>

Chapter Two

Literature Review

This chapter reviews existing literature on how street-life populations in Lagos recover after floods. It explores key theories, ideas, and studies that help explain issues around vulnerability, resilience, and recovery in such settings. The discussion covers important themes like trends of flooding in Nigeria and Lagos, disaster management strategies, coping methods among different social identities, available support systems, demographic factors, the role of agencies/institutions, and local or traditional practices among the street-life populations.

2.1 Conceptual Review

This section clarifies the key concepts associated with this study, providing a clear understanding of post-flood recovery among street-life populations. It lays the groundwork for analyzing resilience, support systems, and adaptive strategies in urban disaster situations.

a. Post-Flood Recovery

The term recovery stems from the Latin *recuperare*, meaning “to regain.” In disaster studies, “post-flood recovery” gained prominence in the 20th century as urban flooding intensified due to climate change and poor infrastructure planning^{1,2}. In the context of this study, recovery transcends the rebuilding of physical structures; it encompasses the restoration of livelihoods, emotional stability, and social networks³. Within climate risk discourse, it is recognized as a critical phase in the disaster management cycle, emphasizing long-term resilience and equity in rebuilding efforts⁴.

b. Street-Life Population

The concept of street-life emerged from urban sociology and human development studies, referring to individuals whose shelter, work, and social interactions occur primarily in public urban spaces^{5,6}. These populations often include homeless persons, hawkers, beggars, and informal migrants who navigate daily survival outside formal systems. In the context of climate risk and disaster recovery, street-life populations represent hyper-vulnerable groups. Their exclusion from official planning and aid mechanisms means their recovery is shaped by informal networks, improvisation, and systemic neglect^{7,8}. Understanding their lived realities is essential for designing inclusive and equitable recovery strategies.

c. Recovery Strategies

The term strategy originates from the Greek *strategia*, meaning “generalship,” and in disaster recovery, it refers to the planned or improvised actions individuals take to cope with and bounce back from disruptions⁹. Recovery strategies vary widely depending on access to resources, social support, and institutional recognition. In climate risk contexts, these strategies include both top-down interventions, such as government relief, and bottom-up responses like community-led coping mechanisms. For street-life populations, recovery strategies are often informal, adaptive, and rooted in lived experience, including spiritual practices, indigenous knowledge, and risk minimization techniques^{2,3}. These strategies reflect resilience in action and highlight the need for context-sensitive recovery planning.

d. Climate Risk

Climate risk emerged from environmental science and economics in the late 20th century, describing the potential negative impacts of climate change on ecosystems and human systems¹⁰. It is typically understood through the interaction of three components: hazard, exposure, and vulnerability. In urban contexts like Lagos, climate risk manifests most visibly through recurrent flooding, driven by extreme rainfall, poor drainage, and unregulated urban expansion. Informal settlements and street-based populations are disproportionately affected due to infrastructural deficits and governance gaps^{11, 12}. Recognizing climate risk is crucial for identifying who is most at risk and for shaping equitable recovery and adaptation strategies.

e. Support Systems

The concept of support systems has its roots in psychology and social work, referring to networks that provide emotional, material, or institutional assistance⁵. In disaster recovery, support systems are vital for helping individuals navigate trauma, displacement, and rebuilding. These systems can be formal, such as government agencies and NGOs, or informal, including religious groups, peer networks, and community associations. For street-life populations, informal support systems often serve as the primary source of aid, offering immediate and culturally relevant assistance when formal mechanisms fall short^{7, 8}. The strength and accessibility of these networks significantly influence the pace and quality of recovery.

f. Resilience

The term resilience comes from the Latin *resilio*, meaning “to bounce back.” Initially used in physics, it was later adopted in psychology and disaster studies to describe the ability to recover from adversity¹³. In climate risk discourse, resilience refers to the capacity of

individuals and communities to absorb shocks, adapt to changing conditions, and recover while maintaining core functions. For street-life populations, resilience is often expressed through improvisation, spiritual practices, and social bonds that help them survive and rebuild despite systemic exclusion^{2,4}. Resilience is not just a trait, it is a dynamic process shaped by access to resources, support systems, and the ability to act in the face of uncertainty.

2.2 Theoretical Review

To understand post-flood recovery in a complex urban space like Lagos, especially for street-life populations, requires more than just looking at the physical impacts of flooding. The recovery process is shaped by factors, part of which include social realities, institutional capacity, and economic survival. To understand how these factors together make the recovery process, this study builds on some theories: Vulnerability Theory, Intersectionality Theory, Social Capital Theory, Resilience Theory, and the Sustainable Livelihoods Framework (SLF). Each theory adds a different view for explaining why some individuals or groups recover faster than others, especially in informal and highly exposed areas.

A. Vulnerability Theory

This provides the base for analyzing how street-life populations are exposed to flood risks. It makes a distinction between physical exposure, like living near canals or flood-prone zones, and deeper social vulnerability, which is linked to poverty, exclusion, and lack of access to basic services¹⁴. In Lagos, many people sleep under bridges, by gutters, or in crowded makeshift shelters. Their exposure is not accidental; it is tied to structural issues like housing inequality and limited state support. A study further argues that vulnerability is not neutral. It is shaped by gender roles and cultural norms that restrict women's access to resources¹⁵. Another study points out that current tools for measuring resilience often overlook how different social systems interact in urban flood situations¹⁶. All of these perspectives make

vulnerability theory a useful starting point for understanding the root causes behind why street-life populations remain highly exposed.

B. Intersectionality Theory

Building on this, the Intersectionality Theory helps to break down how different aspects of a person's identity, such as gender, disability, age, or migrant status, combine to shape their experience of vulnerability¹⁷. Unlike some traditional disaster models that assume everyone is equally affected, intersectionality shows that certain groups face double or even triple layers of risk. For example, an elderly migrant or a young disabled woman on the street may struggle to access flood relief because of both physical barriers and social neglect. A study highlights how policy solutions must take these overlapping identities into account¹⁸. A study on disabled children in northern Nigeria provides a similar lesson, showing how structural neglect and poor infrastructure leave some groups behind during floods¹⁹. Bringing this lens into the Lagos context helps explain why recovery outcomes are not uniform, even among people affected by the same event.

C. Social Capital Theory

To understand how people respond when institutions fail them, Social Capital Theory becomes useful. It focuses on how individuals and groups use social networks to cope with hardship. These networks can be tight-knit groups of peers (bonding), connections between different groups (bridging), or relationships with institutions (linking)²⁰. On the streets of Lagos, informal support systems matter a lot. People often share food, switch sleeping spots, or rely on faith-based communities for shelter and encouragement. A study notes that in disaster situations, bonding and bridging capital often provide faster and more flexible help than formal agencies²¹. Another study also found that displaced persons in the North-East tapped into linking capital through entrepreneurial networks, helping them recover their

livelihoods²². For this study, social capital theory helps explain the practical ways people navigate daily recovery. Who they turn to, how trust works, and what forms of support last the longest.

D. Resilience Theory

Resilience Theory shifts the focus to the ability to recover and adapt over time, while vulnerability and social capital help explain risk and response. The theory defines resilience as the capacity to absorb shocks, adapt to change, and still maintain basic functioning^{23,24}. In Lagos, where floods now happen more frequently, resilience becomes visible in how people reorganize their lives, sometimes within hours. A study developed a model in Lagos that breaks resilience down into three levels: absorptive (handling the immediate shock), adaptive (adjusting routines), and transformative (creating long-term change). Their findings showed that people in high-risk areas often have moderate resilience but lack support to fully recover²⁵. Another study adds that real recovery is not just physical. It also depends on institutional trust, social relationships, and effective governance²⁶. This theory helps the study to focus on the broader capacity to recover in meaningful, lasting ways, rather than focusing on short-term fixes.

E. Sustainable Livelihoods Framework (SLF)

Finally, the Sustainable Livelihoods Framework (SLF) ties everything together by focusing on how people rebuild their lives in practical terms. Originally developed in 1992 and later refined in 1999, SLF outlines five core assets: human, natural, social, physical, and financial, that people rely on to survive and recover. The framework also considers how these assets are shaped by external shocks, policies, and institutions^{27,28}. For street-life populations in Lagos, recovery often involves rebuilding their informal businesses, finding safe shelter, and re-establishing support networks. A flood report showed how urban informal workers bounced

back faster than rural farmers, largely because they could restart petty trade or mobile vending more easily²⁹. Another study also observed that in flood-prone drylands, women turned to small-scale trading and fast-growing crops, though their efforts were limited by lack of credit or agricultural support³⁰. SLF helps this study map not only what strategies people use but also what blocks or supports their success. By using SLF alongside the other theories, the research is able to connect personal survival with broader structural factors.

These five theories form a solid and interconnected framework for studying recovery among street-life populations in Lagos when taken together. The movement from vulnerability to intersectionality, then through social capital and resilience, and finally to sustainable livelihoods, reflects the real journey of coping with floods. From being exposed and excluded, to finding support, adapting, and eventually recovering. This structure provides both a theoretical base and a practical guide for examining the lived realities of recovery in the city's overlooked communities.

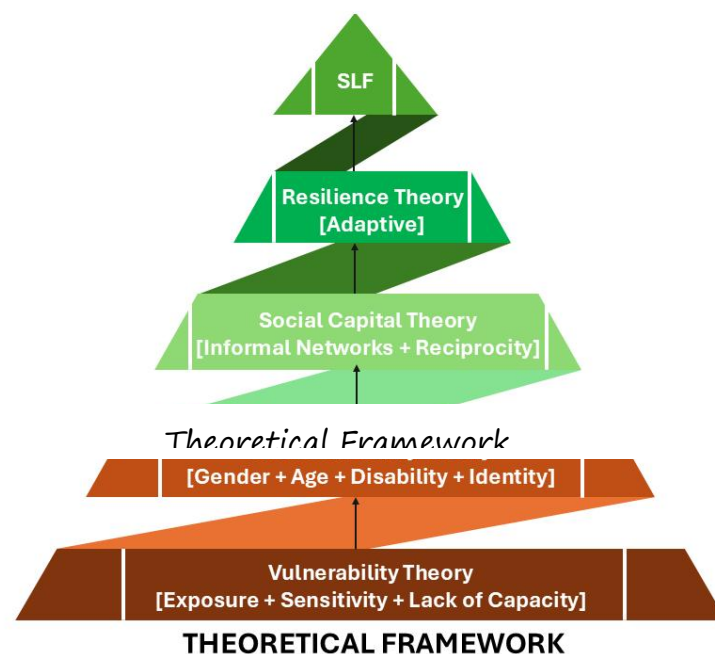


Figure 2.1: Theoretical Framework
Source: Author's Conceptualization, 2025

2.3 Thematic Review of Literature

2.3.1 Historical Analysis of Flood Events in Nigeria

Flooding in Nigeria has moved gradually from being a weather disturbance that happens occasionally to becoming a long-term humanitarian and environmental crisis. Over the past 25 years, both the scale and frequency of flood events have worsened. Millions have been affected; displaced from homes, exposed to diseases, and left without proper support. These events have also exposed major weaknesses in infrastructure, planning, and institutional response. From the early flash floods in the 2000s to the disturbing disasters of 2022 and 2025, the history of flooding in Nigeria reflects not just changing weather patterns but growing social and structural vulnerabilities, especially among urban poor and informal populations.

2.3.1.1 Timeline of Major Flood Events in Nigeria (2000–2025)

Between 2001 and 2025, Nigeria has experienced several major floods, each revealing gaps in preparedness and resilience. In 2001, floods in Kano and Jigawa displaced over 18,000 families after the Tiga and Challawa dams overflowed³¹. Four years later, Jalingo recorded its worst flood in decades, with over 100 lives lost during an eight-hour downpour³².

In 2006 and 2007, dam collapses and widespread flooding affected thousands across Zamfara and multiple states, displacing more than 2,500 families³³. However, the 2012 floods marked a national disaster. Triggered by heavy rains and the release of water from Cameroon's Lagdo Dam, the floods affected 30 states, killed over 600 people, and displaced around 2.1 million^{34, 35}). Kogi and Benue were among the worst-hit states.

Between 2017 and 2020, the Benue River corridor became a frequent hotspot, with over 100,000 people displaced in 2017 and more than 400,000 affected in Kebbi and Adamawa by

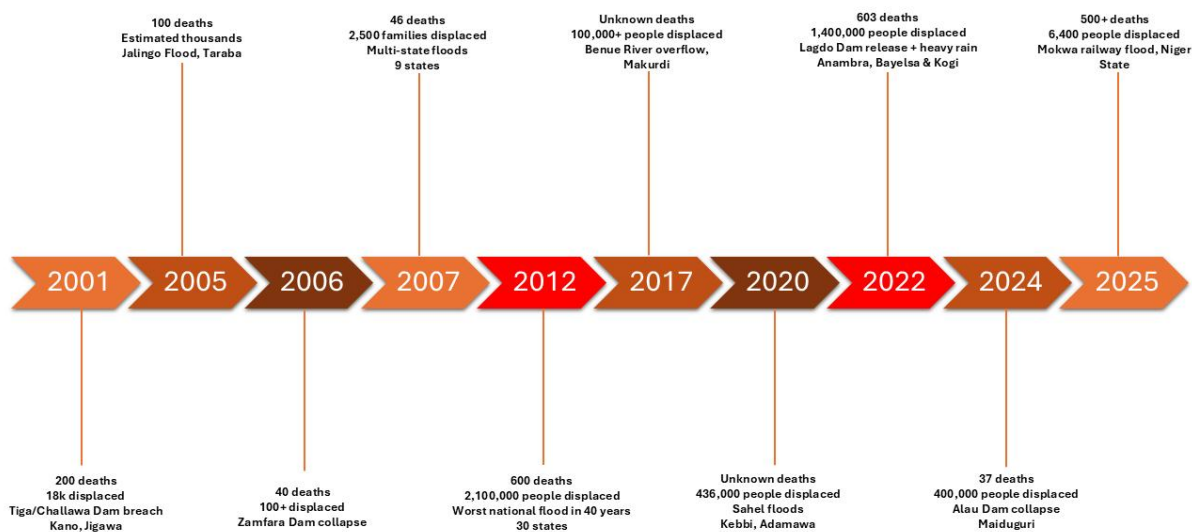
2020^{36,37}. The 2022 floods further escalated the crisis, displacing 1.4 million people, killing 603, and destroying over 200,000 homes across 34 states^{38,39}.

In 2024, extreme rainfall in Borno State led to the collapse of the Alau Dam, submerging 70% of Maiduguri and displacing nearly 400,000 people⁴⁰. Then in 2025, a flash flood in Mokwa, Niger State, claimed over 500 lives after drainage systems were blocked by a railway embankment⁴¹. These events have turned floods into an ongoing emergency, not just a seasonal threat.

Table 2.1: Timeline for major flood events in Nigeria (2000 – 2025)

Year	Event	Location(s)	Deaths	Displaced
2001	Tiga/Challawa Dam breach	Kano, Jigawa	~200	18,000 families
2005	Jalingo flood	Taraba	100+	Thousands
2006	Zamfara dam collapse	Zamfara	Unknown	Hundreds
2007	Multi-state floods	9 states (incl. Lagos)	46	2,500 families
2012	Worst national flood in 40 years	30 states	600+	2.1 million
2017	Benue River overflow	Makurdi	Unknown	100,000+
2020	Sahel floods	Kebbi, Adamawa	Unknown	436,000
2022	Lagdo Dam release + heavy rain	Anambra, Bayelsa, Kogi	603	1.4 million
2024	Alau Dam collapse	Maiduguri	37	400,000
2025	Mokwa railway flood	Niger State	500+	6,400

Source: Author's Compilation, 2025



Timeline of Major Flood Events (2000-2025)

Figure 2.2: Timeline of Major Flood Events in Nigeria (2000-2025)

Source: Author's Conceptualization, 2025

2.3.1.2. Rainfall and Hydrological Drivers of Floods

Behind these events are clear patterns of shifting rainfall and poor water management. Satellite data from 2000 to 2010 showed increased rainfall variability in central and southern Nigeria, especially during March to May and again from September to November⁴². The 2012 disaster was worsened by the simultaneous release of water from Lagdo Dam and peak discharge from the Rivers Niger and Benue, flooding communities in Anambra, Bayelsa, and beyond³⁴.

In 2020, rainfall in the Sahel surpassed 250 mm in some months, triggering flash floods during the COVID-19 pandemic⁴³. Borno experienced record rainfall of 863 mm in September 2024, contributing to the Alau Dam collapse. In 2025, combined effects of rainfall and releases from Jebba Dam led to six separate flood events in Niger State, including the deadly Mokwa incident⁴⁴.

These disasters were also contributed to by the volume of rain, the poor land use planning, non-integrated dam operations, poor urban drainage, and the weak or non-availability of early warning systems. Communities are rarely given enough time to prepare for these events, and basic infrastructure, such as canals and drainage systems, is often blocked with debris or poorly maintained.

2.3.1.3 Geospatial and Human Impact of Flood

Floods in Nigeria have expanded from riverbanks and lowlands into dense urban and peri-urban areas. While early floods mostly affected states like Lagos, Niger, and Jigawa, by 2012, over 30 states experienced simultaneous disasters. Satellite data from 2022 showed large portions of Onitsha, Lokoja, Yenagoa, and parts of Lagos underwater, with over 160,000 hectares of farmland submerged³⁸

Between 2000 and 2025, floods affected more than 22 million Nigerians, with an estimated 1,763 deaths. In 2022 alone, a report revealed that over 800,000 children were displaced, many suffering from hunger, school disruptions, and disease outbreaks. Entire communities were wiped out, and even IDP camps in places like Borno and Bayelsa were not spared⁴⁵.

Street-life populations feel these impacts in a particular way. Without formal housing, they often end up in roadside shelters, abandoned buildings, or open spaces. Their displacement is rarely documented, making them almost invisible to official support structures^{79, 81}. Yet they are among the most exposed and the least supported in the aftermath.

2.3.1.4 Major Flood Events in Lagos (2000–2025)

For more than twenty years, Lagos, which is Nigeria's commercial nerve centre and most populous city has faced an insistent cycle of flooding. The city's flat, coastal terrain and rapid, unplanned urban growth make it naturally prone to water-related disasters. What started as

seasonal flash floods in the early 2000s has grown into a full-blown urban crisis, exacerbated by climate change, blocked drainage networks, and unchecked development^{46, 47}.

Between 2000 and 2010, floods were relatively predictable and confined to specific areas. Districts such as Agege, Surulere, and Lagos Island would experience routine inundation during the rainy season, mostly due to waste-clogged drains and inadequate infrastructure⁴⁸. While disruptive, these events were manageable.

The narrative changed in 2011 and 2012 when Lagos experienced extreme downpours. Over 250 mm of rain fell within just 48 hours in places like Victoria Island and Makoko, flooding homes, roads, and businesses³⁵. The 2012 floods were part of a wider national disaster that displaced more than two million people, and Lagos suffered heavily⁴⁹.

Between 2015 and 2020, the flood footprint extended further. Places like Ikeja, Mushin, and Badagry, who were previously at lower risk, started experiencing frequent flash floods. Between May and September 2020, rainfall totals exceeded 1,000 mm, overwhelming drainage networks and uprooting communities, particularly informal settlements built on wetland^{79, 50}. NEMA estimated that eight million residents were living in flood-prone zones⁵¹.

The situation worsened in 2022 when coastal and riverine flooding displaced thousands across Ajegunle, Ijora, and Makoko. Tidal surges and choked canals only made matters worse. Meanwhile, the city lost over 59% of its wetlands in the previous decade, stripping away key natural defences⁵².

By 2024, floodwaters reached Alimosho local government area, submerging 151 houses across seven communities following yet another heavy downpour⁵³. Residents were trapped, roads became impassable, and emergency teams had to depend on canoes to evacuate families. The Command Bridge area was officially cut off⁵⁴.

Looking forward, the 2025 Annual Flood Outlook paints a grim future. With expected rainfall nearing 1,952 mm, Lagos ranks among Nigeria's top five high-risk cities⁴⁴. A staggering 1,249 communities across 176 local government areas are flagged at risk, with Lagos consistently appearing due to its coastal exposure, poor drainage, and sprawling urban footprint⁵⁵.

Despite efforts like new pumping stations, drainage upkeep, and early warning systems, flash floods still ravage areas such as Agboyi, Itowolo, and Owode. Tidal locks and clogged canals continue to cripple infrastructure and threaten lives⁵⁶.

Table 2.2: Summary of Major Flood Events in Lagos (2000–2025)

Year	Event	Location Affected	Impact	Volume
2000–2005	Seasonal urban flooding	Surulere, Mushin, Ikeja, Apapa	Recurrent street flooding; traffic disruption; property damage	~800–1,000 mm annually
2011	Infrastructure collapse flood	Victoria Island, Lekki, Ajah, Ikoyi	₦32 billion in damages; 300,000+ affected; homes and roads submerged	~250 mm in 48 hours
2012	Nationwide flood impact	Lagos Island, Agege, Alimosho	Part of 7.7 million affected nationwide; severe drainage failure	~1,200 mm (season total)
2017	Flash floods in commercial zones	Victoria Island, Lekki Phase 1, CMS	Business disruption; submerged vehicles; blocked roads	~1,100 mm (May–Sept)
2020	Sahel-linked rainfall surge	Ikeja, Mushin, Badagry	Informal settlements flooded; displacement in wetland zones	~1,000 mm (May–Sept)
2022	Coastal + pluvial flood combo	Ajegunle, Ijora, Makoko	Thousands displaced; tidal surge + blocked drainage	~1,400 mm (season total)
2024	Lekki–Alimosho flood crisis	Lekki, Ajah, Sangotedo, Alimosho	151 houses submerged in Alimosho; widespread disruption	~1,800 mm (season total)
2025	Forecasted flash floods	Ikeja, Badagry, Ikorodu, Lagos Island, Epe	Above-normal rainfall expected; flash floods projected	~1,936 mm (NiMet forecast)

Source: Author's Compilation, 2025

2.3.2 Disaster Management Responses and Policy Shifts in Nigeria

Nigeria's approach to flood and disaster management has undergone significant transformation over the past two decades. The establishment of the National Emergency Management Agency (NEMA) in 1999 marked the beginning of a more structured national response to disasters. This shift was further formalized with the introduction of the National Disaster Management Framework (NDMF) in 2010, which clarified institutional roles across federal, state, and local levels and emphasized decentralization, multi-sectoral collaboration, and proactive planning^{16, 58, 59}

Under the NDMF, State Emergency Management Agencies (SEMAs) were tasked with coordinating disaster responses within their respective states, while Local Emergency Committees (LECs) were expected to manage community-level interventions. However, implementation has been uneven. As of 2020, only 31 out of Nigeria's 36 states had functional SEMAs, many of which faced challenges such as inadequate funding, political interference, and a shortage of trained personnel⁶⁰.

Major flood events have often served as catalysts for policy reform. Following the devastating 2012 floods, a Post-Disaster Needs Assessment (PDNA) was conducted with support from the United Nations and the World Bank. This assessment led to increased funding for disaster response, improved zoning regulations, and the development of early warning systems⁶⁰. In 2022, a collaborative effort between NEMA, the National Bureau of Statistics, and UNDP produced the Flood Impact and Recovery Report, which identified over 1,200 high-risk communities and recommended more community-based strategies for flood resilience¹⁶.

The 2025 Mokwa disaster marked another turning point, prompting the launch of the National Flood Insurance Policy (NFIP). This policy aims to provide insurance coverage for vulnerable households, signaling a shift from reactive emergency relief to more preventive and risk-sharing approaches. That same year, the Annual Flood Outlook was expanded to include community-level forecasts and risk segmentation, enhancing local planning and preparedness⁵⁷.

This historical and institutional overview provides critical context for the present study's focus on street-life populations and post-flood recovery in Lagos. It highlights that flooding in Nigeria is not merely a meteorological issue, but a reflection of systemic weaknesses in infrastructure, governance, and social equity. Despite these policy shifts, street-based populations remain largely excluded from formal planning and recovery efforts, making them among the most affected yet least visible groups in the disaster management landscape.

2.3.2.1 Gaps in Implementation and Coordination of Flood Management in Nigeria

Although the NDMF outlines 13 key areas of support including transport, shelter, communication, public health, and logistics, coordination remains a major challenge. Federal simulations done by NEMA in 2025 revealed problems in how information flows between national and local responders, especially in states like Kano and Anambra. These breakdowns affected early warnings and evacuation efforts⁵⁷.

In many cases, roles are not clearly defined and institutions often compete rather than collaborate. Local actors are also not fully involved in planning, which makes the whole system less responsive^{58, 59}. In cities like Lagos, where floods are regular and intense, the gap between policy and practice becomes obvious. While formal alerts and protocols exist, many informal communities including street-life populations are left out. This is due to issues like lack of formal identification, mobility constraints, or simply not being visible to the system⁶⁰.

Local Emergency Committees (LECs), which are supposed to be the first line of response, are often inactive or missing in these vulnerable neighbourhoods.

2.3.2.2. Case Study: Nigeria's 2022 to 2023 Flood Events

The flood season of 2022 and 2023 exposed many of the weaknesses in Nigeria's disaster response framework. The joint Nigeria Flood Impact, Recovery, and Mitigation Assessment Report showed that over 64 percent of affected households received no formal support. While responses varied across states, recovery was notably slower in rural and informal urban areas. The data showed that 41.1 percent of households faced flooding that lasted up to 11 days, while nearly 40 percent endured floods for more than a month. This caused displacement, health crises, and deeper poverty⁶¹.

In states like Bayelsa and Kogi, delayed government response led to self-organised efforts by affected communities. People created makeshift shelters, carried out local evacuations, and dug informal drainage channels to redirect water⁶¹. While NEMA did distribute food, sanitation kits, and medical supplies, these efforts often did not reach people in informal areas. Many of these communities are undocumented or mobile, and so they are left out during assessments and planning stages⁶².

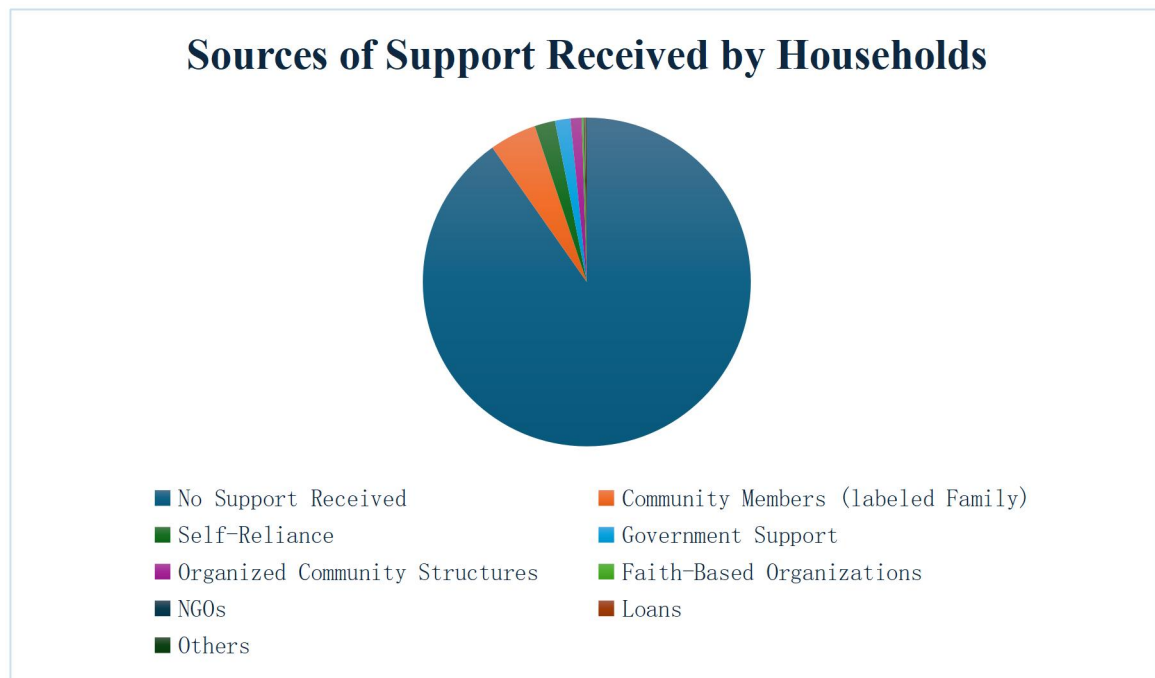


Figure 2.3: Sources of Support Received by Households⁶¹

2.3.2.3 Overview of the National Disaster Management Framework (NDMF) in Nigeria and Lagos State.

Several studies have pointed out the disconnect between well-written policies and what happens on the ground. A study argued that even though the NDMF encourages community-led disaster management, the system remains mostly top-down and heavily influenced by external donors. They call for a return to communal values rooted in Nigerian culture, where neighbourhood associations, churches, mosques, and informal groups often step in first during emergencies⁸⁵.

Another study also highlight that the country's disaster risk management institutions often fail to reflect the diversity of risk environments across Nigeria. Problems like weak data systems, poor coordination, and the absence of land-use planning make it hard to respond effectively, especially in informal settlements and rural flood zones where state agencies are rarely present⁵⁹.

Other African countries, such as South Africa, have started including risk maps and local disaster planning into city-level governance. Nigeria, by contrast, still relies heavily on federal control. This difference shows why even though Nigeria has a solid disaster policy structure, it often lacks the tools, local engagement, and enforcement to make it work properly⁸⁶.

2.3.2.4 Approaches to an Inclusive and Adaptive Recovery

Recent reforms by NEMA have tried to bring in more inclusive approaches such as climate-smart planning, better collaboration with NGOs, and more engagement with local communities. Some promising ideas like mobile-based alerts, inclusive shelter design, and intersectional risk mapping have entered the conversation. However, these tools are not yet widely used or institutionalised at the scale needed⁵⁷.

One major gap that remains is livelihood recovery. After the 2022 floods, government efforts mainly focused on damaged roads, bridges, and public buildings. But for people whose income depends on daily trade, roadside businesses, or casual labour, especially those in street-life situations, these interventions did not provide much relief. Their exclusion from relief lists means they often have to start from scratch without any formal support.

The Sustainable Livelihoods Framework offers a useful guide for bridging this gap, as it encourages recovery efforts that go beyond physical rebuilding and also restore income, skills, social connections, and mental wellbeing. For street-based populations, this means including vocational training, access to informal markets, and psychosocial support as part of disaster recovery. Recovery should not stop at distributing food or blankets. It should help people rebuild their lives fully.

2.3.3 Environmental Migration and Flood-Induced Displacement

The International Organization for Migration defines environmental migration as population movement caused by either sudden or slow environmental changes that affect people's lives or means of livelihood⁶³. In Nigeria, this is often seen through flood-related displacement, either short-term or permanent, driven by intense rainfall, blocked drainage, and the loss of natural flood buffers like wetlands. These movements are not always one-off events. Some are seasonal, where people leave during heavy rains and return later, repeating the cycle yearly. Others are permanent, especially when homes collapse or become unsafe to return to⁶⁴. This framing is important for the study because it challenges the simple label of "homeless" or "housed." Many street-life individuals in Lagos are actually displaced persons, although they are not counted in official figures. They are unregistered but not less vulnerable.

2.3.3.1 National Patterns and Lagos Dynamics of Flooding

The 2022 flood season was the worst Nigeria had experienced in decades, with more than 3.3 million people displaced across 34 states^{65,66}. Bayelsa State alone recorded over 700,000 displaced persons in about 300 communities. In other states like Borno, Kogi, and Anambra, some IDP camps were either overwhelmed or flooded themselves, forcing people into informal shelters and making support even more difficult.

In Lagos, displacement plays out differently. The scale may not always make the news, but the impacts are just as serious. Low-lying areas such as Makoko, Ajegunle, and Ilaje face yearly floods. Around 90,000 people are affected annually, many of whom are pushed into informal living arrangements^{67,79}. These are not always visible stories. Sometimes a family moves under a bridge. A teenage girl joins other hawkers in a new market after losing her space. A man with a disability starts sleeping in a bus shelter. The displacement is real, even when the person is never called an “IDP.”⁶⁸

Children are especially at risk. For instance, over 800,000 children were displaced by floods in 2022, many face hunger, there were school disruptions, and disease outbreaks⁴⁵. Another study also confirms this trend, noting that Nigeria ranks second globally on UNICEF’s Children’s Climate Risk Index, with over 1.5 million children at risk of being displaced by floods⁶⁹.

2.3.3.2 Drivers of Flood-Induced Migration in Nigeria

Flood-driven migration in Nigeria is rarely caused by one factor. It usually results from the interaction of multiple structural issues. Five main drivers stand out in the literature:

Climate change: The increase in rainfall and the sudden release of water from upstream dams, like Lagdo, continue to worsen flooding in both urban and rural areas.

Unregulated urbanisation: Many houses in flood-prone parts of Lagos are built without drainage or elevation planning. Even high-income areas like Lekki and Victoria Island are now facing flood risks due to poor city planning⁷⁹.

Weak governance: Many places vulnerable to flooding are still not covered by early warning systems or proper evacuation plans. A study revealed that outdated monitoring tools and lack of real-time data continue to affect flood management in cities like Lagos and Port Harcourt⁷⁰.

Economic fragility: For low-income families with no savings, no insurance, and limited support, even a small flood can lead to total loss.

Intersectional vulnerability: Women, migrants, children, and persons with disabilities face multiple barriers that affect their ability to move, access shelter, or recover. In places like Makoko, A study found that flooding worsens poverty and disrupts access to healthcare and education⁸¹.

This is where Vulnerability Theory becomes relevant. Being exposed is more than being in waters, it is about being structurally disadvantaged and having limited options for adaptation.

2.3.3.3. Invisible Displacement into Street-Life

One of the key concerns is what happens when someone is displaced but does not enter a formal IDP camp. These individuals often disappear into what is described as “invisible mobility.”⁸¹ In simpler terms, this often means ending up on the streets.

Without documentation or political recognition, many cannot access official shelters or relief services. They instead stay in religious buildings, open markets, uncompleted structures, or under bridges. This shift from being housed to being street-based is seldom recorded, but it plays a major role in the growing population of Nigerians living informally.

Income loss caused by damaged stalls, destroyed wares, or collapsed homes drives many into survival economies. While some manage to find ways to cope, others fall deeper into vulnerability. What they have in common is that they are not included in official recovery plans.

2.3.3.4 A Real-Time Case: July 2025 Alert

In July 2025, the Nigerian Meteorological Agency (NiMet) issued a red alert for flash floods across 20 states, including Lagos, Bayelsa, Anambra, Benue, Ondo, and Cross River. The warning, prompted by rising rainfall and increasing river levels, led to swift reactions in many flood-prone areas, especially among informal communities that have learned not to rely on government support^{71, 72}.

In Lagos, residents in areas like Makoko began taking action even before official help arrived. People started clearing blocked drainage, moving belongings to higher ground, and using local channels to spread alerts. Their response was driven by past experience and the reality of having to look out for themselves. Similar efforts were reported in Ajegunle, Meiran, and Obalende, where local residents supported the Lagos State Emergency Flood Abatement Gang during emergency drainage work⁷³.

In the Niger Delta and parts of Ondo State, communities in Okitipupa, Ilaje, and Ese Odo also moved early, either relocating from riverbanks or reinforcing their homes, based on previous flood experiences. Although some still recorded major property losses, many residents credited their early actions with preventing greater damage⁷⁴.

This shows how deeply informal communities have adjusted to life without consistent institutional support. In places like Lagos, residents no longer wait for help. Over time, they have learnt to respond early, use what they have, and find ways to adapt. While this shows resourcefulness, it also speaks to a troubling pattern of exclusion. What we often describe as

resilience is, in reality, is a form of survival which is as a result of repeated lack of formal support.

2.3.3.5 Comparative Perspectives and Regional Gaps

Similar trends are observed across West Africa. In Ghana and Benin, many people migrate short distances from urban to peripheral zones after floods, but these shifts are hardly captured in national data⁷⁵. A study noted that most environmental migration across Africa is internal, temporary, and poorly integrated into disaster planning⁷⁶.

In Nigeria, the capacity to manage these types of movements is still weak. Unlike South Africa, where cities are expected to include climate adaptation in local development plans, Nigeria does not yet have strong subnational coordination or real-time data for tracking displacement. Another study argued that environmental migration in Nigeria now overlaps with issues like poverty, insecurity, and governance failure, making it both a development and a security concern⁶⁹.

In summary, this section links directly to the main focus of this research, which is how street-life populations in Lagos recover after floods. Environmental displacement is one of the key ways people end up on the street, especially when shelter planning and recovery strategies fail to include them. Understanding this dynamic helps to show that street-life is often the result of system failure, not just poverty or personal decisions. Many people living informally in Lagos today are not entirely “urban poor.” Most could be flood survivors who are now living life in a city that has no recovery plan for people like them.

2.4 Conceptual Framework

A conceptual framework helps connect the main ideas of a study to its research questions, focus areas, and approach. In the course of this research, two frameworks have been developed to explain how street-life populations in Lagos experience and respond to post-

flood recovery. The first framework links important variables like coping strategies, support systems, and socio-demographics to the outcome of post-flood recovery, while the second framework lays out the foundations for creating a tool called the Street-Based Recovery Index (SBRI). The S.R.I is designed to measure how well these groups recover after floods. Together, both frameworks provide direction for how the study defines recovery, examines its drivers, and assesses progress over time.

2.4.1 Post-Flood Recovery Outcomes among Street-Life Populations

a. Dependent Variable:

- **Post-Flood Recovery Outcomes**

Post-flood recovery has evolved from just rebuilding physical spaces. It now includes recovering daily life such as earning a living, regaining emotional stability, reconnecting socially, and accessing basic services^{77, 78}. For people living on the streets who do not have access to housing, recovery is more complex. They are often excluded from official support, and tend to be socially disconnected. In places like Mushin, Ojuelegba, or Mile 12, recovery can take a long time, and it doesn't always follow a clear path⁷⁹.

b. Independent Variables

- **Variable I: Coping Strategies**

Coping strategies refer to the ways people manage difficult situations. On the streets, these methods are shaped by survival instincts, shared knowledge, and the need to act fast. This study focuses on four types of coping strategies:

- i. Indigenous Practices**

Some street-based individuals use traditional means like saara (ritual food offerings), relying on weather patterns passed down through generations, or organizing community flood alerts. These approaches often combine spiritual comfort with practical action⁸⁰.

ii. Spiritual Practices

Prayer, fasting, and seeking shelter in religious spaces are common. When people don't have homes or access to government aid, churches and mosques sometimes become their safe havens. These institutions offers both emotional support and temporary relief⁸¹.

iii. Informal Livelihoods

After a flood, many return to street trading, scavenging, or hustling for any job they can find. These are not stable options, but they are often the only ones available for people without formal employment⁷⁹.

iv. Risk Minimization

People find ways to reduce risks. Some of which include raising their sleeping spots, blocking the drains, sandbagging, or relocating temporarily before the flood. Even when resources are limited, these efforts show practical knowledge of surviving in tough conditions.

• Variable II: Support Systems

Support systems play a big role in how fast an individual recovers, of which they can be formal or informal:

i. Formal Support Systems

These include help from NEMA, NGOs, or international donors. Services might involve food, shelter, or relocation plans. But many street dwellers don't benefit from these because they lack official documents or fixed addresses⁸².

ii. Informal Support Systems

Help can also come from friends, family (when available), community members, religious bodies, or groups like market unions. These sources may not have big resources, but they offer care and quick support that feels personal and reliable⁷⁷.

c. Moderating Variable

Socio-Demographic Characteristics

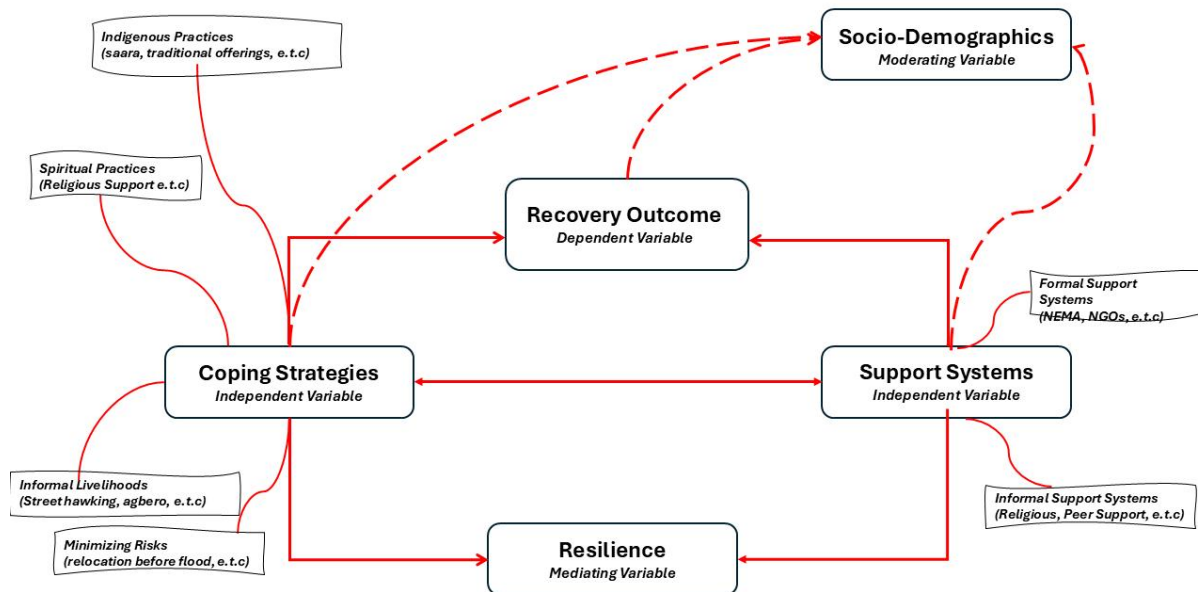
Personal background such as age, gender, or migration status can influence how someone is affected by floods and how quickly they bounce back, as well as socioeconomic factors like income level, e.t.c. For instance, women and children often face higher risks of abuse or exclusion. Migrants, especially those undocumented, may struggle to access shelters or aid^{83, 84}

d. Mediating Variable

Resilience

In this framework, resilience is what connects one's level of exposure to how well they recover. It shows up in how people adapt, improvise, and continue life despite setbacks. For street-life populations, resilience might be seen in their faith, social networks, or self-reliance^{85, 86}. However, resilience alone is not enough, it works best when backed by meaningful support systems.

In summary, the first conceptual framework suggests that post-flood recovery for street-based populations depends on a mix of coping mechanisms and support systems. Socio-demographic factors shape how these variables interact, while resilience helps to explain the pathway from exposure to recovery. This structure allows the study to assess both the strengths and gaps in current recovery efforts for this specific population.



Post-Flood Recovery Outcomes among Street-Life Populations

Figure 2.4: Post-Flood Recovery Outcomes among Street-Life Populations

Source: Author's Conceptualization, 2025

2.4.2 Framework B: Street-Based Recovery Index (SBRI)

a. Dependent Variable

- **Recovery Capacity**

Recovery capacity refers to how well street-life populations can return to a functional and stable life after flood-related disruptions. The S.R.I is introduced to assess this capacity by examining several key areas that are important for survival and can contribute to rebuilding in Lagos's urban environment.

b. Independent Variables (Input Indicators)

The SBRI considers six main factors:

a. Coping Strategies: These refer to the behavioral and psychological mechanisms individuals use to manage stress and adversity during and after disasters. These include

problem-solving, help-seeking, and emotional regulation techniques that help people adapt to crises^{87, 88}

b. Health and Safety: Health and safety in disaster contexts encompass access to essential healthcare, clean water, sanitation, and protection from harm. These elements are critical for reducing mortality and morbidity during emergencies and are central to the Health Emergency and Disaster Risk Management (Health EDRM) framework⁸⁹.

c. Livelihood Restoration: Livelihood restoration involves enabling disaster-affected individuals to regain or improve their means of earning a living. This includes access to informal work, microfinance, and rebuilding productive assets. It is a core component of sustainable recovery and resilience^{90, 91}.

d. Shelter and Housing: Having access to housing and shelter means the availability of safe, secure, and dignified living spaces for individuals. It includes emergency shelters and long-term housing solutions that are resilient to future hazards^{92, 93}.

e. Social Inclusion: This ensures that all individuals, most especially marginalized groups can take part in community life without stigma or exclusion. It promotes dignity and equity in disaster recovery, particularly for women, persons with disabilities, and minority groups^{94, 95}

f. Support Networks: They include both formal aid systems (e.g., government relief, NGOs) and informal sources (e.g., family, neighbors, religious groups) that individuals rely on after disasters. These networks are vital for immediate relief and long-term recovery^{96, 97}

c. Moderating Variables

Two important factors affect recovery capacity:

i. Socio -Demographic Characteristics

As described in the first framework, Personal background such as age, gender, or migration status can influence how someone is affected by floods and how quickly they bounce back, as well as socioeconomic factors like income level, e.t.c.

ii. Exposure Severity

This means the level of impact experienced such as property loss, injuries, or how long an individual stayed without shelter.

The Street-Based Recovery Index will serve as a tool to better understand how unequal flood recovery really is. By tracking the strength or weakness of each input variable, it becomes possible to spot gaps, evaluate the support given, and monitor how people recover over time. The tool also aligns with wider global pushes for evidence-based recovery planning ^{98, 99}.

2.4.3 Methodological Foundations and Justification for the Street-Based Recovery Index (SBRI)

The Street-Based Recovery Index (SBRI) introduced in this study is designed to assess post-flood recovery among street-life populations in Lagos. While the tool is context-specific, its conceptual development draws from established recovery measurement frameworks, including the Recovery Capital Index (RCI), the Recovery Gap Index (RGI), and UN-Habitat's Urban Recovery Framework (URF).

The RCI, developed by Cloud and Granfield and later operationalized offers a multidimensional approach to evaluating personal, social, and cultural resources that support recovery¹⁰⁰. Though originally, this theory is applied in addiction recovery contexts, but its emphasis on individual agency and social support provides a useful foundation for understanding recovery in informal urban settings. The RGI synthesizes global indices such as the World Risk Index and INFORM to evaluate national recovery capacities across infrastructure, governance, and socio-demographic dimensions¹⁰¹. UN-Habitat focuses on

spatial profiling and area-based responses to urban crises, particularly in informal settlements and displacement contexts¹⁰².

Although these frameworks offer valuable insights, they are less effective when applied to street-based populations. This is because they often assume that individuals have stable housing, access to formal support systems, and legal documentation; however, these assumptions do not reflect the everyday realities of many urban poor in Lagos.

The Street-Based Recovery Index (SBRI) fills gaps in existing recovery tools by focusing on six key areas: coping strategies, health and safety, livelihood restoration, shelter, social inclusion, and support networks. It also considers factors like demographics and flood exposure to better understand recovery outcomes.

Inspired by tools like the RCI, RGI, and URF, the SBRI is tailored to Lagos's street-based communities. It mixes global methods with local realities, offering a more inclusive way to assess recovery for groups often left out of conventional frameworks.

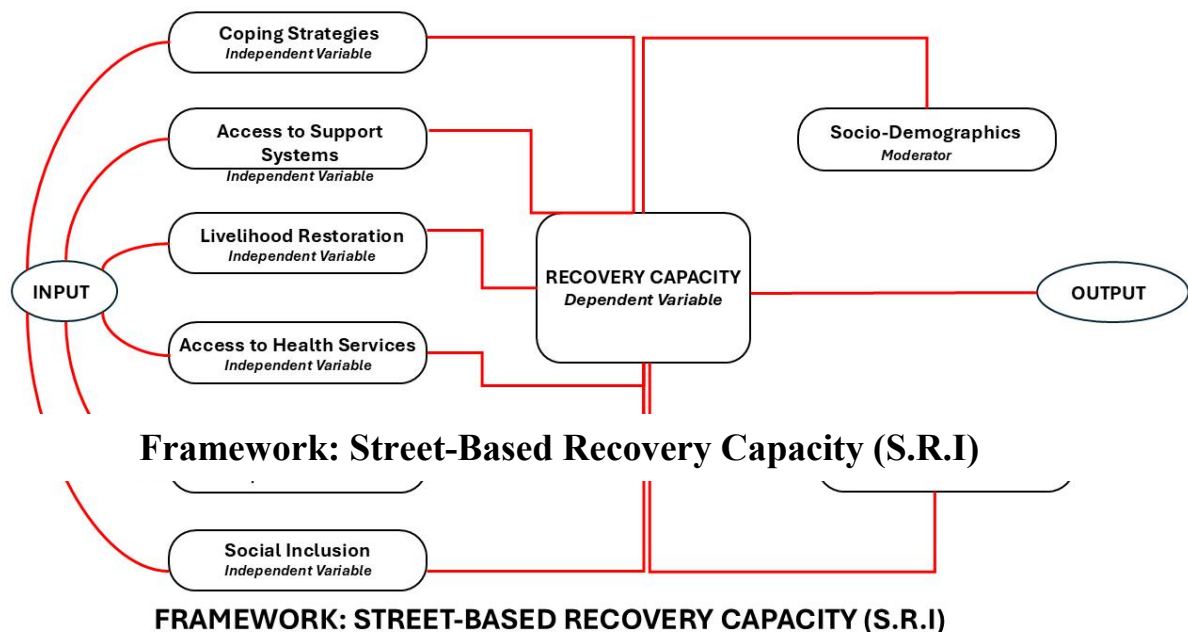


Figure 2.5: Street-Based Recovery Index

Source: Author's Conceptualization, 2025

2.5 Review of Empirical Studies

This section synthesizes empirical studies on post-flood recovery with a focus on street-life and marginalized urban populations. Drawing from research between 2021 and 2025, it examines coping strategies, support systems, socio-demographic influences, institutional responses, and indigenous resilience practices. The aim is to highlight how street-based populations navigate flood recovery in contexts of exclusion, weak governance, and systemic precarity.

2.5.1 Coping Strategies of Street-Life Populations

Street-life populations, which include the homeless, displaced persons, informal dwellers, and other economically marginalised groups, have developed a range of strategies to cope with recurring floods in urban centres like Lagos. These strategies are influenced by economic hardship, cultural norms, religious beliefs, and consistent exclusion from formal disaster systems. A review of the recent literature shows that coping is mostly built on informal networks, spiritual resources, gendered roles, and local innovation.

One repeated idea is the heavy reliance on social networks and community unity. In many cities, informal dwellers activate existing social bonds to share resources, coordinate evacuations, and rebuild together after floods. A study working on communities in Dar es Salaam, showed how ordinary social interactions become sources of strength during emergencies¹⁰³. The research illustrates how people use cooperation, mutual aid, and collective savings to create resilience even without external help¹⁰³. Another study made similar observations in Matola, Mozambique, where trusted community ties helped residents

rebuild homes, conduct rescues, and work with local authorities on drainage solutions¹⁰⁴. A study conducted in Shiraz, Iran revealed that communities with strong social cohesion bounced back faster from flooding, even when formal infrastructure was weak¹⁰⁵.

Some group of researchers working in Mzuzu City, Malawi, found that among eleven indicators of social resilience, improvisation and inventiveness stood out. People modified their homes, created informal flood alerts, and learned new survival techniques from one another¹⁰⁶. Another study conducted in Lagos noted that ethnic identity sometimes shaped access to support, with indigenous groups more likely to receive help than recent migrants¹⁰⁷. Together, these findings show that community ties can be powerful, especially when formal safety nets are unreliable.

Another key idea identified is the gendered nature of vulnerability. From the reviewed literature, Women, children, and youth face unique risks during floods and often develop distinct coping methods. A study conducted in Accra found that female-headed households struggled more with preparedness and recovery, largely due to caregiving responsibilities and limited income¹⁰⁸. Some group of researchers working in Pakistan, found that women relied heavily on inner strength and faith, even when external support was missing¹⁰⁹. Another group of researchers, writing on displaced women in Bangladesh, also stressed the importance of neighbourhood cohesion, trust, and community groups in reducing gender-based risks¹¹⁰.

Children are also active agents in recovery. A study used photovoice with flood-affected students, revealed that many children experienced stress and school disruption, but still looked for support from peers and teachers¹¹¹. These studies show that vulnerability is not static. Women and children, while often overlooked in policy, demonstrate significant resilience through their social roles and emotional strength.

Psychological and emotional coping is another important area. Flooding often leads to trauma, especially among people with little support. A study reviewing 30 studies, identified four major coping approaches: problem-focused, emotion-focused, social support, and avoidance. They also documented culturally grounded methods like prayer, mindfulness, and community counselling¹¹². Another study highlighted the usefulness of therapies such as cognitive behavioural therapy and narrative storytelling, especially in settings where mental health services are hard to access¹¹³. These psychological tools may be less visible than physical adaptation but are no less critical in disaster recovery.

However, emotional resilience has its limits. A study writing about rural Australia, describe how constant self-reliance becomes tiring over time. Even when people have deep cultural strength, the ongoing pressure of repeated disasters can lead to emotional burnout¹¹⁴. This finding is relevant for street-based populations, who are often expected to keep coping without any formal support.

Spirituality and cultural beliefs also play a central role in coping. In Lagos and many African cities, reviewed literature showed that religion influences how people understand and respond to disasters. A study observed that churches provide not just relief but also moral and emotional support. They also frame floods within a broader spiritual narrative, giving people hope and a sense of purpose¹¹⁵. A study focused on displaced families in emergency shelters, argue that cultural practices, including gender roles and family rituals, should be respected in recovery plans¹¹⁶. These elements are not just side issues; they happen to shape how people rebuild their lives after disasters.

Another pattern that was identified in the literature is frugal and informal innovation. In many settlements, people adapt using whatever resources they have. In Old Fadama, Ghana, residents use sandbags, makeshift drains, and temporary relocation to manage flood risks¹¹⁷.

In Kenya's Korogocho settlement, A study described how local stories, music, radio, and school clubs are used to build flood awareness¹¹⁸. These strategies are described as "frugal vitality," It simply mean how poor communities use low-cost ideas to survive¹¹⁹. Another study conducted in Shezidao, Taiwan, found similar efforts by residents to protect themselves from both flooding and forced eviction, even when they were not included in city plans¹²⁰.

Technology is also beginning to play a role in shaping coping strategies. A researcher, studying small business owners in Zimbabwe, found that people used mobile tools like WhatsApp, SMS alerts, and digital payments to stay connected and keep earning money during floods. These tools offer flexible support but are not equally accessible. Digital access depends on literacy, network coverage, and device ownership, which leaves many behind¹²¹.

However, there are limits identified in the reviewed literature. The study on Old Fadama point out that communities remain at high risk despite their knowledge and efforts¹¹⁷. Similarly, another study highlights policy gaps in Lagos, where weak enforcement and lack of coordination leave communities exposed¹⁰⁷. Also, another study warned that too much reliance is being placed on communities that are already stretched thin. Without stronger institutional backing, even the most resourceful strategies may fail in the long term¹¹⁴.

Overall, the reviewed studies show that street-life populations use a wide mix of strategies to survive flooding. These include informal support systems, gender-specific responses, spiritual resources, and frugal local practices. However, these strategies remain unsupported by formal institutions and are limited in how far they can go. For this reason, the coping strategies of street-life populations in Lagos should not be idealised.

This review supports the need for inclusive, context-aware recovery efforts that do not assume resilience without responsibility. If street-based populations are to recover fully from

floods, their coping efforts must be recognised, supported, and integrated into broader disaster management systems.

Lead City University Ibadan DO NOT COPY

2.5.2 Support Systems for Post-Flood Recovery

In many urban informal settings, including Lagos, recovery after flooding often depends more on community and informal support than on formal institutions. For people living on the streets, these support systems can determine how they survive, adapt, and rebuild, whether through neighbourhood ties, religious networks, or NGO involvement. From the literature reviewed, three main forms of support stand out: community-based networks, religious and cultural institutions, and formal systems involving government and NGOs.

Community responses are often the first and sometimes the only form of help during flood emergencies. In Dar es Salaam, researchers found that residents in flood-prone areas organised themselves to clear drains, place sandbags, and build makeshift structures which are done through local cooperation, without waiting for government input¹²². This finding mirrors what was observed in parts of Delhi, where neighbours coordinated evacuations and temporary shelter before any formal support showed up¹²³. Even in Kaduna, Nigeria, it was noted that while preparedness was generally low, whatever efforts existed were mostly led by local actors and community knowledge¹²⁴.

Religious and cultural institutions also play a part, though not always evenly. In a study, it was revealed how religious affiliation, particularly Christianity, influenced children's ability to cope with flood-related stress¹²⁵. Although their study focused on emotional wellbeing, it points to the role of faith communities in recovery. In Bayelsa, it was found that women traders leaned on collective memory, storytelling, and spiritual practices to navigate repeated flood disruptions¹²⁶. This is similar to the findings of a study conducted in Indonesia, where religious reflection and communal bonds helped people regroup after disasters¹²⁷.

Formal institutions such as government bodies, NGOs, and education providers also play a huge role in recovery, but their effectiveness differs widely. In the Northern Nigeria, it was

reported that schools adapted to flood disruptions through flexible calendars and emergency teaching strategies¹²⁸. In Patigi, Kwara State, researchers described how dredging and early warnings helped prevent widespread displacement, although the shelters provided were poorly built¹²⁹. A study conducted in Kogi State revealed that state support relocated people to camps, but most of them had little awareness of early warning systems¹³⁰. In Bangladesh, researchers argued that outcomes improve when grassroots knowledge and official programmes are well-aligned¹³¹.

Other forms of support include remittances, cooperatives, and diaspora networks. In Anambra, cooperative groups gave out micro-loans and ran informal schools to help people recover economically¹³². A study in Pakistan showed that money sent home by relatives abroad was often more effective than formal aid. These examples suggest that community-led finance whether local or international is flexible and trusted in ways that big agencies often aren't¹³³.

However, these support systems don't reach everyone equally. Age, gender, and disability shape who gets help and how. It was reported that older people in Indonesia struggled to access emergency care¹³⁴. In Maiduguri, children without psychological support after floods were more likely to suffer long-term trauma¹²⁵. In Isoko-Nation, women's economic lives were severely disrupted, with little attention given to their recovery in planning documents¹³⁵. Similar point was made in Kathmandu, where residents in informal settlements face layered vulnerabilities, especially when excluded from official support systems¹³⁶.

Technology also plays a role. In Shah Alam, Malaysia, A researcher found that digital tools reduced business losses among flood-affected shop owners¹³⁷. But these tools are usually out of reach for street-dwellers who don't have phones, steady access to power, or even literacy.

From the reviewed literature, it was revealed that coordination remains a key weakness in many settings. In Nigeria, researchers found no unified flood governance policy, which led to

repeated inefficiencies and gaps in response¹³⁸. Similar issues were identified in Zimbabwe, where limited capacity and top-down policies left communities stranded¹³⁹.

While the literature shares useful information on post-flood support systems, there are limitations noted. Many studies focus on rural or semi-urban areas, such as Patigi or Isoko-Nation, with very few engaging with the realities of fully urban cities like Lagos. Even fewer examine street-life populations specifically, considering how often they are impacted.

Another issue is that few Nigerian studies go beyond short-term events or evaluate how well support systems actually work over time. In addition, formal government interventions are often reported with little attention to how they were accessed or experienced by those on the streets.

Lastly, most studies stop at short-term recovery which include food, shelter, relocation. There's much less focus on the long-term mental, spiritual, or economic reintegration that matters for people who live outside formal systems.

The review supports the aim of this research, as it confirms that official support often doesn't reach street-dwellers, who are undocumented, mobile, and largely invisible to government actors. Second, it shows that religious groups, community savings, and informal social ties often step in to fill this gap, even if unevenly. These insights support the development of a Street-Based Recovery Index (SBRI) that recognises these informal forms of support.

2.5.3 Socio-Demographic Influences on Recovery Mechanisms

In cities like Lagos, where informal settlements and street-life populations are highly exposed, recovery is shaped by deep social inequalities. From the literature reviewed between 2021 and 2025, some key factors consistently influence how people bounce back from floods: gender, age, income, education, housing conditions, migration status, and disability. These variables not only affect exposure during disasters but also determine who gets support and how recovery plays out over time.

Gender is one of the key drivers of unequal recovery outcomes. Women especially single mothers, older widows, and young girls tend to face higher risks. Their limited access to land, income, and decision-making spaces makes it harder to cope after a flood. In Nigeria, studies show how women suffer more from displacement, food insecurity, and violence during recovery.^{140,141} In Kogi State, for instance, women's coping strategies were heavily spiritual, reflecting both resilience and the absence of institutional help¹⁴². Similar experiences were reported in The Gambia and India, where women struggled with housing instability and limited access to credit^{143,144}.

Also, age plays a dual role, as older adults often have knowledge of past floods but limited physical capacity to respond, while younger people have energy but little decision-making power. In Makurdi, older residents could recall previous flood patterns but were excluded from formal recovery planning¹⁴⁵. In Nairobi, researchers documented the psychological toll of floods on child-headed households, whose education and social lives were deeply disrupted. These generational patterns highlight how exclusion can persist across different age groups, albeit in different ways¹⁴⁶.

Moreover, income is strongly linked to how quickly people recover. Those with steady or multiple income sources can replace damaged property, relocate temporarily, or pay for basic

services. A study confirmed that income level was a major predictor of household resilience¹⁴⁷. In Delta State, researchers observed that access to informal loans helped farmers bounce back while in some areas, poorer residents had to rely on makeshift solutions like scooping drains or blocking water paths with waste^{148, 149}. Even outside Nigeria, similar patterns emerged as waste pickers in Brazil formed cooperatives to help themselves survive, though support from the state was minimal¹⁵⁰.

Another factor is education, as it shapes how people understand and respond to flood warnings. A group of researchers found that low literacy rates reduced how well farmers responded to early warning messages¹⁵¹. In cities like Accra and Khulna, residents with limited education were less likely to evacuate in time and more likely to rely on informal knowledge^{152, 153}. Also, when people show resilience, a lack of education limits their ability to access safer options¹⁵⁴. So, it's not just what people know but whether they can act on that knowledge matters a lot.

Equally important is where people live and the quality of their shelter. Informal housing like those found under bridges, beside canals, or in swampy parts of Lagos, offers little protection from floodwater. In Kano and Port Harcourt, residents tried to adapt by raising their floors or blocking water with sandbags, but poor land policies and drainage failures made these efforts weak at best^{155, 156}. In Manila, residents of Tondo lived through frequent floods despite strong social bonds, largely because they were excluded from formal city planning¹⁵⁷. These examples show that vulnerability is often built into the landscape.

Migrants without legal documentation are frequently excluded from official records, making them largely invisible to the state. For instance, in Lagos, researchers found that coastal migrant communities had to depend on Community Development Associations (CDAs) since they could not access official help without ID⁴⁷. The same issue was observed in Barisal,

Bangladesh, where slum dwellers faced extreme hardship during floods¹⁵⁸. Migrant knowledge systems are reportedly often overlooked, even when they have useful strategies for survival¹⁵⁹

People living with disabilities face some of the steepest barriers during flood recovery. In Makurdi, study revealed that they were rarely considered in evacuation or relief planning¹⁴⁵. In Anambra, women with disabilities had even less access to safe spaces and faced multiple layers of discrimination¹⁴⁰. These groups are typically sidelined in recovery efforts, pointing to the need for more inclusive disaster planning.

Across the studies, it was quite evident that vulnerability is not based on just one factor. Gender, income, and housing often overlap in complex ways. Researchers argue for intersectional analysis; how multiple disadvantages interact to shape recovery^{47, 147}. This is especially important in Lagos, where many street-life residents are not just poor, but also undocumented, poorly educated, and spatially excluded.

While the literature covers a wide range of social factors, it often falls short in depth. Many studies treat demographic issues separately, without analysing how they overlap. There's also a lack of follow-up research that tracks how people recover over time. Few studies focus directly on street-life populations, and those that do often rely on surveys rather than deeper, people-centered approaches like ethnography or participatory research. This limits how much we can learn about the real drivers of inequality in urban flood recovery.

These insights drawn from these reviewed studies are highly relevant. Street-dwelling individuals often experience multiple layers of marginalisation: unstable income, informal housing, low education, and poor health. They embody the combined vulnerabilities described in the literature. Yet few studies connect these variables in the context of urban

Nigeria. This study therefore aims to fill that gap by offering an empirically grounded, intersectional analysis of how street-life groups recover in Lagos's constrained environments.

2.5.4 Institutional and Policy Responses

In a city where informality is part of daily life, the way government agencies and policy frameworks are designed and implemented has a direct impact on who gets help, most importantly who is left behind. Most of the literature reviewed shows that while many African countries, including Nigeria, have disaster risk policies on paper, the real challenge lies in how these policies are carried out. Weak coordination, poor funding, and top-down decision-making frequently limit their effectiveness, especially for those in informal settings.

One common point across the studies is the divide between official disaster plans and what actually happens on the ground. For example, in Kaduna, residents were highly dissatisfied with NEMA's response, as over 70% gave low ratings for things like early warnings and fair distribution of aid. Their average satisfaction score was only 2.41 out of 5, showing a serious trust gap between the community and the institution¹⁶⁰. Similar issues were reported in southeastern Nigeria, where people said emergency calls were ignored and there was no real follow-up after flood alerts¹⁶¹.

In other spaces of Africa, the story is not that different. For instance, in Dar es Salaam it was noted that even when government workers knew the right procedures, they lacked resources and support to put them into action¹⁶². Likewise from a study conducted in Tanzania, it was confirmed that the local governments were aware of disaster protocols but couldn't deliver because of poor coordination and underfunding¹⁶².

Several scholars also raised concerns about the overly centralized nature of disaster laws in many African countries. In a broad review of disaster governance across the continent, a researcher found that most frameworks are hierarchical and fail to involve local actors in meaningful ways¹⁶³. Another researcher argued that while frameworks like the Sendai Framework sound inclusive, in practice, they often ignore the deeper social inequalities that make some groups more at risk than others¹⁶⁴. A study from Indonesia revealed that after the 2018 Palu earthquake, confusion between different agencies led to delays and a focus on rebuilding infrastructure over supporting affected people directly¹⁶⁵.

Coordination remains one of the biggest challenges. In Ghana, for instance, it was revealed that poor communication between agencies made the Akosombo Dam flood worse for people living in Mepe¹⁶⁶. In Peru, it was also observed that agencies responsible for relocation and recovery were working in silos, causing overlaps and missed opportunities¹⁶⁷. In Bangladesh, it was reported that unclear roles, underfunded offices, and weak legal backing made landslide responses slow and ineffective¹⁶⁸.

Another recurring problem is the way local knowledge is ignored. In Jebba, Nigeria, a researcher used participatory mapping to show that residents knew exactly which areas were flood-prone, but their insights were not used in any official plans¹⁶⁹. In Kano, researchers documented how residents in informal areas had developed their own ways to adapt, which included cleaning drains, using sandbags, and setting up neighborhood alerts, but alas, government support was nowhere to be found.

Logistical problems also surfaced strongly, as emergency workers in Tanzania didn't have enough vehicles, tools, or trained personnel to respond properly¹⁷⁰. In Nigeria, researchers explained how the country still depends heavily on foreign aid to manage disasters, especially since COVID-19, which often shifts focus away from local priorities¹⁷¹.

The exclusion of vulnerable groups also keeps coming up. It was found that farmers in Rivers State received little help even though their crops and incomes were destroyed¹⁷². In South Africa, a researcher observed that informal township dwellers were barely noticed until after floods hit and even then, support was minimal and short-lived¹⁷³.

However, not all the findings were negative. A few studies showed what can work when institutions are more inclusive. In Accra, researchers reported how churches and other faith-based groups stepped in to provide food, counseling, and information to flood victims in informal communities¹⁷⁴. In Metro Manila, some cities had started including flood risk mapping and shared learning into their local disaster plans—although more work was still needed to involve affected communities fully¹⁷⁵. Some researchers created a disaster policy tracking tool in Peru that helps governments identify where their responses are falling short¹⁶⁷. Similar systems could help African countries move beyond surface-level inclusion to focus on equity and long-term solutions¹⁶⁴.

In summary, for street-life populations in Lagos, recovery from flooding is associated to the performance of institutions; especially in terms of inclusion, coordination, and planning. Too often, people living in informal conditions are left behind. But the literature shows that with the right partnerships, tools, and political will, it is possible to design systems that respond better to the realities on the ground. This research draws on these insights to show how institutional blind spots have prolonged vulnerability in Lagos, and what can be done differently.

2.5.5 Autonomous Resilience Practices

Autonomous (Indigenous, Informal, and cultural) practices have always guided how vulnerable communities interpret, prepare for, and recover from environmental shocks, most especially flooding. These practices shows a kind of resilience grounded in lived experience

and cultural identity/networks among street-life and low-income groups. This section reviews recent studies that highlight how such practices shape flood adaptation and emotional recovery.

A clear example is the use of local savings groups like *Esusu* and *Ajo*. In Osun State of Nigeria, researchers found that most small-scale farmers relied on these communal savings systems to bounce back after floods damaged crops or cut short the planting season. These groups gave people a financial cushion, even though they were outside the formal banking system¹⁷⁶. Similarly, it was observed that women who belonged to informal savings groups were less likely to go hungry during economic shocks¹⁷⁷. A journalist made an account of Kemi, a shopkeeper in Alimosho, shows how *Ajo* contributions helped her reopen her shop after losing her tools and customers to flooding¹⁴¹.

Traditional knowledge also plays a big role in predicting and preparing for floods. In Benin, researchers recorded how residents built sand walls and wooden footbridges based on inherited knowledge of the land¹⁷⁸. These were not official government projects, they are from generations of experience. In Rivers State, researchers described how people watched ant movements, cloud changes, and river currents to anticipate flood risks. This is quite different from national weather alerts, which often fail to reach or make sense to the average person in informal communities¹⁷⁹.

Spiritual beliefs also influence how people respond to floods. In Kogi, it was observed that many survivors turned to prayer and fasting, seeing floods as divine tests¹⁴². Spiritual framing can give people strength even when government help is missing, but it can also lead to quiet acceptance of suffering as fate¹⁴¹.

Gender also matters, as researchers found that during floods, women, most especially those in rural or traditional settings face extra risks. Their roles as caregivers mean they're more

exposed to infection, hunger, and abuse during displacement¹⁴⁰. Unless cultural resilience efforts challenge gender inequality, they may end up reinforcing it. In other words, culture can either protect or expose, depending on how it's used¹⁵⁹.

People's connection to place is another strong factor in cultural practices. Researchers showed that in Kumasi, even after repeated flooding, low-income residents didn't want to relocate. Their roots ran deep, and they relied on each other to survive¹⁸⁰. Similarly, it was noticed in Lagos that street communities leaned on neighbourhood ties, church groups, and CDAs to pull through⁴⁷. In the Philippines, informal settlers set up home-based food banks and emergency plans based on past experiences¹⁸¹.

However, unfortunately, all of these local efforts have their limits. In Makurdi, even the best local strategies couldn't make up for poor drainage and lack of basic services¹⁴⁵. Without broader support, poverty keeps weakening whatever coping systems people build, and community-led recovery only works well when government support is part of the picture^{149, 147}. In Tanzania, local actors lacked training, money, and clear roles¹⁶². Also, it was noted that after the Jibia flood, communities were left to cope alone for years, of which many are still living in makeshift shelters long after the event¹⁸².

Some researchers criticised how formal institutions treat indigenous knowledge. It was argued that while Nigeria often claims to value African ideas like Ubuntu, it still relies mostly on Western models when making policy¹⁸³. In Indonesia, ignoring local voices during post-disaster planning led to conflict and broken recovery efforts, and even though community adaptations are creative, some like building embankments, can push floodwater into other poor areas if not well managed^{165, 159}.

There are good examples of mixed approaches. In planned neighbourhoods of Accra, people still used sandbags and group clean-ups. He suggested that government plans should build on

these routines instead of ignoring them¹⁸⁴. in Metro Manila, the most effective disaster plans were the ones that allowed local learning and city-to-city exchanges¹⁷⁵.

In Nepal, farmers stored food and strengthened homes ahead of floods using only family stories and memory¹⁸⁵. Some researchers showed that NEMA's 2012 failure to alert communities was partly because it ignored traditional communication channels like market-day announcements or radio jingles in local dialects¹⁵¹.

In summary, Indigenous and cultural practices are vital to flood recovery for street-life and low-income communities in Lagos and beyond. They offer place-based, spiritually anchored, and socially rich mechanisms for coping. But without policy recognition, resources, and gender-sensitive design, these practices remain vulnerable and limited. This research will delve deeper into how such practices unfold in Lagos's informal areas, and how institutional partners might work with identified local resilience systems.

The empirical review shows that while street-life populations in Lagos and similar settings deploy diverse recovery strategies, their efforts are often constrained by poverty, policy gaps, and social exclusion. Informal networks, indigenous knowledge, and community innovations play a vital role, but lack formal support. Gender, income, education, and migration status shape access to aid and resilience capacity. Without institutional recognition and inclusive planning, these recovery pathways remain fragile. The findings justify a closer examination of street-level recovery practices, which this research sets out to provide.

2.5 Gaps in Literature

Even though the literature on flood recovery and disaster risk reduction in Nigeria is expanding, there are still major gaps, especially when it comes to understanding how street-life populations bounce back after floods. Most studies reviewed under the five thematic

areas—coping strategies, support systems, demographic factors, institutional responses, and indigenous practices revealed gaps that this research aims to address.

A key gap is the near invisibility of street-life populations in flood-related research. While several works examine resilience among low-income or displaced households^{155,25}, they usually focus on people with some form of shelter or community. Individuals who live on the streets (under bridges, in markets, or in open urban spaces) are rarely accounted for in surveys or policy data. This leaves a major blind spot, especially in high-risk urban areas like Lagos.

Another recurring issue is the over-reliance on formal, top-down models of recovery. Many studies prioritize institutional responses, international aid, or infrastructural rebuilding^{29,171}, while overlooking how informal groups (like street traders or homeless youth) recover through improvisation, peer support, and cultural practices. These everyday recovery strategies are often absent from formal assessments.

From the theories, perspectives like Social Capital Theory and Resilience Theory are often applied without depth. Many studies use these theories in a standalone way, without linking them to broader issues like inequality, displacement, or informal citizenship. For instance, while a study proposed a resilience model, they don't explore how marginalisation and access to resources shape that resilience in the first place²⁵.

Intersectionality is also underexplored. Few studies separate data by gender, disability, age, or legal status, which are all key variables to better understand how recovery works. Even when these factors are mentioned, they are usually treated descriptively rather than analytically, failing to show how they interact in shaping vulnerability or resilience.

While NGOs and government relief are often highlighted, less attention is paid to informal survival systems; like *Esusu*, *Ajo*, and ritual practices like *Saara*, that serve as recovery

lifelines for many urban poor. Even when these are acknowledged, they're often treated as temporary stopgaps rather than valid and enduring recovery systems¹⁸⁶.

Geographically, the literature also leans heavily on rural flood cases from Bayelsa, Kebbi, and Jigawa, with limited empirical attention to Lagos. While some studies cite Lagos as a hotspot, few have done in-depth research in specific neighbourhoods like Mushin or Ajegunle, or among under-bridge dwellers and mobile street trade²⁶.

Another neglected area is the “everyday recovery” phase. This is the period between emergency relief and long-term rebuilding. For street-life populations, this is when temporary coping happens: securing shelter, restarting hustle-based income, or rebuilding lost networks. Yet, most research focuses on emergency response or infrastructure plans, overlooking this critical transitional stage.

Methodologically, most studies favour structured surveys and institutional case reports. This tends to exclude unregistered and mobile populations. Very few works use participatory or longitudinal methods to track how street populations recover over multiple disaster cycles. This creates gaps in the quality and relevance of the data used to shape policy.

Finally, indigenous and religious practices are often brushed aside or under-analysed. While some studies mention local rituals or spiritual coping, they are often framed as outdated or peripheral. Yet, in cities like Lagos, many street-life dwellers turn to faith, traditional beliefs, and communal rites to make sense of trauma and loss. Ignoring these dimensions limits our understanding of how people navigate recovery in real terms.

In summary, the literature underrepresents the realities of street-based recovery. This study intends to fill these gaps by focusing directly on the recovery strategies of street-life

populations in Lagos, by giving voice to groups that are often excluded and exploring both their strengths and constraints within the broader flood recovery system.

Chapter Two has laid out the key theoretical, conceptual, and empirical foundations for this research. It traced how flood recovery is shaped by socio-demographic, institutional, and cultural factors, particularly in informal urban settings. The chapter also identified clear gaps in current literature, especially regarding street-life populations in Lagos.

Lead City University Ibadan DO NOT COPY

Endnotes

- ¹ D. Alexander. *Principles of Emergency Planning and Management*. Oxford: Oxford University Press, 2002.
- ² I. I. Olufadewa, A. M. Adebayo, and A. Olamide “*Post-Flood Recovery in Informal Settlements: A Lagos Case Study*.” **Journal of Urban Resilience** 12, no. 1 (2025): 1–15.
- ³ D. Sanderson, P. Knox Clarke, and L. Campbell. *Responding to Urban Disasters: Learning from Previous Relief and Recovery Operations*. ALNAP Lessons Paper, 2012.
- ⁴ J. Twigg, *Characteristics of a Disaster-Resilient Community: A Guidance Note*. DFID Disaster Risk Reduction Interagency Coordination Group, 2009.
- ⁵ L. F. Berkman, T. Glass, I. Brissette, and T. E. Seeman “*From Social Integration to Health: Durkheim in the New Millennium*.” **Social Science & Medicine** 51, no. 6 (2000): 843–857
- ⁶ S. B. A. Oloko “*Children in Especially Difficult Circumstances: The Street Children of Lagos*.” In **Child Abuse in Nigeria**, edited by F. Ebigbo, 135–146. NICEF, 1999.
- ⁷ I. Ajibade, G. McBean, and R. Bezner-Kerr “*Urban Flooding in Lagos, Nigeria: Patterns of Vulnerability and Resilience among Women*.” **Global Environmental Change** 23, no. 6 (2013): 1714–1725.
- ⁸ UN-Habitat. *World Cities Report 2016: Urbanization and Development—Emerging Futures*. Nairobi: United Nations Human Settlements Programme, 2016.
- ⁹ D. P. Coppola *Introduction to International Disaster Management*. 3rd ed. Oxford: Butterworth-Heinemann, 2015.
- ¹⁰ IPCC. *Climate Change 2014: Impacts, Adaptation, and Vulnerability*. Cambridge: Cambridge University Press, 2014.
- ¹¹ I. O. Adelekan “*Vulnerability of Poor Urban Coastal Communities to Flooding in Lagos, Nigeria*.” **Environment and Urbanization** 22, no. 2 (2010): 433–450.
- ¹² World Bank. *Enhancing Urban Resilience in Lagos: Flood Risk Management Strategy*. Washington, DC: World Bank Publications, 2020.

- ¹³ S. B. Manyena, "The Concept of Resilience Revisited." **Disasters** 30, no. 4 (2006): 434–450.
- ¹⁴ S.L. Cutter, B.J. Boruff & W.L. Shirley, *Social vulnerability to environmental hazards*, **Social Science Quarterly**, 84(2), 2003, 242–261. Available Online: <https://doi.org/10.1111/1540-6237.8402002>
- ¹⁵ C.J. Onwutuebe, *Patriarchy and women vulnerability to adverse climate change in Nigeria*, **Sage Open**, 9(1), 2019, 2158244019825914. Available Online: <https://doi.org/10.1177/2158244019825914>
- ¹⁶ D.T. Bulti, B. Girma & T.L. Megento, *Community flood resilience assessment frameworks: a review*, **SN Applied Sciences**, 1, 2019, 1663. Available Online: <https://doi.org/10.1007/s42452-019-1731-6>
- ¹⁷ K. Crenshaw, *Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory, and Antiracist Politics*, in A. Phillips (ed.), *Feminism and Politics: Oxford Readings in Feminism*, Oxford University Press: Oxford, 1998. Available Online: <https://doi.org/10.1093/oso/9780198782063.003.0016>
- ¹⁸ UN Women, *Intersectionality Resource Guide and Toolkit: An Intersectional Approach to Leave No One Behind*, 2021. Available Online: <https://wrd.unwomen.org/sites/default/files/2021-11/1INTER~1.PDF>
- ¹⁹ O.M. Olusola, *The Overlooked Intersection: Climate, Disability, and Education in Nigeria*, **BusinessDay**, November 20, 2024. Available Online: <https://businessday.ng/columnist/article/the-overlooked-intersection-climate-disability-and-education-in-nigeria/>
- ²⁰ R.D. Putnam, *Bowling Alone: America's Declining Social Capital*, **Journal of Democracy**, 6(1), 1995, 65–78. Available Online: <https://doi.org/10.1353/jod.1995.0002>
- ²¹ J.K. Behera, *Role of Social Capital in Disaster Risk Management: A Theoretical Review*, **International Journal of Management**, 12, 2021, 221–233.
- ²² O. Kolade, R. Smith & S. James, *Picking up the Pieces: Social Capital and Entrepreneurship for Livelihood Recovery Among Displaced Populations in Northeast Nigeria*, in O. Kolade, D. Rae, D. Obembe & K. Woldesenbet Beta (eds.), *The Palgrave*

Handbook of African Entrepreneurship, Palgrave Macmillan: Cham, 2022, 301–317.
Available Online: https://doi.org/10.1007/978-3-030-75894-3_16

²³ A.S. Masten, *Ordinary Magic: Resilience in Development*, Guilford Press: New York, 2014, 45–67.

²⁴ A.D. van Breda, *A Critical Review of Resilience Theory and Its Relevance for Social Work*, **Social Work/Maatskaplike Werk**, 54(1), 2018, 1–18. Available Online: <https://doi.org/10.15270/54-1-611>

²⁵ O.M. Odunsi, P.O. Olawuni, O.P. Daramola et al., *Households' Resilience to Flood Disaster in Lagos State, Nigeria: Developing a Conceptual Framework Unifying Disaster Resilience Components and Dimensions*, **Journal of Environmental Studies and Sciences**, 14, 2024, 69–86. Available Online: <https://doi.org/10.1007/s13412-023-00864-3>

²⁶ O.H. Okunola & S.E. Werners, *A Multi-Dimensional Framework for Assessing Disaster Recovery Pathways: Lessons and Experiences from Germany and Nigeria*, **International Journal of Disaster Risk Reduction**, 112, 2024, 104777. Available Online: <https://doi.org/10.1016/j.ijdr.2024.104777>

²⁷ R. Chambers & G. Conway, *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century (IDS Discussion Paper 296)*, Institute of Development Studies: Brighton, 1992. Available Online: <https://www.ids.ac.uk/publications/sustainable-rural-livelihoods-practical-concepts-for-the-21st-century/>

²⁸ Department for International Development, *Sustainable Livelihoods Guidance Sheets*, 1999. Available Online: <https://www.livelihoodscentre.org/documents/114097690/114438878/Sustainable+livelihoods+guidance+sheets.pdf>

²⁹ UNDP, *Annual Report 2022*, 2022. Available Online: <https://annualreport.undp.org/2022/assets/Annual-Report-2022.pdf>

³⁰ U.K. Mohammed & N. Favretto, *Livelihood diversification among women farmers in Nigeria's flood-resilient drylands*, **Climate Risk Management**, 48, 2024, 100708. Available Online: <https://doi.org/10.1016/j.crm.2025.100708>

- ³¹ International Federation of Red Cross and Red Crescent Societies, *Nigeria: Floods Information Bulletin No. 2*, September 14, 2001. Available Online: <https://www.ifrc.org/docs/appeals/rpts01/ngfl01a2.pdf>
- ³² D.N. Jeb & S.P. Aggarwal, *Flood Hazard Mapping and Assessment Using Satellite Data and GIS: A Case Study of River Kaduna*, **Journal of Applied Sciences Research**, 4(12), 2008, 1822–1833. Available Online: <https://www.aensiweb.com/old/jasr/jasr/2008/1822-1833.pdf>
- ³³ International Federation of Red Cross and Red Crescent Societies, *Nigeria: Floods Emergency Appeal Final Report*, 2007. Available Online: <https://www.ifrc.org/docs/appeals/07/MDRNG004.pdf>
- ³⁴ National Emergency Management Agency (NEMA), *South-South Lost N2.51trn to Floods in 2012*, 2012. Available Online: <https://www.nema.gov.ng/south-south-lost-n2-51trn-to-floods-in-2012-says-nema/>
- ³⁵ United Nations Office for the Coordination of Humanitarian Affairs, *Nigeria Post-Disaster Needs Assessment: 2012 Floods*, Global Facility for Disaster Reduction and Recovery, 2013. Available Online: https://www.gfdr.org/sites/default/files/publication/NIGERIA_PDNA_PRINT_05_29_2013_WEB.pdf
- ³⁶ FloodList, *Nigeria – 100,000 Displaced After Flooding in Benue*, September 5, 2017. Available Online: <https://floodlist.com/africa/nigeria-floods-benue-september-2017>
- ³⁷ United Nations Office for the Coordination of Humanitarian Affairs, *West and Central Africa: Flooding Situation Report*, October 23, 2020. Available Online: <https://www.unocha.org/publications/report/niger/west-and-central-africa-flooding-situation-23-october-2020>
- ³⁸ World Weather Attribution, *Climate Change Made Extreme Rainfall in West Africa More Likely*, November 17, 2022. Available Online: https://www.worldweatherattribution.org/wp-content/uploads/Nigeriafloods_scientific-report.pdf
- ³⁹ United Nations Office for the Coordination of Humanitarian Affairs, *Nigeria Floods Response Flash Update 2*, November 1, 2022. Available Online:

<https://www.unocha.org/publications/report/nigeria/nigeria-floods-response-flash-update-2-last-updated-1-november-2022>

⁴⁰ UN News, *Nigeria: Flooding Kills Dozens, Leaves Thousands Homeless*, September 28, 2024. Available Online: <https://news.un.org/en/story/2024/09/1154301>

⁴¹ TheCable, *Niger State Flood: Experts Blame Rail Embankment, Call for Drainage Overhaul*, May 29, 2025.

⁴² A.A. Salami & A.S. Alabi, *Rainfall Variability and Trends Analyses in Nigeria Using Remotely Sensed Data and CMIP5 Models*, **Earth Systems and Environment**, 2024. Available Online: <https://doi.org/10.1007/s41748-024-00556-0>

⁴³ United Nations Office for the Coordination of Humanitarian Affairs, *West and Central Africa: Flooding Situation Report*, October 23, 2020. Available Online: <https://www.unocha.org/publications/report/niger/west-and-central-africa-flooding-situation-23-october-2020>

⁴⁴ Nigeria Hydrological Services Agency (NIHSA), *Annual Flood Outlook: Lagos Risk Zones*, 2025.

⁴⁵ UNICEF Nigeria, *Floods Displaced Over 800,000 Children in Nigeria in 2022*, 2023. Available Online: <https://www.unicef.org/nigeria/documents/nigeria-emergency-flood-response>

⁴⁶ FSD Africa, *Managing the Water 'Megacity' – Flood Risk and Resilience in Lagos (Briefing Note No. 1)*, 2021. Available Online: <https://fsdafrica.org/wp-content/uploads/2021/10/Briefing-Note-1-Flood-Risk-in-Lagos-01.10.21.pdf>

⁴⁷ S. S. Ekeh & L. Teron, *Vulnerable spaces, unequal responses: Lessons for transformative climate resilience in Lagos*, **Frontiers in Sustainable Cities**, 5, 2023, Article 929121

⁴⁸ Adeloye & R. Rustum, *Lagos Flooding and Urban Planning*, **Journal of Urban Drainage Planning**, 164, 2011, 175–187.

⁴⁹ A.E. Olajuyigbe, O.O. Rotowa & E. Durojaye, *Flood hazard in Mile 12, Lagos*, **Mediterranean Journal of Social Sciences**, 3(3), 2012, 367–375.

⁵⁰ O. Odigie & N.O. Obayagbona, *Continuous expansion of urban sprawls versus sustainable management of wetlands in Lagos*, **DUJOPAS**, 11(2a), 2025.

⁵¹ Premium Times, *8 million Lagos residents prone to flood disaster – NEMA*, September 3, 2020.

⁵² Interconnected Risks, *Lagos Floods – Interconnected Disaster Risks*, 2022. Available Online: <https://interconnectedrisks.org/2022/disasters/lagos-floods>

⁵³ Vanguard Newspaper, Photos: 151 houses, 7 communities submerged in Lagos flood, February 20, 2024. Available Online: <https://www.vanguardngr.com/2024/02/photos-151-houses-7-communities-submerged-in-lagos-flood/>

⁵⁴ The Whistler, *151 houses affected as flood ravages Lagos*, February 20, 2024.

⁵⁵ Blueprint, *2025 flood forecast: Lagos, Benue, Rivers, Jigawa, FCT, 26 other states at high risk*, April 11, 2025.

⁵⁶ Fadoju, *Understanding flash flooding and Lagos state's climate resilience strategy*, TheCable, June 17, 2025

⁵⁷ National Emergency Management Agency, *NEMA conducts flood simulation exercise in Kano to enhance multi-stakeholder preparedness*, July 6, 2025. Available Online: <http://nema.gov.ng/nema-conducts-flood-simulation-exercise-in-kano-to-enhance-multi-stakeholder-preparedness/>

⁵⁸ T.O. Adefisoye, J.O. Adeoye & L.K. Onabanjo, *Between policy goals and actual outcome: An assessment of the National Disaster Management Framework in Nigeria, 2010–2020*, **International Journal of Research and Innovation in Social Science**, 7(6), 2023, 388–400. Available Online: <https://rsisinternational.org/journals/ijriss/articles/between-policy-goals-and-actual-outcome-an-assessment-of-the-national-disaster-management-framework-in-nigeria-2010-2020/>

⁵⁹ J.O. Ejemeyovwi, E.S. Osabuohien, O.B. Ihayere, O.O. Omosehin & A.O. Igbinoba, *Institutional Diagnosis of Disaster Risk Management in Nigeria: Towards the Design of a New Framework*, in R.A. Balgah & J.N. Kimengsi (Eds.), *Disaster Management in Sub-Saharan Africa: Policies, Institutions and Processes*, Emerald Publishing Limited: Leeds, 2022, 123–144. Available Online: <https://doi.org/10.1108/978-1-80262-817-320221005>

⁶⁰ A.A. Aliyu, *Hazards Analysis Report 2024: A Blueprint for Nigeria's Disaster Preparedness*, Emergency Digest, December 8, 2024. Available Online: <https://emergencydigest.com/2024/12/08/hazards-analysis-report/>

⁶¹ National Bureau of Statistics, National Emergency Management Agency & United Nations Development Programme, *Nigeria Impact of Flood, Recovery and Mitigation Assessment Report 2022–2023: Final Report*, Abuja, 2023.

⁶² A.A. Aliyu, *365 Days of Enhanced Disaster Management in Nigeria*, PRNigeria, March 15, 2025. Available Online: <https://prnigeria.com/2025/03/15/days-disaster-management/>

⁶³ International Organization for Migration, *Discussion note: Migration and the environment*, 2007. Available Online: <https://environmentalmigration.iom.int>

⁶⁴ F. de Longueville, P. Ozer & S. Doumbia, *Environmental migration in West Africa: A review*, **Sustainability**, 12(3), 2020, 1132. Available Online: <https://doi.org/10.3390/su12031132>

⁶⁵ Platform Times, *Bayelsa flood: IOM reports displacement of 700,000 residents across 300 communities*, March 8, 2024. Available Online: <https://platformtimes.com.ng>

⁶⁶ International Organization for Migration, *Flood Displacement and Demographic Vulnerabilities in Nigeria: DTM Analysis Series*, 2024. Available Online: <https://dtm.iom.int/reports/flood-displacement-demographic-vulnerabilities-nigeria>

⁶⁷ InsuResilience Solutions Fund, *GRMA project brief – Nigeria: Risk modelling for climate resilience*, 2025. Available Online: <https://insuresilience-solutions-fund.org/wp-content/uploads/2025/02/GRMA-Project-Brief-Nigeria.pdf>

⁶⁸ UNHCR (2022). *Global Trends: Forced Displacement in 2022*. United Nations High Commissioner for Refugees.

⁶⁹ Wambai & I. Malo, *Climate-induced displacement and conflict: Addressing Nigeria's climate vulnerability and resilience gaps*, **Clean Technology Hub**, 2025. Available Online: https://cleantechnologyhub.com/wp-content/uploads/2025/05/Climate-Induced-Displacement-and-Conflict_compressed-1.pdf

- ⁷⁰ B. Abu-hanifa, A. F. Abdussalam, S. U. Baba, Z. Isa & A. Y. Ugya, *A comprehensive review of flood monitoring and evaluation in Nigeria*, **International Journal of Energy and Water Resources**, 2025. Available Online: <https://doi.org/10.1007/s42108-025-00356-w>
- ⁷¹ Punch Newspaper, *Floodwaters force Makoko children out of school amid disease fears*, July 13, 2025. Available Online: <https://healthwise.punchng.com/floodwaters-force-makoko-children-out-of-school-amid-disease-fears/>
- ⁷² Okay.ng, *Nigerian states brace for floods as residents begin evacuations following NiMet warning*, July 12, 2025. Available Online: <https://www.okay.ng/nigerian-states-brace-for-floods-as-residents-begin-evacuations-following-nimet-warning/>
- ⁷³ Guardian Nigeria, *Flood alert: Lagos ramps up drainage operations, urges residents' support*, July 9, 2025. Available Online: <https://guardian.ng/news/nigeria/metro/flood-alert-lagos-ramps-up-drainage-operations-urges-residents-support/>
- ⁷⁴ Hallmark News, *July flood alert: 20 states at risk despite N620bn ecological funds*, July 8, 2025. Available Online: <https://hallmarknews.com/july-flood-alert-20-states-at-risk-despite-n620bn-ecological-funds/>
- ⁷⁵ J. K. Teye & E. G. A. Nikoi, *Climate-induced migration in West Africa*, In: J. K. Teye (ed), *Migration in West Africa*, IMISCOE Research Series, Springer: Cham, 2022. Available Online: https://doi.org/10.1007/978-3-030-97322-3_5
- ⁷⁶ M. Wolde, C.M. Tankou & A. Oyatayo, *Environmental drivers of human migration in Sub-Saharan Africa*, **Global Sustainability**, 6(1), 2023, e19. Available Online: <https://doi.org/10.1017/sus.2023.19>
- ⁷⁷ United Nations Development Programme, *Nigeria Flood Impact, Recovery and Mitigation Assessment Report*, 2023. Available Online: <https://nigerianstat.gov.ng/pdfuploads/NigeriaFloodImpactRecoveryMitigationAssessmentReport2023.pdf>
- ⁷⁸ International Federation of Red Cross and Red Crescent Societies, *Measuring Recovery: Frameworks and Tools for Post-Disaster Rehabilitation*, 2021. Available Online: <https://www.ifrc.org/document/measuring-recovery-framework>

- ⁷⁹ C.E. Atufu, *Evaluating the Impacts of Flooding on the Residents of Lagos, Nigeria*, PhD Thesis, University of Northampton, 2022. Available Online: https://pure.northampton.ac.uk/files/56132977/Atufu_Cynthia_2022_Evaluating_the_Impacts_of_Flooding_on_the_Residents_of_Lagos_Nigeria.pdf
- ⁸⁰ I.S. Akoteyon, *Factors influencing the occurrence of flooding, risk and management strategies in Lagos, Nigeria*, **Sustainable Water Resources Management**, 8, 2022, Article 68. Available Online: <https://doi.org/10.1007/s40899-022-00651-y>
- ⁸¹ T. Lawanson, D. Proverbs & R.L. Ibrahim, *Street-level coping and housing recovery in Lagos informal settlements*, **Journal of Flood Risk Management**, 16(1), 2023, e12838. Available Online: <https://doi.org/10.1111/jfr3.12838>
- ⁸² M. Shola & E. Rollason, *Challenges in implementing flood disaster management policies and practices in Lagos State, Nigeria*, **International Journal of Anthropology and Ethnology Research Development**, 4(2), 2024, 112–130. Available Online: <https://harvardpublications.com/hijaerd/article/view/194>
- ⁸³ International Organization for Migration, *Flood Displacement and Demographic Vulnerabilities in Nigeria: DTM Analysis Series*, 2024. Available Online: <https://dtm.iom.int/reports/flood-displacement-demographic-vulnerabilities-nigeria>
- ⁸⁴ United Nations High Commissioner for Refugees, *Access to Civil Documentation for Internally Displaced Persons*, 2023. Available Online: <https://www.unhcr.org/idp-civil-documentation>
- ⁸⁵ United Nations Office for Disaster Risk Reduction, *Annual Report 2022*, 2022. Available Online: <https://www.undrr.org/annual-report/2022>
- ⁸⁶ A.M. Eze & A.S. Thompson, *Resilience as a mediator in post-disaster recovery in West African urban slums*, **International Journal of Disaster Risk Reduction**, 72, 2025, 103498. Available Online: <https://doi.org/10.1016/j.ijdr.2024.103498>
- ⁸⁷ R. C. Silver & D. R. Garfin, Coping with disasters, In: J. C. Norcross et al. (eds), *APA Handbook of Clinical Psychology: Psychopathology and Health*, American Psychological Association, 2016, 597–611.

- ⁸⁸ M. P. Quayhagen & M. Quayhagen, *Coping Strategies Inventory (CSI) [Database record]*, **PsycTESTS**, 1982. Available Online: <https://doi.org/10.1037/t44661-000>
- ⁸⁹ American Psychological Association, *Disaster mental health information for psychologists*, August 8, 2023. Available Online: <https://www.apa.org/topics/disasters-response/disaster-mental-health-psychologists>
- ⁹⁰ J. C. Gaillard, Livelihoods and disasters, In: *Encyclopedia of Natural Hazards*, Springer, 2016, 633–637. Available Online: https://doi.org/10.1007/978-1-4020-4399-4_220
- ⁹¹ B. Wisner, J. C. Gaillard & I. Kelman, *The Routledge Handbook of Hazards and Disaster Risk Reduction*, Routledge, 2012.
- ⁹² A. K. Jha & J. E. Duyne, *Safer homes, stronger communities: A handbook for reconstructing after natural disasters*, World Bank, 2010.
- ⁹³ FEMA, FEMA disaster program information, Washington, DC: U.S. Government Printing Office, 2008.
- ⁹⁴ L. Davies, *Adaptive social protection: Linking social protection with disaster risk reduction and climate change adaptation*, Institute of Development Studies, 2016.
- ⁹⁵ P. Rana, T. P. Rahmadhani & I. Prihantika, *Role of social protection and disaster management: A bibliometric and systematic literature review*, **Journal of Research in Social Sciences and Humanities**, 3(2), 2022, 40–60.
- ⁹⁶ D. P. Aldrich & M. A. Meyer, *Social capital and community resilience*, **American Behavioral Scientist**, 59(2), 2015, 254–269. Available Online: <https://doi.org/10.1177/0002764214550299>
- ⁹⁷ S. Park, S. Kim, G.-U. Kim & D. Noh, *Effects of social support on mental health outcomes in disasters: A cross-sectional study*, **Nursing & Health Sciences**, 23(2), 2021, 456–465. Available Online: <https://doi.org/10.1111/nhs.12830>
- ⁹⁸ V. Gil-Rivas & R.P. Kilmer, *Building community capacity and fostering disaster resilience*, **Journal of Clinical Psychology**, 72(12), 2016, 1318–1332. Available Online: <https://doi.org/10.1002/jclp.22281>
- ⁹⁹ UN-Habitat, *Urban Recovery Framework: An Enabling Institutional and Policy Framework to Support Resilient Urban Recovery*, 2022. Available Online:

https://unhabitat.org/sites/default/files/2022/04/unhabitat_urf_advocacy_note_march_2022_1.pdf

¹⁰⁰ Whitesock, D., Granfield, R., and Cloud, W. *Recovery Capital Index: A Validated Assessment Tool*. **Face It TOGETHER**, 2018. <https://commonlywell.com/the-recovery-capital-index-a-validated-assessment/>

¹⁰¹ Borre, A., Tsegai, D., and van Westen, G. “*Measuring Recovery Gaps: A Composite Index Approach*.” **Sustainability** 17, no. 3 (2025): 1044. <https://doi.org/10.3390/su17031044>

¹⁰² UN-Habitat. *Urban Recovery Framework: Guidance for Assessing and Planning Urban Recovery*. Nairobi: United Nations Human Settlements Programme, 2022. <https://unhabitat.org/urban-recovery-framework>

¹⁰³ M. A. Khan, F. Dakyaga, G. Chilinde et al., *Urban marginality: Everyday practice of building resilience to flood in the informal Settlement of Dar es Salaam*, **GeoJournal**, 89, 2024, 103. Available Online: <https://doi.org/10.1007/s10708-024-11117-3>

¹⁰⁴ J. L. Neves & M. Espling, *The role of communities in building urban flood resilience in Matola, Mozambique*, **International Journal of Disaster Risk Reduction**, 2025, Article 105262.

¹⁰⁵ M. Pazhuhan & M. Amirzadeh, *Community flood resilience assessment of Saadi neighborhood, Shiraz, Iran*, **Journal of Risk Research**, 27(1), 2023, 21–45. Available Online: <https://doi.org/10.1080/13669877.2023.2288023>

¹⁰⁶ W. Bwanali & M. Manda, *The correlation between social resilience and flooding in low-income communities: A case of Mzuzu City, Malawi*, **International Journal of Disaster Resilience in the Built Environment**, 14(4), 2023, 495–513.

¹⁰⁷ O. Nwaokoro, *Social vulnerability and flood resilience in Lagos State, Nigeria*, Doctoral Dissertation, University of Portsmouth, 2024.

¹⁰⁸ E. Gaisie, A. Adu-Gyamfi & J. K. Owusu-Ansah, *Gender and household resilience to flooding in informal settlements in Accra, Ghana*, **Journal of Environmental Planning and Management**, 65(8), 2022, 1390–1413

- ¹⁰⁹ M. S. Ahmad, R. Shah, S. Khan, J. S. M. Kizi, T. Fatima & A. Malik, *Exploring psychological recovery and coping mechanisms: Post-flood mental health and resilience of women in Punjab, Pakistan*, **Discover Sustainability**, 6(1), 2025, Article 107.
- ¹¹⁰ G. A. Parvin, N. Takashino, M. S. Islam, R. Ahsan, M. G. Kibria & M. A. Abedin, *Does social capital contribute to resilience? Exploring the perspectives of displaced women living in urban slums in Khulna city*, **International Journal of Disaster Risk Reduction**, 94, 2023, Article 103838.
- ¹¹¹ M. N. D. Nanud, A. T. Caylan, J. C. Lagura & G. R. Baluyos, *Capturing the cry of flood victim students: An exploration of their experience and resilience through photovoice*, **EduLine: Journal of Education and Learning Innovation**, 3(4), 2023, 524–542. Available Online: <https://doi.org/10.35877/454RI.eduline2034>
- ¹¹² O. Olonilua & J. O. Aliu, *Reviewing the critical role of coping strategies in enhancing mental health and resilience in disaster survivors*, **Environmental Research: Health**, 3(2), 2025, Article 025006.
- ¹¹³ O. Graham, *Psychological recovery strategies after disasters – A review of existing literature*, 2025
- ¹¹⁴ N. L. Marchetti, E. A. Newnham & D. E. Robinson, *The resilience paradox: Rural self-reliance and the limits of disaster recovery*, **International Journal of Disaster Risk Reduction**, 2025, Article 105660.
- ¹¹⁵ M. Habakuk, V. T. An-Or & J. Agada, *A Christian perspective on the role of religious belief in disaster management for the wellbeing of the society*, **The NOUN Scholar**, 3(1), 2023. Available Online: <https://www.thenounschorlar.nou.edu.ng/wp-content/uploads/2024/03/19TERF1.pdf>
- ¹¹⁶ R. I. F. Gallego & A. O. Balabagno, *The intercultural caring-coping patterns of disaster-displaced families in temporary shelters*, **International Journal of Public Health**, 13(4), 2024, 1978–1989.
- ¹¹⁷ M. Abunyewah, S. A. Okyere, S. K. Diko, M. Kita, M. O. Erdiaw-Kwasie & T. Gajendran, *Flooding in informal communities: Residents' response strategies to flooding and their sustainability implications in Old Fadama, Accra*, In: S. Eslamian & F. Eslamian (eds),

Disaster Risk Reduction for Resilience, Springer: Cham, 2022. Available Online: https://doi.org/10.1007/978-3-030-72196-1_18

¹¹⁸ C. N. Muchiri & R. O. Opiyo, *Community adaptation strategies in Nairobi informal settlements: Lessons from Korogocho, Nairobi-Kenya*, **Frontiers in Sustainable Cities**, 4, 2022, Article 932046.

¹¹⁹ J. Fransen, B. Hati, R. Nyumba & E. van Tuijl, *Community vitality and frugal practices in informal settlements in Nairobi: Towards a typology*, **Cities**, 134, 2023, Article 104179.

¹²⁰ R. Ahmed, *Community resilience to urban flooding: A case study of Shezidao, Taipei*, Master's Thesis, National Taiwan Normal University (Taiwan), 2024.

¹²¹ K. Mpangi, *Urban flooding and its effects on informal small businesses in Zimbabwe: Insights from Gweru Urban*, 2025. Available Online: SSRN 5116324.

¹²² M. Mbwana, M. A. Ntali & Y. M. Ntali, *Living and responding to flood disaster: Perspectives from informal settlements in Dar es Salaam, Tanzania*, **Local Environment**, 2025, 1–22.

¹²³ S. Sachdeva & P. Kumar, *Assessing the household level perception and adaptation strategies to flood risk in informal settlements of Yamuna floodplain in Delhi*, **Natural Hazards**, 121, 2025, 11695–11729. Available Online: <https://doi.org/10.1007/s11069-025-07257-5>

¹²⁴ I. Joshua, M. Ibrahim, A. Abubakar, C. Ejembi, A. Nmadu, N. Usman & K. Adagba, *Community flood disaster preparedness in flood-prone rural and urban communities in Kaduna State, Nigeria*, **African Journal of Health, Safety and Environment**, 4(2), 2023, 34–45. Available Online: <https://doi.org/10.52417/ajhse.v4i2.400>

¹²⁵ H. Haruna, R. Kever, B. Maigari, I. Ahmadu, H. Dathini, U. N. Jibril, D. Salihu & M. Chutiyami, *Psychological Distress and Coping Mechanisms Among Flood-Affected Children In Maiduguri, Nigeria*. 25 June 2025. Available Online: <https://doi.org/10.20944/preprints202506.1944.v1>

¹²⁶ T. O. Michael, *Adapting to climate change-induced flooding: Insights from women traders in the riverine areas of Nigeria—a qualitative study*, **Frontiers in Sustainability**, 5, 2024, Article 1385513.

- ¹²⁷ R. R. Hariani, N. Arisuma & A. Saleh, *Resilience of natural disaster victims based on social capital community recovery strategy for flash floods in Ladang Rimba*, **Jurnal Penelitian Medan Agama**, 15(1), 2024, 19–26.
- ¹²⁸ A. I. Busa, S. Shamsudeen & E. Aruwayo, *Strategies for ensuring continuity of education in flood-affected areas in Northern Nigeria: The role of educational managers*, **Sokoto Educational Review**, 24(1), 2025, 33–45. Available Online: <https://www.sokedureview.org/index.php/SER/article/view/532>
- ¹²⁹ R. A. Adimula & O. A. Abdusalam, *Leadership roles in mitigating flood-induced displacement in Patigi, Kwara State, Nigeria*, **Open Journal of Leadership**, 13, 2024, 464–487. Available Online: <https://doi.org/10.4236/ojl.2024.134025>
- ¹³⁰ T. Osayomi, P. Olobo Jnr, T. Ogunwumi, O. C. Fatayo, L. E. Akpoterai, Z. H. Mshelia & I. U. Abatcha, *“I lost all I had to the flood...”: A post-disaster assessment of the 2018 Kogi State flood in Nigeria*, **Ife Social Sciences Review**, 30(2), 2022, 1–20. Available Online: <https://issr.oauife.edu.ng/index.php/issr/article/view/184>
- ¹³¹ C. E. Haque, M. A. K. Azad & M. U. I. Choudhury, *Social learning, innovative adaptation and community resilience to disasters: The case of flash floods in Bangladesh*, **Disaster Prevention and Management: An International Journal**, 31(5), 2022, 601–618.
- ¹³² *Cooperative membership and recovery of flood victims in Anambra State, Nigeria*, **International Journal of Research in Cooperative Economics and Management (IJRCem)**, 13(1), 2024, 56–68. Available Online: <https://www.ijrcem.com/index.php/ijrcem/article/view/6>
- ¹³³ M. Butt, *The role of diaspora remittances in the 2022 Pakistan flood recovery: Norwegian Pakistani located in Oslo*, Master’s Thesis, Norwegian University of Science and Technology, 2023. Available Online: <https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3101762>
- ¹³⁴ H. Saputra, P. W. Iswara, N. N. F. M. Nor & F. Usman, *Multidimensional factors shaping older persons’ resilience to floods in Madura Island, Jàmbá*. **Journal of Disaster Risk Studies**, 17(1), 2025, Article 1755.
- ¹³⁵ A. R. Eniwotu & A. Otite, *The ripple effects of flooding on women in Nigeria*, **Journal of Public Administration, Finance & Law**, 28, 2023.

- ¹³⁶ N. Dangol, *Shaping the perception of flood risk among residents of riverbank informal settlements in Kathmandu*, **International Journal of Disaster Risk Reduction**, 105, 2024, Article 104423
- ¹³⁷ M. Y. Hwang, *Flood preparedness, response and recovery of flood affected business owners in Shah Alam in 2021*, Final Year Project, UTAR, 2022
- ¹³⁸ S. S. Danhassan, A. Abubakar, A. S. Zangina, M. H. Ahmad, S. A. Hazaea, M. Y. Ishak & J. Zhang, *Flood policy and governance: A pathway for policy coherence in Nigeria*, **Sustainability**, 15, 2023, Article 2392. Available Online: <https://doi.org/10.3390/su15032392>
- ¹³⁹ E. Mavhura, T. Manyangadze, C. Mudavanhu et al., *An assessment of riparian communities' preparedness to flood risk: The case of Mbire communities in Zimbabwe*, **GeoJournal**, 87, 2022, 1671–1693. Available Online: <https://doi.org/10.1007/s10708-020-10329-7>
- ¹⁴⁰ A. O. Akanwa et al., *Changing climate, flood footprints, and climate-related actions: Effects on ecosocial and health risks along Ugbowo-Benin Road, Edo State, Nigeria*, In: U. Chatterjee, A. O. Akanwa, S. Kumar, S. K. Singh & A. Dutta Roy (eds), *Ecological Footprints of Climate Change*, **Springer Climate**, Springer: Cham, 2022. Available Online: https://doi.org/10.1007/978-3-031-15501-7_30
- ¹⁴¹ D. E. Agbiboa, *May Nigeria not happen to you free*, **Current History**, 124(862), 2025, 194–196. Available Online: <https://doi.org/10.1525/curh.2025.124.862.194>
- ¹⁴² G. C. Nche, *'We need rain to survive, but it shouldn't be too much': A tale of flood victims in Kogi State, Nigeria*, **Cogent Social Sciences**, 10(1), 2024. Available Online: <https://doi.org/10.1080/23311886.2024.2350140>
- ¹⁴³ M. L. Joof, *Climate change adaptation and injustice in informal settlements: The case of EBO Town, The Gambia*, Doctoral Dissertation, Middle East Technical University (Turkey), 2025.
- ¹⁴⁴ M. Sharma, J. Mohan & A. M. Jagmohan, *Gendered spaces, climate change and resilience in a squatter slum of Global South*, In: V. R. Sharma & Chandrakanta (eds), *Making India Disaster Resilient*, **Springer**: Cham, 2024. Available Online: https://doi.org/10.1007/978-3-031-50113-5_16

- ¹⁴⁵ T. Shabu, I. Mngutyo, L. Rikko, D. Alaci, V. Idakwo, E. Tom et al., *Analysis of household and community flood resilience in Makurdi Town of Benue State, Nigeria*, 2025.
- ¹⁴⁶ R. Karuga, R. Steege, I. Njoroge, M. Liani, N. Wiltgen Georgi, L. Otiso et al., *Leaving no one behind: A photovoice case study on vulnerability and wellbeing of children heading households in two informal settlements in Nairobi*, **Social Sciences**, 11(7), 2022, Article 296.
- ¹⁴⁷ O. Odunsi & M. Onanuga, *Modelling resilience to extreme climate events: A household-based study of flood disaster in Nigeria*, **Town and Regional Planning**, 81, 2022, 97–112.
- ¹⁴⁸ T. M. Gbigbi, R. N. Okoh & F. O. Achoja, *Evaluating the differential role of public-private credit sources in financing climate change adaptation technologies for rural farmers in Delta State, Nigeria*, **Research Journal of Agricultural Economics and Development**, 3(2), 2024, 79–97. Available Online: <https://doi.org/10.52589/RJAEDYJTOQVUD>
- ¹⁴⁹ C. M. Abraham, K. Essien, E. P. Amba, E. E. Eyoh, I. J. Ibanga, M. S. Ebong & U. J. Jimmy, *Assessment of community resilience and environmental casualties in a flood-prone terrain of Uyo Urban, Akwa Ibom State, Nigeria*, **Ibom Journal of Social Issues**, 11(1), 2022, 48–59.
- ¹⁵⁰ S. M. Dias, A. C. Ogando, V. C. Broto, B. Cypriano & J. Gonçalves, *Climate-change impacts and adaptation strategies: Waste pickers' experiences from Brazil*, **Women in Informal Employment: Globalizing and Organizing (WIEGO) Brief**, 29, 2023, 11.
- ¹⁵¹ E. Ebhuoma & L. Leonard, *An operational framework for communicating flood warnings to indigenous farmers in southern Nigeria: A systems thinking analysis*, **GeoJournal**, 86, 2021, 2639–2656. Available Online: <https://doi.org/10.1007/s10708-020-10221-4>
- ¹⁵² A. R. Piya & A. Parvin, *Exploring disaster vulnerability of children in urban informal settlements: A built environment perspective*, In: **SETSCI-Conference Proceedings**, 20, December 2024, 187–193.
- ¹⁵³ J. C. Tasantab, T. Gajendran & K. Maund, *Expanding protection motivation theory: The role of coping experience in flood risk adaptation intentions in informal settlements*, **International Journal of Disaster Risk Reduction**, 76, 2022, Article 103020.

- ¹⁵⁴ A. N. Haque, *Climate risk responses and the urban poor in the global South: The case of Dhaka's flood risk in the low-income settlements*, **International Journal of Disaster Risk Reduction**, 64, 2021, Article 102534.
- ¹⁵⁵ A. Barau & A. S. Wada, *Do-it-yourself flood risk adaptation strategies in the neighborhoods of Kano City, Nigeria*, In: **African Handbook of Climate Change Adaptation**, Springer: Cham, 2021, 1353–1380.
- ¹⁵⁶ A. Echendu, *Urban flooding and changing landscapes: Investigating urban communities' experiences, perceptions, and knowledge for improvement of flood risk management in Nigeria*, Doctoral Dissertation, 2023.
- ¹⁵⁷ L. Ciamei & J. K. Hollekamp, *When the waters rise: Disaster resilience in Manila's informal settler communities*, Master Thesis Series in Environmental Studies and Sustainability Science, 2025.
- ¹⁵⁸ Md. Shamsuddoha, T. U. Jenat & S. N. A. Rabbi, *Effectiveness of migration as adaptation to climate change: A gender-focused assessment in an urban slum of Barisal City Corporation, Bangladesh*, 2025. Available Online: <https://ssrn.com/abstract=4958347> or <http://dx.doi.org/10.2139/ssrn.4958347>
- ¹⁵⁹ E. K. Galappaththi & A. Schlingmann, *The sustainability assessment of indigenous and local knowledge-based climate adaptation responses in agricultural and aquatic food systems*, **Current Opinion in Environmental Sustainability**, 62, 2023, Article 101276.
- ¹⁶⁰ H. K. Dauda, S. Abbas & G. C. Amaefule, *Evaluating NEMA's preparedness and response to flood disasters in Sabon Gari Local Government Area, Kaduna State*, 2025.
- ¹⁶¹ A. Ude & I. Eneh, *Interrogating disaster management in the South East Nigeria: Problems and way forward*, **NG Journal of Social Development**, 14(1), 2024, 181–205.
- ¹⁶² L. Mushi, F. Salukele & N. F. Mwageni, *Awareness of disaster risk management and emergency response legislations and strategies in Tanzania: A case of Dar es Salaam City*, November 25, 2024. Available Online: <https://ssrn.com/abstract=5048229> or <http://dx.doi.org/10.2139/ssrn.5048229>

- ¹⁶³ E. B. Kasimbazi, *Analysis of legal and regulatory frameworks for disaster risk management in Africa*, In: **Research Handbook on Disasters and International Law**, Edward Elgar Publishing, 2024, 320–342.
- ¹⁶⁴ O. H. Okunola, *Beyond institutional silos: Rethinking multilevel disaster risk governance in Africa a decade into the Sendai Framework implementation*, **International Journal of Disaster Risk Science**, 16, 2025, 321–332. Available Online: <https://doi.org/10.1007/s13753-025-00646-1>
- ¹⁶⁵ M. A. Samad, M. N. Ali & M. Khairil, *Indonesian disaster governance: Public policy and social economic impact*, **Ilkogretim Online**, 20(5), 2021.
- ¹⁶⁶ R. Okwei, D. Adjaison, L. Adeetuk, S. K. Kutor, D. O. Ofori, E. Bandauko & G. Arku, *Community perceptions on institutional gaps in flood disaster preparedness and management in Mepe community, Ghana*, **Local Environment**, 2025, 1–19. Available Online: <https://doi.org/10.1080/13549839.2025.2477026>
- ¹⁶⁷ S. M. Mitchell & E. Pizzi, *Patterns of government disaster policy response in Peru*, **World Development**, 182, 2024, Article 106707.
- ¹⁶⁸ N. Sultana, *Understanding local-level institutional barriers in landslide disaster management: A qualitative study on southeast Bangladesh*, **Landslides**, 2025. Available Online: <https://doi.org/10.1007/s10346-025-02562-3>
- ¹⁶⁹ A. D. Muhammad, *Participatory approach for flood vulnerability assessment in selected communities downstream of Jebba Dam, Niger State, Nigeria*, Doctoral Dissertation, 2022.
- ¹⁷⁰ D. E. Salaam, *Awareness of disaster risk management and emergency response legislations and strategies in Tanzania: A case of Dar es Salaam City*, 2025.
- ¹⁷¹ J. J. Dukiya & O. Benjamine, *Building resilience through local and international partnerships, Nigeria experiences*, **International Journal of Disaster Risk Management**, 3(2), 2021, 11–24.
- ¹⁷² C. B. Alexander, S. M. B. Frank & G. V. Ukwoma, *Assessing the impact of flooding on food security in Ahoada East/Ahoada West Government Area of Rivers State, Nigeria*, **Journal of Research in Social Science and Humanities**, 4(6), 2025, 1–12. Available Online: <https://doi.org/10.56397/JRSSH.2025.07.01>

- ¹⁷³ O. M. Motloun, *Effects of flood disasters on vulnerable residents in informal settlements in South Africa*, **African Journal of Development Studies**, 14(3), 2024.
- ¹⁷⁴ S. A. Okyere, M. Abunyewah, J. Addai, S. L. Mensah, L. K. Frimpong & C. Kwang, *Faith-based organisations and disaster management in informal urban Accra*, **Environmental Hazards**, 23(5), 2024, 482–505. Available Online: <https://doi.org/10.1080/17477891.2024.2333738>
- ¹⁷⁵ N. T. Ner, S. A. Okyere, M. Abunyewah & M. Kita, *Integrating resilience attributes into local disaster management plans in Metro Manila: Strengths, weaknesses, and gaps*, **Progress in Disaster Science**, 16, 2022, Article 100249.
- ¹⁷⁶ A. Adeagbo, A. Kehinde & A. Bamire, *Climate change adaptation strategies by smallholder farmers in Nigeria: What role do social capital formations play in the adoption process?*
- ¹⁷⁷ D. Y. Alia, C. L. Anderson, M. de Milliano, A. Meysonnat, C. Hennessy & T. de Hoop, *Informal savings groups and food security during the COVID-19 pandemic: Evidence from Nigeria*, **Data & Policy**, 7, 2025, Article e46. Available Online: <https://doi.org/10.1017/dap.2025.10007>
- ¹⁷⁸ A. E. Unuigboje, C. Peprah & E. Oduro-Ofori, *Assessing the extent of effectiveness of indigenous adaptation practices to flood disasters in Benin Metropolis, Nigeria*, **Journal of the Nigerian Institute of Town Planners**, 30(1), 2025, 44–56. Available Online: <https://nitpjournals.ng/index.php/jnitp/article/view/11>
- ¹⁷⁹ E. S. Azubuike, B. L. Godwin & M. E. Obuzor, *Flood and traditional coping strategy in Ahoada East (2012–2020), Rivers State*, **African Journal of Social Sciences and Humanities Research**, 6(2), 2023, 68–80. Available Online: <https://doi.org/10.52589/AJSSHRC0ERVUO2>
- ¹⁸⁰ C. Amoako, B. Doe & R. Adamtey, *Flood responses and attachment to place within low-income neighbourhoods in Kumasi, Ghana*, **African Geographical Review**, 42(1), 2021, 1–13. Available Online: <https://doi.org/10.1080/19376812.2021.1968445>
- ¹⁸¹ A. J. O. Montiel, S. J. B. Capuyan, J. H. Silverio, M. J. Olayer, S. P. Abiera & R. G. Dagohoy, *The plight of informal settlers in the coastal areas of Panabo City: A basis for*

intervention, **International Journal of Research and Innovation in Social Science**, 5(07), 2021, 341–349.

¹⁸² S. IgudaLadan & J. Y. Saulawa, *Flood disaster response and recovery in Nigeria: A case study of 2018 Jibia flood disaster, Katsina State*, **Journal of Environmental Science, Toxicology and Food Technology**, 15(4), 2021, 08–18.

¹⁸³ A. Adegbite, *Cultural dimensions in addressing transboundary pollution: South African and Nigerian perspectives*, **Beijing Law Review**, 16, 2025, 591.

¹⁸⁴ A. Ofosu, *Household flood vulnerability and resilience strategies in Otodjor-Dansoman in the Accra-Tema City Region, Ghana*, Master's Thesis, Miami University, 2024.

¹⁸⁵ B. B. Shreevastav, K. R. Tiwari, R. A. Mandal & B. B. K. Chhetri, *Rainfall dynamics, people's perception about flood and indigenous adaptation practices: A study from Sarlahi and Rautahat, Nepal*, 2022.

¹⁸⁶ O. Kolade, R. Smith & S. James, *Picking up the Pieces: Social Capital and Entrepreneurship for Livelihood Recovery Among Displaced Populations in Northeast Nigeria*, in O. Kolade, D. Rae, D. Obembe & K. Woldesenbet Beta (eds.), **The Palgrave Handbook of African Entrepreneurship**, Palgrave Macmillan: Cham, 2022, 301–317.
Available Online: https://doi.org/10.1007/978-3-030-75894-3_16

Chapter Three Methodology

This chapter provides a detailed explanation of the research methodology adopted for this study. It outlines the research design, study area, sampling strategy, data collection instruments, and analysis techniques used to explore post-flood recovery strategies among Lagos's street-life populations. Ethical considerations, instrument reliability, and study limitations are also addressed. The aim of this chapter is to demonstrate how the research tools align with the study objectives

3.1 Research Design and Approach

This study used a case study research design. A mixed-methods design, combining qualitative and quantitative approaches to better understand how street-life populations in Lagos recover from flood events was adopted. The qualitative aspect was aimed at exploring lived experiences, cultural practices, and coping mechanisms through in-depth interviews and focus group discussions. This brought out the context and social meanings that would otherwise be difficult to capture using numeric data alone.

The quantitative component, on the other hand, was designed to collect data using a survey instrument. The goal was to assess measurable trends, including how coping strategies, support access, and livelihood restoration differ across demographic groups. This data also contributes to developing a Street-Based Recovery Index (SBRI), which serves as a tool for comparing recovery capacity across the sample. Both components of this study provide depth and generalizability, complementing each other through a triangulation process. This design was selected to ensure that both the “why” and “how much” of post-flood recovery are covered in the findings of this study¹.

3.2 Population of the Study

The study focused on the Lagos–Ogun Corridor, specifically the communities within Agege and Ifako-Ijaiye LGAs in Lagos State, and Ifo LGA in Ogun State. This peri-urban fringe

represents a transitional space where the urban sprawl of Lagos spills into less regulated terrain. These locations were selected due to their high exposure to seasonal flooding, rapid and unplanned development, and vulnerability stemming from low-lying topography and blocked drainage systems². They also reflect broader climate-related health and housing challenges observed along the corridor, particularly among informal populations³.

Street-life groups such as migrant hawkers, informal waste pickers, displaced families, and under-bridge dwellers are heavily present in these areas. They rely on precarious or mobile livelihoods with limited access to formal safety nets. The selected corridor aligns well with the research objectives, especially in examining how recovery strategies differ across social groups. Its flood history, coupled with limited institutional presence, makes it a strong site for observing both resilience and vulnerability.

Participants included individuals aged 10 and above, allowing the study to capture experiences from adolescents, young adults, and older street-involved individuals.

3.3 Sample and Sampling Techniques

This study used a combination of purposive, stratified, and snowball sampling methods to reflect its mixed-methods approach.

- **Qualitative sample:** A total of 17 in-depth interviews (IDIs) were conducted across the six study communities, with respondents drawn from diverse age categories, genders, and migrant statuses. In addition, three focus group discussions (FGDs) were held: one with Hausa migrant women, one with street children (12–17 years), and one with young men commonly referred to as “area boys.” These FGDs provided shared perspectives and collective narratives of coping and recovery.
- **Quantitative sample:** A survey was administered to 57 respondents. Participants were identified through a snowball process, beginning with known street-based

clusters (e.g., under bridges, parks, and markets). Early respondents referred others, reflecting the transactional survival economy that defines these populations.

The achieved sample size was determined by feasibility and access rather than statistical representation, but it was sufficient to enable comparative analysis across gender, age, and migrant status.

3.4 Description of the Research Instruments

3.4.1 Qualitative Instruments

For the qualitative aspect of the study, the main tool was a semi-structured interview guide lasting approximately 30 minutes per session. It is designed around five thematic areas: (1) Flood Experience, (2) Coping Strategies, (3) Support Systems, (4) Recovery Pathways, and (5) Participant Recommendations. The open-ended nature of the guide is intended to encourage flexibility while keeping discussions grounded in the research aims. In addition to the interviews, three focus group discussions (FGDs) were conducted.

3.4.2 Quantitative Instruments

The structured survey questionnaire will be administered electronically using KoboCollect. It is composed of the following five sections:

A. Demographics: Age, gender, migrant status, education, and type of living area.

B. Flood Exposure and Loss: Duration of displacement, type, and number of assets lost.

C. Coping Strategies: This section includes 12 items adapted from selected subscales of the Brief COPE Inventory⁴. The following subscales will be adopted:

Active Coping, Planning, Emotional Support, Instrumental Support, Positive Reframing, and Religion. These are selected for their relevance to informal and low-income populations. Respondents will rate each coping item on a 4-point Likert scale (1 = 'I haven't been doing

this at all’ to 4 = ‘I’ve been doing this a lot’), which is in line with the original Brief COPE Inventory format.”

D. Support Systems Inventory: This section captures the extent of support received from both formal (e.g., NEMA, NGOs) and informal sources (e.g., religious groups, neighbours, Ajo/Esusu groups), rated on a 4-point scale.

E. Recovery Outcome Indicators: This section uses six indicators directly drawn from the conceptual framework: (1) Livelihood Restoration (e.g., time to resume work), (2) Shelter and Housing Access, (3) Access to Support Systems, (4) Access to Healthcare, (5) Coping Strategies Used, and (6) Social Inclusion (e.g., sense of belonging or discrimination). Responses will be rated using a 4-point Likert-type scale measuring access or experience frequency.

3.4.3 Street-Based Recovery Index (SBRI) Scoring Rubric

To allow comparisons across participants, the above modules were scored, normalized, and weighted to construct a composite recovery index (0–100 scale). Each module was assigned a weight reflecting its relative importance based on both literature and the priorities emerging from preliminary field conversations:

- i. Flood Exposure and Loss: 10%
- ii. Coping Strategies: 30%
- iii. Access to Support Systems: 30%
- iv. Recovery Outcomes: 40%
- v. Social and Demographic Profile

The rationale for this weighting is that the recovery outcome indicators, such as income return, housing access, and healthcare access, represent the clearest signs of recovery and are thus assigned the highest weight (40%). Coping strategies and support systems are assigned

moderate weights (30% each) due to their known influence on resilience. Exposure and loss are weighted at 10% since they reflect the scale of impact rather than the capacity to recover.

These weights were applied based on expert judgement. However, they provide a clear starting point for operationalizing the recovery process into an index that can support both descriptive and comparative analysis.

3.5 Validity of Research Instruments

In the qualitative aspect, field notes were recorded during interviews and focus group discussions (FGDs) to provide contextual depth and transparency. These notes supported interpretation and allowed engagement with the data.

For the quantitative aspect, the survey questionnaire underwent pilot testing with approximately 4 participants before full deployment. This step was used to evaluate item clarity, cultural relevance, and appropriateness of scale usage within the study context. Additionally, the composite Social Recovery Index (SBRI) was reviewed during the pilot to assess how participants interpreted item groupings and whether any variables required refinement or removal. These checks helped strengthen the instrument's validity and ensured alignment with the lived realities of the target population.

3.6 Reliability of Research Instruments

The reliability of the multi-item scales, including the Brief COPE subscales and Recovery Outcome indicators, were assessed using Cronbach's alpha⁵. This analysis was conducted in R, and an alpha threshold of 0.70 or higher was used to determine acceptable internal consistency. This process ensures that the survey measures coping and recovery constructs in a stable and replicable manner.

3.7 Data Collection

Data collection was carried out in two phases, aligned with the qualitative and quantitative components of the study.

3.7.1 Qualitative Data Collection

Qualitative data were obtained through seventeen (17) in-depth interviews (IDIs) and three (3) focus group discussions (FGDs). The semi-structured interview guide (Appendix II) was designed around five thematic areas: flood experience, coping strategies, support systems, recovery pathways, and recommendations. This ensured flexibility in the conversations while maintaining alignment with the study objectives.

Field assistants who were fluent in Hausa were engaged to facilitate communication with migrant respondents. This was necessary to overcome language barriers and to encourage participants to narrate their experiences freely in their preferred dialect. The FGDs were organised with three distinct groups: Hausa migrant women, street children in Agbado, and youth locally referred to as "*area boys*." Care was taken to ensure that no individual participated in both IDIs and FGDs. Field notes were also kept to document contextual details and non-verbal cues that complemented the transcripts.

3.7.2 Quantitative Data Collection

Quantitative data were gathered using a structured questionnaire administered through KoboCollect (Appendix I). The instrument comprised seven sections: (A) socio-demographic profile, (B) flood exposure and loss, (C) coping strategies adapted from selected subscales of the Brief COPE, (D) support systems, (E) recovery outcomes, (F) cultural and spiritual practices, and (G) open suggestions. Sections C–E were used directly in constructing the Street-Based Recovery Index (SBRI), while Sections F and G provided contextual insight into recovery practices.

A total of fifty-seven (57) respondents were surveyed across six communities situated within three Local Government Areas (LGAs). Stratified snowball sampling was employed to ensure representation of gender and migrant status, while also recognising the transactional survival economy of street populations. The surveys were conducted face-to-face in open environments such as motor parks, markets, and roadside shelters, and each session lasted approximately 20–25 minutes. Respondent referrals by peers were critical in securing participation, reflecting the hidden and hard-to-reach nature of the study population.

3.8 Data Analysis

The analysis of data was carried out in line with the study's objectives, using both qualitative and quantitative techniques. Descriptive statistics, inferential tests, and thematic interpretation were combined to capture different dimensions of post-flood recovery. All analyses were conducted in R, while qualitative transcripts were coded manually following Braun and Clarke's framework. The following paragraphs describe the analysis procedures for each research objective.

Objective 1: To profile the socio-demographic characteristics of street-life populations

Descriptive statistics such as frequencies, percentages, means, and medians were used to summarize respondents' background information. Variables captured included age, gender, education level, marital status, migrant status, weekly earnings, number of dependents, years on the street, sleeping arrangements, and main income source. Cross-tabulations were further carried out to explore relationships between variables, such as gender and age group, gender and migrant status, gender and income type, and age group and income range. In addition, a co-occurrence analysis of identity groups was conducted to show overlaps among respondents (e.g., being both a migrant and disabled, or both a hawker and an adolescent). This procedure provided a holistic profile of the street-life population across the six study communities.

Objective 2: To document the lived flood experiences of street-life populations during flood disasters

Quantitative exposure indicators such as peak water level, warnings received, evacuation status, displacement, injury, and duration of impact were analyzed using descriptive statistics (frequencies, percentages, medians, and quantiles). Asset loss was summarized in percentages. Alongside this, qualitative data from in-depth interviews and focus group discussions were subjected to thematic analysis using Braun and Clarke's six-phase approach. Narratives were organized under migrant, non-migrant, and stakeholder perspectives, reflecting the different ways floods were experienced and interpreted. The combination of descriptive statistics and thematic accounts provided a comprehensive view of lived realities during and after flood events.

Objective 3: To identify coping strategies employed after floods

Quantitative coping strategies were measured using a modified Brief COPE Inventory on a four-point Likert scale. Reliability testing was performed using Cronbach's alpha, and a coefficient of 0.91 confirmed excellent internal consistency across the 12 coping items. Descriptive statistics and ranking were then used to highlight the most and least frequently employed strategies. These results were complemented by qualitative insights from interviews and focus groups, which explained how prayer, migration, avoidance, and other strategies were actually practiced in everyday survival.

Objective 4: To examine variations in recovery outcomes across socio-demographic groups

To determine whether recovery outcomes varied by group characteristics, both descriptive and inferential techniques were employed. Medians were computed for recovery indicators within five domains: livelihood, shelter, health and services, social inclusion, and preparedness. The Wilcoxon Rank-Sum (Mann-Whitney U) test was used to compare outcomes between males and females. The Kruskal-Wallis H test was applied to compare outcomes across multiple categories, including age groups, migrant status, income types, education levels, and years spent on the street. This approach allowed the study to establish whether differences in recovery were statistically significant and to interpret the role of social and demographic factors in shaping recovery patterns.

Objective 5: To evaluate the roles of formal and informal support systems

The analysis of support systems relied mainly on descriptive statistics. Percentages were used to show the distribution, timing, type, and usefulness of support received, as well as barriers faced in accessing such support. Bar charts and heat maps were used to visualize the comparative usefulness of formal versus informal support across migrant status and years on the street. Triangulation was achieved by integrating excerpts from IDIs and FGDs, which explained the lived realities behind these numbers such as reliance on neighbours and

religious groups, disappointment with government promises, and the symbolic role of prayer and community rituals.

Objective 6: To construct the Street-Based Recovery Index (SBRI)

A composite recovery index was developed through a six-step procedure. First, data were cleaned and recoded to ensure consistency across binary, ordinal, and multiple-response items. Second, sub-indices were constructed for coping, recovery outcomes, support systems, and exposure by averaging responses within each domain. Third, each sub-index was normalized on a 0–1 scale using the min–max method to ensure comparability. Fourth, weights were assigned based on expert judgment: coping (0.30), recovery outcomes (0.40), support systems (0.20), and exposure (0.10). Fifth, weighted scores were summed for each respondent to produce an overall SBRI score. Finally, respondents were categorized into three tiers of recovery: very vulnerable (0.00–0.33), partial recovery (0.34–0.66), and high recovery (0.67–1.00). Cross-tabulations of SBRI scores by community, income type, and migrant status were then conducted to illustrate how recovery differs across groups.

3.9 Ethical Consideration

All participants received a full explanation of the study's purpose, confidentiality procedures, and their right to withdraw at any time. Informed consent was obtained orally.

3.10 Summary

This chapter outlined the methodological steps taken to examine post-flood recovery among street-life populations in Lagos and Ogun. A mixed-methods design was employed, combining structured surveys with in-depth interviews and focus group discussions. The survey generated quantitative measures of exposure, coping, recovery, and support systems,

while the interviews and FGDs provided qualitative depth on lived experiences and cultural practices.

Data were analyzed using descriptive and inferential statistics on the quantitative side, and thematic analysis on the qualitative side. The Street-Based Recovery Index (SBRI) was constructed by normalizing and weighting indicators across four domains—exposure and loss, coping strategies, support systems, and recovery outcomes to produce a composite recovery score.

Overall, the methodology ensured that both measurable patterns and lived experiences were captured, providing a balanced framework for understanding recovery dynamics (Table 3.1).

Endnotes

¹J.W. Creswell & V.L. Plano Clark, *Designing and Conducting Mixed Methods Research*, 3rd ed., **Sage Publications**, Thousand Oaks, CA, 2018.

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

³ I. Olufadewa, O. Abiodun, R. Oladele, O.I. Eze, Q. Adeyemo, J. Omale & O. Afolabi, *Climate, health, and living condition crises in the expanding informal settlements and slums of South-West Nigeria: A case report of Ogun and Oyo states*, **Journal of Global Health**, 15, 2025, 03051

⁴ C.S. Carver, *You want to measure coping but your protocol's too long: Consider the Brief COPE*, **International Journal of Behavioral Medicine**, 4(1), 1997, 92–100. Available Online: https://doi.org/10.1207/s15327558ijbm0401_6

⁵ L.J. Cronbach, *Coefficient alpha and the internal structure of tests*, **Psychometrika**, 16(3), 1951, 297–334. Available Online: <https://doi.org/10.1007/BF02310555>

Table 3.1 Research Design and Data Logic Framework

Research Question	Objective	Data Needed	Data Sources	Methods of Analysis	Assumptions
What are the socio-economic characteristics of street-life populations in Lagos?	Examine the socio-economic characteristics of street-life populations in Lagos, including age, gender, education, income sources, and migrant status.	Age, gender, education, marital status, income source, migrant status, length of time on the street, usual sleeping place, and dependents.	Questionnaire: Section A (Demographics & Background) via KoboCollect. Qualitative: Observation notes; contextual insights from FGDs.	Quantitative: frequencies, percentages, means, medians, standard deviations, cross-tabulations in R. Qualitative: descriptive summaries from observation notes and relevant FGD words. Triangulation: compare statistical patterns with qualitative context to validate and explain findings.	Respondents will share honest basic information when confidentiality is assured. The sample will reflect a reasonable spread across age, gender, and migrant status.
What coping strategies are most commonly employed after floods, and how do these contribute to resilience?	Identify and analyze coping strategies commonly employed following flood events and assess how these strategies contribute to resilience.	Brief COPE items (selected subscales); locally grounded practices (e.g., prayer, fasting, saara, group savings); short narratives on what worked.	Questionnaire: Section C (Coping Strategies – Brief COPE); Section F (Cultural/Informal Practices) via KoboCollect. Qualitative: FGDs; in-depth interviews.	Quantitative: frequencies, percentages, means, standard deviations for each coping strategy; Cronbach's alpha to assess reliability of coping scales. Qualitative: thematic coding of interviews and FGDs using Braun & Clarke's 6-phase framework. Triangulation: compare the prevalence of coping strategies with qualitative	Participants can recall their post-flood coping actions. Sensitive or cultural coping practices will be discussed openly once trust is built.

				themes.	
How do post-flood survival mechanisms differ across age, gender, and migrant status?	Explore variations in post-flood survival mechanisms across demographic categories.	Coping scores, recovery outcome indicators, and demographic profile.	Questionnaire: Section A (Demographics & Background), Section C (Coping Strategies), Section E (Recovery Outcomes) via KoboCollect. Qualitative: FGDs – subgroup discussions on recovery experiences.	Quantitative: mean and standard deviation by subgroup; t-test for two-group comparisons; one-way ANOVA for three or more groups, followed by multiple comparison tests to identify significant differences; subgroup comparisons of SBRI scores. Qualitative: thematic review of FGD narratives to explore how differences manifest in practice. Triangulation: link statistical differences to lived experiences described in qualitative data.	Each subgroup will have enough participants to make comparisons meaningful. Observed differences will reflect real disparity.
What are the roles of agencies in building and strengthening support systems in post-disaster recovery?	Evaluate the roles of agencies in building and strengthening support systems.	Type and source of support received (formal and informal), timing of support, perceived usefulness, trust in institutions.	Questionnaire: Section D (Support Systems Inventory) and Section F (Informal Support) via KoboCollect. Qualitative: Key Informant Interviews; FGDs.	Quantitative: frequencies and percentages to show common sources of support; cross-tabulations to explore variation by subgroup. Qualitative: thematic synthesis of interview and FGD accounts focusing on agency actions, timing, and effectiveness.	Respondents can distinguish between different types of support and identify who provided them. Descriptions of agency roles will be specific enough to analyse.

				Triangulation: Use qualitative narratives to explain or contrast quantitative patterns of support access.	
How can a Street-Based Recovery Index (SBRI) be developed to measure and compare recovery capacity?	Develop a Street-Based Recovery Index to measure and compare recovery capacity across segments of the street-life population.	Exposure/loss indicators, coping scores, access to support, recovery outcomes, demographic fields for subgroup comparisons, and pilot feedback on clarity.	Questionnaire: Section B (Flood Exposure & Loss), Section C (Coping Strategies), Section D (Support Systems), Section E (Recovery Outcomes) via KoboCollect. Qualitative: notes from respondents.	Quantitative: weighted scoring and normalization in R to produce a 0–100 index; Cronbach’s alpha for reliability; subgroup comparisons; bar and box plots to visualize patterns. Qualitative: notes on question clarity and cultural relevance. Triangulation: refine the index using both statistical performance and qualitative feedback from the field.	The weighting will reflect both literature and community priorities. Pilot testing will confirm that items are understandable, culturally appropriate, and not burdensome.

Source: Author’s Conceptualization, 2025

Chapter Four

Contextual Characterisation and Lived Experiences of Street-Life Flood Recovery Strategies

This chapter presents the characterisation and lived experiences of street-life flood recovery strategies. The chapter presents the results according to the study objectives. Each objective is reported using descriptive tables, figures, and explanatory narratives that highlight key patterns emerging from the data. In some cases, the results are supported with visual summaries to make the outcomes more transparent. Except where stated, all tables emanated from the author's fieldwork.

4.1 Distribution of Questionnaires

In total, 57 questionnaires were distributed across three (3) Local Government Areas (LGAs) and six (6) communities. These areas were selected purposefully due to the presence of this population, flood disturbance and lack of proper/structural infrastructure. This spread shows that the study covered different urban and peri-urban parts of Lagos where street-life populations are concentrated. Table 4.1.1 shows how the responses were distributed across the communities, while Figure 4.1 shows the spatial distribution of these respondents across the study communities.

LGA	Community	Frequency (n)	Percentage (%)
Agege	Pencinema	8	14.0
Ifako-Ijaiye	Abule Egba	10	17.5
	Fagba	10	17.5
	Iju Ishaga	5	8.8
Ifo	Agbado	20	35.1
	Adiyan (Pilot)	4	7.0
Total		57	100

Table 4.1.1: Distribution of Questionnaire by LGA and Community

Agbado in Ifo LGA had the largest share of respondents (37.7%), while Abule Egba and Fagba in Ifako-Ijaiye each had 18.9%. Pencinema in Agege accounted for 15.1%, and Iju Ishaga (Ifako-Ijaiye) had the least representation at 9.4%. This pattern reflects where street-life populations are more concentrated, especially in the peri-urban community of Agbado.

The interviews were also conducted in three languages which are Yoruba, Hausa, and Pidgin. This actually reflects the diversity of the respondents. Table 4.1.2 presents the distribution by language of the interview.

Table 4.1.2: Distribution of Questionnaire by Interview Language

Interview Language	Frequency (n)	Percentage (%)
Yoruba	25	43.9
Hausa	24	42.1
English	8	14.0
Total	57	100

As seen in Table 4.1.2, Yoruba was the most common interview language (43.9%), followed closely by Hausa (42.1%). Only 14.0% of interviews were conducted in English. This shows that most respondents were more comfortable with local languages, which is important for communication during flood response and recovery planning.

Lead City University Ibadan DO NOT COPY

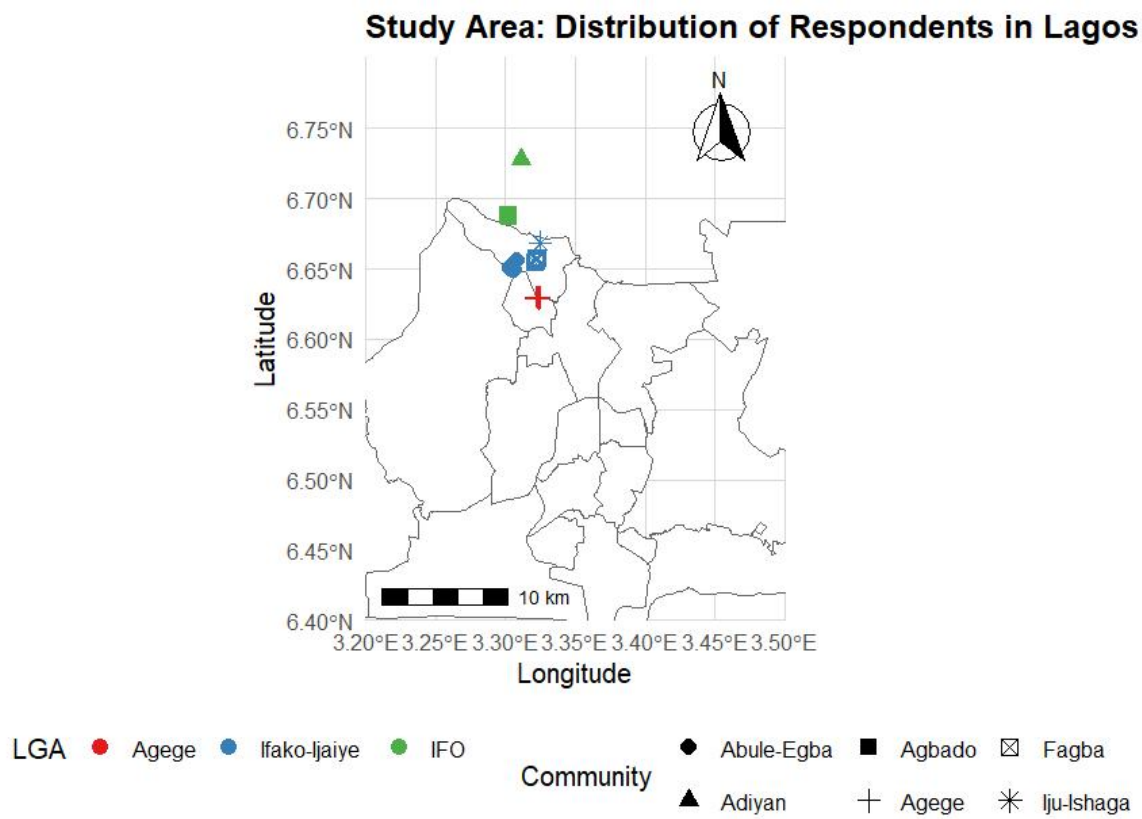


Figure 4.1: Spatial Distribution of the Respondents generated from recorded geopoints from KoboCollect

Source: Author's Fieldwork, (2025)

4.2. Socio-Economic Characteristics of Respondents

This section shows the key socio-demographic characteristics of the 57 respondents surveyed, supported by descriptive tables and percentages, with interpretations provided to highlight patterns that are relevant to post-flood recovery.

Table 4.2.1: Socio-economic profile of the study participants (n=57)

Variables	Value Labels	Frequency (n)	Percentages
Gender	Male	36	63.2
	Female	21	36.8
	Total	57	100
Age Group	15–17 years	1	1.8
	18–30 years	28	49.1
	31–45 years	19	33.3
	46 years+	9	15.8
	Total	57	100
Religion	Islam	36	63.2
	Christianity	21	36.8
	Total	57	100
Marital Status	Single	25	43.9
	Married	17	29.8
	Separated	7	12.3
	Widowed	6	10.5
	Partnered (cohabiting)	2	3.5
	Total	57	100
Education Level	Islamiyah/Qur’anic	16	28.1
	Senior Secondary	10	17.5
	No formal schooling	9	15.8
	Junior Secondary	7	12.3
	Primary	7	12.3
	Tertiary	4	7.0
	Vocational training	4	7.0
	Total	57	100
Main Income Source	Hawking/Street vending	13	22.8
	Casual labour (construction)	8	14.0
	Repairs/Handiwork	8	14.0
	Motor Park loading (“agbero”)	7	12.3
	Waste scavenging/recycling	7	12.3
	Okada/Keke riding	6	10.5

	Begging/Alms	5	8.8
	Other	2	3.5
	Sex work	1	1.8
	Total	57	100
Migrant Status	Migrant	42	73.7
	Non-migrant	15	26.3
	Total	57	100
Years on Street	0–2 years	9	15.8
	3–5 years	11	19.3
	6–10 years	12	21.1
	11–20 years	17	29.8
	21 years+	8	14.0
	Total	57	100
Sleeping Place	Shared informal shelter	31	54.4
	Other (specified)	11	19.3
	Roadside kiosk/container	7	12.3
	Pavement/open space	5	8.8
	Market stall	2	3.5
	Under a bridge	1	1.8
	Total	57	100
Weekly Earnings	Less than 3,000	24	42.1
	3,000–6,000	22	38.6
	6,001–10,000	6	10.5
	More than 10,000	5	8.8
	Total	57	100
Number of Dependents	Yes	32	56.1
	No	24	42.1
	NA	1	1.8
	Total	57	100
Functional Limitation	No	51	89.5
	Yes	6	10.5
	Total	57	100

Many respondents were male (63.2%), while females accounted for 36.8%. This male dominance reflects the gendered spread of street-life populations in this study, where men are more visible in activities such as motor-park loading, waste scavenging, and informal transport. However, the presence of women (over one-third of respondents) shows that street-

based livelihoods in the study area are not exclusively male, as women often engage in hawking, vending, and other vulnerable economic activities.

Also, almost half of the respondents (49.1%) were between 18 and 30 years old, which shows that street-life along the corridor is dominated by young adults. A further 33.3% were aged 31–45 years, while 15.8% were above 46 years. Only one respondent (1.8%) was below 18 years, reflecting that most street-based populations have reached working age. This shows that street populations are largely of working age, with recovery strategies needing to focus on younger adults who face prolonged exposure to flood risk.

The religious composition of respondents shows that there were mainly Muslims (63.2%) and many Christians (36.8%). The mix of Islam and Christianity suggests that religious institutions could be valuable entry points for agencies seeking to support recovery through trusted community channels.

Almost half of the respondents were single (43.9%), while 29.8% were married. Smaller percentages were separated (12.3%), widowed (10.5%), and cohabiting (3.5%). The high number of singles reflects the unstable lifestyle of street populations, where family ties are often disrupted. Still, the presence of married and widowed respondents suggests that recovery planning must account for household responsibilities and dependents.

Most respondents reported that they attended Qur'anic education (28.1%), this is followed by those with some secondary schooling (17.5%). A significant number of the respondents (15.8%) had no formal education, while only 7% reached the tertiary level. This skew toward low formal education explains the limited opportunities for wage employment and reinforces dependence on informal and vulnerable livelihoods. In turn, these education gaps constrain

the ability of many street dwellers to engage with formal recovery systems, leaving them reliant on community-based coping.

Street vending was the most common income source (22.8%), followed by casual labour and handiwork (14% each). Waste scavenging, motor-park work, and informal transport also made-up large shares, reflecting the street economy's dependence on precarious, daily earnings. Begging and sex work, though more minor, point to the desperation among the most vulnerable groups. These income patterns show how fragile livelihoods are, leaving little buffer against shocks such as flooding.

Many respondents were migrants (73.7%), while only about a quarter (26.3%) were long-term residents. This shows the mobility of street populations and the significant presence of northern migrants in Lagos's informal economy. Migration status matters for recovery, as migrants often lack established support networks, housing security, or political voice, making them more exposed to displacement during floods.

Nearly one-third of respondents (29.8%) had lived on the street for 11–20 years, showing long-term presence in perilous conditions. About one-fifth had been on the street for 6–10 years, while 15.8% were newcomers of less than two years. The persistence of long-term street dwellers highlights how flooding impacts not only transient migrants but also entrenched populations with limited prospects of exit. This suggests that recovery strategies must account for both recent entrants, who may lack adaptation experience, and long-term dwellers, who face chronic vulnerability.

More than half of the respondents (54.4%) reported staying in shared informal shelters, such as makeshift shacks or partitioned rooms. About one in five (19.3%) indicated “other” arrangements, which included places like abandoned houses or temporary spots that aren't

easily categorized. Smaller groups slept in kiosks/containers (12.3%), pavements (8.8%), or market stalls (3.5%). A small number (1.8%) lived under bridges. These findings shows the unstable housing of street populations, exposing them to direct hazards when floods occur. Also, their economic conditions were very fragile. Almost half of the respondents (42.1%) earned less than ₦3,000 weekly, and another 38.6% earned between ₦3,000 and ₦6,000. Only 19.3% reported earnings above ₦6,000, with a mere 8.8% exceeding ₦10,000. This pattern indicates that most street dwellers operate at a subsistence level, depending on daily income flows that are easily disrupted by flood events. The narrow economic margin makes recovery from shocks particularly difficult. It was also revealed that more than half of the respondents (56.1%) reported having dependents, while 42.1% had none, and 1.8% did not specify. The presence of dependents means that many respondents were responsible for children or other family members. This adds pressure to already limited resources, making recovery efforts after flooding not only about individual survival but also about sustaining households. It was evident that most respondents (89.5%) reported no functional limitations, while 10.5% indicated some form of disability. Although this is a minor percentage of the population, this is important because persons with disabilities often face additional barriers during flood events, such as reduced mobility, access to evacuation routes, or difficulty re-establishing livelihoods. Their presence in the study shows the need for inclusive recovery planning.

Table 4.2.2: Cross-tabulation of Gender and Age Group

Age Group	Male (n, %)	Female (n, %)	Total (n)
15–17 years	1 (100.0)	0 (0.0)	1
18–30 years	18 (64.3)	10 (35.7)	28
31–45 years	11 (57.9)	8 (42.1)	19
46 years+	6 (66.7)	3 (33.3)	9
Total	36	21	57

This shows that male respondents dominated every age group, making up 100% of the youngest (15–17 years) and 66.7% of those above 46 years. Women were more visible in the middle age brackets (18–45 years), where they represented around 35–42%. This suggests that women in street-life are concentrated in the economically active and child-rearing years, while men persist across all age categories, including the extremes of youth and old age.

Table 4.2.3: Cross-tabulation of Gender and Migration Status

Migration Status	Male (n, %)	Female (n, %)	Total (n)
Migrated from other state	28 (66.7)	14 (33.3)	42
Native of Lagos	8 (53.3)	7 (46.7)	15
Total	36	21	57

This shows that both men and women were more likely to have migrated from other states than to be natives of Lagos. However, men made up two-thirds (66.7%) of the migrant population, compared with one-third women (33.3%). Among native Lagosians, the gender balance was more even, with women accounting for almost half (46.7%). This reflects how

migration into Lagos street-life is strongly male-driven, while women's presence is relatively more stable among indigenes.

Table 4.2.4: Cross-tabulation of Gender and Main Income Source

Income Source	Male (n, %)	Female (n, %)	Total (n)
Hawking/street vending	1 (7.7)	12 (92.3)	13
Casual labour (construction)	7 (87.5)	1 (12.5)	8
Repairs/Handiwork	6 (75.0)	2 (25.0)	8
Motor park loading (agbero)	7 (100.0)	0 (0.0)	7
Waste scavenging/recycling	5 (71.4)	2 (28.6)	7
Okada/Keke riding	6 (100.0)	0 (0.0)	6
Begging/Alms	3 (60.0)	2 (40.0)	5
Sex work	0 (0.0)	1 (100.0)	1
Other	1 (50.0)	1 (50.0)	2
Total	36	21	57

This reveals that the gender split in livelihood activities was very sharp. Hawking and vending were overwhelmingly female (92.3%), while motor-park loading and okada/keke riding were exclusively male. Casual labour and waste scavenging also leaned heavily male, while sex work was exclusively female. Repairs and handiwork showed a mixed but still male-dominated pattern. This division highlights how gender dictates livelihood opportunities in street-life, shaping how men and women experience and recover from flood disruption. Men face risks linked to outdoor manual labour, while women's vulnerability is tied to vending and caregiving roles.

Table 4.2.5: Cross-tabulation of Age Group and Earnings Range

Age Group	< ₦3,000	₦3,000–6,000	₦6,001–10,000	> ₦10,000	Total
15–17 years	1 (4.2)	0 (0.0)	0 (0.0)	0 (0.0)	1
18–30 years	15 (62.5)	9 (40.9)	2 (33.3)	2 (40.0)	28
31–45 years	2 (8.3)	12 (54.5)	3 (50.0)	2 (40.0)	19
46 years+	6 (25.0)	1 (4.5)	1 (16.7)	1 (20.0)	9
Total	24	22	6	5	57

This shows strong age–income link among respondents. Younger adults (18–30 years) were most likely to earn less than ₦3,000 weekly, with 62.5% of them falling into this lowest earning category. Middle-aged respondents (31–45 years) showed slightly better outcomes, with 54.5% earning ₦3,000–₦6,000 weekly. Very few respondents, even in older age groups, crossed the ₦10,000 threshold. Notably, six of the nine respondents aged 46 years and above still earned below ₦3,000, showing that age does not automatically translate into higher income on the streets. Instead, many respondents remain trapped in low-income brackets regardless of their age or experience. This pattern reveals how economic precarity cuts across generations in street-life, constraining recovery capacity.

In addition to the socio-economic characteristics of this population, this study also looked at “identity groups.” These are the identities that street populations are commonly known by, such as Hausa migrants, waste scavengers, agbero, kiosk dwellers, and sex workers. These identities matter because they often determine the kind of work people do, the level of stigma they face, and how vulnerable they are when floods occur. Many respondents carried more than one label, for example being both a migrant and a scavenger. Looking at these overlapping identities helps us to see that recovery challenges are not shaped by just one factor like age or income, but by the combination of multiple disadvantages.

Table 4.2.6: Distribution of Identity Groups among Respondents

Identity Group	n	%
Hausa migrant	22	38.6
Sleeping in kiosk/container	19	33.3
Casual laborer	16	28.1
Other (specified)	11	19.3
Waste scavenger	7	12.3
Migrant youth (flood displaced)	6	10.5
Agbero	5	8.8
Sex worker	3	5.3
Adolescent	2	3.5
Person with disability	1	1.8
Under-bridge dweller	1	1.8
Street child	0	0.0

This shows the different categories of people that make up the street-life population. Hausa migrants were the largest group (38.6%), followed by people sleeping in kiosks/containers (33.3%) and casual laborers (28.1%). Waste scavengers (12.3%) and migrant youths displaced by floods (10.5%) were also visible. Smaller groups included sex workers (5.3%), adolescents (3.5%), persons with disabilities (1.8%), and under-bridge dwellers (1.8%). Street children did not appear in this category.

These categories are important because they affect how people experience floods and how they recover. For example, migrants and casual laborers often lack secure shelter, while sex workers or waste pickers may have limited access to support. Highlighting identity helps explain why recovery outcomes differ even within the same community.

Table 4.2.7: Co-occurrence of Identity Groups

Identity Pair	Count
Casual laborer × Sleeping in kiosk/container	7
Hausa migrant × Waste scavenger	5
Hausa migrant × Sleeping in kiosk/container	5
Agbero × Sleeping in kiosk/container	4
Agbero × Casual laborer	3
Sleeping in kiosk/container × Waste scavenger	3
Migrant youth (flood displaced) × Sleeping in kiosk/container	3
Agbero × Migrant youth (flood displaced)	2
Adolescent × Hausa migrant	2
Adolescent × Sleeping in kiosk/container	2

A co-occurrence analysis was done to identify how multiple identities overlap within the same respondent, reflecting compounded vulnerabilities. This is important because individuals rarely fit into a single category; instead, they often embody intersecting roles such as being both a migrant and a casual laborer, or a sex worker and flood-displaced youth. The most frequent overlap was between casual laborers and kiosk/container dwellers (7 cases), followed by Hausa migrants paired with waste scavenging (5 cases) or kiosk dwelling (5 cases). These overlaps show how economic precarity and inadequate shelter support one another, thereby exposing to post-flood risks. Recognizing these layered identities allows for more targeted interventions, since policy responses designed for “single labels” risk overlooking these complex intersections.

Overall, this objective provided a profile of the street-life populations across the study communities. Respondents were mostly male, young adults, and low-income earners, with

many depending on informal work such as hawking, casual labour, and scavenging. Housing was highly insecure, with kiosk dwellers and shared shelters most common. Income levels were low and unstable, and over half had dependents, Also, the identity analysis showed overlapping risks, as many carried more than one social identity at once.

Lead City University Ibadan DO NOT COPY

4.3 Lived Experiences of Street-Life Populations

This objective set out to document the lived experiences of street-life populations with respect to flooding. To achieve this, both quantitative and qualitative approaches were applied. On the quantitative side, descriptive statistics (counts, percentages, and medians) are presented to show how often respondents were exposed to floods, the levels of water they experienced, how long they were displaced, and the losses they recorded. These results provide a measurable picture of the risks faced.

Alongside this, the qualitative analysis was carried out using Braun and Clarke's six-phase framework. This process moved from familiarisation and initial coding through to theme development, thematic mapping, and final reporting. The outcome of this process is presented in three parts: the narratives of migrants, non-migrants, and key stakeholders.

Table 4.3.1: Flood Exposure in the Last 5 Years

Statistic	Min	Q1	Median	Mean	Q3	Max
Flood count (last 5 years)	0	1	2	2.2	3	5

The maximum number of flood events reported was five within just five years, showing that a group of respondents faced floods nearly every year. On the other hand, a few individuals reported no flood event at all in this period. This suggests that even within the same communities, exposure is uneven. The median of two floods shows that repeated exposure is the norm for most street dwellers. This repeated disturbance reduces the time available for recovery, forcing respondents to live in a cycle of loss and adjustment.

Table 4.3.2: Distribution of Flood Impacts and Responses

Indicator	Category	n	%
Peak water level	Ankle–knee	24	42.1
	Below ankle	16	28.1
	Knee–waist	13	22.8
	Waist–chest	4	7.0
Warning received	Yes	3	5.3
	No	54	94.7
Evacuation required	Yes	33	57.9
	No	24	42.1
Displacement duration	Not displaced	26	45.6
	1–3 days	15	26.3
	4–7 days	12	21.1
	8–30 days	2	3.5
	>30 days	2	3.5
Injury/sickness	Yes	15	26.3
	No	42	73.7
Return to work within 1 week	Yes	44	77.2
	No	13	22.8
Annual flooding	Yes	38	66.7
	No	19	33.3
Typical months	Heavy rain season	19	33.3
	Missing	19	33.3
	June–July	5	8.8
	June–Sept	3	5.3
	Others (varied)	11	19.3
Perceived flood trend	About the same	20	35.1
	More severe/frequent	19	33.3
	Less severe/less frequent	9	15.8
	Not sure	9	15.8

Most respondents (42.1%) reported floodwaters reaching between the ankle and knee, while another 22.8% faced knee-to-waist levels. More than half (57.9%) had to evacuate, and almost one-third (26.3%) fell sick or were injured. Only 5.3% received a warning before flooding, and just 7% reported very deep floods (waist–chest). These low figures show that street populations are largely excluded from formal warning and protection systems. The results confirm that floods disrupt daily survival, with sudden evacuations and short-term displacements (1–7 days for most). However, the absence of early warning stands out as the weakest link, leaving street populations to rely solely on their instincts when floods strike.

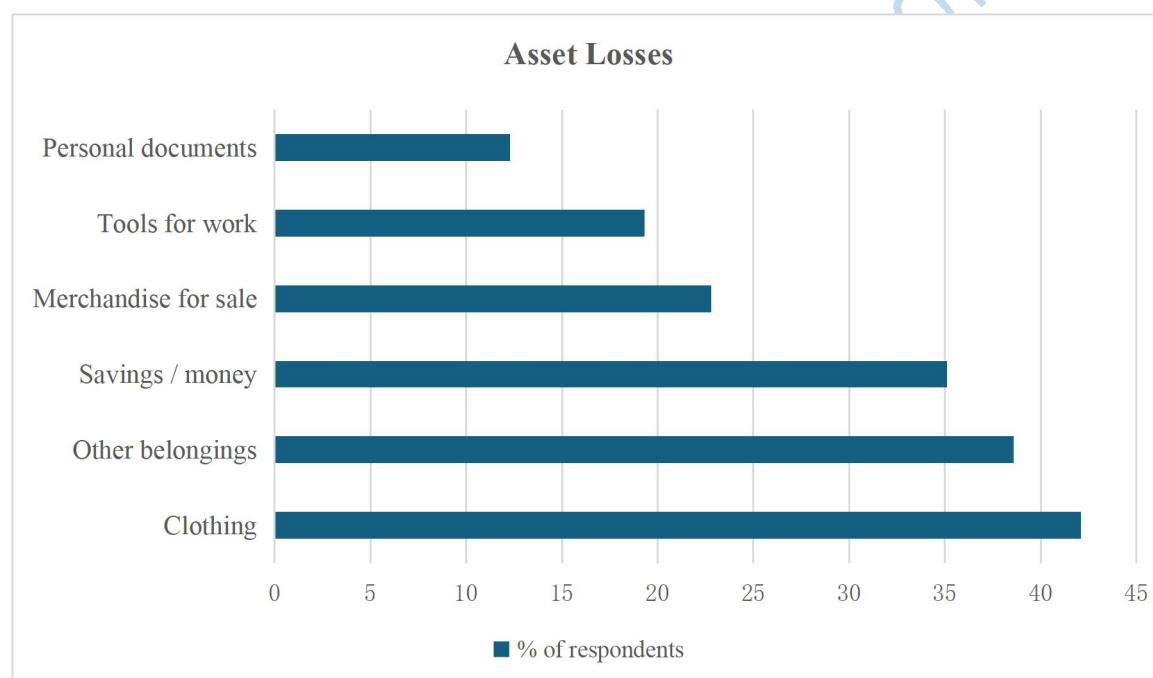


Figure 4.2: Asset Losses Reported During Floods

This shows that clothing (42.1%) and money (35.1%) were the most frequently lost assets, showing how floods strip away essentials of daily life. Loss of personal documents was least reported (12.3%). While fewer in number, this loss is severe in consequence because it blocks access to formal recovery and assistance. The asset profile shows that floods cut across both welfare and livelihood. Respondents not only lose clothing and shelter but also income-

generating items like merchandise and tools. This makes recovery more difficult, as households struggle to replace what sustains their survival.

After presenting the quantitative results on exposure, displacement, and losses, it is also important to highlight the lived stories behind these numbers. To do this, the study employed Braun and Clarke's six-phase thematic analysis framework.

The first phase involved familiarisation with the data through repeated readings of the interview and FGD transcripts. The second phase was the generation of initial codes, which captured patterns related to flood experiences, coping, and recovery. The third and fourth phases involved organising these codes into broader themes and testing them against the data. This process produced the initial thematic maps (see Figures 4.2, 4.4, 4.6).

In the fifth phase, the themes were refined and finalised into coherent clusters that best represented the narratives. These are presented as thematic maps in Figures 4.3, 4.5, and 4.7 of this section. The sixth and final phase involved writing up the findings. For clarity, the narratives are presented in three parts: migrants' narratives, non-migrants' narratives, and stakeholders' narratives. This structure allows the voices of different groups to be heard while still showing where their experiences converge and diverge.

4.3.1 Phase Six of Braun & Clarke's Thematic Analysis

A. Migrants' Narratives of Flood Recovery

Theme 1: Displacement and Trauma

Migrant narratives consistently highlighted trauma and displacement as defining features of their flood experiences. Many respondents traced their migration into Lagos directly to devastating flood events in Northern Nigeria. Baba, a woman from Birnin Kudu in Jigawa, recalled a night flood that *"claimed the lives of two of my relatives"* and left her unable to remain in the community. Similarly, Ladi, aged 42, recounted that a nocturnal flood *"swept away my mother during the night; her body was only discovered the next morning."* A Hausa widow interviewed in Agbado shared perhaps the most devastating story, explaining:

"I wanted to cross the water, but I decided to leave the children to cross on their own because they were old enough... by the next morning, my children were dead."

These accounts show how sudden floods produce not only material losses but also deep psychological scars. The trauma of grief and helplessness directly pushed many respondents to migrate, with Lagos emerging as a site of reluctant refuge. For elderly men like Abdullahi, displacement was framed as inevitable:

"When flooding occurs in the North, the best option is simply to leave for a safer area."

Across the experiences shared, migration was less a proactive adaptation strategy than a survival imperative. It was a forced pathway shaped by loss, insecurity, and despair.

- Recurring floods were reported in different contexts, with participants describing sudden, unpredictable, and repeated events that forced them from their homes.

- Forced mobility was described as a survival choice rather than an opportunity, where relocation was temporary and often unsafe.
- Causes of trauma included the loss of family members, poor health, old age vulnerabilities, and unresolved grief.
- Risks such as insecure shelter and hazard exposure further compounded displacement experiences.

Theme 2: Livelihood Disruption

Flooding was widely described as a direct disruptor of fragile livelihoods among migrants.

For beggars, floods disrupted foot traffic and begging routes. Abdullahi explained that

“recovery for me is mostly about surviving day-to-day... floods reduce foot traffic and therefore alms.”

Similarly, Yahya noted that floods rarely destroyed belongings since beggars owned little, but they *“disrupted livelihood by blocking begging routes and reducing contact with passersby.”*

For these respondents, livelihood fragility stemmed not from asset loss but from loss of access to public spaces and potential givers.

For traders and artisans, the impact was more material. The Hausa male trader from Agbado explained:

“Every flood sets me back financially... I must start over by borrowing from friends or saving little by little. Recovery is temporary, until the next rainfall.”

The Hausa engineer in Fagba described raising tools onto higher ground to protect them from water, but admitted that minor losses were frequent. Similarly, the Hausa scavenger who lost

goods at Alaba lamented that *“rising waters displaced the goods I had bought for resale, and I lost most of my investment.”*

Collectively, these accounts highlight how precarious urban livelihoods; begging, petty trading, roadside repairs, scavenging are highly exposed to even small floods. Recovery is consistently fragile, cyclical, and easily undone by the next rainfall.

- Core effects included livelihood crash and loss of goods and properties.
- Secondary effects extended to the destruction of work routes, reduced income, housing insecurity, financial setbacks, and economic vulnerability.

Theme 3: Informal Coping Strategies

Coping strategies among migrant respondents were often reactive, rooted in faith and endurance rather than structural adaptation. Prayer emerged as a recurrent theme: Ladi described her reliance on *“prayer and faith”* both during floods in Jigawa and in her life in Lagos. “Seven,” a Hausa migrant beggar, explained that after losing farmland to floods, his only coping strategy in Lagos was begging, admitting:

“Since we do not have financial support to start a business, begging is our only resort.”

Others framed coping in terms of temporary withdrawal. Yahya, a 72-year-old beggar in Agbado, explained:

“When water enters a place, beggars simply leave, since they cannot sit there... some will even die there.”

Similarly, Abdullahi, aged 90, emphasised that age limited his responses:

“At my age, I cannot mount active responses. Survival depends on whether someone helps or not.”

These statements show the limited range of strategies available, where mobility, avoidance, and faith are relied upon in the absence of institutional support. Coping here is not recovery but endurance; a day-to-day negotiation with vulnerability.

With institutional support largely absent, migrant respondents also described reliance on peers and community members as their only safety net. Yahya, an elderly beggar, explained that *“among beggars, support is informal, they warn each other about areas where water has entered and shift together.”* This illustrates how peer communication and shared awareness reduce exposure to immediate risks.

Similarly, the Hausa widow in Agbado recounted that while no government agency intervened after the death of her children,

“community members helped with burial and mourning,” offering emotional and social support during her crisis

Support systems were also visible in the trading context. The Hausa trader from Agbado explained that friends sheltered him when his kiosk was flooded, noting:

“Informal support comes mainly from friends and fellow traders, who allow me to stay in their kiosks or share food when water has destroyed my own stock.”

Across these accounts, the absence of government or NGO engagement meant recovery was carried on the shoulders of peers, relatives, and migrant networks. Informal solidarity, though fragile and resource-poor, functioned as the only form of collective resilience available to migrants.

- Survival coping: begging, migration, borrowing, temporary withdrawal.
- Faith coping: prayer, reliance on faith.
- Social coping: peer support, diaspora support, informal solidarity in migrant networks.

Theme 4: Exclusion from Formal Support

A outstanding feature of migrant testimonies was the consistent perception of institutional neglect. Respondents repeatedly emphasised that government agencies either ignored their plight or made tokenistic appearances without follow-up. The Hausa women's FGD recalled that "government representatives visited seven years ago and promised assistance, but they never looked back." Abdullahi, a 90-year-old beggar, captured the inequity vividly:

"If you are influential, you will likely be helped... but if you don't have mouth, how will you speak to a government agent?"

For him, poverty not only limited material recovery but also silenced his ability to demand institutional attention.

This sense of exclusion was echoed across contexts. Jemima explained that no government relief reached her after devastating floods in Jigawa, and she survived only because of private family support from abroad. The Hausa scavenger at Alaba bluntly noted that

"prayers alone cannot replace what we lost,"

after the Seriki offered only spiritual consolation. Across the narratives, migrants stressed that recovery is systematically stratified, elites receive recognition and support, while street-life populations remain invisible in disaster response frameworks.

Although most migrants were left without formal support, a few described recovery facilitated by diaspora or overseas relatives. Jemima's experience is emblematic. After floods destroyed homes and livelihoods in Jigawa, she received ₦2 million from her mother in Saudi Arabia, enabling her to rebuild quickly. She reflected:

"If I did not have a relative abroad, my outcome would have been as dire as the rest."

These accounts highlight how transnational support creates unequal pathways to recovery. While most migrants depended on begging, petty trade, or borrowing, those with diaspora ties regained stability more rapidly. Such exceptions highlight stark inequalities within the migrant community itself, where recovery is not determined by state intervention but by personal links to overseas networks.

- Institutional gaps: no formal aid, inequitable distribution of assistance.
- Systemic exclusion: poor and homeless populations excluded from planning and disaster frameworks.
- Interventions: police presence, spiritual consolations, promises without follow-up.
- Unequal alternatives: diaspora support enabled a few exceptional recoveries, reinforcing inequalities.

Theme 5: Recovery Aspirations and Needs

Migrant women, particularly widows and mothers, expressed distinct recovery needs shaped by gender roles and responsibilities. The Hausa widow in Agbado, who lost her children during a night flood, insisted that

"widows and mothers like myself need targeted assistance, something like housing support, small business capital, or group savings opportunities."

The women's FGD reinforced this, with participants calling for *“small loans or group savings (ajo/esusu) to help rebuild faster.”*

For many, empowerment through access to capital or training was seen as the only alternative to dependence on alms. These testimonies show that gendered vulnerability intersects with displacement and poverty. Women's recovery is not only about restoring livelihoods but also about maintaining family stability after traumatic loss. Requests for loans, vocational training, and targeted relief signal an acute awareness of both the immediate and long-term needs of women in post-flood recovery.

Migrant respondents also provided clear recommendations for reducing their vulnerability. The Hausa widow called for

“safe evacuation routes and collective shelters, so parents are not forced into impossible choices like leaving children behind.”

Traders and artisans stressed the importance of drainage construction near markets, as well as direct relief for small traders whose goods are destroyed. The Hausa scavenger argued that government should provide “relief funds for traders and scavengers after floods,” while Abdullahi urged that recovery support must include the poorest, not only the influential.

Across these recommendations, two consistent priorities emerged:

1. Structural interventions such as drainage, evacuation routes, and shelters.
2. Inclusive support schemes such as relief funds, welfare assistance, and empowerment programs.

Together, they reflect migrants' recognition that while faith and endurance help them survive, only inclusive planning and targeted support can break the cycle of vulnerability.

- Access to capital: loans, grants, and group savings.
- Structural interventions: drainage, evacuation routes, collective shelters.
- Empowerment: vocational training, livelihood support for women and widows.
- Equity and long-term planning: ensuring that even the poorest are included in recovery frameworks.



Plate 4.1: Hausa (Women) Migrants at Agbado

Source: Author's Fieldwork, (2025)

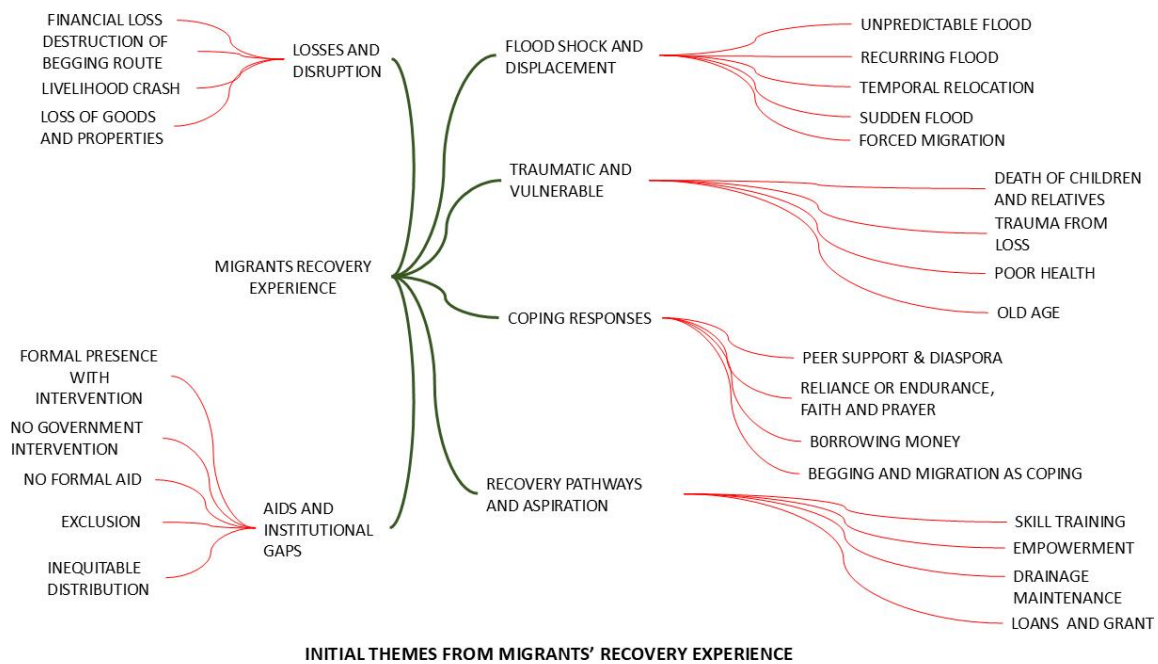


Figure 4.3: Initial Themes from coding the Interviews and FGDs with the Migrants

Source: Author's Fieldwork, (2025)

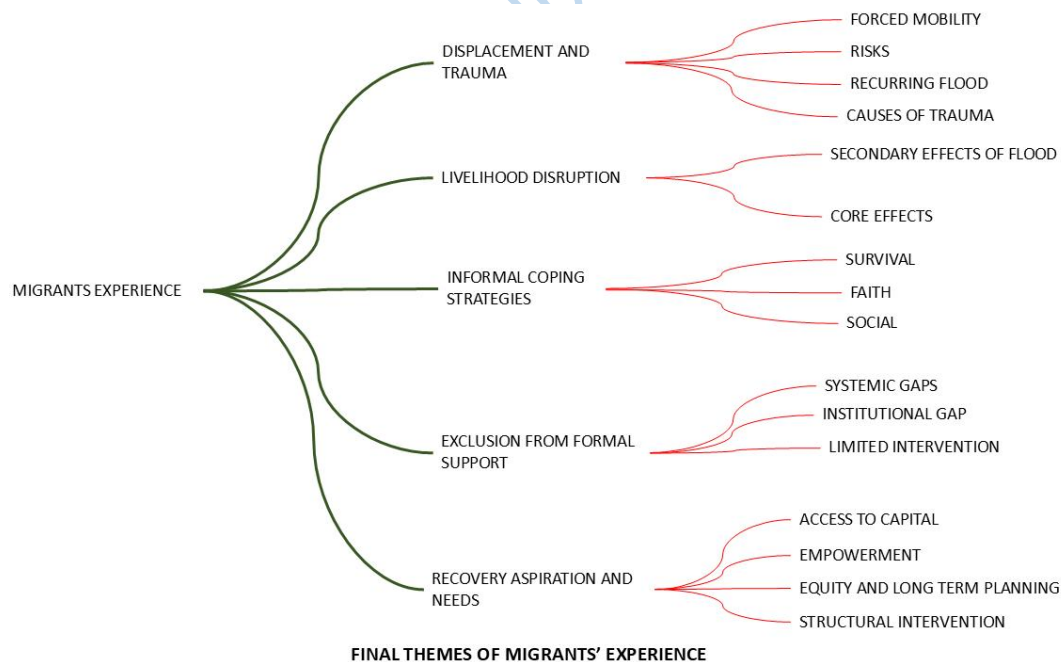


Figure 4.4: Final Themes from coding the Interviews and FGDs with the Migrants

Source: Author's Fieldwork, (2025)

B. Non-Migrants' Narratives of Flood Recovery

Theme 1: Flood Exposure and Everyday Risks

The experiences of non-migrant respondents were consistently marked by the severity of flood risk in Lagos communities. Market women in Agbado described not only personal vulnerability but also witnessing the deaths of others. One woman recounted:

“A couple unknowingly walked into a violent flood current... the man was rescued, but the woman drowned.” (IDI-AGB-003)

For her, such incidents revealed the unpredictability and violence of flood events.

Trauma was not limited to what was seen; it was also lived. The same respondent explained her near-death experience in Kola:

“If not for a man who helped me that day, I would have been a victim.”

Another market woman, who has lived in Agbado for two decades, added:

“There is no difference between the flood of now and then... if it rains, the flood is still the same.” (IDI-AGB-004)

Street children echoed this pattern, pointing to known flood hotspots such as Owonikoko and Muta 3, where vehicles were often swept away, blocking roads and creating hazards for pedestrians. One explained:

“Floods block the roads, vehicles are swept away, and we are afraid to be caught.” (FGD-AGB-Children)

Collectively, these accounts highlight how flood risk is embedded in daily urban life, producing lived trauma that reinforces fear, avoidance, and constant alertness.

Theme 2: Swift and Situational Coping

For non-migrants, coping strategies were largely precautionary and centred on avoidance rather than active recovery. The Yoruba market woman who survived the Kola flood stated:

“I have vowed never to go to Agbado whenever it rains.” (IDI-AGB-003)

This highlights how avoidance becomes a behavioural adaptation in contexts where structural support is lacking. Similarly, the market woman from Ibadan emphasised:

“During rainfall, the only thing neighbours do is to exclaim... coping is minimal.” (IDI-AGB-004)

Street children echoed this trend, explaining that when floods occur, they attempt to help others in danger but ultimately retreat to safety. One child noted:

“We try to help people when water enters, but we also run away. If not, we too will die there.” (FGD-AGB-Children)

These strategies illustrate that coping for non-migrants is less about rebuilding and more about reducing immediate exposure. Unlike migrants who frame coping in terms of faith and endurance, non-migrants emphasised physical avoidance and retreat as their main survival tool.

Theme 3: Faith and Social Reliance

In the absence of institutional intervention, neighbourly assistance emerged as the primary support system for non-migrants. During the Kola flood, one market woman recalled:

“A neighbour helped carry my younger child to safety.” (IDI-AGB-003)

For her, this moment of informal solidarity was the difference between survival and tragedy.

Another respondent, who had lived in Agbado for two decades, explained:

“Neighbours sometimes raise alarms during flooding... but no government has intervened.” (IDI-AGB-004)

For street children, however, even neighbourly support was inconsistent. They explained:

“No one gives us support... not even our neighbours. It is God that supports.” (FGD-AGB-Children)

This blunt statement demonstrates the precariousness of their position: while adults could sometimes rely on community bonds, children felt doubly abandoned, left to depend on divine help. The picture that emerges is one where informal networks fill gaps but remain limited, uneven, and insufficient to protect the most vulnerable groups.

Theme 4: Exclusion from Formal Support

Non-migrant respondents were unanimous in describing a lack of institutional support. The Owonikoko market woman noted:

“No form of support ever came from government, despite the recurring floods.” (IDI-AGB-003)

Her counterpart in Agbado reinforced this, emphasising:

“After decades of exposure, government has not intervened.” (IDI-AGB-004)

Street children expressed this sense of neglect even more starkly, stating:

“Authorities often spoil things because they didn’t do the right thing.” (FGD-AGB-Children)

For them, government not only failed to act but sometimes worsened conditions through poor planning or neglect of drainage. The perception of abandonment was further reinforced by their reliance on divine protection:

“It is God that supports.” (FGD-AGB-Children)

These narratives highlight a pervasive institutional vacuum, where non-migrants perceive themselves as abandoned to endure cycles of flooding without reliable assistance.

Theme 5: Recovery Pathways and Aspirations

Despite their frustration with institutional absence, non-migrant respondents were clear in their recommendations for change. The Owonikoko market woman insisted:

“Government should construct proper gutters and channels.” (IDI-AGB-003)

Her counterpart in Agbado went further, stressing:

“They must repair the railway break and construct proper drainage... households that repeatedly face flooding should also get relief aid.” (IDI-AGB-004)

Street children echoed these concerns from their own perspective:

“Drainage and road construction should be prioritised to make vehicles and pedestrians safe.

When adults are supported, children benefit too.” (FGD-AGB-Children)

Beyond structural fixes, the children expressed willingness to join training or empowerment initiatives, noting:

“If we have small skills or education support, we will not suffer this way on the street.”
(FGD-AGB-Children)

Together, these recommendations emphasise two priorities. First, structural interventions are critical to reduce environmental risk, such as drains, roads, and railway repairs. Second, inclusive support mechanisms must extend beyond infrastructure to reach vulnerable groups, including households and children, through relief, empowerment, and training. These perspectives show that non-migrants do not reject government involvement but actively call for sustained and responsive engagement that addresses both physical hazards and social vulnerability.



Plate 4.2: Street Vending in action

Source: Author's Fieldwork, (2025)

Lead City University Ibadan DO NOT COPY



Plate 4.3: A typical open market in Agbado, which supports street-life populations

Source: Author's Fieldwork, (2025)

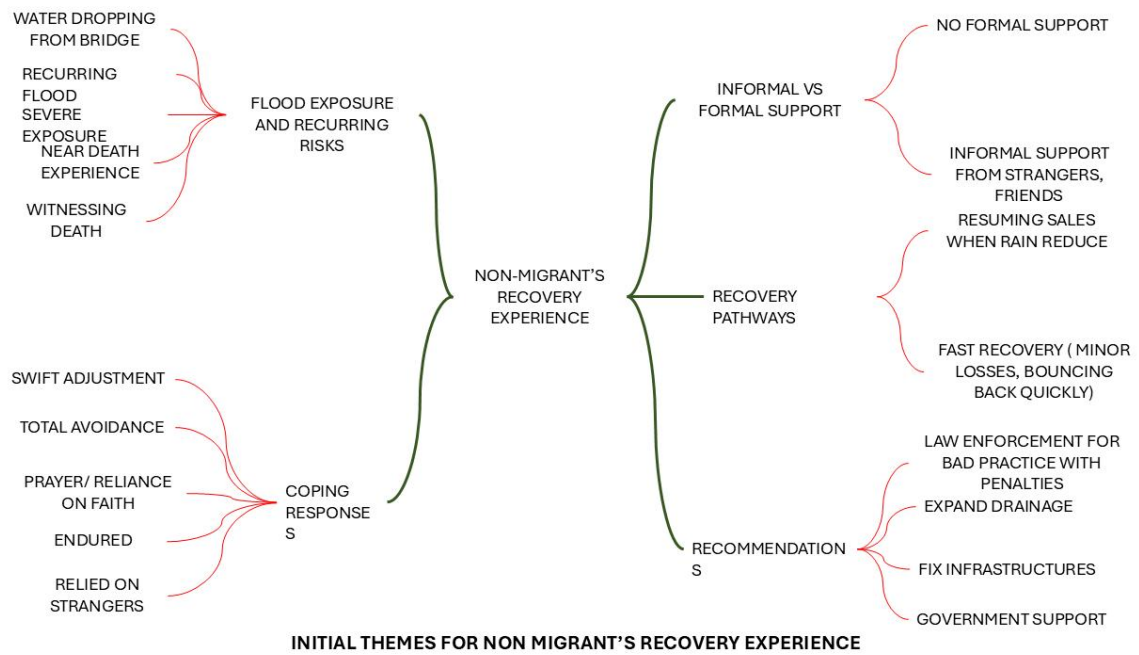


Figure 4.5: Initial Themes from coding the Interviews and FGDs with the non-migrants

Source: Author's Fieldwork, (2025)

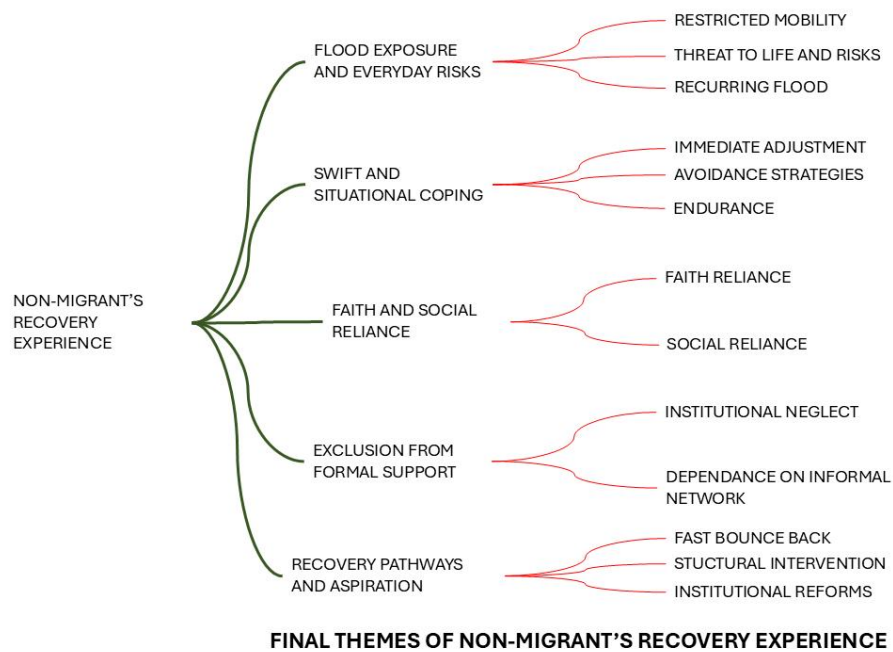


Figure 4.6: Final Themes from coding the Interviews and FGDs with the non-migrants

Source: Author's Fieldwork, (2025)

C. Stakeholder Narratives of Flood Recovery

Theme 1: Institutional Responsiveness and Infrastructure Solutions

All three stakeholders consistently emphasised that the turning point in their communities' flood histories came through government-led infrastructural interventions. The ÌyáOloja of Abule-Egba recalled personally contacting elected officials to demand action, leading to the swift construction of a drainage system that continues to protect the market today. She explained:

“When I contacted the leaders, they came quickly. Since that day, this market has not faced the flood again.” (IDI-STK-001)

Similarly, the Baálè traced community stability to a major canal built by the local government more than a decade ago, which he described as a transformative solution to recurrent flooding in Awori:

“Before the canal, Awori was always under water. After they built it, for more than ten years, the place has been safe.” (IDI-STK-002)

These accounts underline the centrality of state responsiveness in shifting recovery pathways from endurance to prevention. Unlike street-life migrants who rely on precarious coping, stakeholders positioned political will and drainage works as the most decisive recovery strategies.

Theme 2: Effectiveness of Structural Interventions

Stakeholders repeatedly pointed out that once drainage projects were implemented, local flooding risks diminished substantially. In Abule-Egba, the Ìyá Oloja described current rainfall events as:

“When rain falls now, the water goes like nothing ever happened.” (IDI-STK-001)

The Vice Chairman of Iju Motor Park also linked the park’s stability to both the area’s natural slope and deliberate drainage construction:

“The slope of the land helps us, but the drains government built have made all the difference.” (IDI-STK-003)

The Baálẹ reinforced this point by noting that livelihoods, houses, and infrastructure had been protected for over ten years. Collectively, these testimonies suggest that infrastructural investments are not only effective but also redefine recovery as stability rather than survival.

Theme 3: Community–Institutional Collaboration and Enforcement

The role of collaboration between community leaders and institutions was highlighted as a critical pathway to recovery. The Ìyá Oloja showed that her engagement with political leaders was central to securing the drainage project that transformed Abule-Egba. The Baálẹ explained that government agencies such as the Ministry of Environment and the Ministry of Physical Planning had maintained periodic oversight since the canal’s construction, reinforcing a system of accountability.

The Vice Chairman of Iju Motor Park also described the role of enforcement, recalling:

“They fined us ₦220,000 for poor sanitation. It made us sit tight and pay attention.” (IDI-STK-003)

He credited these penalties with instilling greater environmental responsibility among traders and drivers. The Baálè similarly stressed that indiscriminate waste disposal could render the canal ineffective, arguing that behavioural discipline was as essential as physical infrastructure. In these accounts, collaboration and enforcement emerge as corrective tools, ensuring that community behaviour aligns with institutional investments.

Theme 4: Livelihood Stability and Continuity

Stakeholders consistently linked infrastructural interventions to the protection of livelihoods. The Ìyá Oloja noted that traders in her market no longer faced the displacement or disruption that previously accompanied flood events:

“Our traders no longer pack their goods in fear... the drains protect us.” (IDI-STK-001)

The Baálè described a decade of stability in which housing, infrastructure, and daily life had been preserved:

“For more than ten years now, we have not lost houses or property to flood again.” (IDI-STK-002)

The Vice Chairman of Iju Motor Park added that drivers and traders at the park now operate without interruption, crediting both drainage interventions and stricter environmental enforcement. In each account, recovery was framed as the ability to continue economic activities without fear of loss, suggesting that stability in livelihood systems is both a marker and outcome of successful flood recovery.



Plate 4.4: 16-year-old drainage constructed by the local government of Abule-Egba

Source: Author's Fieldwork, (2025)

Theme 5: Cultural and Spiritual Dimensions of Resilience

Beyond institutional and infrastructural measures, stakeholders also framed resilience in cultural and spiritual terms. The Baálẹ̀ described how traditional worshippers gather annually on August 20 to make sacrifices to deities believed to protect the community from disaster:

“Every year, we still do the rituals... it is our way to keep the community safe.” (IDI-STK-002)

Similarly, the Ìyá Oloja explained that her market organises collective prayers, inviting both an Alfa and a pastor to pray for protection and prosperity:

“We call both Alfa and Pastor... everyone prays for safety.” (IDI-STK-001)

For the Vice Chairman of Iju Motor Park, personal and collective prayer remained integral:

“Prayer is part of how we cope. Even with drainage, God’s help is needed.” (IDI-STK-003)

These practices reveal how spiritual beliefs and cultural rituals are integrated into recovery processes, sustaining psychological resilience and community cohesion even in contexts where infrastructural protections exist.

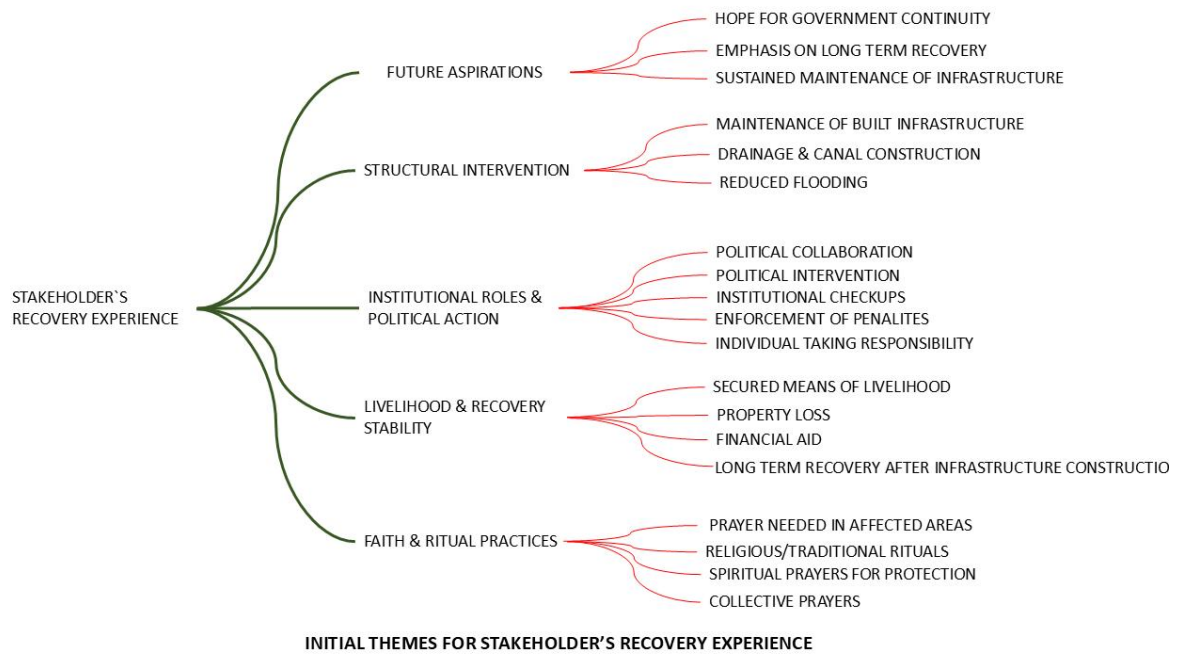


Figure 4.7: Initial Themes from coding the Interviews and FGDs with the Stakeholders

Source: Author's Fieldwork, (2025)

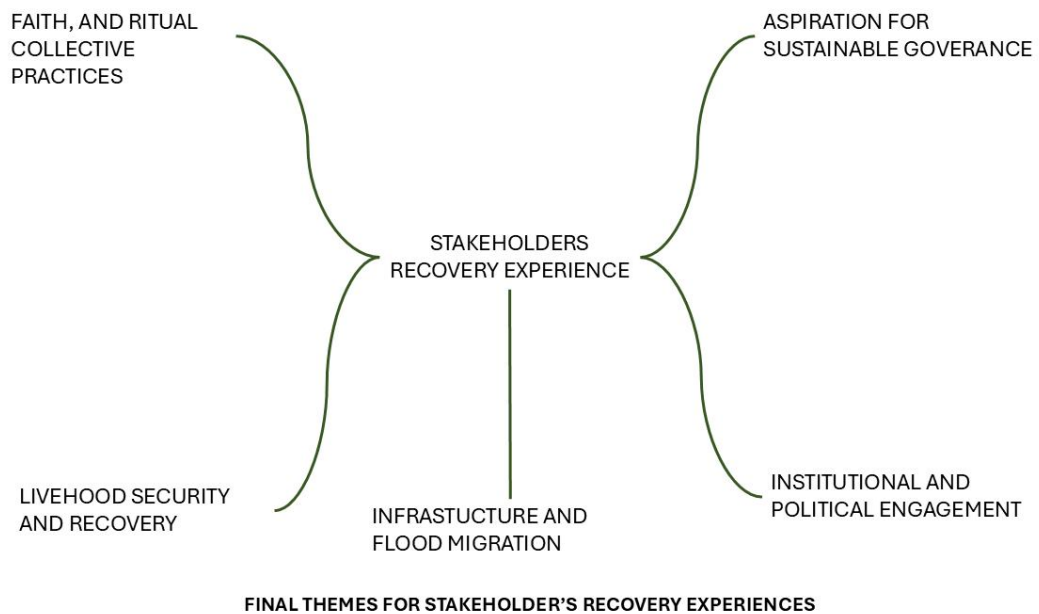


Figure 4.8: Final Themes from coding the Interviews and FGDs with the Stakeholders

Source: Author's Fieldwork, (2025)

4.4 Coping Strategies of Respondents

This objective set out to identify the coping strategies most commonly adopted by street-living individuals in response to flood events. The analysis was based on a modified Brief COPE inventory administered in the questionnaire. Respondents will rate each coping item on a 4-point Likert scale (1 = ‘I haven’t been doing this at all’ to 4 = ‘I’ve been doing this a lot’). Higher scores, therefore, reflect greater frequency of use of a given strategy. The results provide insight into both the behavioural and emotional mechanisms that individuals rely on during and after flood shocks.

Table 4.4.1 Reliability Analysis of the Coping Strategy per item

Coping Item	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
c1_steps	0.70	0.90
c2_actions	0.78	0.89
c3_plan	0.71	0.90
c4_alternatives	0.73	0.89
c5_talk	0.53	0.90
c6_comfort	0.59	0.90
c7_help	0.71	0.90
c8_advice	0.76	0.89
c9_positive	0.50	0.90
c10_reframe	0.54	0.90
c11_pray	0.58	0.90
c12_religious_activities	0.50	0.91

Before analyzing the coping strategies themselves, a reliability test was conducted on the 12-item Brief COPE scale. The overall Cronbach’s alpha coefficient was 0.91, demonstrating excellent internal consistency. This confirms that the coping items used in this study reliably capture the broader construct of coping among street-living populations affected by flooding.

The corrected item–total correlations ranged from 0.50 (positive reframing, religious activities) to 0.78 (taking actions), showing that each item contributed meaningfully to the scale. Importantly, no item, if deleted, reduced the alpha below 0.89, underscoring that all items were robust indicators.

High values were observed for problem-focused coping items such as “taking actions” (0.78), “seeking advice” (0.76), and “exploring alternatives” (0.73), reflecting that respondents strongly associated these strategies with coping during flood events. In contrast, lower correlations were found for items such as “positive reframing” (0.50) and “religious activities” (0.50), although they still contributed acceptably to the overall construct.

The implication of these results is that coping among street dwellers is not fragmented but rather operates as a coherent behavioral and emotional system. The high reliability validates the use of the Brief COPE in this unique urban context and supports its application for both descriptive ranking and subgroup comparisons in subsequent analyses

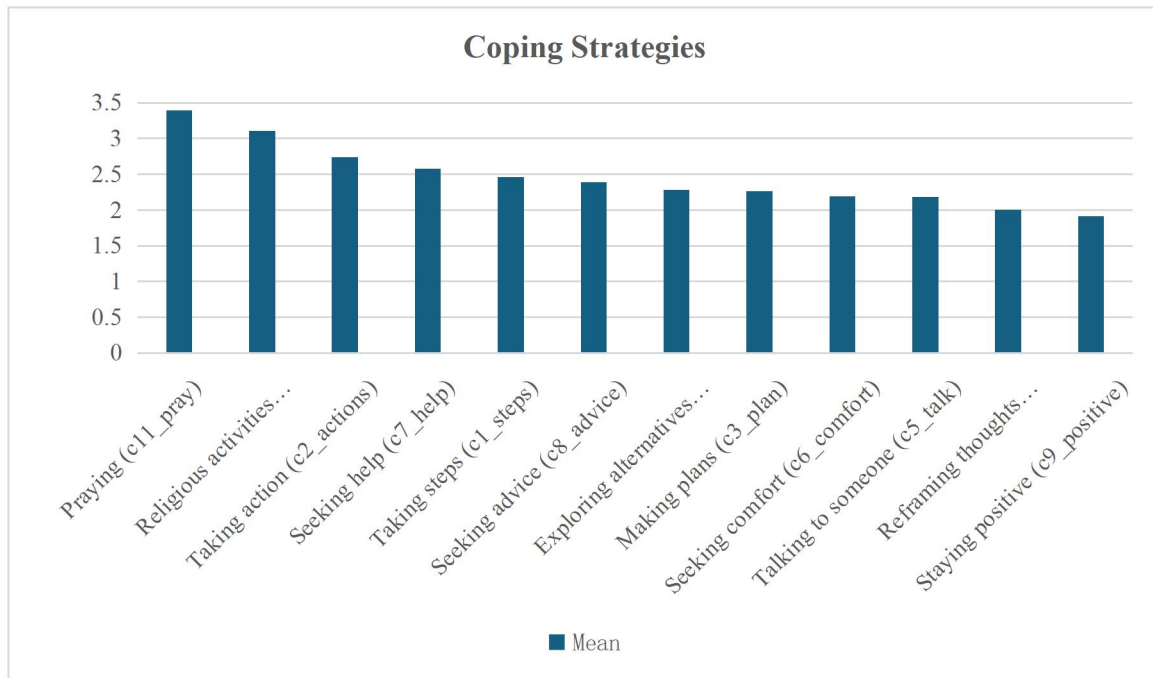


Figure 4.10: Ranking of Coping Strategies

Source: Author's Fieldwork, (2025)

Note: Higher mean scores indicate greater frequency of use. Religious-based coping (prayer and religious activities) were the most frequently adopted strategies.

Prayer emerged as the most widely used coping strategy ($M = 3.39$), followed closely by religious activities ($M = 3.11$). Together, these findings confirm that religious reliance was the dominant coping style, reflecting both cultural norms and the limited access to formal psychological or institutional support available to street populations. Action-oriented approaches also ranked high, with “taking action” ($M = 2.74$) and “seeking help” ($M = 2.58$) showing that respondents did not rely solely on faith but also engaged in practical and social strategies.

At the lower end, coping methods that required cognitive reframing or deliberate emotional adjustment were less common. “Reframing thoughts” ($M = 2.00$) and “staying positive” ($M = 1.91$) ranked lowest overall. Similarly, strategies like “talking to someone” ($M = 2.18$) and

“seeking comfort” ($M = 2.19$) were used sparingly. This shows that respondents placed less emphasis on psychological re-interpretation or emotional support-seeking as flood responses, compared to more immediate faith and action-oriented coping.

The dual dominance of religious coping and direct problem-solving indicates that recovery interventions must work with existing belief systems while also strengthening active, practical strategies. Limited adoption of reframing or positive thinking may stem from low formal education and limited access to psychosocial resources, suggesting that programs to strengthen resilience must go beyond physical aid and engage with mental health and community-based support systems. Importantly, the results reflect a pattern of coping grounded in faith and action, with less emphasis on emotional reinterpretation.

This is consistent with the interviews and the FGDs. One of the respondents in Agbado explained that *“floods are from God and cannot be resisted directly,”* while another respondent in Iju noted that prayer remained her only reliable coping strategy. Faith therefore emerges not only as a spiritual response but also as a way of accepting risk as inevitable.

Beyond religion, the FGDs highlighted improvisation. The women’s group in Agbado described how they rebuild shelters after every rainy season, sometimes depending on rare financial support from relatives abroad. For the children, coping was instinctive, as they often helped rescue others or retreated to safer spaces, but admitted their own vulnerability when floods struck during school or hawking. The FGD with young men (locally referred to as “thugs”) revealed a striking angle. Instead of viewing floods solely as a threat, they turned them into income opportunities, carrying stranded people across water for small payments. This shows how coping may be framed not only as protection but also as opportunistic survival.

Individual interviews also shows the reliance on withdrawal and avoidance. Traders spoke about moving goods to higher ground or deliberately stocking fewer items in the rainy season, even though this reduced income. Others described simply retreating indoors when water levels rose, waiting for floods to subside.

Overall, the coping strategies of street dwellers are shaped by faith, improvisation, and immediate withdrawal from risk. Prayer and religious rituals dominate, but practical actions and opportunistic hustles also appear. Emotional reframing and long-term planning are rare. These findings confirm that coping is short-term and survival-focused, reflecting both cultural orientation and the precarious living conditions of this population.

4.5. Social Identities and Variation in Recovery

This section investigates how post-flood recovery outcomes vary across different socio-demographic groups among street-life populations. Using both descriptive (median scores) and inferential (Mann–Whitney U and Kruskal–Wallis H) statistics, the analysis explores five key recovery domains: livelihood, shelter, health & services, social inclusion, and preparedness. The goal is to understand whether characteristics such as gender, age, income type, migration status, education level, and years spent on the street influence the speed and extent of recovery.

4.5.1 Recovery by Gender

Table 4.5.1: Median Recovery Scores by Gender Across Domains

Domain	Recovery Indicator	Female (n = 21)	Male (n = 36)
Livelihood	Return to Work	4.0	3.5
	Current Earnings	3	3
Shelter	Current Shelter	5	5
	Safe Belongings	3	2
Health & Services	Swift Access to Healthcare	1	1
	Current Health Status	3	3
Social Inclusion	Positive Access to Public Spaces	3	3
	Negative Access (Exclusion)	2	2
Preparedness & Warning	Trust in Flood Warnings	2	2
	Better Preparedness Perception	3	3

Note: These are median scores on ordinal scales derived from post-flood recovery questions.

Used to support the interpretation of group-level patterns.

Table 4.5.2: Comparison of Recovery Outcomes by Gender using Wilcoxon Rank-Sum Test

Domain	Variable	Female (n=21)	Male (n=36)	Test Statistic (W)	p- value	Significance
Livelihood	Return to Work	21	36	420.0	0.154	ns
	Current Earnings	21	36	427.0	0.402	ns
Shelter	Current Shelter	21	36	320.0	0.111	ns
	Safe Belongings	21	36	512.0	0.021	*
Health & Services	Swift Access to Healthcare	21	36	416.0	0.355	ns
	Current Health Status	21	36	316.0	0.183	ns
Social Inclusion	Positive Access to Public Space	21	36	478.0	0.043	*
	Negative Access (Exclusion)	21	36	358.0	0.730	ns
Preparedness & Warning	Trust in Flood Warnings	21	36	424.0	0.421	ns
	Better Preparedness Perception	21	36	354.0	0.915	ns

Note: $p < 0.05$ is considered statistically significant (*). “ns” = not significant. Wilcoxon Rank-Sum Test (Mann–Whitney U) was used due to ordinal, non-normal data

This section explores the post-flood recovery experiences of male and female street-based populations using the Wilcoxon Rank-Sum Test across ten recovery indicators. Although statistical results showed no significant differences in the majority of variables ($p > 0.05$), a closer look at the median values adds depth to interpretation and highlights patterns worthy of practical attention.

Two variables showed statistically significant differences by gender. The first variable is safe belongings, where female respondents reported a higher median score (3 vs 2) in their ability to secure belongings during recovery, and this difference was statistically significant ($p = 0.021$). This is in consonance with individual interviews in Agbado, where women explained that their coping response often included safeguarding small household items or regrouping after floods to rebuild shelters. One respondent (AGB-004) stressed that while residents cannot fully recover due to lack of resources, women often prioritise protecting the few items they have.

The second variable is social Inclusion (Positive Access) where females also had significantly better perceptions of public space access ($p = 0.043$), hinting at stronger communal ties, support networks, or agency in re-integrating into post-flood environments like markets, clinics, and worship centres. This is in consonance with FGDs held with women hawkers in Agbado, who explained that their first step after floods was to return to market activities, even when shelters remained damaged. Their narratives showed that social reintegration through trading spaces is central to their sense of recovery.

Despite these, no significant gender-based differences were found in:

- Livelihood (e.g., return to work, earnings)
- Health & Services (e.g., access to care, current health)
- Preparedness & Warnings (e.g., trust in flood alerts, perceived readiness)

This aligns with narratives from respondents in Iju and Fagba, who noted that recovery for both men and women was largely about “*waiting it out*” until waters receded and then resuming daily routines. For instance, an elderly beggar (AGB-012) explained that floods reduce alms for both men and women equally, leaving them to survive day-to-day without meaningful institutional support.

Overall, while gender does not appear to strongly influence economic or health-related recovery trajectories, it plays a meaningful role in security of belongings and social reintegration. These insights show that gender-responsive recovery planning should not only address livelihoods but also the subtle, everyday strategies through which women protect assets and reclaim social space.

4.5.2 Recovery by Age Group

Table 4.5.3: Kruskal-Wallis Test of Recovery Outcomes by Age Group

Recovery Outcome	Test Statistic (H)	Df (Group -1)	p-value	Signif
Return to Work	3.88	3	0.274	ns
Current Earnings	1.36	3	0.714	ns
Current Shelter	2.37	3	0.500	ns
Safe Belongings	0.88	3	0.831	ns
Health Care Access	0.76	3	0.858	ns
Current Health Status	2.27	3	0.518	ns
Social Inclusion (Positive)	5.94	3	0.114	ns
Social Inclusion (Negative)	3.77	3	0.287	ns
Flood Early Warning	2.65	3	0.450	ns
Flood Preparedness Perception	3.04	3	0.385	ns

Where:

“H” = Kruskal-Wallis test statistic

“df” = degrees of freedom (number of age groups minus one)

“ns” = not significant ($p > 0.05$)

Age Groups compared: 15–25, 26–35, 36–45, 46+

Table 4.5.4: Median Recovery Scores Across Age Groups

Recovery Indicator	15–25 yrs	26–35 yrs	36–45 yrs	46+ yrs
Return to Work	5	4	4	5
Current Earnings	4	3	3	3
Current Shelter	5	5	5	5
Safe Belongings	2	3	3	3
Health Care Access	1	1	1	1
Current Health Status	3	3	3	3
Social Inclusion (Positive)	2	3	3	3
Social Inclusion (Negative)	3	2	2	2
Flood Early Warning	1.0	1.5	2.0	2.0
Flood Preparedness Perception	2	3	3	3

The Kruskal–Wallis test was used to compare recovery outcomes across four age categories (15–25, 26–35, 36–45, and 46+ years). None of the ten recovery indicators returned a statistically significant result (all $p > 0.05$). This means there is no strong evidence that recovery differs sharply by age.

Even so, the descriptive medians reveal useful tendencies. The youngest respondents (15–25 years) reported higher scores for return to work and earnings, showing their ability to resume daily hustle quickly after floods. Respondents aged 26–35 years displayed relatively better outcomes in securing belongings, maintaining social inclusion, and feeling prepared for future floods, perhaps reflecting their position as active earners with some adaptive capacity. Older adults (46+) scored highest in early warning and preparedness perception, which may reflect caution and accumulated experience in dealing with floods.

These patterns suggest that recovery pathways are shaped less by age alone and more by the interaction between age and livelihood role. Younger people may bounce back faster because of physical strength and flexible livelihoods, while middle-aged groups appear more invested

in safeguarding belongings and maintaining networks. Older adults, though fewer in number, rely more on caution and early response, rather than active rebuilding.

This is in consonance with the IDI excerpts, where younger respondents often emphasised “*quick return to hustle*” (AGE-001, saleswoman; FAG-003, mechanic), while middle-aged participants (AGB-014, phone trader) highlighted slow but deliberate rebuilding of goods after every flood. Older respondents such as AGB-012 admitted that recovery was only about “*surviving day to day,*” reflecting the limitations of age and health.

Overall, while age differences were not statistically significant, the narratives and medians together show that youth recover through speed and flexibility, middle-aged groups through cautious rebuilding, and older adults mostly through endurance and experience.

4.5.3 Recovery by Migrant Status

Table 4.5.5: Kruskal-Wallis Test Results for Recovery by Migration Status

Recovery Outcome	Kruskal-Wallis H	df	p-value	Significance
Return to Work	1.50	1	0.221	ns
Current Earnings	1.73	1	0.188	ns
Current Shelter	0.01	1	0.928	ns
Safe Belongings	0.11	1	0.739	ns
Health Care Access	1.35	1	0.245	ns
Current Health Status	1.15	1	0.284	ns
Social Inclusion (Positive Access)	4.17	1	0.041	*
Social Inclusion (Negative Access)	2.16	1	0.141	ns
Flood Early Warning	0.60	1	0.439	ns
Flood Preparedness Perception	2.51	1	0.113	ns

Where:

H = Kruskal-Wallis test statistic

df = degrees of freedom

* p -value < 0.05 is statistically significant

“ns” = not significant

Table 4.5.6: Median Recovery Scores by Migrant Status

Recovery Outcome	Migrants	Non-Migrants
Return to Work	3.5	4.0
Current Earnings	3	4
Current Shelter	5	5
Safe Belongings	3	3
Health Care Access	1	1
Current Health Status	3	3
Social Inclusion (Positive Access)	3	3
Social Inclusion (Negative Access)	2	2
Flood Early Warning	2	2
Flood Preparedness Perception	3	3

The Kruskal–Wallis test was conducted to compare recovery outcomes between migrants and non-migrants. Out of the ten recovery indicators tested, only positive access to public spaces (a measure of social inclusion) showed a statistically significant difference ($H = 4.17$, $p = 0.041$). This suggests that non-migrants were more likely to reintegrate into social spaces such as markets, worship centres, or clinics after floods.

For all other recovery domains, including livelihood (return to work, earnings), shelter, health, and preparedness, no significant differences were found ($p > 0.05$). This indicates that both groups face similar structural barriers when it comes to rebuilding livelihoods, securing shelter, or preparing for future floods.

Still, the descriptive medians provide useful insights. Non-migrants reported slightly better recovery in return to work (median = 4.0 vs 3.5) and current earnings (4 vs 3). These small advantages may stem from stronger local ties, more stable knowledge of the environment, or greater access to communal support. Migrants, by contrast, remain more economically fragile and socially excluded, even if their shelter and health recovery appear similar on the surface.

This is in consonance with IDI excerpts, where many migrants described recovery as a cycle of survival rather than rebuilding. IJU-002 admitted that without financial support in Lagos, *“begging is our only resort,”* highlighting how displacement stripped him of livelihood. IJU-003 explained that migration itself was her coping pathway, but she has remained in precarious street work with no chance of full recovery. In contrast, long-term Lagos residents (non-migrants) often drew on family, church, or neighbourhood ties to re-enter economic and social life faster. For instance, AGB-012 compared himself unfavourably to elites, stressing that unlike natives, migrants like him lack institutional or social support:

“If flood breaks into their house, they need help. Me too, I need help.”

Taken together, the quantitative and qualitative findings show that migrant status does not dramatically shape access to shelter, health, or preparedness outcomes, but it does influence social inclusion and economic stability. Migrants are more likely to be isolated, dependent on begging, or cycling through precarious jobs, while non-migrants benefit from existing social capital within their communities

4.5.4 Recovery by Type of Employment (Income Status)

Table 4.5.7: Median Recovery Scores by Income Group

Recovery Variable	Motor Park Loading	Begging/Alms	Construction Labor	Hawking/Vending	Okada/Kake	Herbal Med.	Provision Sales	Handiwork	Sex Work	Waste Scavenging
Return to Work	4.0	5.0	4.0	4.0	3.0	3.0	3.0	4.0	4.0	4.0
Current Earnings	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
Current Shelter	5.0	5.0	5.0	5.0	4.5	5.0	5.0	5.0	4.0	5.0
Safe Belongings	3.0	2.0	2.0	3.0	3.0	4.0	3.0	2.0	5.0	2.0
Health Care Access	1.0	1.0	1.0	1.0	1.0	3.0	1.0	1.0	1.0	1.0
Current Health Status	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Positive Social Access	3.0	3.0	3.0	3.0	3.5	3.0	3.0	3.0	3.0	3.0
Negative Social Access	2.0	2.0	2.0	2.0	1.5	3.0	2.0	2.0	1.0	2.0
Flood Early Warning	2.0	2.0	2.0	2.0	3.0	2.0	2.0	1.0	1.0	1.0
Flood Preparedness Perception	3.0	2.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0

Table 4.5.8: Kruskal-Wallis Test for Recovery Outcomes by Income Type

Recovery Variable	n	H (KW Statistic)	df	p-value	Significance
Return to Work	57	6.42	8	0.600	ns
Current Earnings	57	4.90	8	0.768	ns
Current Shelter	57	18.00	8	0.0211	*
Safe Belongings	57	13.90	8	0.0843	ns
Health Care Access	57	8.22	8	0.412	ns
Current Health Status	57	15.70	8	0.0470	*
Positive Social Inclusion	57	11.00	8	0.199	ns
Negative Social Exclusion	57	5.24	8	0.731	ns
Flood Early Warning	57	14.10	8	0.0796	ns
Flood Preparedness Perception	57	27.40	8	0.0006	***

The Kruskal–Wallis test was used to examine differences in post-flood recovery across ten income groups, reflecting the diverse livelihoods of street-life populations. These groups included okada/keke riders, hawkers, casual labourers, sex workers, beggars, waste scavengers, repair workers, herbal medicine sellers, provision traders, and motor park loaders. This test was appropriate because the data were ordinal and involved multiple (>2) independent subgroups.

Three recovery indicators showed statistically significant differences. The first indicator was current shelter ($H = 18.00$, $p = 0.0211$), as respondents' ability to secure stable shelter after floods varied depending on their income type. While provision sellers and hawkers reported relatively strong shelter stability, sex workers and scavengers scored lower, reflecting higher precarity.

The second indicator was current health status ($H = 15.70$, $p = 0.047$): Health outcomes were unequally distributed, with groups like beggars reporting worse recovery in health compared to artisans or petty traders. This finding suggests that economic activity influences both access to care and resilience against flood-related illness.

The third indicator was flood preparedness perception ($H = 27.40$, $p < 0.001$): Differences were particularly sharp in how groups rated their preparedness. Okada/Keke riders, constantly exposed to road conditions, tended to report higher awareness and readiness, while groups with more static livelihoods (e.g., scavengers, sex workers) perceived themselves as less prepared.

Although the other recovery indicators (e.g., return to work, current earnings, social inclusion) did not show significant differences, the descriptive medians highlight meaningful contrasts. For example:

- Beggars recorded high shelter scores (5.0) but very low health (2.0), reflecting dependence on temporary shelters but vulnerability in well-being.
- Okada riders, despite relatively low shelter stability (4.5), reported the highest preparedness perception (4.0).
- Sex workers reported high belonging security (5.0) but low current earnings (2.0), showing fragile economic sustainability.

This is in consonance with the qualitative accounts. AGB-011 explained that as a beggar, floods rarely destroyed belongings but disrupted routes for alms, leaving him without income. Similarly, AGB-014, a petty trader, described restarting his phone accessory trade after each flood but admitted that *“every flood sets me back.”* The FGD with Agbado women further confirmed that recovery often depended on the type of work: petty traders could save and rebuild slowly, while others with no steady trade were left in cycles of dependency.

Taken together, these findings show that while all street-based groups face challenges, the type of livelihood plays a decisive role in shaping recovery pathways. Income source determines not only material outcomes such as shelter and health, but also psychological dimensions like preparedness perception. Policy responses must therefore adopt income-sensitive strategies for instance, tailored support for scavengers and beggars, health-focused interventions for vulnerable labourers, and preparedness training for mobile workers like okada riders.

4.5.5 Recovery by Education Level

Table 4.5.9: Median Recovery Outcomes Across Education Levels

Variable	No Formal	Islamiyah	Junior Sec.	Primary	Senior Sec.	Vocational	Tertiary
Return to Work	5.0	3.0	4.0	3.0	4.5	3.5	5.0
Current Earnings	3.0	3.0	3.0	2.0	4.0	2.5	1.5
Current Shelter	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Safe Belongings	2.0	2.0	3.0	2.0	4.0	3.0	3.0
Health Care Access	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Current Health Status	3.0	3.0	3.0	2.0	3.0	3.0	3.0
Positive Access	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Negative Access	2.0	2.0	2.0	2.0	2.0	1.0	1.0
Flood Warning Trust	2.0	1.0	2.0	2.0	2.0	1.0	1.0
Perceived Preparedness	3.0	2.0	3.0	3.0	3.0	3.0	3.0

Table 4.5.10: Kruskal-Wallis Test Results Comparing Recovery by Education Level

Variable	df	H-statistic	p-value	Significance
Return to Work	6	10.4	0.111	Ns
Current Earnings	6	9.46	0.149	Ns
Current Shelter	6	2.29	0.891	Ns
Safe Belongings	6	16.0	0.014	*
Health Care Access	6	8.82	0.184	Ns
Current Health Status	6	17.5	0.0077	**
Positive Access	6	8.53	0.202	Ns
Negative Access	6	7.86	0.248	Ns
Flood Warning Trust	6	6.71	0.349	Ns
Perceived Preparedness	6	13.8	0.0319	*

Note: * $p < 0.05$ is significant; ** $p < 0.01$ is highly significant; “ns” = not significant

The Kruskal–Wallis test was used to examine whether recovery outcomes varied significantly across seven education groups, ranging from no formal schooling to tertiary education. This approach was necessary since the data were ordinal and involved multiple independent groups.

Three indicators showed statistically significant differences. The first indicator was current health status ($H = 17.5$, $p = 0.0077$), as respondents with senior secondary and tertiary education reported better health recovery after floods compared to those with lower levels of schooling.

The second indicator was safe Belongings ($H = 16.0$, $p = 0.014$). The ability to secure and protect belongings was also higher among those with secondary and vocational education, suggesting stronger awareness or access to safer spaces.

The third indicator was perceived flood preparedness ($H = 13.8$, $p = 0.0319$). Respondents with higher education levels perceived themselves as more prepared, reflecting how education may foster confidence, planning skills, or access to disaster-related information.

By contrast, no significant differences were observed in variables such as return to work, current earnings, shelter, health care access, or social inclusion ($p > 0.05$). This indicates that, regardless of education, many street-based populations face systemic barriers in livelihood recovery, housing, and service access.

Median values also add distinct values. While those with Qur'anic or no formal schooling often scored lower in health and preparedness, tertiary-educated respondents unexpectedly recorded the lowest earnings (median = 1.5). This reflects the mismatch between formal education and the informal, precarious nature of street livelihoods, where qualifications may not translate into better income opportunities.

Taken together, these findings show that education strengthens certain recovery capacities (health, preparedness, belongings security), but it does not shield individuals from the broader vulnerabilities of street life. The implication is that disaster recovery strategies should not only promote disaster literacy among less educated groups but also address structural constraints that make education insufficient for economic recovery in informal urban contexts.

4.5.6 Recovery by Years on Street

Table 4.5.11: Median Recovery Scores by Years on Street Group

Variable	Newcomers (0–2 yrs)	Short- term (3–5 yrs)	Mid-term (6–10 yrs)	Long-term (11–20 yrs)	Very Long- term (21+ yrs)
Return to Work	4.5	3.0	3.5	5.0	5.0
Current Earnings	4.0	3.0	3.0	4.0	3.5
Current Shelter	5	5	5	5	5
Safe Belongings	3.5	2.0	2.5	3.0	3.5
Swift Access to Health	1	1	1	1	1
Current Health Status	3	3	3	2	3
Positive Access	3	3	3	3	3
Negative Access	2.0	2.0	2.0	2.0	1.5
Trust in Flood Warnings	1.5	1.0	2.0	2.0	2.0
Better Preparedness	3	3	3	2	3

Table 4.5.12: Kruskal-Wallis H-Test for Recovery Outcomes by Years on Street

Variable	df	H-Statistic	p-value	Significance
Return to Work	4	8.10	0.0881	Ns
Current Earnings	4	3.29	0.510	Ns
Current Shelter	4	1.13	0.890	Ns
Safe Belongings	4	3.98	0.409	Ns
Swift Access to Health	4	2.97	0.563	Ns
Current Health Status	4	9.85	0.043	*
Positive Access	4	4.37	0.359	Ns
Negative Access	4	1.16	0.885	Ns
Trust in Flood Warnings	4	3.11	0.540	Ns
Better Preparedness	4	5.78	0.216	Ns

Note: $p < 0.05$ is considered statistically significant.

This section examined whether the length of time respondents had spent living on the street shaped their recovery after floods. Respondents were grouped into five categories: newcomers (0–2 years), short-term (3–5 years), mid-term (6–10 years), long-term (11–20 years), and very long-term (21+ years)

Median scores show some differences. Long-term and very long-term dwellers reported higher scores in livelihood recovery, especially return to work (median = 5.0) and earnings (median = 3.5–4.0). Newcomers and short-term groups scored lower, suggesting that it takes time to build informal coping systems. Shelter recovery was consistently high (median = 5.0) across all groups, but safe belongings were weaker among short- and mid-term residents.

The Kruskal–Wallis test confirmed that only one variable (current health status) differed significantly across groups ($H = 9.85$, $p = 0.043$). Those in the long-term group reported

poorer health (median = 2.0), pointing to the toll of prolonged exposure to harsh street conditions. Other indicators, like return to work ($p = 0.088$) and preparedness ($p = 0.216$), showed small differences but were not statistically significant.

This aligns with the qualitative accounts. Older dwellers, like AGB-012, described recovery as mainly “surviving day to day,” with little chance of rebuilding health or livelihood. In contrast, newcomers such as IJU-003 admitted that recovery was about “starting over in Lagos” after leaving flood-prone areas, showing that early years are marked by uncertainty and trial-and-error coping. The FGD with Agbado women also stressed that only long-term residents manage to create saving systems to rebuild, while newer migrants struggle with even basic survival.

In summary, years on the street do not alter every aspect of recovery, but they clearly shape health outcomes and, to some extent, livelihood recovery. Newcomers face steep barriers due to lack of networks, while very long-term dwellers adapt better in work and shelter but at the cost of poorer health.

Overall, the findings reveal disparities in recovery outcomes across socio-demographic categories. While most differences were not statistically significant, patterns emerged such as slightly better livelihood recovery among males and migrants, or stable shelter access across all groups. Notably, a significant variation was observed in current health status across different age groups and years on the street. These results reveal the importance of having targeted recovery strategies that consider the lived realities of different street subpopulations, particularly in designing equitable urban resilience frameworks.

4.6. Support Systems

This section evaluates the role of agencies and support networks in the aftermath of flooding, with attention to who provided assistance, how useful it was, when it was received, and what barriers were faced in accessing it. Both informal and formal support systems are considered to show the contrast between everyday solidarity and institutional response.

Table 4.6.1: Distribution of Informal Support Systems Received After Flood

Informal Support Type	Percentage (%)
Neighbours	33.3
Friends	68.4
Religious Groups (informal)	31.6
Ajo/Esusu Savings Groups	10.5
Work Colleagues/Unions	24.6
Other (specified)	21.1

Table 4.6.2: Distribution of Formal Support Systems Received After Flood

Formal Support Type	Percentage (%)
NEMA/SEMA	0.0
LASEMA	0.0
Local Government Officials	10.5
NGOs	1.8
Religious Groups (formal)	14.0
Other (specified)	84.2

The analysis of post-flood support systems revealed a sharp contrast between informal and formal mechanisms of assistance. Informal networks were the dominant source of relief, with friends (68.4%) and neighbours (33.3%) providing the largest share of support. Religious

groups (31.6%) and workplace colleagues or unions (24.6%) also featured prominently, while savings groups such as *Ajo/Esusu* were reported by a smaller fraction of respondents (10.5%). These findings showed the embeddedness of community-based and peer-to-peer support as the primary safety net for street-living populations.

In contrast, formal institutional support was limited and uneven. No respondents reported receiving aid from NEMA/SEMA or LASEMA, despite their statutory roles in disaster response. A small share acknowledged help from local government officials (10.5%) or NGOs (1.8%), while religious organizations in their formal capacity accounted for 14.0%. Notably, the majority of respondents (84.2%) described their support under “other” categories, often reflecting ad hoc, non-institutional interventions.

These descriptive results suggest that formal agencies played only a marginal role in post-flood recovery for street-life populations, leaving community-based informal systems as the dominant safety net. This imbalance raises questions about institutional presence, accessibility, and trust in formal disaster response mechanisms for vulnerable urban groups.

Beyond the descriptive patterns, the interviews and FGDs add depth by showing how respondents themselves perceive support after floods.

The women’s FGD in Agbado highlighted the long-standing absence of reliable formal support. One participant recalled that government representatives visited seven years ago and promised assistance, but *“they never looked back.”* The women stressed that recovery was sustained only through neighbours and relatives, with no visible NGO or state presence.

The children’s FGD echoed this sense of abandonment, with one child bluntly stating: *“No one gives us support... not even our neighbours. It is God that supports.”* Although occasional neighbourly help was acknowledged, the group largely expressed disappointment

with authorities, saying that interventions often “*spoil things because they didn’t do the right thing.*”

Among the youth and “thug” group, there was near-unanimous agreement that no form of institutional aid reached them. One laughed bitterly: “*Support ke? Government no dey see us. Union oga only dey shout... but he no give anything.*” Another added, “*Na only if fight happen, police go come.*” For them, survival depended solely on solidarity within the group.

The individual interviews confirmed these themes. IJU-002 described migrants like himself as “*invisible*” to formal systems, surviving only through shared food and information among the beggar community. IJU-004 similarly noted that while neighbours in Jigawa once helped with burial and mourning, no institutional support was ever received. In Lagos, her only fallback is other Hausa women. Others like AGB-014 stressed that while big traders might attract official attention, “*small hawkers like us are invisible to institutions.*” Even where support was remembered, as with AGB-001 who received ₦2 million from her mother in Saudi Arabia, it came from diaspora kinship, not government or NGOs.

By contrast, stakeholder interviews presented a very different picture. The ÌyáOloja (ABE-002) described political collaboration with elected officials as central to flood relief, while the Baálè (ABE-001) insisted that the local government canal project and periodic state interventions had provided “critical” support. Another leader (IJU-001) praised state responsiveness, pointing to fines on the park union that improved sanitation.

Taken together, these accounts reveal a sharp disconnect: residents report near-total reliance on informal help, while community leaders highlight institutional involvement. This mismatch suggests that while government projects may exist on paper or at leadership level, they often fail to translate into tangible support for the most vulnerable street populations.

4.6.1 Usefulness of Support Systems

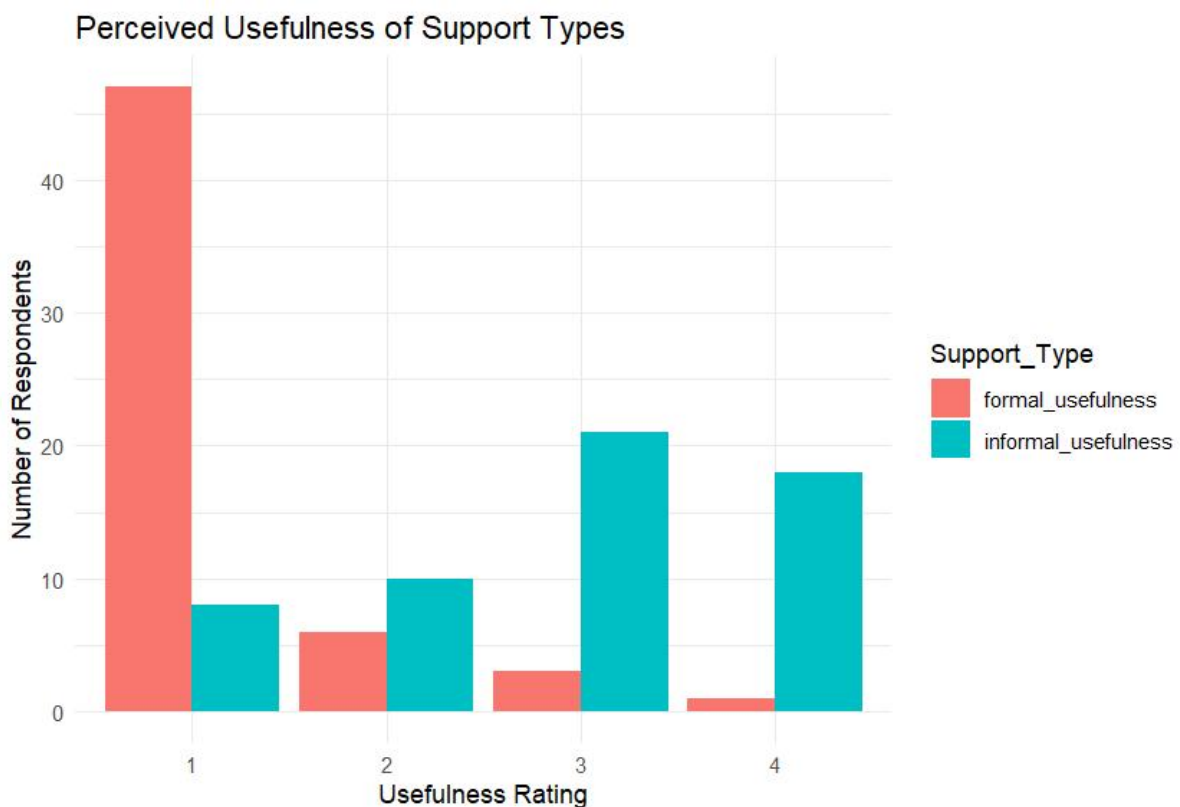


Figure 4.11: Perceived Usefulness of Support Types

Source: Author's Fieldwork, (2025)

The chart compares how respondents rated the usefulness of formal and informal support received after floods. Formal support (e.g., government or NGOs) was mostly rated as “1” (not useful), with over 40 respondents giving this lowest score. Very few respondents rated formal support as moderately or highly useful.

By contrast, informal support (friends, neighbours, religious groups) was rated much more positively. The largest share of respondents placed it at “3” or “4,” showing that such networks were not only more common but also considered more helpful in recovery.

This sharp difference confirms that street-living populations place little trust in formal agencies, either because they were absent or their help was ineffective. Instead, they rely on

peer-to-peer systems, neighbours, and small religious circles, which they view as both timely and dependable.

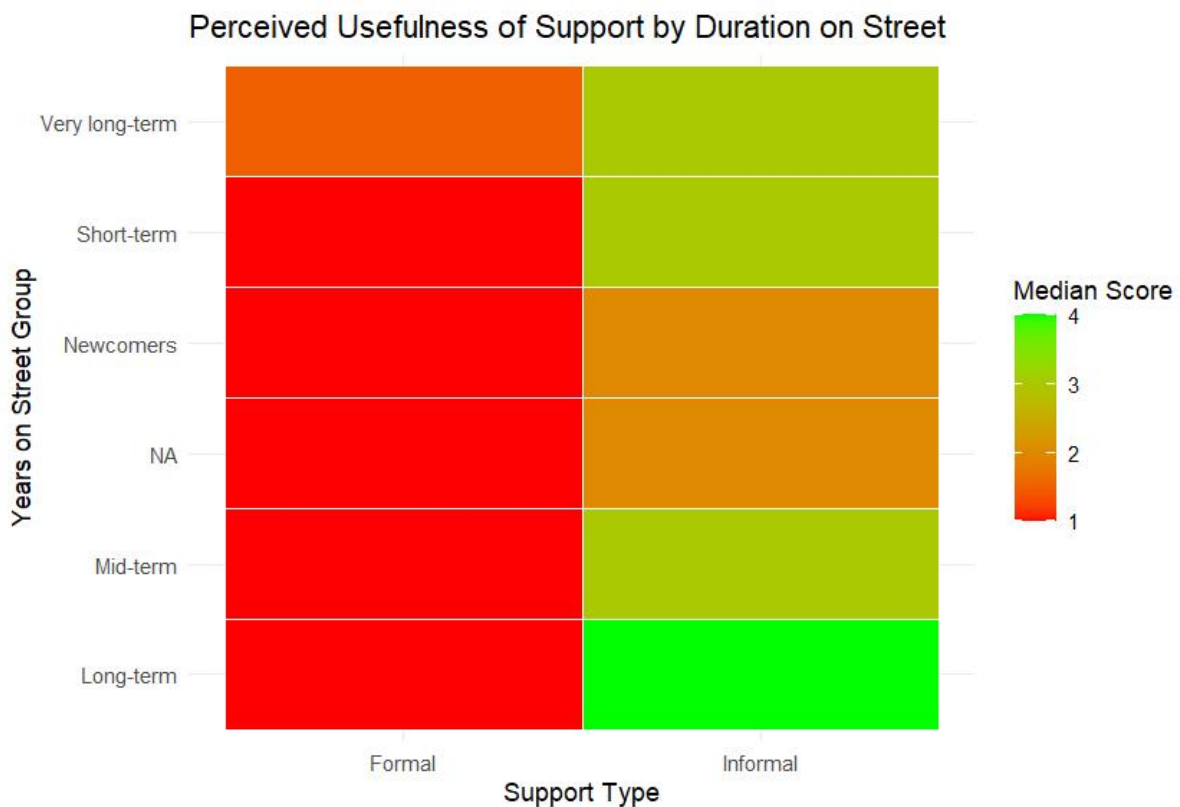


Figure 4.12: Perceived Usefulness of Support By Years on Street.

Source: Author's Fieldwork, (2025)

When the results were broken down by years of street experience, formal support was consistently rated low across all groups (median = 1). This confirms what many respondents already voiced in interviews that government agencies and NGOs rarely feature in their recovery.

In contrast, informal support showed more variation. Long-term dwellers (11–20 years) rated informal networks as very useful (median = 4), pointing to the stronger community ties they have built over time. Many of them explained during FGDs that they depend on these ties for food, shelter, or warnings when floods occur. Newcomers (0–2 years), however, scored much

lower (median = 2), showing that those who have just arrived on the street struggle to access such networks.

This pattern was echoed in the IDIs. One respondent (IJU-002) said plainly that his only support system was the beggar community that shared food and information. Another (AGB-012) argued that formal support was reserved for the “*influential*,” leaving the poor invisible. Similarly, AGB-014 explained that after every flood, it was friends and fellow traders, not government officials who gave him temporary shelter or food.

These findings suggest that recovery opportunities increase the longer individuals stay on the street, not because of government interventions, but because they gradually become more embedded in local support systems.

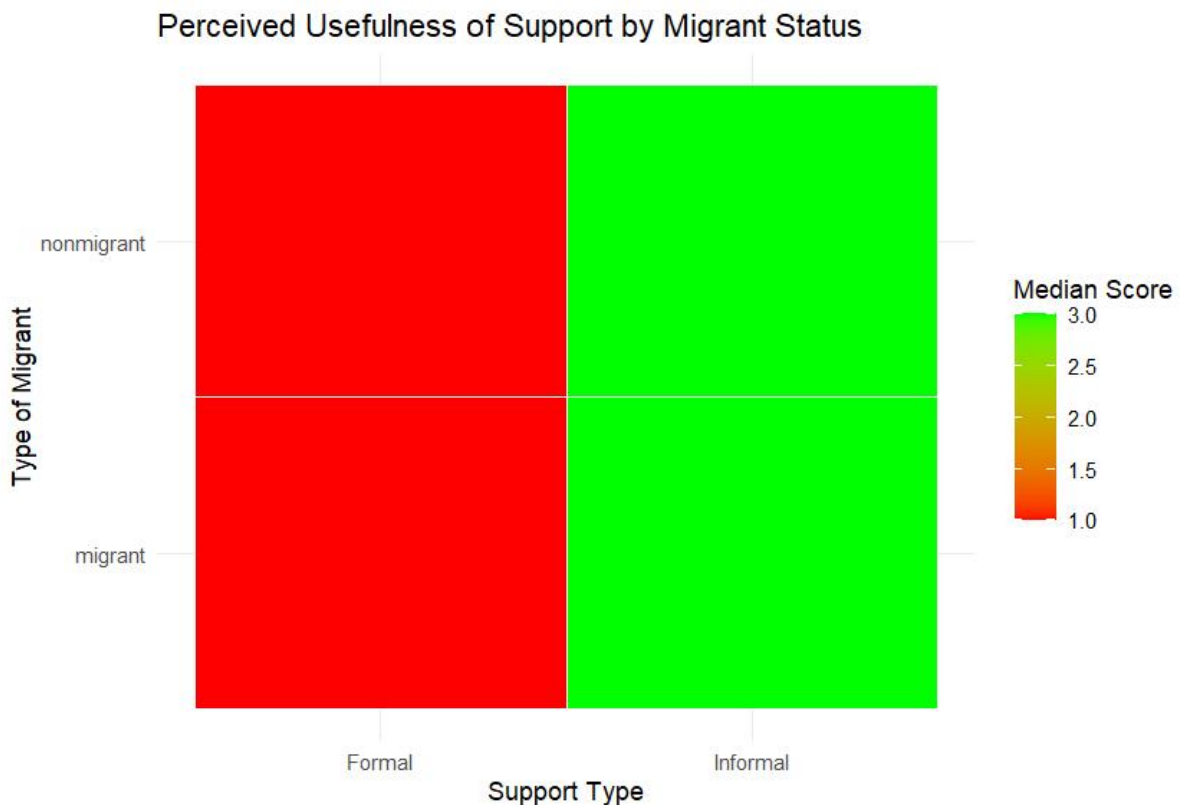


Figure 4.13: Perceived Usefulness of Support Type By Migrant Status

Source: Author's Fieldwork, (2025)

Both migrant and non-migrant respondents reported very low usefulness of formal support (median = 1). This confirms the shared reality that statutory agencies were absent in their recovery pathways. In contrast, informal support was rated more useful (median = 3) across both groups. Migrants often described depending on friendships and peer networks, while non-migrants leaned more on extended family and religious ties.

This was echoed in the interviews. For instance, IJU-003 explained that her only recovery support came from family bonds and neighbours, not from any government or NGO. Similarly, IJU-004 stressed that her closest help now comes from fellow Hausa beggars who share food and comfort. On the other side, AGE-002 noted that family, church members, and neighbours were his main fallback whenever floods struck. These voices reinforce that while the type of ties may differ, such as peers for migrants, kinship or congregations for non-migrants, the common thread is that informal support remains the real safety net.

The similarity of these results highlights that origin does not fundamentally change the support experience. Instead, informal networks serve as the unifying resilience mechanism for both migrants and non-migrants in the absence of meaningful institutional aid.

4.6.2 Timing of Support

Table 4.6.3: Timing of Formal and Informal Support after Flood Events

Support Type	Timing	N	%
Formal Support	Within 3 days	45	78.9
	Within 1 week	6	10.5
	After 1 week	4	7.0
	None	2	3.5
Informal Support	Within 3 days	7	12.3
	Within 1 week	1	1.8
	After 1 week	6	10.5
	None	43	75.4

The analysis of support timing shows that informal systems were far more responsive than formal institutions. Almost four in five respondents (78.9%) reported receiving informal assistance within the first three days of flooding, mainly from friends, neighbours, and religious groups. Another 10.5% reported such aid within a week, confirming that grassroots actors were the true first responders.

By contrast, formal support was largely absent. Three-quarters of respondents (75.4%) said they received no formal aid at all, and only a handful reported help from local officials or religious bodies within the first week. National agencies like NEMA and LASEMA were not mentioned at all, reflecting their distance from the realities of street populations.

This pattern was echoed in the interviews. Jemima (AGB-001) recalled that no government body stepped in, and she only recovered because her mother abroad sent ₦2 million: *“Government no give money, no help. If not for my mother, I for dey stranded.”* For most others, this level of support was unthinkable. Yahya (AGB-011) explained that his only safety net was fellow beggars warning each other when floodwater entered the streets. The thugs in Agbado were even blunter: *“Support ke? Government no dey see us. Union oga go just dey shout... na only each other we dey fall back on.”*

The FGDs reinforced this absence of state support. Women in Agbado recalled that government officials once visited and promised help but never returned: *“They never looked back.”* Children were even more dismissive, insisting: *“No one gives us support... it is God that supports.”*

These accounts confirm what the timing table reveals: street-life populations recover fastest when they rely on each other, not institutions. Informal support is immediate and life-saving, while formal interventions remain minimal, slow, or symbolic.

4.6.3 Barriers to Support

Table 4.6.4: Reported Barriers to Accessing Post-Flood Support

Barrier Type	% of Respondents
Lack of ID or documents	49.1
Other reasons (unspecified)	42.1
Discrimination	21.1
Fear of authorities	14.0
Did not know where to go	12.3
Long queues or delays	10.5
Support finished before it reached me	8.8
Distance or transport difficulty	7.0
Language barrier	0.0

Barriers to support were widespread and reveal why many street dwellers remain excluded from formal recovery. The most common problem was lack of identification or official documents (49.1%), which meant they could not register for relief or prove eligibility. Others (42.1%) gave context-specific reasons such as “*no one called us*” or “*they don’t know us here.*” One in five respondents (21.1%) felt they faced open discrimination, while 14.0% said they avoided government officials out of fear of harassment.

The interviews echoed these barriers clearly. Abdullahi (AGB-012) stressed: “*If you are influential, you will likely be helped... but if you don’t have mouth, how will you speak to a government agent?*” Jemima (AGB-001) agreed that ordinary residents were invisible: “*Government no give money, no help. We dey on our own.*” Others highlighted being

bypassed in distribution. One FGD participant among the women explained that by the time she reached the collection point, *“support don finish... we just waka back empty.”*

The children in Agbado also described not knowing where to go: *“No one tells us. Sometimes they say food is shared, but we don’t know the place.”* This confusion made them reliant only on neighbours or peers. The thugs were sharper in their distrust, insisting: *“Union oga only dey shout. Government no dey see us. Na waste of time to line up.”*

Practical barriers such as long queues (10.5%) and transport distance (7.0%) were mentioned but were not as central as the systemic ones. The combined effect is that even when relief is available, many in these populations cannot access it.

In short, the barriers are less about language or distance and more about identity, exclusion, and trust. Without documents, networks, or recognition, street dwellers remain cut off from the few formal supports that exist.

4.6.4 Types of Support Provided

Table 4.6.5: Distribution of Formal Support Kinds

Formal Support Kind	Percentage (%)
Food	12.3
Money	0.0
Clothes	10.5
Raincoat/Protective Items	1.8
Temporary Shelter	0.0
Health Treatment	5.3
Mobility/Transport Support	0.0
Other (specified)	86.0

Lead City University Ibadan DO NOT COPY

Table 4.6.6: Distribution of Informal Support Kinds

Informal Support Kind	Percentage (%)
Food	15.8
Money	31.6
Clothes	12.3
Shelter/Place to Stay	38.6
Emotional Support/Comfort	59.6
Help to Find Work/Restart Business	10.5
Other (specified)	19.3

The kinds of support received after floods again show how much street dwellers depend on informal networks. Formal aid was thin and irregular. Beyond a few reports of food (12.3%) and clothing (10.5%), most of the “*help*” that respondents described fell into unspecified or token categories (86.0%). Hardly anyone received money, shelter, or medical care from formal sources, underscoring the limited scope of institutional intervention.

By contrast, informal support was more practical and human. Emotional comfort (59.6%) was the single most common form of help, followed by access to temporary shelter (38.6%) and financial support (31.6%). These were provided by friends, neighbours, or fellow migrants, often in small but meaningful ways. For instance, AGB-014 explained that when water destroyed his kiosk, “*na my friends for market allow me stay small for their shop, give me food till I fit start again.*” Similarly, Jemima (AGB-001) recalled that emotional support from women in her neighbourhood helped her cope after losses, even when no government assistance came.

The FGD with the thugs highlighted a harder edge: *“Nobody dey give us food or cloth. Na we dey arrange for ourselves. If one person get, him go share, if not, na to endure.”* Meanwhile, the women’s group explained that rebuilding shelters was usually a collective task after every flood season, with friends and relatives pitching in labour or money.

Taken together, these results confirm that while formal agencies remain distant, everyday coping and recovery for street dwellers is carried by peer networks. What people receive is not just food or money, but the reassurance of solidarity and the small kindness of shelter, comfort, or shared resources.

4.6.5 Food Aid Quality and Duration

Table 4.6.7: Reported Duration of Food Aid (Informal & Formal)

	Food Duration Category	N	%
Duration	2–3 Days	4	7.0
	Other/Unclear	53	93.0
Quality	Good	1	1.8
	Okay	2	3.5
	Other/Unclear	54	94.7

The assessment of food aid provided by formal sources shows that it was both limited and poorly documented. Only a small share of respondents (7.0%) reported receiving food informally that lasted for two to three days, while the overwhelming majority (93.0%) gave unclear or non-specific responses. This suggests that food support, where provided, was neither consistent nor memorable enough to be recorded clearly by recipients.

Quality ratings followed a similar pattern. Barely 1.8% of respondents described the food as “good,” and only 3.5% said it was “okay.” The rest gave no clear response, indicating either

dissatisfaction or lack of recall. Taken together, these findings point to food aid being short-lived, minimal, and of questionable quality.

4.6.6 Monetary Support (Informal)

Table 4.6.8: Reported Amounts of Informal Monetary Support

Amount (₦)	n	%
2,000	4	7.0
3,000	1	1.8
5,000	2	3.5
8,000	1	1.8
10,000	1	1.8
20,000	2	3.5
50,000	4	7.0
NA	42	73.7

Informal monetary aid was provided in small amounts, with most respondents (73.7%) not reporting any financial assistance. Among those who did, the amounts clustered around ₦2,000–₦5,000, with only a few cases of larger sums up to ₦50,000. This indicates that financial support, when available, was modest and insufficient for sustained recovery.

4.6.7 Institutional Trust

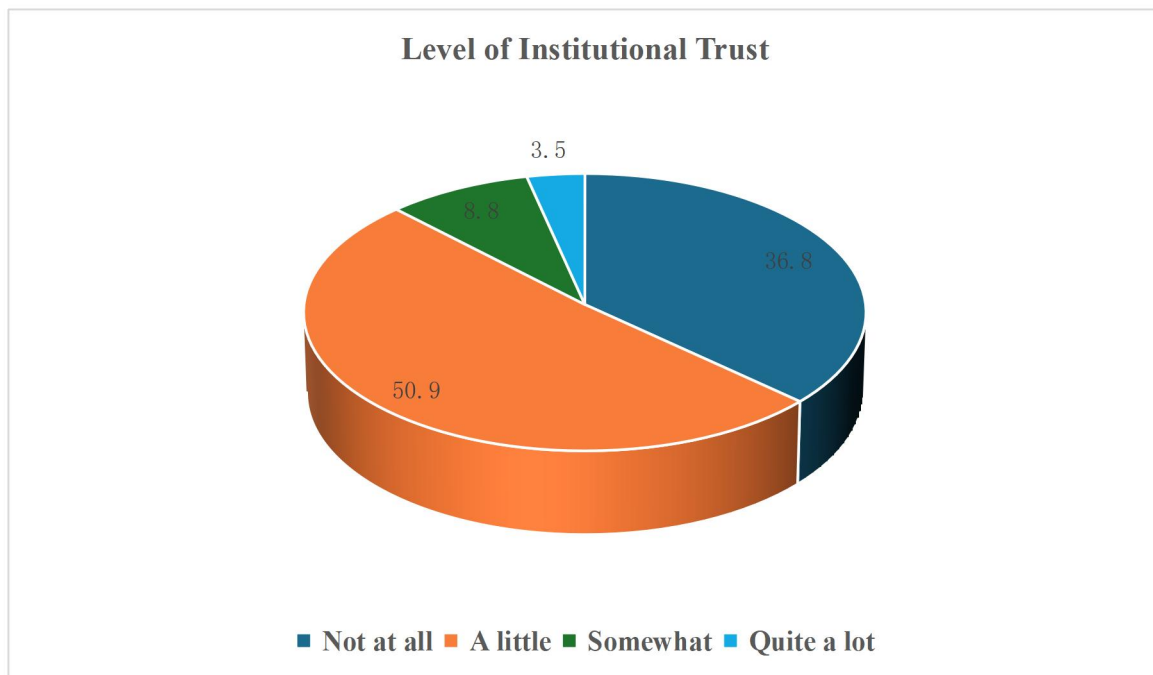


Figure 4.14: Reported Levels of Institutional Trust

Institutional trust was very low among respondents. More than one-third (36.8%) reported no trust at all, and half (50.9%) indicated only “a little” trust. Very few expressed strong confidence, with just 3.5% reporting “quite a lot” of trust. The median score of 2 confirms that institutional credibility is weak, with most street-life populations doubting the ability of formal agencies to provide meaningful support during floods.

This is in consonance with several in-depth interviews (IDIs). Abdullahi (AGB-012) captured this frustration plainly: *“If you are influential, you will likely be helped... but if you don’t have mouth, how will you speak to a government agent?”* Similarly, Jemima (AGB-001) explained that no state money was ever given to families, with her only relief coming from a private remittance: *“It was my mother abroad who sent ₦2 million. Without that, nothing would have come.”* Other respondents such as Yahya (AGB-011) stressed that recovery

support came only from peers: *“We just warn each other and move together. No government people reach us.”*

Focus group discussions (FGDs) reinforced this distrust. Among the Agbado women, participants recalled government visits many years ago with promises of aid, but *“they never looked back and did not bother to show up again.”* The Agbado youths echoed similar skepticism: *“Support ke? Government no dey see us. Union oga only dey shout, but he no give anything.”* Children also voiced disappointment, noting that even neighbours’ support was inconsistent, while government actions often *“spoiled things because they didn’t do the right thing.”*

Interestingly, stakeholder interviews contrasted with these accounts. The Ìyá Oloja (ABE-002) emphasized that government collaboration with elected officials brought drainage construction that eased flooding in her market. The Baálẹ̀ of Awori (ABE-001) praised the canal project and highlighted periodic checks by ministries, while the Iju transport leader (IJU-001) cited government enforcement through fines as a sign of responsiveness. These testimonies reveal a disconnect: while community leaders perceive institutional presence and responsiveness, everyday street dwellers largely experience neglect, exclusion, or broken promises.

Together, these findings suggest that institutional trust is split between leaders who engage directly with government and the wider street population that remains excluded. This mismatch highlights why disaster governance must bridge the gap between high-level interventions and grassroots realities if credibility and trust are to be restored.

Lead City University Ibadan DO NOT COPY

4.6.8 Cultural and Spiritual Practices

Table 4.6.10: Reported Cultural and Spiritual Recovery Practices

Practice	% of Respondents
Prayer	93.9
Fasting	40.8
Church or Mosque Offering	51.0
Ritual Offerings (Şààrà, traditional rites)	16.3
Cleansing	8.2
Visit to Religious/Traditional Leader	16.3
Other (specified)	2.0

Cultural and spiritual practices emerged as near-universal pathways of coping and resilience. Almost all respondents (93.9%) turned to prayer after floods, highlighting the deep reliance on faith as a first response to crisis. Over half (51.0%) reported making offerings in churches or mosques, while 40.8% engaged in fasting as a spiritual means of recovery. Traditional practices also played a role: about 16.3% mentioned ritual offerings such as Şààrà or consultations with local spiritual leaders, and a smaller share (8.2%) performed cleansing rites to ward off perceived misfortune.

The voices of respondents illustrate this reliance. One trader in Agege put it simply: “*Church prayers and family support are what I can trust*” (AGE-002). A Hausa woman in Agbado added that when formal support failed, “*we just pray and leave everything to God*” (AGB-004). For many respondents, prayer, fasting, and rituals were deeply personal acts of resilience. However, stakeholders highlighted how these practices also served collective functions. For instance, ABE-002 explained that beyond physical infrastructure, the market

invited both an Alfa and a pastor once a year to pray for safety, sales, and protection — a ritual she described as reinforcing unity among traders. Similarly, the Baálè (ABE-001) acknowledged the community's annual rituals on August 20, when traditional worshippers made sacrifices to deities believed to shield the area. He described these as complementary to government interventions, giving residents a spiritual sense of security alongside physical flood control works.

Together, these accounts show that spiritual practices were both personal anchors for the vulnerable and collective rituals institutionalized by leaders. For street populations especially, this duality shows how recovery is not only about infrastructure and aid but also about sustaining hope, belonging, and cultural identity in the face of recurring floods.

Chapter Five

Construction and Application of the Street-Based Recovery Index (SBRI)

5.1 Constructing the Street-Based Recovery Index (SBRI)

The sixth objective was to develop a Street-Based Recovery Index (SBRI) that quantifies the multi-dimensional nature of post-flood recovery among street-based populations. The SBRI was designed to capture recovery capacity in a single measurable score by integrating four domains: exposure and loss (10%), support systems (20%), coping strategies (30%), and recovery outcomes (40%). The weighting scheme was guided by expert judgment, reflecting both field realities and contextual relevance, where statistical derivation (e.g., PCA) was not feasible. This approach is consistent with established practices in composite index construction^{1,2}

The construction process followed a structured set of steps: (i) data preparation and normalization of indicators to ensure comparability, (ii) aggregation of indicators within each domain, (iii) application of domain weights, and (iv) computation of composite scores for each respondent. The resulting SBRI offers a robust tool for comparing recovery levels across groups and identifying which dimensions contribute most to resilience or vulnerability in street-based populations.

STEP_WISE CONSTRUCTION OF STREET-BASED RECOVERY INDEX

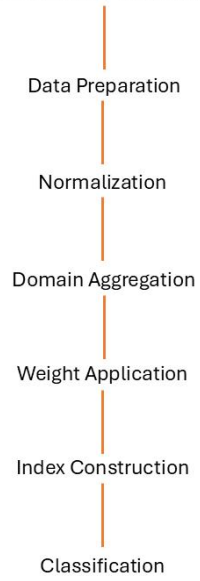


Figure 4.15: Steps to Constructing the SBRI (Author's Conceptualization)

Figure

Lead City University Ibadan DO NOT

5.1.1 Data Preparation and Recoding

The first stage was to prepare the raw dataset for analysis. The variables in the questionnaire came in different formats, so they had to be made uniform before analysis.

- Binary questions (e.g., whether an early warning was received) were recoded as 1 = Yes, 0 = No.
- Ordinal questions (e.g., trust in institutions, rated from 1 to 4) were kept in their original scale.
- Multiple-response questions (e.g., coping strategies used) were converted into dummy variables coded as 1 = selected, 0 = not selected.

This step made sure that all the variables were in numeric form and could be compared across the four recovery domains used in building the Street-Based Recovery Index (SBRI).

5.1.2 Construction of Sub-Indices

After recoding, variables were grouped into four conceptual domains: coping, recovery outcomes, support systems, and exposure to floods. For each domain, a sub-index was calculated at the individual (respondent) level.

The procedure followed a row means approach, using the rowMeans function in R, where all variables belonging to the same domain were averaged for each respondent. This approach accounts for the fact that different respondents may have answered a different number of items within a domain.

This produced four sub-indices per respondent: Coping Index, Recovery Index, Support Index, and Exposure Index.

Table 4.7.1: Sub-Indices of Recovery by Respondent

Respondent_ID	Coping_Index	Recovery_Index	Support_Index	Exposure_Index
ADY_001	3.17	2.67	1.00	1.50
ADY_002	3.00	3.10	2.50	2.50
ADY_003	3.42	3.20	2.50	2.00
ADY_004	3.58	2.90	2.50	1.50
AGB_005	3.00	3.30	2.50	2.00
AGB_006	3.17	3.50	2.50	2.00
AGB_001	1.58	2.90	1.50	0.50
AGB_002	3.00	2.90	1.00	0.50
AGB_008	1.00	3.00	1.00	2.00
ABE_002	2.67	2.60	2.00	0.50
ABE_010	2.83	3.20	3.00	1.00
ABE_008	3.00	2.78	3.50	3.00
AGB_009	2.75	3.20	2.50	2.00
ABE_004	3.00	2.70	1.50	1.00
ABE_007	3.08	3.80	3.50	1.50
ABE_009	3.25	3.10	3.00	2.50
ABE_006	2.92	3.10	3.00	2.50
ABE_003	2.92	2.60	3.00	3.00
ABE_001	2.58	2.30	2.00	2.00
AGB_010	3.58	3.00	3.50	3.50
AGB_004	1.67	3.20	1.50	0.50
AGB_007	1.50	3.30	1.50	2.00

AGB_011	1.67	2.00	2.00	2.50
AGB_012	1.67	2.70	1.00	1.00
AGB_013	2.67	3.10	2.00	1.00
AGB_020	2.58	3.00	2.00	1.00
FAG_006	2.25	2.50	1.50	2.50
FAG_007	2.50	3.10	2.00	1.00
FAG_008	2.17	2.80	1.50	2.00
FAG_009	2.50	2.40	2.50	3.00
FAG_010	2.42	2.20	2.00	1.50
AGB_003	2.58	3.00	2.00	1.50
ABE_005	2.42	3.10	2.00	1.00
AGB_014	2.83	2.80	2.00	2.00
AGB_015	2.33	2.70	2.00	1.50
AGB_016	2.50	2.50	2.00	1.50
AGB_017	2.42	2.70	2.00	2.00
IJU_005	2.50	2.90	2.00	1.00
AGB_018	2.42	2.20	2.00	2.00
AGB_019	2.50	2.20	2.00	2.50
AGE_001	2.33	2.50	1.50	1.00
AGE_003	2.08	2.40	2.00	1.50
AGE_002	2.50	2.50	2.00	1.50
AGE_004	2.67	2.40	2.50	1.50
AGE_005	1.67	2.70	2.00	1.50
AGE_007	2.00	2.70	2.50	1.00

AGE_008	2.83	2.60	1.00	1.50
FAG_001	1.17	3.10	1.00	2.00
FAG_002	1.17	2.80	1.00	2.00
FAG_003	2.33	2.90	1.50	2.00
FAG_004	2.00	2.60	1.50	3.00
FAG_005	2.17	2.90	1.50	2.00
AGE_006	2.67	3.10	2.00	1.00
IJU_001	3.00	4.00	4.00	2.00
IJU_004	2.00	2.90	2.50	1.00
IJU_002	1.83	3.00	1.50	2.50
IJU_003	2.00	2.80	2.50	0.50

5.1.3 Normalization of Sub-Indices

Since the four sub-indices (coping, recovery outcomes, support systems, and exposure) were created from different numbers of items and scales, they had to be brought to the same scale before combining. A min-max rescaling method was applied, which transformed each sub-index to a range between 0 (lowest possible value) and 1 (highest possible value).

This ensured that no single domain dominated the overall index simply because it was measured with a larger number of items or a different scale. The rescaling procedure was carried out in R, and the script used is included in Appendix III.

The outcome of this process produced a set of normalized values for each respondent, allowing comparability across all four domains.

Table 4.7.2: Normalized Sub-Indices Value for Each Respondent

Respondent_ID	coping_norm	recovery_norm	support_norm	exposure_norm
ADY_001	0.839	0.333	0.000	0.333
ADY_002	0.774	0.550	0.500	0.667
ADY_003	0.935	0.600	0.500	0.500
ADY_004	1.000	0.450	0.500	0.333
AGB_005	0.774	0.650	0.500	0.500
AGB_006	0.839	0.750	0.500	0.500
AGB_001	0.226	0.450	0.167	0.000
AGB_002	0.774	0.450	0.000	0.000
AGB_008	0.000	0.500	0.000	0.500
ABE_002	0.645	0.300	0.333	0.000
ABE_010	0.710	0.600	0.667	0.167
ABE_008	0.774	0.389	0.833	0.833
AGB_009	0.677	0.600	0.500	0.500
ABE_004	0.774	0.350	0.167	0.167
ABE_007	0.806	0.900	0.833	0.333
ABE_009	0.871	0.550	0.667	0.667
ABE_006	0.742	0.550	0.667	0.667
ABE_003	0.742	0.300	0.667	0.833
ABE_001	0.613	0.150	0.333	0.500
AGB_010	1.000	0.500	0.833	1.000
AGB_004	0.258	0.600	0.167	0.000
AGB_007	0.194	0.650	0.167	0.500

AGB_011	0.258	0.000	0.333	0.667
AGB_012	0.258	0.350	0.000	0.167
AGB_013	0.645	0.550	0.333	0.167
AGB_020	0.613	0.500	0.333	0.167
FAG_006	0.484	0.250	0.167	0.667
FAG_007	0.581	0.550	0.333	0.167
FAG_008	0.452	0.400	0.167	0.500
FAG_009	0.581	0.200	0.500	0.833
FAG_010	0.548	0.100	0.333	0.333
AGB_003	0.613	0.500	0.333	0.333
ABE_005	0.548	0.550	0.333	0.167
AGB_014	0.710	0.400	0.333	0.500
AGB_015	0.516	0.350	0.333	0.333
AGB_016	0.581	0.250	0.333	0.333
AGB_017	0.548	0.350	0.333	0.500
IJU_005	0.581	0.450	0.333	0.167
AGB_018	0.548	0.100	0.333	0.500
AGB_019	0.581	0.100	0.333	0.667
AGE_001	0.516	0.250	0.167	0.167
AGE_003	0.419	0.200	0.333	0.333
AGE_002	0.581	0.250	0.333	0.333
AGE_004	0.645	0.200	0.500	0.333
AGE_005	0.258	0.350	0.333	0.333
AGE_007	0.387	0.350	0.500	0.167

AGE_008	0.710	0.300	0.000	0.333
FAG_001	0.065	0.550	0.000	0.500
FAG_002	0.065	0.400	0.000	0.500
FAG_003	0.516	0.450	0.167	0.500
FAG_004	0.387	0.300	0.167	0.833
FAG_005	0.452	0.450	0.167	0.500
AGE_006	0.645	0.550	0.333	0.167
IJU_001	0.774	1.000	1.000	0.500
IJU_002	0.323	0.500	0.167	0.667
IJU_003	0.387	0.400	0.500	0.000
IJU_004	0.387	0.450	0.500	0.167

5.1.4 Assigning Weights to Recovery Domains

Since not all dimensions contribute equally to recovery, weights were assigned based on expert judgment and the logic of resilience-building:

- Coping strategies ($w_1 = 0.30$): Coping reflects immediate adaptive capacity and was considered the most critical.
- Recovery outcomes ($w_2 = 0.40$): Recovery represents the medium-term regaining of stability; thus, it carries the highest weight.
- Support systems ($w_3 = 0.20$): Access to formal and informal support moderates recovery but was weighted lower than coping and recovery.
- Exposure & flood experience ($w_4 = 0.10$): While relevant, exposure alone does not necessarily determine resilience; hence the lowest weight.

Each respondent's weighted score was then calculated by multiplying their normalized sub-index in each domain by the assigned weight. The combined total reflects their overall recovery profile.

It is calculated as;

$$\begin{aligned} \text{Weighted Score}_i &= (\text{Coping}_{\text{norm}} \times 0.30) + (\text{Recovery}_{\text{norm}} \times 0.40) \\ &+ (\text{Support}_{\text{norm}} \times 0.20) + (\text{Exposure}_{\text{norm}} \times 0.10) \end{aligned}$$

Table 4.7.3: Weighted Scores for Each Respondent

Respondent_ID	coping_score	recovery_score	support_score	exposure_score
ABE_001	0.184	0.0600	0.0667	0.0500
ABE_002	0.194	0.120	0.0667	0.0000
ABE_003	0.223	0.120	0.133	0.0833
ABE_004	0.232	0.140	0.0333	0.0167
ABE_005	0.165	0.220	0.0667	0.0167
ABE_006	0.223	0.220	0.133	0.0667
ABE_007	0.242	0.360	0.167	0.0333
ABE_008	0.232	0.156	0.167	0.0833
ABE_009	0.261	0.220	0.133	0.0667
ABE_010	0.213	0.240	0.133	0.0167
ADY_001	0.252	0.133	0.000	0.0333
ADY_002	0.232	0.220	0.100	0.0667
ADY_003	0.281	0.240	0.100	0.0500
ADY_004	0.300	0.180	0.100	0.0333

AGB_001	0.0677	0.180	0.0333	0.0000
AGB_002	0.232	0.180	0.000	0.0000
AGB_003	0.184	0.200	0.0667	0.0333
AGB_004	0.0774	0.240	0.0333	0.0000
AGB_005	0.232	0.260	0.100	0.0500
AGB_006	0.252	0.300	0.100	0.0500
AGB_007	0.0581	0.260	0.0333	0.0500
AGB_008	0.000	0.200	0.000	0.0500
AGB_009	0.203	0.240	0.100	0.0500
AGB_010	0.300	0.200	0.167	0.1000
AGB_011	0.0774	0.000	0.0667	0.0667
AGB_012	0.0774	0.140	0.000	0.0167
AGB_013	0.194	0.220	0.0667	0.0167
AGB_014	0.213	0.160	0.0667	0.0500
AGB_015	0.155	0.140	0.0667	0.0333
AGB_016	0.174	0.100	0.0667	0.0333
AGB_017	0.165	0.140	0.0667	0.0500
AGB_018	0.165	0.0400	0.0667	0.0500
AGB_019	0.174	0.0400	0.0667	0.0667
AGB_020	0.184	0.200	0.0667	0.0167
AGE_001	0.155	0.100	0.0333	0.0167
AGE_002	0.174	0.100	0.0667	0.0333
AGE_003	0.126	0.0800	0.0667	0.0333
AGE_004	0.194	0.0800	0.100	0.0333

AGE_005	0.0774	0.140	0.0667	0.0333
AGE_006	0.194	0.220	0.0667	0.0167
AGE_007	0.116	0.140	0.100	0.0167
AGE_008	0.213	0.120	0.000	0.0333
FAG_001	0.0194	0.220	0.000	0.0500
FAG_002	0.0194	0.160	0.000	0.0500
FAG_003	0.155	0.180	0.0333	0.0500
FAG_004	0.116	0.120	0.0333	0.0833
FAG_005	0.135	0.180	0.0333	0.0500
FAG_006	0.145	0.100	0.0333	0.0667
FAG_007	0.174	0.220	0.0667	0.0167
FAG_008	0.135	0.160	0.0333	0.0500
FAG_009	0.174	0.0800	0.100	0.0833
FAG_010	0.165	0.0400	0.0667	0.0333
IJU_001	0.232	0.400	0.200	0.0500
IJU_002	0.0968	0.200	0.0333	0.0667
IJU_003	0.116	0.160	0.100	0.0000
IJU_004	0.116	0.180	0.100	0.0167
IJU_005	0.174	0.180	0.0667	0.0167

5.1.5 Computing the Composite Street-Based Recovery Index (SBRI)

After assigning weights and calculating the weighted sub-scores for each domain in Step 4, the final SBRI for every respondent was obtained by summing across the four weighted components. This produced a single composite value per individual, representing their overall post-flood recovery level.

$$SBRI_i = \text{copingscore}_i + \text{recovery_score}_i + \text{supportscore}_i + \text{exposurescore}_i$$

The outcome of this step was a continuous index ranging from 0 (very low recovery) to 1 (very high recovery), allowing direct comparison across respondents. The results table (n = 57) presents the computed SBRI values for all participants, which form the basis for subsequent classification and group analysis in later steps.

Table 4.7.4: Street-Based Recovery Index Score for Each Respondent

Respondent_ID	coping_score	recovery_score	support_score	exposure_score	SBRI
ABE_001	0.184	0.0600	0.0667	0.0500	0.361
ABE_002	0.194	0.120	0.0667	0.0000	0.380
ABE_003	0.223	0.120	0.133	0.0833	0.559
ABE_004	0.232	0.140	0.0333	0.0167	0.422
ABE_005	0.165	0.220	0.0667	0.0167	0.468
ABE_006	0.223	0.220	0.133	0.0667	0.643
ABE_007	0.242	0.360	0.167	0.0333	0.802
ABE_008	0.232	0.156	0.167	0.0833	0.638
ABE_009	0.261	0.220	0.133	0.0667	0.681
ABE_010	0.213	0.240	0.133	0.0167	0.603
ADY_001	0.252	0.133	0.000	0.0333	0.418

ADY_002	0.232	0.220	0.100	0.0667	0.619
ADY_003	0.281	0.240	0.100	0.0500	0.671
ADY_004	0.300	0.180	0.100	0.0333	0.613
AGB_001	0.0677	0.180	0.0333	0.0000	0.281
AGB_002	0.232	0.180	0.000	0.0000	0.412
AGB_003	0.184	0.200	0.0667	0.0333	0.484
AGB_004	0.0774	0.240	0.0333	0.0000	0.351
AGB_005	0.232	0.260	0.100	0.0500	0.642
AGB_006	0.252	0.300	0.100	0.0500	0.702
AGB_007	0.0581	0.260	0.0333	0.0500	0.401
AGB_008	0.000	0.200	0.000	0.0500	0.250
AGB_009	0.203	0.240	0.100	0.0500	0.593
AGB_010	0.300	0.200	0.167	0.1000	0.767
AGB_011	0.0774	0.000	0.0667	0.0667	0.211
AGB_012	0.0774	0.140	0.000	0.0167	0.234
AGB_013	0.194	0.220	0.0667	0.0167	0.497
AGB_014	0.213	0.160	0.0667	0.0500	0.490
AGB_015	0.155	0.140	0.0667	0.0333	0.395
AGB_016	0.174	0.100	0.0667	0.0333	0.374
AGB_017	0.165	0.140	0.0667	0.0500	0.421
AGB_018	0.165	0.0400	0.0667	0.0500	0.321
AGB_019	0.174	0.0400	0.0667	0.0667	0.348
AGB_020	0.184	0.200	0.0667	0.0167	0.467
AGE_001	0.155	0.100	0.0333	0.0167	0.305

AGE_002	0.174	0.100	0.0667	0.0333	0.374
AGE_003	0.126	0.0800	0.0667	0.0333	0.306
AGE_004	0.194	0.0800	0.100	0.0333	0.407
AGE_005	0.0774	0.140	0.0667	0.0333	0.317
AGE_006	0.194	0.220	0.0667	0.0167	0.497
AGE_007	0.116	0.140	0.100	0.0167	0.373
AGE_008	0.213	0.120	0.000	0.0333	0.366
FAG_001	0.0194	0.220	0.000	0.0500	0.289
FAG_002	0.0194	0.160	0.000	0.0500	0.229
FAG_003	0.155	0.180	0.0333	0.0500	0.418
FAG_004	0.116	0.120	0.0333	0.0833	0.353
FAG_005	0.135	0.180	0.0333	0.0500	0.399
FAG_006	0.145	0.100	0.0333	0.0667	0.345
FAG_007	0.174	0.220	0.0667	0.0167	0.478
FAG_008	0.135	0.160	0.0333	0.0500	0.379
FAG_009	0.174	0.0800	0.100	0.0833	0.438
FAG_010	0.165	0.0400	0.0667	0.0333	0.305
IJU_001	0.232	0.400	0.200	0.0500	0.882
IJU_002	0.0968	0.200	0.0333	0.0667	0.397
IJU_003	0.116	0.160	0.100	0.0000	0.376
IJU_004	0.116	0.180	0.100	0.0167	0.413
IJU_005	0.174	0.180	0.0667	0.0167	0.438

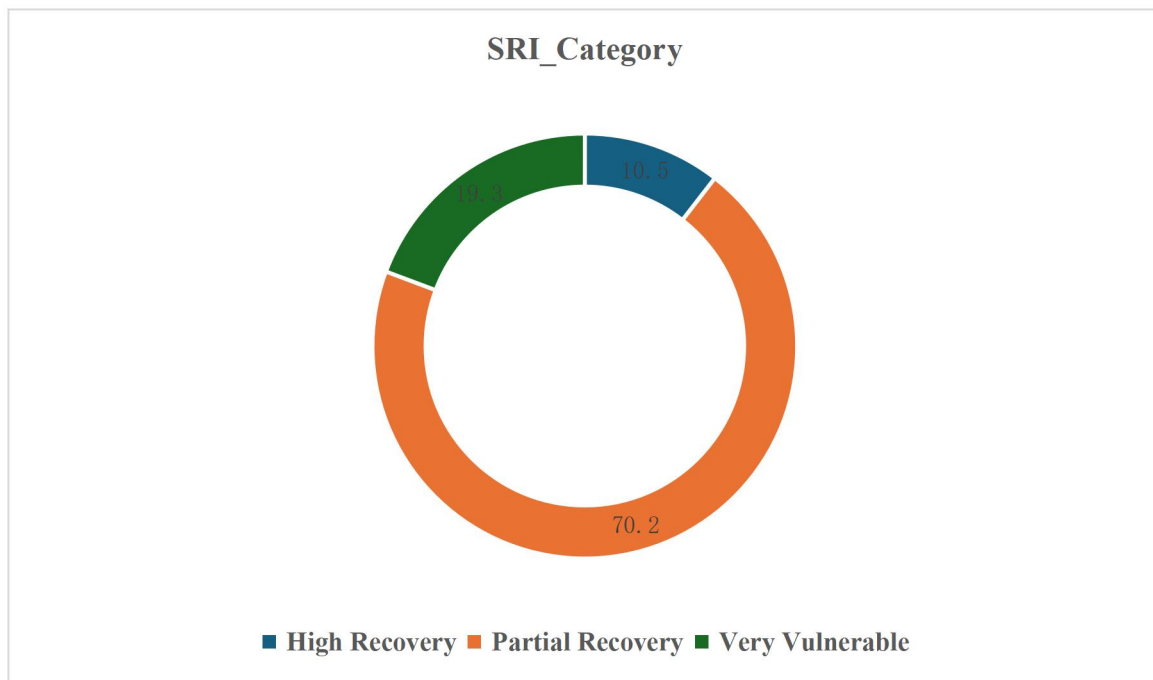
5.1.6 Categorisation of SBRI Scores into Tiers

After computing the SBRI for each respondent, the scores were grouped into three categories to make interpretation easier. This way, the numbers are not just abstract values but show who is still very weak, who is on the road to recovery, and who is doing relatively well.

Rules for Grouping:

- If a respondent's SBRI score is 0.00 to 0.33, they were placed in the "Very Vulnerable" group. This means their coping, support, and recovery systems are very weak.
- If a respondent's SBRI score is 0.34 to 0.66, they were placed in the "Partial Recovery" group. This means they are managing some recovery but not yet stable.
- If a respondent's SBRI score is 0.67 to 1.00, they were placed in the "High Recovery" group. This shows they are relatively resilient compared to others.

This three-tier approach keeps the interpretation simple but meaningful. Instead of drowning in decimals, it helps to clearly point out which groups need urgent support, which are recovering slowly, and which are already showing strength.



Fig

Figure 4.16: Distribution of Respondents by Recovery Category

The distribution of respondents across the three SBRI categories shows that recovery is skewed toward the middle tier. A clear majority (70.2%) of respondents were classified as being in *Partial Recovery*, suggesting that while most street-based populations have regained some stability after floods, they remain in a fragile state where setbacks are still likely. A further 19.3% fell into the *Very Vulnerable* category, indicating severe limitations in coping capacity, support, or livelihood restoration. Only 10.5% of respondents were able to attain *High Recovery*, reflecting stronger resilience and more stable recovery pathways. These results highlight that full recovery is rare among this group, and that most respondents hover in a precarious middle ground where sustained institutional and community support remains crucial.

The Street-Based Recovery Index (SBRI) was constructed to provide a single comparable score of post-flood recovery for each respondent. To summarize these scores across groups, three descriptive statistics were used and reported. The mean was used to show the overall average recovery level, the median was used to capture the middle point and reduce the

influence of outliers, and the standard deviation was used to indicate the spread of recovery levels within each group. This combination provides a balanced view of central tendency and variability and makes it possible to compare recovery patterns fairly across socio-demographic categories and communities. The aim of this step is also to demonstrate the tool in action, showing how the SBRI can be applied to real field data to highlight disparities in post-flood recovery.

Lead City University Ibadan DO NOT COPY

Community	LGA	N	Mean SBRI	Median SBRI	SD
Abule-Egba	Ifako-Ijaiye	10	0.556	0.581	0.144
Adiyan	Ifo	4	0.580	0.616	0.111
Agbado	Ifo	20	0.432	0.407	0.153
Agege	Agege	8	0.368	0.370	0.064
Fagba	Ifako-Ijaiye	10	0.363	0.366	0.075
Iju-Ishaga	Ifako-Ijaiye	5	0.501	0.413	0.214

Community-level differences in SBRI scores reveal how place matters for recovery. Respondents in Adiyan (mean = 0.580, median = 0.616) and Abule-Egba (0.556, 0.581) recorded the highest recovery levels, pointing to stronger coping strategies and possibly better integration into supportive infrastructure and services. By contrast, Fagba (0.363, 0.366) and Agege (0.368, 0.370) had the weakest recovery scores, reflecting deeper exposure to flood risk and persistent service gaps. Agbado, despite being the most significant sample (n = 20), also trailed with a mean of 0.432, indicating that larger street-based populations do not necessarily translate into stronger recovery. Interestingly, Iju-Ishaga (0.501, 0.413) showed a relatively high mean but wide variation (SD = 0.214), suggesting uneven recovery pathways within the same community. Together, these patterns emphasise that recovery is spatially uneven, shaped not only by individual or household capacity but also by local governance, infrastructure, and urban planning.

Table 4.7.7: Recovery Score by Income Type

Main Income Activity	N	Mean SBRI	Median SBRI	SD
Area work / Motor park loading	7	0.442	0.422	0.106
Begging (alms)	5	0.326	0.376	0.096
Casual labour (construction)	8	0.410	0.418	0.095
Hawking / Street vending	13	0.535	0.497	0.171
Okada/Keke riding	6	0.643	0.642	0.153
Other (specified)	2	0.541	0.541	0.073
Repairs / Handiwork	8	0.364	0.377	0.057
Sex work	1	0.373	0.373	–
Waste scavenging / Recycling	7	0.344	0.353	0.062

Income type strongly shaped recovery outcomes. Okada/Keke riders recorded the highest mean SBRI (0.643, median 0.642), suggesting that mobility-based livelihoods allowed for faster return to work after flooding. Hawkers and street vendors (mean = 0.535) and those in “other” trades (0.541) also showed relatively strong recovery, likely due to the flexibility of small-scale trade and adaptability of informal commerce. In contrast, beggars (0.326) and waste scavengers (0.344) were the most vulnerable, reflecting limited economic buffers and higher exposure to displacement or asset loss. Repairs/handiwork (0.364) and casual labour (0.410) also scored low, indicating slower bounce-back in daily income streams tied to unstable demand. Interestingly, sex work (0.373, single case) fell closer to the vulnerable end, though interpretation is cautious due to small sample size.

Overall, these results show that livelihood type is not just an economic marker but a resilience determinant: those with mobile, adaptable, or trade-based activities recovered more quickly, while survivalist and precarious groups remained structurally disadvantaged.

Table 4.7.8: Recovery Score by Migrant Status

Migrant Status	n	Mean SBRI	Median SBRI	SD
Migrant	42	0.432	0.404	0.137
Non-migrant	15	0.498	0.467	0.176

This indicates that non-migrants (mean SBRI = 0.498, median = 0.467) recovered better than migrants (0.432, median = 0.404). This reflects the importance of social capital, tenure security, and local embeddedness in shaping resilience. Migrants, most especially recent arrivals often lack stable housing, legal recognition, or strong community ties, making it harder to access support networks or institutional resources. Non-migrants, by contrast, benefit from familiarity with local systems and established relationships, which can speed up recovery.

When viewed alongside earlier tables, the comparative analysis of SBRI across communities, income types, and migrant status shows that recovery is shaped not just by individual coping but by structural inequalities of place, livelihood, and identity. Vulnerable communities like Fagba and Agege remain constrained by poor infrastructure, while flexible earners like Okada/Keke riders recover faster than survivalist groups such as beggars and waste scavengers. Migrant status adds another layer of disadvantage, reinforcing exclusion for already marginal groups.

Together, these results confirm the value of the Street-Based Recovery Index (SBRI) as a composite tool: it captures both individual recovery strategies and the broader social

determinants of resilience that define who recovers quickly and who remains trapped in cycles of vulnerability.

In summary, the Street-Based Recovery Index (SBRI) gave a straightforward way to measure recovery across respondents and groups. Most people were in the middle tier of partial recovery, but there were apparent differences by community, income type, and migrant status. These findings show that recovery is shaped not only by individual effort but also by wider social and structural conditions. The index, therefore, offers a practical tool to identify which groups remain most at risk and where support should be directed.

5.2 Discussion of Findings

This chapter discusses the study findings with respect to existing literature. The aim was to understand how street-life populations in Lagos cope, survive, and recover post-flood. The discussion covers five key areas: lived experiences, coping strategies, recovery outcomes across socio-demographic groups, support systems, and the application of the Street-Based Recovery Index (SBRI).

The findings from results and analysis reveal that street-life populations in Lagos encounter flooding as a routine disruption that affects their livelihoods, security, and well-being. Respondents described losing daily income, watching belongings being washed away, and sleeping in unsafe spaces after flood events. They stressed the absence of early warning, reliance on informal peer networks, and rapid improvisations such as placing goods on raised surfaces or moving temporarily to safer spots. These experiences highlight the unsafe nature of recovery, where livelihood continuity often takes priority over safety. Corroborating these findings within broader literature shows the extent of street-based exposure to flood hazards.

Studies from African cities provide similar findings. In Dar es Salaam, residents of unplanned settlements responded to flooding through collective actions such as sandbagging, cleaning

drainage channels, and raising platforms for goods and housing. These practices shows the resourcefulness of low-income communities under constrained conditions³. Similarly, a study shows how everyday social relations become critical in enabling preliminary recovery, with neighbours mobilising to support one another during emergencies⁴. The evidence from this study aligns with this. Still, from another angle: recovery is mediated not through fixed settlement units but through mobile and transient street networks where assets are light, temporary, and easily lost.

In areas where tenure is insecure, the sustainability of local coping practices is often undermined. Researchers documented how residents of Old Fadama in Ghana displayed adaptive responses to recurrent floods, yet eviction threats from authorities weakened their ability to consolidate resilience. Street traders in Lagos face a comparable challenge, as policing and space reordering after floods can displace them from locations where they had developed protective routines. This suggests that post-flood governance can exacerbate, rather than mitigate, vulnerabilities.

Risk perception has also been shown to shape responses. In Delhi's floodplain, informal settlements reported higher perceived risk than formal ones, with age, education, and assets influencing adaptation choices. Evacuation was common, while anticipatory measures such as elevating housing were limited⁵. In Kathmandu, informal settlers' perceptions were sharpened by direct experiences of property loss and health shocks, with solidarity fostering social capital that guided collective decisions⁶. The Lagos narratives are consistent with these patterns: individuals relied more on memory of past floods and immediate social cues than on formal systems when making decisions.

Nigerian case studies further emphasise systemic weaknesses. In Kogi, a rapid post-disaster assessment found low awareness of warnings, widespread reliance on divine protection, and

reactive evacuation to camps⁷. In Katsina, households recognised flood risks but faced inadequate drainage and weak institutional coordination. Adaptations were individualised and small-scale, with income and sociocultural factors determining who could recover more effectively⁸. These insights align with our respondents' accounts of relying on peers, guarding belongings, and improvising through temporary fixes rather than formal preparedness measures.

Beyond Nigeria, other global contexts reinforce the role of social and cultural processes in shaping flood experiences. In Bangladesh, communities applied collective memory of past floods to innovate adaptive measures, while the psychosocial burden among flood-affected students who reported emotional instability and academic strain but sought support to recover^{9,10,11}. These findings align with the psychological stress reported by the street respondents, who returned to vending quickly but carried ongoing anxiety and uncertainty. Gaps in Flood Preparedness are also documented elsewhere, as researchers found Zimbabwean riparian communities largely unprepared due to poverty and weak social capital¹², while Nairobi's informal residents navigated unmet needs through behavioural strategies that policymakers often failed to recognise¹³.

Another critical observation is that for street populations, the first recovery actions are social rather than infrastructural. Networks of traders, faith groups, and unions provide immediate relief and enable people to re-enter economic activity within hours. This action contrasts with policy frameworks that often prioritise clearing drainage or repairing housing before supporting livelihoods. Evidence from Bangladesh suggests that early recovery is socially organised and benefits from resourcing community networks⁹. The study findings support this, showing that recovery paths are determined in the first 48 hours, long before formal interventions arrive.

Also, the results revealed that coping among street-living populations in Lagos is a coherent behavioural and emotional system. The reliability of the Brief COPE scale (Cronbach's $\alpha = 0.91$) confirms that the 12-item tool consistently captured the construct of coping in this urban street context. Items such as "taking action," "seeking advice," and "exploring alternatives" showed the highest correlations, suggesting that respondents strongly internalised problem-focused coping. Conversely, religious activities and positive reframing had lower correlations, but still contributed to the broader coping construct. This pattern establishes that coping among street dwellers is not fragmented but operates as a unified framework, blending faith, action, and withdrawal.

The descriptive statistics revealed that religious reliance dominated coping. Prayer ($M = 3.39$, $SD = 0.92$) and religious activities ($M = 3.11$, $SD = 0.90$) were the highest-ranking items. Interviews and focus groups conducted during this study confirmed this reliance, with respondents describing floods as *"from God and cannot be resisted directly."* This aligns with findings from Punjab, Pakistan, where women framed resilience around religious beliefs, interpreting hope and faith as essential mechanisms for withstanding displacement¹⁴. Similarly, researchers highlight that religious coping is a double-edged tool, as it sustains morale and resilience yet can reinforce fatalism by discouraging proactive adaptation¹⁵. In Lagos, prayer provided psychological stability but also revealed a tendency to accept flooding as inevitable rather than preventable. A study argued that religion fosters community cohesion and compassion in disaster response¹⁶. This perspective was also reflected in Lagos, where faith spaces functioned as both coping hubs and physical shelters during flooding.

Another strong coping strategies were action-oriented strategies, as respondents reported taking immediate steps such as moving goods to higher ground, improvising barriers, and seeking help from peers. Mean scores for "taking action" ($M = 2.74$, $SD = 0.95$) and "seeking help" ($M = 2.58$, $SD = 0.75$) show that coping was not exclusively spiritual but also practical.

These actions resemble the indigenous strategies identified among Bayelsa women traders, who diversified livelihoods and improvised flood-resistant storage to protect their trade¹⁷. Household capitals, most especially social and economic resources, have been found to shape adaptive capacity in Ghana, where households with stronger social capital were more capable of active coping during floods¹⁸. Evidence from this study supports this argument as money received from unions/work associations, peers, and occasional diaspora allowed the respondents to act quickly, even with limited formal support.

At the same time, emotional and reframing strategies were not really considered. “Reframing thoughts” ($M = 2.00$, $SD = 0.91$) and “staying positive” ($M = 1.91$, $SD = 0.85$) scored lowest overall. Talking to someone or seeking comfort was also less common, indicating that emotional support-seeking was not a primary strategy. This differs from research conducted in Bangladesh, where displaced women relied heavily on reciprocity and trust to mitigate distress¹⁹, and from a study of disaster-displaced families, where cultural coping patterns, including narrative sharing, aided recovery in shelters²⁰. The absence of emotional reframing in Lagos may be linked to low literacy, limited psychosocial resources, and cultural orientations that normalize hardship. A researcher argues that psychological interventions such as cognitive-behavioural therapy and peer support groups are effective in mitigating trauma²¹, but such frameworks remain inaccessible to street dwellers, leaving prayer and action as their primary outlets.

Children and youth displayed distinctive coping strategies. The FGDs revealed that children instinctively rescued peers or retreated to safer spaces but admitted they are also vulnerable when floods occurred during school or hawking. This mirrors findings from Maiduguri, where flood-affected children experienced high levels of psychological distress, with maladaptive coping significantly associated with worsening outcomes²². Students in other contexts have expressed a strong desire to be heard and supported, hence the psychosocial

burdens of flooding¹¹. This study shows the neglect of children's experiences in urban flood studies and shows that while their actions are instinctive, they are poorly supported by institutional safety nets.

An unexpected angle was opportunistic coping, particularly among young men described locally as "*thugs/hoodlums*." They converted flood events into income-generating opportunities, carrying stranded people across water for small payments. In Bangladesh, social learning has produced innovative local adaptations after repeated flood experiences. In Nepal, local knowledge also informed community-based risk management, demonstrating that resilience can emerge from grassroots innovation²³. In Lagos, opportunistic hustling demonstrates both resilience and desperation, showing how informal economies reinterpret risk as a temporary market rather than solely a threat. This phenomenon suggests that coping is not merely protective but can also be entrepreneurial, even though in risky forms.

Avoidance strategies were also reported. Traders deliberately reduced their stock during rainy seasons or withdrew indoors during floods, even though such decisions reduced income. This resembles avoidance coping described in disaster psychology, where individuals disengage to preserve safety at the cost of long-term gains¹⁵. Such strategies reflect the short-term, survival-focused orientation of street populations. By contrast, research in Vietnam suggests that diversification of livelihoods into non-agricultural sectors shortened recovery time, highlighting the importance of forward-looking adaptation²⁴. The Lagos evidence shows that street dwellers remain locked in reactive cycles rather than proactive resilience planning.

Moreso, the findings from this study revealed that post-flood recovery among street-life populations in Lagos is unevenly distributed across socio-demographic categories, though not always in ways that statistical tests capture. While most Wilcoxon and Kruskal–Wallis results were not statistically significant, descriptive medians and qualitative narratives showed

patterns of difference that are very important for understanding how recovery plays out in daily life. Key disparities were evident in terms of gender, migrant status, income type, and years on the street, while age and education produced more different effects.

Gender differences were limited but meaningful. Women reported higher scores in securing belongings (median = 3 vs 2, $p = 0.021$) and in positive access to social spaces ($p = 0.043$). These quantitative results were reinforced by interviews where women explained that safeguarding household items and re-entering market spaces were central to their recovery. Focus group discussions with women hawkers in Agbado also showed how rejoining trading spaces gave them a sense of being consistent, even when shelters remained damaged. This pattern complicates the common assumptions that women are always more vulnerable in disaster recovery.

Studies across Africa, however, showed gendered inequalities. In Accra, women-headed households were found to be less resilient due to care burdens and limited resources¹⁸. Also, flooding in Delta State reversed women's socio-economic gains, thereby worsening inequality²⁵. Researchers similarly showed that women in Ibadan struggled to access relief and recovery resources²⁶. Results from this study partly align with these findings by confirming women's economic fragility, yet diverge by demonstrating their stronger role in belongings protection and social reintegration. This suggests that women's recovery capacities are not simply weaker but differently distributed, focusing on security and social agency rather than earnings or health.

The Kruskal–Wallis analysis found no statistically significant differences in recovery by age group ($p > 0.05$). Yet descriptive medians suggested generational distinctions. Younger respondents (15–25 years) reported higher scores for returning to work and earnings, highlighting their speed and flexibility in resuming hustles. Middle-aged respondents (26–35

years) were more invested in safeguarding belongings and maintaining networks, while older adults (46+) scored highest on preparedness perception, reflecting caution and experience. Interviews supported these tendencies: youth emphasized “quick return to hustle,” while older respondents described survival-focused strategies rather than rebuilding.

These findings resonate with a study, that reported that health, mobility, and institutional support shaped older adults’ resilience in Indonesia²⁷. Similarly, researchers in Vietnam found that younger and middle-aged groups in Vietnam leveraged diversification and adaptive skills to recover faster²⁴. This study added flesh by showing that while age alone may not determine recovery statistically, its interaction with livelihood role is critical. Youth thrive through physical strength and flexibility, while older adults endure through experience but remain limited by health challenges.

Migrant status did not show huge statistical differences, except in social inclusion, where non-migrants were significantly more likely to reintegrate into markets, worship centers, and clinics after floods ($p = 0.041$). Descriptive medians also showed that non-migrants recovered slightly better in return to work and earnings. Interviews revealed that migrants often experienced recovery as a cycle of survival rather than rebuilding. Many described dependences on begging and unsafe/menial work, while non-migrants benefited from family and neighborhood ties that facilitated quicker reintegration.

These results align with a study in Lagos that documented disparities between indigenes and migrants in Lagos, highlighting how institutional bias and weak social capital limit migrants’ resilience²⁸. Another author similarly emphasized that preparedness and recovery in Benue were uneven across groups due to socio-economic positioning²⁹. this study confirms that migrant status primarily shapes social and economic recovery, but not necessarily shelter or

health outcomes. Migrants' exclusion from community networks leaves them isolated, even when physical recovery indicators appear similar.

The most significant disparities emerged across occupational groups. The Kruskal–Wallis test identified differences in current shelter ($p = 0.0211$), health status ($p = 0.047$), and preparedness perception ($p < 0.001$). Provision traders and hawkers reported stronger shelter stability, while sex workers and scavengers scored lowest. Health outcomes varied sharply, with beggars reporting the poorest scores. Preparedness perception was highest among okada/keke riders, reflecting their daily exposure to road conditions, while scavengers and sex workers felt least prepared.

Qualitative accounts confirmed these differences. A beggar explained that while floods did not destroy belongings, disrupted routes left him without income. Petty traders described restarting business after every flood but acknowledged repeated setbacks. Women's FGD noted that income type determined recovery speed, meaning that those with stable trade could save and rebuild, while others remained in cycles of dependency.

These results align with evidence from Bayelsa, where women traders' recovery depended on solidarity and indigenous strategies¹⁷. Similarly, Zimbabwean small enterprises lacked disaster awareness but benefited from diversification and technology when available³⁰. This study's findings support that occupation strongly structures recovery outcomes, influencing not only material well-being but also perceptions of flood preparedness.

Education produced mixed results. The Kruskal–Wallis test showed significant differences in health ($p = 0.0077$), belonging security ($p = 0.014$), and preparedness ($p = 0.0319$), with better outcomes for respondents with secondary or vocational schooling. Yet education did not affect return to work, earnings, or shelter recovery, and tertiary-educated respondents

unexpectedly reported the lowest earnings. Interviews indicated that qualifications often failed to translate into improved income within informal street economies.

In Kastina, it was argued that flood awareness was shaped more by socio-cultural and income factors than by formal schooling⁸. Also, it was similarly emphasized that resilience outcomes are tied to social and economic capitals rather than education alone¹⁸.

Length of time spent on the street influenced recovery in complex ways. Long-term and very long-term dwellers reported higher scores for livelihood recovery but significantly poorer health outcomes ($p = 0.043$). Shelter recovery was consistently strong across all groups, while newcomers struggled with networks and basic survival. Qualitative accounts showed that long-term dwellers described building saving systems but suffering declining health, while newcomers recounted recovery as an uncertain process of starting over.

Also, the analysis of support systems in this study's findings revealed a huge imbalance between informal and formal assistance for street-life populations in Lagos. Informal mechanisms, including friends (68.4%), neighbours (33.3%), religious groups (31.6%), and workplace colleagues or unions (24.6%), provided the bulk of recovery support. Savings groups such as Ajo/Esusu featured less frequently (10.5%) but still showed the role of grassroots finance. By contrast, formal support was marginal and uneven. No respondents reported assistance from statutory agencies such as NEMA, SEMA, or LASEMA. A small group cited local government officials (10.5%) or NGOs (1.8%), while religious organisations in their formal capacity accounted for 14.0%. For most respondents, recovery was sustained through informal ties, unplanned arrangements, and personal solidarity, not institutional interventions.

The descriptive findings confirmed that informal actors were both timely and effective. Nearly four in five respondents (78.9%) received informal assistance within the first three

days of flooding, usually in the form of shelter, food, or comfort. This rapid response reflects the embeddedness of community ties among street populations. Long-term dwellers, in particular, reported stronger reliance on neighbours and peers (median = 4), as they had accumulated social capital over time. Newcomers, however, struggled to access these networks (median = 2), reinforcing the importance of support for resilience.

These findings align with more global studies. In Lagos, researchers documented how family and neighbour support acted as crucial survival anchors when formal institutions failed³¹. In Bihar, India, community cooperation compensated for the near-total absence of state assistance³². Similarly, low-income Malawian communities relied on informal social networks as their primary form of resilience³³. In Bangladesh, women displaced by floods turned to trust, reciprocity, and small acts of solidarity, rather than external aid¹⁹. Together, these studies supports the study's finding that informal networks are not only primary but indispensable to recovery.

Furthermore, formal systems were either absent or perceived as irrelevant. More than three-quarters of respondents (75.4%) reported no formal aid, and those who did often described the support as tokenistic. Food, when provided, was minimal, short-lived, and of poor quality, with fewer than 5% rating it positively. Financial aid was modest, usually ranging between ₦2,000 and ₦5,000, with rare cases of larger amounts. No one reported structured shelter or medical support from government sources. Interviews were blunt on this issue: *"Support ke? Government no dey see us"* (Youth FGD, Agbado). Respondents repeatedly described themselves as *"invisible,"* bypassed by relief distribution, or excluded due to lack of identification.

These findings resonate with a study in Mozambique, where municipal and community trust networks were weakened by absent state services³⁴. Similarly, farmers in South-South

Nigeria rarely benefited from extension support despite its formal mandate³⁵. In Anambra, cooperative associations filled gaps left by the state by providing credit and mutual aid after floods³⁶. This study confirms that formal agencies may exist on paper but rarely reach the most vulnerable, especially street-based populations.

Institutional trust was strikingly low. More than one-third of respondents (36.8%) reported no trust at all, and half (50.9%) reported “*a little*” trust. Only 3.5% expressed strong confidence. Many described government officials as serving only the influential, with one respondent stating: “*If you are influential, you will likely be helped... but if you don’t have mouth, how will you speak to a government agent?*” (IDI, AGB-012). Others recalled past promises of support that were never fulfilled. Women in Agbado noted that government officials visited seven years ago but never returned, reinforcing long-standing perceptions of neglect.

Trust deficits in disaster response are well-documented. In Vietnam, households with strong social connections recovered faster regardless of state aid, highlighting how weak institutional credibility diminishes reliance on formal channels³⁷. Similarly, formal institutions only build traction when their efforts overlap with culturally or spiritually trusted entities¹⁶. This study shows this gap vividly, as leaders such as the Ìyá Oloja and Baálè of Abule-Egba praised state-led drainage projects and interventions, yet ordinary residents saw little tangible evidence. This mismatch shows that where community leaders interact with the government, vulnerable groups remain excluded.

Another strong theme was spiritual and cultural practices. Almost all respondents (93.9%) reported prayer as a first coping mechanism. Over half engaged in fasting (51.0%) or offerings (40.8%), and smaller individuals mentioned traditional rites such as *Şààrà* sacrifices (16.3%) or cleansing rituals (8.2%). For many, these practices were not secondary but essential to recovery, providing psychological reassurance and collective identity.

This is consistent with a study where it was emphasized that religion fosters cohesion and compassion during crises¹⁶. In Nairobi, it was documented how adaptation was mobilised through culturally embedded practices, including barazas, art, and storytelling¹³. In Lagos, faith practices were both personal and collective. One trader noted: “*Church prayers and family support are what I can trust*” (IDI, AGE-002). Leaders backed this by institutionalising rituals: the Ìyá Oloja described annual prayers with both pastors and Alfas, while the Baálè stated that community festive periods are held each August to appease deities. These rituals are believed to offer spiritual assurance and support social unity alongside infrastructural measures.

5.3 Application of the Street-Based Recovery Index (SBRI)

The Street-Based Recovery Index (SBRI) was designed to capture post-flood recovery among street-life populations in Lagos, providing a composite measure across four domains, flood exposure, coping strategies, support systems, and recovery outcomes of five recovery variables. The findings revealed that recovery remains fragile for most respondents. Using a three-tier classification, 70.2% of street dwellers fell into the “*Partial Recovery*” category, while 19.3% were “*Very Vulnerable*.” Only 10.5% attained “*High Recovery*,” showing how rare full resilience is among this population. These results confirm that recovery for street dwellers is neither linear nor complete; rather, it is marked by instability, with most respondents caught in a precarious middle ground.

The community-level distribution of SBRI scores highlighted place-based inequalities. Respondents in Adiyan (mean = 0.580) and Abule-Egba (0.556) recorded the highest recovery levels, reflecting relatively stronger coping strategies and possible access to infrastructure or support. By contrast, Agege (0.368) and Fagba (0.363) scored the lowest, pointing to deeper exposure to flood risk and limited access to services. Agbado, despite being the largest sample, also trailed, while Iju-Ishaga displayed uneven recovery with wide

variability. These differences confirm that recovery is not only a matter of personal capacity but is shaped by spatial inequalities in governance, infrastructure, and local planning. This aligns with UN-Habitat's Urban Recovery Framework, which emphasizes the role of place in shaping resilience³⁸, but these findings show that spatial disparities are even sharper for those without tenure or settlement-based identity.

Income type also emerged as a decisive factor. Okada/Keke riders reported the highest mean SBRI (0.643), suggesting that mobility-based livelihoods allow faster resumption of income after flooding. Hawkers and street vendors also recorded relatively strong recovery, reflecting the adaptability of petty trade. In contrast, beggars (0.326) and waste scavengers (0.344) scored the lowest, showing how survivalist groups remain structurally disadvantaged. Casual labourers and artisans reported a similarly weak recovery. The SBRI results confirm that livelihood type is not just an economic variable but a resilience determinant.

Migrant status added another layer of vulnerability. Non-migrants scored higher (mean = 0.498) than migrants (0.432), reflecting how familiarity with local systems and embedded social capital accelerate recovery. Migrants, by contrast, often lacked secure shelter, community ties, or access to institutional aid, making them more fragile. Interviews confirmed that migrants perceived themselves as “invisible” to formal systems, surviving mainly through peer support. This finding aligns with a study of resilience disparities in Lagos, which showed that institutional bias and weak networks leave migrants disadvantaged²⁸. The SBRI thus makes visible how social exclusion compounds environmental vulnerability.

The SBRI builds on the multidimensionality of existing recovery frameworks while adapting them to populations excluded from conventional measurement. The Recovery Capital Index emphasizes personal and social resources for sustaining recovery, yet assumes stable housing

and formal supports³⁹. The SBRI applies a similar lens to street-based networks. The Recovery Gap Index and UN-Habitat's Urban Recovery Framework provide composite or spatial assessments at macro and settlement levels, but they rely on formal governance and area-based profiling^{38, 40}. The SBRI differs by scaling recovery measurement to individuals without tenure, documentation, or fixed community ties. It therefore represents both continuity with global tools and innovation by focusing on excluded urban groups.

The results also align with other studies on resilience indices. In Shiraz, composite indicators were used to assess social resilience, which showed the diagnostic power of indices for revealing community strengths and weaknesses⁴¹. Post-Disaster Needs Assessment (PDNA) was used as a valuable tool for Nigeria, though one that remains largely disconnected from marginalised groups⁴². Another study showed how disaster risk financing in Indonesia can be guided by index-based governance⁴³.

The SBRI complements these approaches but fills a unique niche. Unlike PDNA, it does not aggregate at the national level but zooms into the daily experiences of populations absent from official data. Unlike community frameworks, it does not assume stable neighbourhood membership but recognises transient attachments. The originality of this tool lies in shifting the recovery measurement lens from households or communities to individuals rooted in street economies.

The findings from this study also expose critical weaknesses in recovery indices as currently designed. First, most tools overemphasise formal institutions and infrastructure, assuming populations are legible to the state. For street dwellers without identification, tenure, or access to services, such assumptions exclude them entirely. Second, resilience is often conceptualised as cumulative and long-term, building on household assets or community governance. For street dwellers, resilience is immediate, fragile, and transactional, which is

dependent on securing daily income, protecting belongings, or finding temporary shelter. Third, spirituality and informal peer support, which emerged strongly in this study, are rarely captured in global indices. By embedding coping, faith, and social ties, the SBRI addresses these blind spots.

The index provides a more transparent lens for policymakers to identify disparities across groups. It shows that health support should be targeted at long-term street dwellers, whose recovery was weakest in this domain. Preparedness training should be directed to groups such as scavengers and beggars, who scored lowest in awareness and readiness. Gendered differences in belongings suggest that recovery frameworks must address both women's vulnerabilities and their strengths in protecting assets and reclaiming social space. Migrants' lower scores highlight the need for inclusive recovery strategies that deliberately integrate displaced populations into support systems.

Equally important, the SBRI links qualitative and quantitative perspectives. While interviews described prayer, solidarity, and hustling as survival strategies, the index translated these into measurable domains. This dual approach strengthens the evidence base by making invisible populations legible to policy.

Finally, the SBRI has broader relevance beyond Lagos. Many African cities have significant street-based populations who remain excluded from recovery planning. Applying the SBRI in Accra, Nairobi, or Dar es Salaam would provide comparative insights and strengthen regional disaster resilience frameworks. Its adaptability shows its value not only for Nigeria but for global discourse on inclusive recovery measurement.

Endnotes

- ¹ S. Greco et al., *Composite Indices for Sustainability Assessment: A Methodological Review*, **Ecological Indicators** 90 (2018): 246–260.
- ² S. Chakrabartty, *Scoring and Weighting in Composite Index Construction: A Critique*, **Journal of Applied Statistics** 44, no. 6 (2017): 1070–1085.
- ³ M. Mbwana, M. A. Ntali & Y. M. Ntali, *Living and responding to flood disaster: Perspectives from informal settlements in Dar es Salaam, Tanzania*, **Local Environment**, 2025, 1–22.
- ⁴ M. A. Khan, F. Dakyaga, G. Chilinde et al., *Urban marginality: Everyday practice of building resilience to flood in the informal Settlement of Dar es Salaam*, **GeoJournal**, 89, 2024, 103. Available Online: <https://doi.org/10.1007/s10708-024-11117-3>
- ⁵ S. Sachdeva & P. Kumar, *Assessing the household level perception and adaptation strategies to flood risk in informal settlements of Yamuna floodplain in Delhi*, **Natural Hazards**, 121, 2025, 11695–11729. Available Online: <https://doi.org/10.1007/s11069-025-07257-5>
- ⁶ N. Dangol, *Shaping the perception of flood risk among residents of riverbank informal settlements in Kathmandu*, **International Journal of Disaster Risk Reduction**, 105, 2024, Article 104423
- ⁷ T. Osayomi, P. Olobo Jnr, T. Ogunwumi, O. C. Fatayo, L. E. Akpoterai, Z. H. Mshelia & I. U. Abatcha, *“I lost all I had to the flood...”: A post-disaster assessment of the 2018 Kogi State flood in Nigeria*, **Ife Social Sciences Review**, 30(2), 2022, 1–20. Available Online: <https://issr.oauife.edu.ng/index.php/issr/article/view/184>

- ⁸ S. A. Mashi, O. D. Oghenejabor, and A. I. Inkani, *Disaster Risks and Management Policies and Practices in Nigeria: A Critical Appraisal of the National Emergency Management Agency Act*, **International Journal of Disaster Risk Reduction** 33 (2019): 253–265.
- ⁹ C. E. Haque, M. A. K. Azad & M. U. I. Choudhury, *Social learning, innovative adaptation and community resilience to disasters: The case of flash floods in Bangladesh*, **Disaster Prevention and Management: An International Journal**, 31(5), 2022, 601–618.
- ¹⁰ M. Abunyewah, S. A. Okyere, S. K. Diko, M. Kita, M. O. Erdiaw-Kwasie & T. Gajendran, *Flooding in informal communities: Residents' response strategies to flooding and their sustainability implications in Old Fadama, Accra*, In: S. Eslamian & F. Eslamian (eds), **Disaster Risk Reduction for Resilience**, Springer: Cham, 2022. Available Online: https://doi.org/10.1007/978-3-030-72196-1_18
- ¹¹ M. N. D. Nanud, A. T. Caylan, J. C. Lagura & G. R. Baluyos, *Capturing the cry of flood victim students: An exploration of their experience and resilience through photovoice*, **EduLine: Journal of Education and Learning Innovation**, 3(4), 2023, 524–542. Available Online: <https://doi.org/10.35877/454RI.eduline2034>
- ¹² E. Mavhura, T. Manyangadze, C. Mudavanhu et al., *An assessment of riparian communities' preparedness to flood risk: The case of Mbire communities in Zimbabwe*, **GeoJournal**, 87, 2022, 1671–1693. Available Online: <https://doi.org/10.1007/s10708-020-10329-7>
- ¹³ C. N. Muchiri & R. O. Opiyo, *Community adaptation strategies in Nairobi informal settlements: Lessons from Korogocho, Nairobi-Kenya*, **Frontiers in Sustainable Cities**, 4, 2022, Article 932046.

- ¹⁴ H. Haruna, R. Kever, B. Maigari, I. Ahmadu, H. Dathini, U. N. Jibril, D. Salihu & M. Chutiyami, *Psychological Distress and Coping Mechanisms Among Flood-Affected Children In Maiduguri, Nigeria*. 25 June 2025. Available Online: <https://doi.org/10.20944/preprints202506.1944.v1>
- ¹⁵ O. Olonilua & J. O. Aliu, *Reviewing the critical role of coping strategies in enhancing mental health and resilience in disaster survivors*, **Environmental Research: Health**, 3(2), 2025, Article 025006.
- ¹⁶ M. Habakuk, V. T. An-Or & J. Agada, *A Christian perspective on the role of religious belief in disaster management for the wellbeing of the society*, **The NOUN Scholar**, 3(1), 2023. Available Online: <https://www.thenounscholar.nou.edu.ng/wp-content/uploads/2024/03/19TERF1.pdf>
- ¹⁷ T. O. Michael, *Adapting to climate change-induced flooding: Insights from women traders in the riverine areas of Nigeria—a qualitative study*, **Frontiers in Sustainability**, 5, 2024, Article 1385513.
- ¹⁸ E. Gaisie, A. Adu-Gyamfi & J. K. Owusu-Ansah, *Gender and household resilience to flooding in informal settlements in Accra, Ghana*, **Journal of Environmental Planning and Management**, 65(8), 2022, 1390–1413
- ¹⁹ G. A. Parvin, N. Takashino, M. S. Islam, R. Ahsan, M. G. Kibria & M. A. Abedin, *Does social capital contribute to resilience? Exploring the perspectives of displaced women living in urban slums in Khulna city*, **International Journal of Disaster Risk Reduction**, 94, 2023, Article 103838.

- ²⁰ R. I. F. Gallego & A. O. Balabagno, *The intercultural caring-coping patterns of disaster-displaced families in temporary shelters*, **International Journal of Public Health**, 13(4), 2024, 1978–1989.
- ²¹ O. Graham, *Psychological recovery strategies after disasters – A review of existing literature*, 2025
- ²² H. Haruna, R. Kever, B. Maigari, I. Ahmadu, H. Dathini, U. N. Jibril, D. Salihu & M. Chutiyami, *Psychological Distress and Coping Mechanisms Among Flood-Affected Children In Maiduguri, Nigeria*. 25 June 2025. Available Online: <https://doi.org/10.20944/preprints202506.1944.v1>
- ²³ M. Sharma, J. Mohan & A. M. Jagmohan, *Gendered spaces, climate change and resilience in a squatter slum of Global South*, In: V. R. Sharma & Chandrakanta (eds), *Making India Disaster Resilient*, **Springer**: Cham, 2024. Available Online: https://doi.org/10.1007/978-3-031-50113-5_16
- ²⁴ V. H. Ha et al., *Post-Flood Recovery in the Central Coastal Plain of Vietnam: Determinants and Policy Implications*, *Asia-Pacific Journal of Regional Science* 6 (2022): 899–929. <https://doi.org/10.1007/s41685-022-00244-9>
- ²⁵ A. R. Eniwotu & A. Otite, *The ripple effects of flooding on women in Nigeria*, **Journal of Public Administration, Finance & Law**, 28, 2023.
- ²⁶ B. Wahab and O. Falola, *Vulnerable Households in Flood-Prone Communities in Ibadan: Measures to Improve Their Status Within the Inclusive Ibadan City Framework*, **Journal of Inclusive Cities and Built Environment** 2, no. 1 (2022): 21–27.

- ²⁷ H. Saputra, P. W. Iswara, N. N. F. M. Nor & F. Usman, *Multidimensional factors shaping older persons' resilience to floods in Madura Island, Jàmbá*. **Journal of Disaster Risk Studies**, 17(1), 2025, Article 1755.
- ²⁸ A. O. Nwaokoro, *Social Vulnerability and Flood Resilience in Lagos State, Nigeria* (Doctoral diss., University of Portsmouth, 2024).
- ²⁹ M. A. Ade, *Flood Risk Assessment and Management in the Benue Trough Nigeria* (Unpublished doctoral thesis, University of Chester, 2022).
- ³⁰ K. Mpangi, *Urban flooding and its effects on informal small businesses in Zimbabwe: Insights from Gweru Urban*, 2025. Available Online: SSRN 5116324
- ³¹ O. H. Okunola, *Beyond institutional silos: Rethinking multilevel disaster risk governance in Africa a decade into the Sendai Framework implementation*, **International Journal of Disaster Risk Science**, 16, 2025, 321–332. Available Online: <https://doi.org/10.1007/s13753-025-00646-1>
- ³² S. K. Acharya et al., *Exploring Community Disaster Resilience After Kosi Floods 2008 in Bihar, India*, SAGE Open 13, no. 3 (2023), <https://doi.org/10.1177/21582440231192819>.
- ³³ W. Bwanali & M. Manda, *The correlation between social resilience and flooding in low-income communities: A case of Mzuzu City, Malawi*, **International Journal of Disaster Resilience in the Built Environment**, 14(4), 2023, 495–513.
- ³⁴ J. L. Neves & M. Espling, *The role of communities in building urban flood resilience in Matola, Mozambique*, **International Journal of Disaster Risk Reduction**, 2025, Article 105262.

³⁵ A. E. A. Offiong et al., *Perceived Effects of Floods on Agricultural Production and Food Security in South-South, Nigeria*, **Global Journal of Educational Research** 24, no. 2 (2025): 239–249.

³⁶ *Cooperative membership and recovery of flood victims in Anambra State, Nigeria*, **International Journal of Research in Cooperative Economics and Management (IJRCem)**, 13(1), 2024, 56–68. Available Online: <https://www.ijrcem.com/index.php/ijrcem/article/view/6>

³⁷ N. C. Dinh et al., *How Do Social Connections Accelerate Post-Flood Recovery? Insights from a Survey of Rural Households in Central Vietnam*, **International Journal of Disaster Risk Reduction** 61 (2021): 102342.

³⁸ UN-Habitat, *Urban Recovery Framework: An Enabling Institutional and Policy Framework to Support Resilient Urban Recovery*, 2022. Available Online: https://unhabitat.org/sites/default/files/2022/04/unhabitat_urf_advocacy_note_march_2022_1.pdf

³⁹ Whitesock, D., Granfield, R., and Cloud, W. *Recovery Capital Index: A Validated Assessment Tool*. **Face It TOGETHER**, 2018. <https://commonlywell.com/the-recovery-capital-index-a-validated-assessment/>

⁴⁰ Borre, A., Tsegai, D., and van Westen, G. “*Measuring Recovery Gaps: A Composite Index Approach*.” **Sustainability** 17, no. 3 (2025): 1044. <https://doi.org/10.3390/su17031044>

⁴¹ M. Pazhuhan & M. Amirzadeh, *Community flood resilience assessment of Saadi neighborhood, Shiraz, Iran*, **Journal of Risk Research**, 27(1), 2023, 21–45. Available Online: <https://doi.org/10.1080/13669877.2023.2288023>

⁴² O. Adekola & J. Adekola, *Post-Disaster Needs Assessment as a strategic recovery planning process*, in *Research Handbook on Flood Risk Management*, Edward Elgar Publishing, 2024, pp. 275–286.

⁴³ F. W. Handoyo, S. A. Dalimunthe, P. Purwanto, I. Suardi, C. I. Yuliana, E. Mychelisda & A. E. Nugroho, *Enhancing Disaster Resilience: Insights from the Cianjur Earthquake to Improve Indonesia's Risk Financing Strategies*, **SAGE Open**, 14(2), 2024, 21582440241256777. Available Online: <https://doi.org/10.1177/21582440241256777>

Chapter 6 Conclusion

This chapter presents the conclusion of the study. The summaries were captured by revisiting the study objectives and reporting the key takeaways. Recommendations were provided based on the findings, which serve as pivots for future studies that can emanate from the gaps in this study.

6.1 Summary of Findings

Objective 1: To document the socio-demographic profile of street-life populations affected by floods in Lagos.

The first objective provided a detailed socio-demographic background of respondents, highlighting the diversity of age groups, gender, education, migrant status, years on the street, and livelihood types. The data revealed that most respondents were young to middle-aged adults with limited formal education and precarious forms of employment such as hawking, okada riding, waste scavenging, and casual labour. A significant proportion were migrants from northern states or nearby rural areas, while many had lived on the street for several years, indicating long-term exposure to urban risk. These characteristics framed the recovery outcomes observed in later objectives, showing that vulnerability among street dwellers is shaped by a mix of socio-economic precarity, mobility, and weak institutional recognition.

Objective 2: To explore the lived experiences of street-life populations during and after flood events.

The narratives revealed that floods were experienced as recurrent cycles of displacement, insecurity, and disruption to livelihood. Respondents frequently described losing belongings, struggling to find shelter, and enduring unsafe conditions such as exposure to open drains or collapsed kiosks. Women often emphasized the hardship of protecting children and rebuilding small stalls, while children spoke about interrupted schooling or being forced to

retreat to unsafe spaces. Men, particularly young adults, recalled both personal risks and instances where they turned floods into income opportunities, such as carrying stranded commuters for small payments. Across sites, a common thread was that recovery was rarely supported by external institutions but rather managed individually or communally, reinforcing the perception that floods were inevitable and must be endured rather than prevented.

Objective 3: To analyze the coping strategies adopted by street-life populations after floods.

The coping strategies of respondents were dominated by faith-based practices, with prayer and religious rituals ranking highest. Practical strategies such as taking immediate action, securing belongings, and seeking help were also prominent, while emotional reframing or positive thinking was less common. Focus group discussions showed that women relied on improvisation and small savings, while young men emphasized opportunistic hustling. Children spoke of instinctive coping, such as retreating to safer areas, but admitted vulnerability when floods struck during school or hawking. These results illustrate that coping in street contexts is survival-driven, anchored in both spiritual reliance and practical improvisation. Importantly, strategies were often short-term, reflecting the absence of institutional psychosocial support and the precarious living conditions of respondents.

Objective 4: To compare recovery outcomes across socio-demographic groups.

Analysis of ten recovery indicators using Wilcoxon and Kruskal–Wallis tests showed that recovery outcomes varied across gender, income type, migrant status, and years on the street, while age and education were less decisive. Women scored higher in belongings security and social reintegration but faced economic vulnerability. Migrants consistently reported weaker social inclusion and lower recovery scores compared to non-migrants, reflecting exclusion from local networks. Occupational groups displayed the strongest disparities: okada/keke

riders and hawkers recovered faster due to mobility and trade adaptability, while scavengers, beggars, and sex workers remained the most disadvantaged. Long-term dwellers adapted better in livelihood and shelter recovery but reported poorer health, highlighting resilience trade-offs. These patterns complicate conventional resilience narratives by showing that recovery is stratified, uneven, and tied to informal livelihood systems.

Objective 5: To examine the support systems available for post-flood recovery.

The study revealed that informal support systems overwhelmingly dominated recovery pathways. Friends, neighbours, religious groups, and unions were the first responders, often providing food, shelter, or emotional comfort within days of flooding. In contrast, formal institutions such as NEMA, LASEMA, and local government were largely absent from respondents' accounts, contributing to a widespread distrust of government. Focus group discussions reinforced this gap: women recalled unfulfilled promises from officials, children expressed disappointment in authorities, and youths dismissed state presence entirely. Cultural and spiritual practices emerged as another layer of support, with prayer, fasting, rituals, and collective sacrifices providing both psychological resilience and community cohesion. These findings revealed that recovery for street dwellers is sustained through informal solidarity and spirituality rather than institutional structures.

Objective 6: To develop and apply the Street-Based Recovery Index (SBRI).

The SBRI provided a composite tool to measure recovery across domains, revealing that most respondents (70.2%) were in partial recovery, 19.3% were very vulnerable, and only 10.5% achieved high recovery. Community-level analysis showed disparities, with Adiyari and Abule-Egba recording the strongest scores and Agege and Fagba the weakest, highlighting the importance of place and infrastructure. Occupational differences were also stark: okada riders and hawkers displayed stronger recovery, while scavengers, beggars, and casual

labourers remained at the bottom. Migrant status further shaped outcomes, with non-migrants scoring higher than migrants due to stronger social capital and tenure security. The SBRI therefore proved effective in quantifying both individual resilience and structural inequalities, bridging qualitative narratives with quantitative evidence. Its originality lies in extending global index approaches to a population segment typically excluded from disaster assessments, providing a replicable tool for inclusive recovery planning.

6.2 Conclusion

This study set out to analyze post-flood recovery strategies among street-life populations in Lagos, a group often excluded from the traditional disaster assessments. The findings revealed that recovery for street dwellers is precarious, uneven, and highly dependent on informal networks rather than formal institutions. Coping strategies were dominated by faith practices, immediate actions, and improvisation, while recovery outcomes varied significantly across gender, income type, migrant status, and years on the street.

Support systems for post-flood recovery among Lagos street dwellers are overwhelmingly informal. Friends, neighbours, peers, and religious networks provide the first and often only assistance. Formal institutions remain marginal, distrusted, and inaccessible, leaving the poor structurally excluded. Spiritual practices emerge as both personal anchors and collective rituals of resilience, reinforcing the centrality of faith in recovery. This disconnect between grassroots realities and institutional frameworks highlights the need for a recovery model that strengthens informal networks, rebuilds trust in formal agencies, and acknowledges cultural-spiritual practices as integral to resilience.

Recovery outcomes are shaped more by socio-demographic factors such as gender, income type, migrant status, and years of street experience than by age or education alone. While many findings align with African resilience literature, the findings from this study challenge

what is known, highlighting women's agency, the contradictory role of education, and the health costs of prolonged street life. Recognizing these complex patterns is critical for building equitable and context-specific recovery strategies that show the lived realities of street-based populations.

The Street-Based Recovery Index (SBRI) developed in this study fills a methodological and policy gap by centering populations typically excluded from disaster assessments. Inspired by global tools such as the RCI, RGI, and URF, the SBRI reconfigures recovery measurement to capture the realities of highly mobile and informal urban groups. Most importantly, the SBRI bridged qualitative narratives with quantitative measurement, demonstrating how composite tools can be adapted to measure resilience among invisible groups in African and global cities.

In summary, the lived experiences of Lagos street-life populations both align with and challenge existing literature. Like other urban poor groups, they improvise, rely on peers, and navigate governance gaps. Yet their recovery is defined by transience, mobility, and flexibility in ways that settlement-based studies often overlook. Coping strategies blend faith, action, avoidance, and opportunism, which aligns with existing global literature and findings on religious reliance and social solidarity, but differ in their limited use of emotional reframing. Recognizing these distinctions is essential for designing interventions that support existing strengths while addressing gaps in psychosocial and proactive coping capacities.

Ultimately, this study shows the urgent need for inclusive recovery planning that shows the realities of Lagos Street populations. Without bridging the divide between grassroots resilience and institutional frameworks, formal disaster governance will remain irrelevant to the most vulnerable. The SBRI offers a pathway forward, one that reimagines recovery through the lens of mobility, informality, and spirituality.

6.3 Recommendations.

This study proposes the following:

1. Data capturing on disaster impacts and recovery across different social identities to provide a context, target recovery policy, and programme. The database will be resourceful for advocacy, planning, and the acceptance of informal realities in the Nigerian space.
2. Building of gender-responsive recovery plan, as this will capture and take into consideration the highly vulnerable street lives such as women, children, and persons with disabilities.
3. Preparation and adoption of the Street-Based Recovery Index at micro and meso scales of governance and across many sectors of urban disasters, and also a space-based and identity-based disaster literacy framework.
4. LASEMA, NEMA, and LGA disaster units need to operationally include street-life populations in their response plans.
5. Flood management should be broken down from state-level control to ward and LGA structures. This implies that decentralised units should be placed closer to markets, motor parks to allow faster alerts and faster inclusion and interventions to the affected persons.
6. Establishing mobile ambulance points, emergency triage stations, and quick-response rescue teams along flood prone areas will reduce injuries and improve access to care.

6.4 Contribution to Knowledge

This study makes three key contributions:

Firstly, this study provides a detailed account of recovery among the street-based population across six flood-affected communities in Lagos. By documenting the lived experiences of homeless persons, hawkers, migrants, casual labourers, and street children, the study fills a critical gap in disaster literature where such groups are often absent or treated as invisible.

Another contribution of this study is the development of the Street-Based Recovery Index (SBRI). It is a novel tool designed to quantify the recovery capacity of populations whose resilience is informal. The SBRI integrates coping strategies, support systems, recovery outcomes, and exposure, producing a measurable score and recovery tier (very vulnerable, partial recovery, high recovery). While piloted among Lagos street-life populations, the tool demonstrates potential for wider application to other marginalized groups, enabling comparative assessments of recovery in contexts where formal indicators are absent.

Lastly, although this study builds on five theories, it further extends the Sustainable Livelihoods Framework (SLF) by showing how livelihood insecurity, informal support, and socio-spatial exclusion shape disaster recovery. It also adds to the Intersectionality Theory by demonstrating how overlapping identities such as gender, age, migrant status, and type of street livelihood intersect to influence vulnerability and resilience outcomes. These contributions enrich theoretical discourse on urban resilience, social vulnerability, and disaster governance in African megacities.

Overall, the study contributes to knowledge by making visible the recovery pathways of groups that are structurally excluded from disaster planning, while also offering a practical measurement tool for scholars and practitioners.

6.5 Suggested Areas of Further Research

From this study, some areas can be considered for further research:

1. Further research could test the Street-Based Recovery Index among other marginalized populations, such as slum dwellers, displaced households, or informal workers in different urban contexts, to assess its broader applicability.
2. While this study focused on flooding, the SBRI could be adapted to examine recovery from other climate-related disasters, such as heatwaves, droughts, or windstorms. This would test its versatility across hazard types.
3. Moreover, comparative studies could apply the tool in different Nigerian cities or in other countries to capture inter-city and inter-regional differences in recovery capacity. This would help determine whether recovery dynamics observed in Lagos are unique or reflect wider urban patterns.
4. Future research may also track the same populations over time to observe how recovery paths adjust beyond the immediate aftermath of floods. This would strengthen understanding of long-term resilience among marginalized groups.

Bibliography

Chapters in Book

- Adekola, O., and Adekola, J. Post-Disaster Needs Assessment as a Strategic Recovery Planning Process. In *Research Handbook on Flood Risk Management*, 275–286. Edward Elgar Publishing, 2024.
- Akanwa, A. O., et al. *Changing Climate, Flood Footprints, and Climate-Related Actions: Effects on Ecosocial and Health Risks Along Ugbowo-Benin Road, Edo State, Nigeria*. In *Ecological Footprints of Climate Change*, edited by U. Chatterjee et al. Springer Climate, Springer: Cham, 2022. https://doi.org/10.1007/978-3-031-15501-7_30..
- Barau, A., and Wada, A. S. *Do-It-Yourself Flood Risk Adaptation Strategies in the Neighborhoods of Kano City, Nigeria*. In *African Handbook of Climate Change Adaptation*. Springer: Cham, 2021, 1353–1380.
- Crenshaw, K. *Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory, and Antiracist Politics*. In *Feminism and Politics: Oxford Readings in Feminism*, edited by A. Phillips. Oxford: Oxford University Press, 1998. <https://doi.org/10.1093/oso/9780198782063.003.0016>..
- Ejemeyovwi, J. O., Osabuohien, E. S., Ihayere, O. B., Omosehin, O. O., and Igbinoba, A. O. *Institutional Diagnosis of Disaster Risk Management in Nigeria: Towards the Design of a New Framework*. In *Disaster Management in Sub-Saharan Africa: Policies, Institutions and Processes*, edited by R. A. Balgah and J. N. Kimengsi, 123–144. Emerald Publishing Limited: Leeds, 2022. <https://doi.org/10.1108/978-1-80262-817-320221005>..

Kasimbazi, E. B. *Analysis of Legal and Regulatory Frameworks for Disaster Risk Management in Africa*. In *Research Handbook on Disasters and International Law*, 320–342. Edward Elgar Publishing, 2024.

Kolade, O., Smith, R., and James, S. *Picking Up the Pieces: Social Capital and Entrepreneurship for Livelihood Recovery Among Displaced Populations in Northeast Nigeria*. In *The Palgrave Handbook of African Entrepreneurship*, edited by O. Kolade, D. Rae, D. Obembe, and K. Woldesenbet Beta, 301–317. Palgrave Macmillan: Cham, 2022. https://doi.org/10.1007/978-3-030-75894-3_16..

Oloko, S. B. A. *Children in Especially Difficult Circumstances: The Street Children of Lagos*. In *Child Abuse in Nigeria*, edited by F. Ebigbo, 135–146. NICEF, 1999.

Piya, A. R., and Parvin, A. *Exploring Disaster Vulnerability of Children in Urban Informal Settlements: A Built Environment Perspective*. In *SETSCI-Conference Proceedings*, 20 December 2024, 187–193.

Sharma, M., Mohan, J., and Jagmohan, A. M. *Gendered Spaces, Climate Change and Resilience in a Squatter Slum of Global South*. In *Making India Disaster Resilient*, edited by V. R. Sharma and Chandrakanta. Springer: Cham, 2024. https://doi.org/10.1007/978-3-031-50113-5_16..

Journals

Abedin, M. A., Parvin, G. A., Takashino, N., Islam, M. S., Ahsan, R., and Kibria, M. G. *Does Social Capital Contribute to Resilience? Exploring the Perspectives of Displaced Women Living in Urban Slums in Khulna City.* **International Journal of Disaster Risk Reduction** 94 (2023): Article 103838.

Abraham, C. M., Essien, K., Amba, E. P., Eyoh, E. E., Ibanga, I. J., Ebong, M. S., and Jimmy, U. J. *Assessment of Community Resilience and Environmental Casualties in a Flood-Prone Terrain of Uyo Urban, Akwa Ibom State, Nigeria.* **Ibom Journal of Social Issues** 11, no. 1 (2022): 48–59.

Abu-hanifa, B., Abdussalam, A. F., Baba, S. U., Isa, Z., and Uguya, A. Y. *A Comprehensive Review of Flood Monitoring and Evaluation in Nigeria.* **International Journal of Energy and Water Resources** (2025). <https://doi.org/10.1007/s42108-025-00356-w..>

Abunyewah, M., Okyere, S. A., Diko, S. K., Kita, M., Erdiaw-Kwasie, M. O., and Gajendran, T. *Flooding in Informal Communities: Residents' Response Strategies to Flooding and Their Sustainability Implications in Old Fadama, Accra.* **Disaster Risk Reduction for Resilience**, Springer: Cham, 2022. https://doi.org/10.1007/978-3-030-72196-1_18..

Acharya, S. K., et al. *Exploring Community Disaster Resilience After Kosi Floods 2008 in Bihar, India.* **SAGE Open** 13, no. 3 (2023). <https://doi.org/10.1177/21582440231192819..>

Adefisoye, T. O., Adeoye, J. O., and Onabanjo, L. K. *Between Policy Goals and Actual Outcome: An Assessment of the National Disaster Management Framework in*

Nigeria, 2010–2020. International Journal of Research and Innovation in Social Science 7, no. 6 (2023): 388–400.
[https://rsisinternational.org/journals/ijriss/articles/between-policy-goals-and-actual-outcome-an-assessment-of-the-national-disaster-management-framework-in-nigeria-2010-2020/..](https://rsisinternational.org/journals/ijriss/articles/between-policy-goals-and-actual-outcome-an-assessment-of-the-national-disaster-management-framework-in-nigeria-2010-2020/)

Adekola, O., and Adekola, J. *Post-Disaster Needs Assessment as a Strategic Recovery Planning Process*. In *Research Handbook on Flood Risk Management*, Edward Elgar Publishing, 2024, 275–286.

Adelekan, I. O. *Vulnerability of Poor Urban Coastal Communities to Flooding in Lagos, Nigeria. Environment and Urbanization* 22, no. 2 (2010): 433–450.
<https://doi.org/10.1177/0956247810380141..>

Adelekan, I. O. *Vulnerability of Poor Urban Coastal Communities to Flooding in Lagos, Nigeria. Environment and Urbanization* 22, no. 2 (2010): 433–450.

Adelekan, I. O., Olajide-Taiwo, F. B., and Ajibade, I. *Urban Expansion and Flood Risk in Lagos. Journal of Urban Studies in Africa* 6, no. 2 (2023): 77–95.

Adimula, R. A., and Abdusalam, O. A. *Leadership Roles in Mitigating Flood-Induced Displacement in Patigi, Kwara State, Nigeria. Open Journal of Leadership* 13 (2024): 464–487. <https://doi.org/10.4236/ojl.2024.134025..>

Agbiboa, D. E. *May Nigeria Not Happen to You Free. Current History* 124, no. 862 (2025): 194–196. <https://doi.org/10.1525/curh.2025.124.862.194..>

Agbiji, O. M., et al. *Statistical Assessment of Recent Flood Management Policies in Selected Flood-Prone Areas in Nigeria—Gaps and Opportunities for Improvement*.

International Journal of Innovative Research and Advanced Studies (IJIRAS) 11,
no. 4 (April 2024).

Ahmad, M. S., Shah, R., Khan, S., Kizi, J. S. M., Fatima, T., and Malik, A. *Exploring Psychological Recovery and Coping Mechanisms: Post-Flood Mental Health and Resilience of Women in Punjab, Pakistan*. **Discover Sustainability** 6, no. 1 (2025): Article 107.

Ajibade, I., and McBean, G. *Climate Change, Urban Sprawl and Flood Vulnerability in Lagos*. **Urban Climate** 39 (2021): 100962.
<https://doi.org/10.1016/j.uclim.2021.100962..>

Ajibade, I., McBean, G., and Bezner-Kerr, R. *Urban Flooding in Lagos, Nigeria: Patterns of Vulnerability and Resilience Among Women*. **Global Environmental Change** 23, no. 6 (2013): 1714–1725.

Akoteyon, I. S. *Factors Influencing the Occurrence of Flooding, Risk and Management Strategies in Lagos, Nigeria*. **Sustainable Water Resources Management** 8 (2022): Article 68. <https://doi.org/10.1007/s40899-022-00651-y..>

Aldrich, D. P., and Meyer, M. A. *Social Capital and Community Resilience*. **American Behavioral Scientist** 59, no. 2 (2015): 254–269.
<https://doi.org/10.1177/0002764214550299..>

Alexander, C. B., Frank, S. M. B., and Ukwoma, G. V. *Assessing the Impact of Flooding on Food Security in Ahoada East/Ahoada West Government Area of Rivers State, Nigeria*. **Journal of Research in Social Science and Humanities** 4, no. 6 (2025): 1–12. <https://doi.org/10.56397/JRSSH.2025.07.01..>

- Alia, D. Y., Anderson, C. L., de Milliano, M., Meysonnat, A., Hennessy, C., and de Hoop, T. *Informal Savings Groups and Food Security During the COVID-19 Pandemic: Evidence from Nigeria. Data & Policy* 7 (2025): Article e46. <https://doi.org/10.1017/dap.2025.10007..>
- Azubuike, E. S., Godwin, B. L., and Obuzor, M. E. *Flood and Traditional Coping Strategy in Ahoada East (2012–2020), Rivers State. African Journal of Social Sciences and Humanities Research* 6, no. 2 (2023): 68–80. <https://doi.org/10.52589/AJSSHRC0ERVUO2..>
- Behera, J. K. *Role of Social Capital in Disaster Risk Management: A Theoretical Review. International Journal of Management* 12 (2021): 221–233.
- Berkman, L. F., Glass, T., Brissette, I., and Seeman, T. E. *From Social Integration to Health: Durkheim in the New Millennium. Social Science & Medicine* 51, no. 6 (2000): 843–857.
- Borre, A., Tsegai, D., and van Westen, G. *Measuring Recovery Gaps: A Composite Index Approach. Sustainability* 17, no. 3 (2025): 1044. <https://doi.org/10.3390/su17031044..>
- Bulti, D. T., Girma, B., and Megento, T. L. *Community Flood Resilience Assessment Frameworks: A Review. SN Applied Sciences* 1 (2019): 1663. <https://doi.org/10.1007/s42452-019-1731-6..>
- Bwanali, W., and Manda, M. *The Correlation Between Social Resilience and Flooding in Low-Income Communities: A Case of Mzuzu City, Malawi. International Journal of Disaster Resilience in the Built Environment* 14, no. 4 (2023): 495–513.

- Carver, C. S. *You Want to Measure Coping but Your Protocol's Too Long: Consider the Brief COPE*. **International Journal of Behavioral Medicine** 4, no. 1 (1997): 92–100.
https://doi.org/10.1207/s15327558ijbm0401_6..
- Chakrabartty, S. *Scoring and Weighting in Composite Index Construction: A Critique*. **Journal of Applied Statistics** 44, no. 6 (2017): 1070–1085.
- Cooperative Membership and Recovery of Flood Victims in Anambra State, Nigeria. **International Journal of Research in Cooperative Economics and Management (IJRCM)** 13, no. 1 (2024): 56–68.
<https://www.ijrcem.com/index.php/ijrcem/article/view/6..>
- Cronbach, L. J. *Coefficient Alpha and the Internal Structure of Tests*. **Psychometrika** 16, no. 3 (1951): 297–334. <https://doi.org/10.1007/BF02310555..>
- Cutter, S. L., Boruff, B. J., and Shirley, W. L. *Social Vulnerability to Environmental Hazards*. **Social Science Quarterly** 84, no. 2 (2003): 242–261. <https://doi.org/10.1111/1540-6237.8402002..>
- Dangol, N. *Shaping the Perception of Flood Risk Among Residents of Riverbank Informal Settlements in Kathmandu*. **International Journal of Disaster Risk Reduction** 105 (2024): Article 104423.
- Dauda, H. K., Abbas, S., and Amaefule, G. C. *Evaluating NEMA's Preparedness and Response to Flood Disasters in Sabon Gari Local Government Area, Kaduna State*. (2025).

- Dinh, N. C., et al. *How Do Social Connections Accelerate Post-Flood Recovery? Insights from a Survey of Rural Households in Central Vietnam*. **International Journal of Disaster Risk Reduction** 61 (2021): 102342.
- Dukiya, J. J., and Benjamine, O. *Building Resilience Through Local and International Partnerships, Nigeria Experiences*. **International Journal of Disaster Risk Management** 3, no. 2 (2021): 11–24.
- Ebhuoma, E., and Leonard, L. *An Operational Framework for Communicating Flood Warnings to Indigenous Farmers in Southern Nigeria: A Systems Thinking Analysis*. **GeoJournal** 86 (2021): 2639–2656. <https://doi.org/10.1007/s10708-020-10221-4>..
- Ekoh, S. S., and Teron, L. *Vulnerable Spaces, Unequal Responses: Lessons for Transformative Climate Resilience in Lagos*. **Frontiers in Sustainable Cities** 5 (2023): Article 929121.
- Eniwotu, A. R., and Otite, A. *The Ripple Effects of Flooding on Women in Nigeria*. **Journal of Public Administration, Finance & Law** 28 (2023).
- Eze, A. M., and Thompson, A. S. *Resilience as a Mediator in Post-Disaster Recovery in West African Urban Slums*. **International Journal of Disaster Risk Reduction** 72 (2025): Article 103498. <https://doi.org/10.1016/j.ijdr.2024.103498>..
- Fransen, J., Hati, B., Nyumba, R., and van Tuijl, E. *Community Vitality and Frugal Practices in Informal Settlements in Nairobi: Towards a Typology*. **Cities** 134 (2023): Article 104179.

- Gaisie, E., Adu-Gyamfi, A., and Owusu-Ansah, J. K. *Gender and Household Resilience to Flooding in Informal Settlements in Accra, Ghana*. **Journal of Environmental Planning and Management** 65, no. 8 (2022): 1390–1413.
- Gallego, R. I. F., and Balabagno, A. O. *The Intercultural Caring-Coping Patterns of Disaster-Displaced Families in Temporary Shelters*. **International Journal of Public Health** 13, no. 4 (2024): 1978–1989.
- Gbigbi, T. M., Okoh, R. N., and Achoja, F. O. *Evaluating the Differential Role of Public-Private Credit Sources in Financing Climate Change Adaptation Technologies for Rural Farmers in Delta State, Nigeria*. **Research Journal of Agricultural Economics and Development** 3, no. 2 (2024): 79–97.
<https://doi.org/10.52589/RJAEDYJTOQVUD..>
- Georgiou, K., Yussif, M., and Raimi, M. *Microplastics Pollution and Ecological Risk in Lagos Lagoon: A Multidisciplinary Assessment*. **Ecological Safety and Balanced Use of Resources** 3, no. 1 (2024): 45–58. [https://doi.org/10.31471/2415-3184-2024-3\(1\)-45-58](https://doi.org/10.31471/2415-3184-2024-3(1)-45-58).
- Gil-Rivas, V., and Kilmer, R. P. *Building Community Capacity and Fostering Disaster Resilience*. **Journal of Clinical Psychology** 72, no. 12 (2016): 1318–1332.
<https://doi.org/10.1002/jclp.22281..>
- Greco, S., et al. *Composite Indices for Sustainability Assessment: A Methodological Review*. **Ecological Indicators** 90 (2018): 246–260.

- Ha, V. H., et al. *Post-Flood Recovery in the Central Coastal Plain of Vietnam: Determinants and Policy Implications*. **Asia-Pacific Journal of Regional Science** 6 (2022): 899–929. <https://doi.org/10.1007/s41685-022-00244-9>..
- Haque, A. N. *Climate Risk Responses and the Urban Poor in the Global South: The Case of Dhaka's Flood Risk in the Low-Income Settlements*. **International Journal of Disaster Risk Reduction** 64 (2021): Article 102534.
- Haque, C. E., Azad, M. A. K., and Choudhury, M. U. I. *Social Learning, Innovative Adaptation and Community Resilience to Disasters: The Case of Flash Floods in Bangladesh*. **Disaster Prevention and Management: An International Journal** 31, no. 5 (2022): 601–618.
- Hariana, R. R., Arisuma, N., and Saleh, A. *Resilience of Natural Disaster Victims Based on Social Capital Community Recovery Strategy for Flash Floods in Ladang Rimba*. **Jurnal Penelitian Medan Agama** 15, no. 1 (2024): 19–26.
- Haruna, H., Kever, R., Maigari, B., Ahmadu, I., Dathini, H., Jibril, U. N., Salihu, D., and Chutiyami, M. *Psychological Distress and Coping Mechanisms Among Flood-Affected Children in Maiduguri, Nigeria*. Preprint, 25 June 2025. <https://doi.org/10.20944/preprints202506.1944.v1>..
- IgudaLadan, S., and Saulawa, J. Y. *Flood Disaster Response and Recovery in Nigeria: A Case Study of 2018 Jibia Flood Disaster, Katsina State*. **Journal of Environmental Science, Toxicology and Food Technology** 15, no. 4 (2021): 08–18.
- Jeb, D. N., and Aggarwal, S. P. *Flood Hazard Mapping and Assessment Using Satellite Data and GIS: A Case Study of River Kaduna*. **Journal of Applied Sciences Research** 4,

- no. 12 (2008): 1822–1833. <https://www.aensiweb.com/old/jasr/jasr/2008/1822-1833.pdf>.
- Joshua, I., Ibrahim, M., Abubakar, A., Ejembi, C., Nmadu, A., Usman, N., and Adagba, K. *Community Flood Disaster Preparedness in Flood-Prone Rural and Urban Communities in Kaduna State, Nigeria*. **African Journal of Health, Safety and Environment** 4, no. 2 (2023): 34–45. <https://doi.org/10.52417/ajhse.v4i2.400>.
- Karuga, R., Steege, R., Njoroge, I., Liani, M., Wiltgen Georgi, N., Otiso, L., et al. *Leaving No One Behind: A Photovoice Case Study on Vulnerability and Wellbeing of Children Heading Households in Two Informal Settlements in Nairobi*. **Social Sciences** 11, no. 7 (2022): Article 296.
- Khan, M. A., Dakyaga, F., Chilinde, G., et al. *Urban Marginality: Everyday Practice of Building Resilience to Flood in the Informal Settlement of Dar es Salaam*. **GeoJournal** 89 (2024): 103. <https://doi.org/10.1007/s10708-024-11117-3>.
- Lawanson, T., Proverbs, D., and Ibrahim, R. L. *Street-Level Coping and Housing Recovery in Lagos Informal Settlements*. **Journal of Flood Risk Management** 16, no. 1 (2023): e12838. <https://doi.org/10.1111/jfr3.12838>.
- Liu, Q., et al. *Global, Regional, and National Trends and Impacts of Natural Floods, 1990–2022*. **Bulletin of the World Health Organization** 102, no. 6 (2024): 410.
- Longueville, F. de, Ozer, P., and Doumbia, S. *Environmental Migration in West Africa: A Review*. **Sustainability** 12, no. 3 (2020): 1132. <https://doi.org/10.3390/su12031132>.

- Marchetti, N. L., Newnham, E. A., and Robinson, D. E. *The Resilience Paradox: Rural Self-Reliance and the Limits of Disaster Recovery*. **International Journal of Disaster Risk Reduction** (2025): Article 105660.
- Mashi, S. A., Oghenejabor, O. D., and Inkani, A. I. *Disaster Risks and Management Policies and Practices in Nigeria: A Critical Appraisal of the National Emergency Management Agency Act*. **International Journal of Disaster Risk Reduction** 33 (2019): 253–265.
- Mavhura, E., Manyangadze, T., Mudavanhu, C., et al. *An Assessment of Riparian Communities' Preparedness to Flood Risk: The Case of Mbire Communities in Zimbabwe*. **GeoJournal** 87 (2022): 1671–1693. <https://doi.org/10.1007/s10708-020-10329-7>.
- Mbwana, M., Ntali, M. A., and Ntali, Y. M. *Living and Responding to Flood Disaster: Perspectives from Informal Settlements in Dar es Salaam, Tanzania*. **Local Environment** (2025): 1–22.
- Michael, T. O. *Adapting to Climate Change-Induced Flooding: Insights from Women Traders in the Riverine Areas of Nigeria—A Qualitative Study*. **Frontiers in Sustainability** 5 (2024): Article 1385513.
- Mitchell, S. M., and Pizzi, E. *Patterns of Government Disaster Policy Response in Peru*. **World Development** 182 (2024): Article 106707.
- Mohammed, U. K., and Favretto, N. *Livelihood Diversification Among Women Farmers in Nigeria's Flood-Resilient Drylands*. **Climate Risk Management** 48 (2024): Article 100708. <https://doi.org/10.1016/j.crm.2025.100708>.

Motloun, O. M. *Effects of Flood Disasters on Vulnerable Residents in Informal Settlements in South Africa*. **African Journal of Development Studies** 14, no. 3 (2024).

Muchiri, C. N., and Opiyo, R. O. *Community Adaptation Strategies in Nairobi Informal Settlements: Lessons from Korogocho, Nairobi-Kenya*. **Frontiers in Sustainable Cities** 4 (2022): Article 932046.

Muhammad, A. D. *Participatory Approach for Flood Vulnerability Assessment in Selected Communities Downstream of Jebba Dam, Niger State, Nigeria*. Doctoral Dissertation, 2022.

Mushi, L., Salukele, F., and Mwageni, N. F. *Awareness of Disaster Risk Management and Emergency Response Legislations and Strategies in Tanzania: A Case of Dar es Salaam City*. (2024). <https://ssrn.com/abstract=5048229>.

Nanud, M. N. D., Caylan, A. T., Lagura, J. C., and Baluyos, G. R. *Capturing the Cry of Flood Victim Students: An Exploration of Their Experience and Resilience Through Photovoice*. **EduLine: Journal of Education and Learning Innovation** 3, no. 4 (2023): 524–542. <https://doi.org/10.35877/454RI.eduline2034..>

Nche, G. C. *'We Need Rain to Survive, But It Shouldn't Be Too Much': A Tale of Flood Victims in Kogi State, Nigeria*. **Cogent Social Sciences** 10, no. 1 (2024). <https://doi.org/10.1080/23311886.2024.2350140..>

Ner, N. T., Okyere, S. A., Abunyewah, M., and Kita, M. *Integrating Resilience Attributes into Local Disaster Management Plans in Metro Manila: Strengths, Weaknesses, and Gaps*. **Progress in Disaster Science** 16 (2022): Article 100249.

- Neves, J. L., and Espling, M. *The Role of Communities in Building Urban Flood Resilience in Matola, Mozambique*. **International Journal of Disaster Risk Reduction** (2025): Article 105262.
- Odigie, O., and Obayagbona, N. O. *Continuous Expansion of Urban Sprawls Versus Sustainable Management of Wetlands in Lagos*. **DUJOPAS** 11, no. 2a (2025).
- Odunsi, O. M., Olawuni, P. O., Daramola, O. P., et al. *Households' Resilience to Flood Disaster in Lagos State, Nigeria: Developing a Conceptual Framework Unifying Disaster Resilience Components and Dimensions*. **Journal of Environmental Studies and Sciences** 14 (2024): 69–86. <https://doi.org/10.1007/s13412-023-00864-3>..
- Odunsi, O., and Onanuga, M. *Modelling Resilience to Extreme Climate Events: A Household-Based Study of Flood Disaster in Nigeria*. **Town and Regional Planning** 81 (2022): 97–112.
- Okunola, O. H. *Beyond Institutional Silos: Rethinking Multilevel Disaster Risk Governance in Africa a Decade into the Sendai Framework Implementation*. **International Journal of Disaster Risk Science** 16 (2025): 321–332. <https://doi.org/10.1007/s13753-025-00646-1>..
- Okunola, O. H., and Werners, S. E. *A Multi-Dimensional Framework for Assessing Disaster Recovery Pathways: Lessons and Experiences from Germany and Nigeria*. **International Journal of Disaster Risk Reduction** 112 (2024): Article 104777. <https://doi.org/10.1016/j.ijdr.2024.104777>..
- Okwei, R., Adjaisan, D., Adeetuk, L., Kutor, S. K., Ofori, D. O., Bandauko, E., and Arku, G. *Community Perceptions on Institutional Gaps in Flood Disaster Preparedness and*

Management in Mepe Community, Ghana. Local Environment (2025): 1–19.
<https://doi.org/10.1080/13549839.2025.2477026..>

Okyere, S. A., Abunyewah, M., Addai, J., Mensah, S. L., Frimpong, L. K., and Kwang, C.
Faith-Based Organisations and Disaster Management in Informal Urban Accra. Environmental Hazards 23, no. 5 (2024): 482–505.
<https://doi.org/10.1080/17477891.2024.2333738..>

Olajuyigbe, A. E., Rotowa, O. O., and Durojaye, E. *Flood Hazard in Mile 12, Lagos. Mediterranean Journal of Social Sciences* 3, no. 3 (2012): 367–375.

Olonilua, O., and Aliu, J. O. *Reviewing the Critical Role of Coping Strategies in Enhancing Mental Health and Resilience in Disaster Survivors. Environmental Research: Health* 3, no. 2 (2025): Article 025006.

Olufadewa, I. I., Adebayo, A. M., and Olamide, A. *Post-Flood Recovery in Informal Settlements: A Lagos Case Study. Journal of Urban Resilience* 12, no. 1 (2025): 1–15.

Olufadewa, I., Abiodun, O., Oladele, R., Eze, O. I., Adeyemo, Q., Omale, J., and Afolabi, O.
Climate, Health, and Living Condition Crises in the Expanding Informal Settlements and Slums of South-West Nigeria: A Case Report of Ogun and Oyo States. Journal of Global Health 15 (2025): 03051.

Onwutuebe, C. J. *Patriarchy and Women Vulnerability to Adverse Climate Change in Nigeria. Sage Open* 9, no. 1 (2019): 2158244019825914.
<https://doi.org/10.1177/2158244019825914..>

- Osayomi, T., Olobo Jnr, P., Ogunwumi, T., Fatayo, O. C., Akpoterai, L. E., Mshelia, Z. H., and Abatcha, I. U. *"I Lost All I Had to the Flood...": A Post-Disaster Assessment of the 2018 Kogi State Flood in Nigeria*. **Ife Social Sciences Review** 30, no. 2 (2022): 1–20. <https://issr.oauife.edu.ng/index.php/issr/article/view/184..>
- Park, S., Kim, S., Kim, G.-U., and Noh, D. *Effects of Social Support on Mental Health Outcomes in Disasters: A Cross-Sectional Study*. **Nursing & Health Sciences** 23, no. 2 (2021): 456–465. <https://doi.org/10.1111/nhs.12830..>
- Parvin, G. A., et al. *Does Social Capital Contribute to Resilience? Exploring the Perspectives of Displaced Women Living in Urban Slums in Khulna City*. **International Journal of Disaster Risk Reduction** 94 (2023): Article 103838.
- Pazhuhan, M., and Amirzadeh, M. *Community Flood Resilience Assessment of Saadi Neighborhood, Shiraz, Iran*. **Journal of Risk Research** 27, no. 1 (2023): 21–45. <https://doi.org/10.1080/13669877.2023.2288023..>
- Putnam, R. D. *Bowling Alone: America's Declining Social Capital*. **Journal of Democracy** 6, no. 1 (1995): 65–78. <https://doi.org/10.1353/jod.1995.0002..>
- Quayhagen, M. P., and Quayhagen, M. *Coping Strategies Inventory (CSI)* [Database record]. **PsycTESTS**, 1982. <https://doi.org/10.1037/t44661-000..>
- Raji, S. A., Adeniyi, P. O., and Odunuga, S. *Multicriteria Flood Risk Analysis of Lower Ogun River Basin*. **Journal of Environment and Earth Science** (2024). <https://www.iiste.org/Journals/index.php/JEES/article/download/14234/14542..>

Rana, P., Rahmadhani, T. P., and Prihantika, I. *Role of Social Protection and Disaster Management: A Bibliometric and Systematic Literature Review*. **Journal of Research in Social Sciences and Humanities** 3, no. 2 (2022): 40–60.

Sachdeva, S., and Kumar, P. *Assessing the Household Level Perception and Adaptation Strategies to Flood Risk in Informal Settlements of Yamuna Floodplain in Delhi*. **Natural Hazards** 121 (2025): 11695–11729. <https://doi.org/10.1007/s11069-025-07257-5>.

Salaam, D. E. *Awareness of Disaster Risk Management and Emergency Response Legislations and Strategies in Tanzania: A Case of Dar es Salaam City*. (2025).

Salami, A. A., and Alabi, A. S. *Rainfall Variability and Trends Analyses in Nigeria Using Remotely Sensed Data and CMIP5 Models*. **Earth Systems and Environment** (2024). <https://doi.org/10.1007/s41748-024-00556-0>.

Samad, M. A., Ali, M. N., and Khairil, M. *Indonesian Disaster Governance: Public Policy and Social Economic Impact*. **Ilkogretim Online** 20, no. 5 (2021).

Saputra, H., Iswara, P. W., Nor, N. N. F. M., and Usman, F. *Multidimensional Factors Shaping Older Persons' Resilience to Floods in Madura Island*. **Jàmbá: Journal of Disaster Risk Studies** 17, no. 1 (2025): Article 1755.

Shabu, T., Mngutyo, I., Rikko, L., Alaci, D., Idakwo, V., Tom, E., et al. *Analysis of Household and Community Flood Resilience in Makurdi Town of Benue State, Nigeria*. (2025).

Sharma, M., Mohan, J., and Jagmohan, A. M. *Gendered Spaces, Climate Change and Resilience in a Squatter Slum of Global South*. In *Making India Disaster Resilient*,

edited by V. R. Sharma and Chandrakanta, Springer: Cham, 2024.
https://doi.org/10.1007/978-3-031-50113-5_16..

Shola, M., and Rollason, E. *Challenges in Implementing Flood Disaster Management Policies and Practices in Lagos State, Nigeria*. **International Journal of Anthropology and Ethnology Research Development** 4, no. 2 (2024): 112–130.
<https://harvardpublications.com/hijaerd/article/view/194..>

Sultana, N. *Understanding Local-Level Institutional Barriers in Landslide Disaster Management: A Qualitative Study on Southeast Bangladesh*. **Landslides** (2025).
<https://doi.org/10.1007/s10346-025-02562-3..>

Tasantab, J. C., Gajendran, T., and Maund, K. *Expanding Protection Motivation Theory: The Role of Coping Experience in Flood Risk Adaptation Intentions in Informal Settlements*. **International Journal of Disaster Risk Reduction** 76 (2022): Article 103020.

Teye, J. K., and Nikoi, E. G. A. *Climate-Induced Migration in West Africa*. In *Migration in West Africa*, edited by J. K. Teye. **IMISCOE Research Series**, Springer: Cham, 2022.
https://doi.org/10.1007/978-3-030-97322-3_5..

Unuigboje, A. E., Peprah, C., and Oduro-Ofori, E. *Assessing the Extent of Effectiveness of Indigenous Adaptation Practices to Flood Disasters in Benin Metropolis, Nigeria*. **Journal of the Nigerian Institute of Town Planners** 30, no. 1 (2025): 44–56.
<https://nitpjournals.ng/index.php/jnitp/article/view/11..>

van Breda, A. D. *A Critical Review of Resilience Theory and Its Relevance for Social Work.*

Social Work/Maatskaplike Werk 54, no. 1 (2018): 1–18.

<https://doi.org/10.15270/54-1-611..>

Wahab, B., and Falola, O. *Vulnerable Households in Flood-Prone Communities in Ibadan: Measures to Improve Their Status Within the Inclusive Ibadan City Framework.*

Journal of Inclusive Cities and Built Environment 2, no. 1 (2022): 21–27.

Whitesock, D., Granfield, R., and Cloud, W. *Recovery Capital Index: A Validated Assessment Tool.* **Face It TOGETHER** (2018). <https://commonlywell.com/the-recovery-capital-index-a-validated-assessment..>

Wilson, B., Tate, E., and Emrich, C. T. *Flood Recovery Outcomes and Disaster Assistance Barriers for Vulnerable Populations.* **Frontiers in Water** 3 (2021): Article 752307. <https://doi.org/10.3389/frwa.2021.752307..>

Wisner, B., Gaillard, J. C., and Kelman, I. *The Routledge Handbook of Hazards and Disaster Risk Reduction.* Routledge, 2012.

Wolde, M., Tankou, C. M., and Oyatayo, A. *Environmental Drivers of Human Migration in Sub-Saharan Africa.* **Global Sustainability** 6, no. 1 (2023): e19. <https://doi.org/10.1017/sus.2023.19..>

Yussif, M. *Microplastics Abundance, Characteristics, and Risk in Badagry Lagoon, Lagos State.* **Pollution** 8, no. 4 (2022): 1325–1337. <https://doi.org/10.22059/POLL.2022.342499.1462..>

Magazine Articles

CAF America. Lewek, Jeffrey. *Global Flooding Crisis 2024: Causes, Impact, and Relief Efforts*. September 25, 2024. Retrieved September 29, 2025

Clean Technology Hub. Wambai, and Malo, I. *Climate-Induced Displacement and Conflict: Addressing Nigeria's Climate Vulnerability and Resilience Gaps*. 2025. Retrieved September 29, 2025, from https://cleantechnologyhub.com/wp-content/uploads/2025/05/Climate-Induced-Displacement-and-Conflict_compressed-1.pdf

Emergency Digest. Aliyu, A. A. *Hazards Analysis Report 2024: A Blueprint for Nigeria's Disaster Preparedness*. December 8, 2024. Retrieved September 29, 2025, from <https://emergencydigest.com/2024/12/08/hazards-analysis-report/>

Nature and Environment | Nigeria. Saad, Abubakar Said. *Are Nigeria's Floods Caused by Humans or Climate Change?* September 20, 2024. Retrieved September 29, 2025.

PRNigeria. Aliyu, A. A. *365 Days of Enhanced Disaster Management in Nigeria*. March 15, 2025. Retrieved September 29, 2025, from <https://prnigeria.com/2025/03/15/days-disaster-management/>

The Organization for World Peace. Canuto, Alessia. *Mean Streets: When Living on the Street Means Being Invisible*. February 21, 2023. Retrieved September 29, 2025, from <https://theowp.org/reports/mean-streets-when-living-on-the-street-means-being-invisible/>

Newspapers

Blueprint. *2025 Flood Forecast: Lagos, Benue, Rivers, Jigawa, FCT, 26 Other States at High Risk*. April 11, 2025. Retrieved September 29, 2025.

Fadoju. *Understanding Flash Flooding and Lagos State's Climate Resilience Strategy.*

TheCable, June 17, 2025. Retrieved September 29, 2025.

Guardian Nigeria. *Flood Alert: Lagos Ramps Up Drainage Operations, Urges Residents' Support.* July 9, 2025. Retrieved September 29, 2025, from <https://guardian.ng/news/nigeria/metro/flood-alert-lagos-ramps-up-drainage-operations-urges-residents-support/>

Hallmark News. *July Flood Alert: 20 States at Risk Despite N620bn Ecological Funds.* July 8, 2025. Retrieved September 29, 2025, from <https://hallmarknews.com/july-flood-alert-20-states-at-risk-despite-n620bn-ecological-funds/>

Okay.ng.. *Nigerian States Brace for Floods as Residents Begin Evacuations Following NiMet Warning.* July 12, 2025. Retrieved September 29, 2025, from <https://www.okay.ng/nigerian-states-brace-for-floods-as-residents-begin-evacuations-following-nimet-warning/>

Olusola, O. M. *The Overlooked Intersection: Climate, Disability, and Education in Nigeria.* **BusinessDay**, November 20, 2024. Retrieved September 29, 2025, from [https://businessday.ng/columnist/article/the-overlooked-intersection-climate-disability-and-education-in-nigeria/..](https://businessday.ng/columnist/article/the-overlooked-intersection-climate-disability-and-education-in-nigeria/)

Platform Times. *Bayelsa Flood: IOM Reports Displacement of 700,000 Residents Across 300 Communities.* March 8, 2024. Retrieved September 29, 2025, from <https://platformtimes.com.ng>

Premium Times. *8 Million Lagos Residents Prone to Flood Disaster – NEMA.* September 3, 2020. Retrieved September 29, 2025.

Punch Newspaper. *Floodwaters Force Makoko Children Out of School Amid Disease Fears.* July 13, 2025. Retrieved September 29, 2025, from <https://healthwise.punchng.com/floodwaters-force-makoko-children-out-of-school-amid-disease-fears/>

The Whistler. *151 Houses Affected as Flood Ravages Lagos.* February 20, 2024. Retrieved September 29, 2025.

TheCable. *Niger State Flood: Experts Blame Rail Embankment, Call for Drainage Overhaul.* May 29, 2025. Retrieved September 29, 2025.

UN News. *Nigeria: Flooding Kills Dozens, Leaves Thousands Homeless.* September 28, 2024. Retrieved September 29, 2025, from <https://news.un.org/en/story/2024/09/1154301>

Vanguard Newspaper. *Photos: 151 Houses, 7 Communities Submerged in Lagos Flood.* February 20, 2024. Retrieved September 29, 2025, from <https://www.vanguardngr.com/2024/02/photos-151-houses-7-communities-submerged-in-lagos-flood/>

Periodical Articles

ActionAid Nigeria. *Policy Brief on Recurring Flood: Stemming the Tide.* Nigeria: ActionAid, 2023. Retrieved September 29, 2025.

Africa Center for Strategic Studies. *Record Levels of Flooding in Africa Compounds Stress on Fragile Countries.* December 10, 2024. Retrieved September 29, 2025, from <https://africacenter.org/wp-content/uploads/2025/01/Flooding-in-Africa.pdf>

American Psychological Association. *Disaster Mental Health Information for Psychologists.* August 8, 2023. Retrieved September 29, 2025, from <https://www.apa.org/topics/disasters-response/disaster-mental-health-psychologists>

Dias, S. M., Ogando, A. C., Broto, V. C., Cypriano, B., and Gonçalves, J. *Climate-Change Impacts and Adaptation Strategies: Waste Pickers' Experiences from Brazil. WIEGO Brief 29* (2023): 11. Retrieved September 29, 2025.

FSD Africa. *Managing the Water 'Megacity' – Flood Risk and Resilience in Lagos (Briefing Note No. 1).* 2021. Retrieved September 29, 2025, from <https://fsdafrica.org/wp-content/uploads/2021/10/Briefing-Note-1-Flood-Risk-in-Lagos-01.10.21.pdf>

Heinrich Böll Stiftung. *Lagos' Informal Sector: Taxation & Contribution to the Economy.* 2025. Retrieved September 29, 2025, from https://ng.boell.org/sites/default/files/uploads/2017/02/budgit_final_report_30.1.17.pdf

InsuResilience Solutions Fund. *GRMA Project Brief – Nigeria: Risk Modelling for Climate Resilience.* 2025. Retrieved September 29, 2025, from <https://insuresilience-solutions-fund.org/wp-content/uploads/2025/02/GRMA-Project-Brief-Nigeria.pdf>

Interconnected Risks. *Lagos Floods – Interconnected Disaster Risks.* 2022. Retrieved September 29, 2025, from <https://interconnectedrisks.org/2022/disasters/lagos-floods>

International Federation of Red Cross and Red Crescent Societies. *Measuring Recovery: Frameworks and Tools for Post-Disaster Rehabilitation.* 2021. Retrieved

September 29, 2025, from <https://www.ifrc.org/document/measuring-recovery-framework>

International Federation of Red Cross and Red Crescent Societies. *Nigeria: Floods Emergency Appeal Final Report*. 2007. Retrieved September 29, 2025, from <https://www.ifrc.org/docs/appeals/07/MDRNG004.pdf>

International Organization for Migration. *Discussion Note: Migration and the Environment*. 2007. Retrieved September 29, 2025, from <https://environmentalmigration.iom.int>

International Organization for Migration. *Flood Displacement and Demographic Vulnerabilities in Nigeria: DTM Analysis Series*. 2024. Retrieved September 29, 2025, from <https://dtm.iom.int/reports/flood-displacement-demographic-vulnerabilities-nigeria>

National Bureau of Statistics, National Emergency Management Agency, and United Nations Development Programme. *Nigeria Impact of Flood, Recovery and Mitigation Assessment Report 2022–2023: Final Report*. Abuja, 2023. Retrieved September 29, 2025.

National Emergency Management Agency (NEMA). *South-South Lost N2.51trn to Floods in 2012*. 2012. Retrieved September 29, 2025, from <https://www.nema.gov.ng/south-south-lost-n2-51trn-to-floods-in-2012-says-nema/>

National Emergency Management Agency. *NEMA Conducts Flood Simulation Exercise in Kano to Enhance Multi-Stakeholder Preparedness*. July 6, 2025.

Retrieved September 29, 2025, from <http://nema.gov.ng/nema-conducts-flood-simulation-exercise-in-kano-to-enhance-multi-stakeholder-preparedness/>

Nigeria: Floods Information Bulletin No. 2. September 14, 2001. Retrieved September 29, 2025, from <https://www.ifrc.org/docs/appeals/rpts01/ngfl01a2.pdf>

Nigerian Institute of Social and Economic Research (NISER). *Policy Brief: Disaster Mitigation.* Nigeria: NISER, 2024. Retrieved September 29, 2025, from <https://niser.gov.ng/v2/wp-content/uploads/2025/02/NISER-Policy-Brief--Disaster-Mitigation--Daramola.pdf>

Sanderson, D., Knox Clarke, P., and Campbell, L. *Responding to Urban Disasters: Learning from Previous Relief and Recovery Operations.* **ALNAP Lessons Paper**, 2012. Retrieved September 29, 2025.

Twigg, J. *Characteristics of a Disaster-Resilient Community: A Guidance Note.* **DFID Disaster Risk Reduction Interagency Coordination Group**, 2009. Retrieved September 29, 2025.

UN Women. *Intersectionality Resource Guide and Toolkit: An Intersectional Approach to Leave No One Behind.* 2021. Retrieved September 29, 2025, from <https://wrdd.unwomen.org/sites/default/files/2021-11/1INTER~1.PDF>.

UNDP. *Annual Report 2022.* 2022. Retrieved September 29, 2025, from <https://annualreport.undp.org/2022/assets/Annual-Report-2022.pdf>

UNICEF Nigeria. *Floods Displaced Over 800,000 Children in Nigeria in 2022.* 2023. Retrieved September 29, 2025, from <https://www.unicef.org/nigeria/documents/nigeria-emergency-flood-response>

United Nations Development Programme. *Nigeria Flood Impact, Recovery and Mitigation Assessment Report*. 2023. Retrieved September 29, 2025, from <https://nigerianstat.gov.ng/pdfuploads/NigeriaFloodImpactRecoveryMitigationAssessmentReport2023.pdf>

United Nations High Commissioner for Refugees. *Access to Civil Documentation for Internally Displaced Persons*. 2023. Retrieved September 29, 2025, from <https://www.unhcr.org/idp-civil-documentation>

United Nations Office for Disaster Risk Reduction. *Annual Report 2022*. 2022. Retrieved September 29, 2025, from <https://www.undrr.org/annual-report/2022>

United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). *Nigeria: Floods – Situation Report No. 5*. November 1, 2024. Retrieved September 29, 2025, from <https://www.unocha.org/publications/report/nigeria/nigeria-floods-situation-report-no-5-1-november-2024>

United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). *Nigeria Floods Response Flash Update 2*. November 1, 2022. Retrieved September 29, 2025

United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). *Nigeria Post-Disaster Needs Assessment: 2012 Floods*. Global Facility for Disaster Reduction and Recovery, 2013. Retrieved September 29, 2025, from https://www.gfdr.org/sites/default/files/publication/NIGERIA_PDNA_PRINT_05_29_2013_WEB.pdf

United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA).

West and Central Africa: Flooding Situation Report. October 23, 2020. Retrieved September 29, 2025, from <https://www.unocha.org/publications/report/niger/west-and-central-africa-flooding-situation-23-october-2020>

World Weather Attribution. *Climate Change Made Extreme Rainfall in West Africa*

More Likely. November 17, 2022. Retrieved September 29, 2025, from https://www.worldweatherattribution.org/wp-content/uploads/Nigeriafloods_scientific-report.pdf

Textbooks

Alexander, D. *Principles of Emergency Planning and Management.* Oxford: Oxford University Press, 2002.

Chambers, R., and Conway, G. *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century (IDS Discussion Paper 296).* Institute of Development Studies: Brighton, 1992. [https://www.ids.ac.uk/publications/sustainable-rural-livelihoods-practical-concepts-for-the-21st-century/..](https://www.ids.ac.uk/publications/sustainable-rural-livelihoods-practical-concepts-for-the-21st-century/)

Coppola, D. P. *Introduction to International Disaster Management.* 3rd ed. Oxford: Butterworth-Heinemann, 2015.

Creswell, J. W., and Plano Clark, V. L. *Designing and Conducting Mixed Methods Research.* 3rd ed. Thousand Oaks, CA: Sage Publications, 2018.

Davies, L. *Adaptive Social Protection: Linking Social Protection with Disaster Risk Reduction and Climate Change Adaptation.* Institute of Development Studies, 2016.

Department for International Development. *Sustainable Livelihoods Guidance Sheets*. 1999.

<https://www.livelihoodscentre.org/documents/114097690/114438878/Sustainable+livelihoods+guidance+sheets.pdf>.

Gaillard, J. C. *Livelihoods and Disasters*. In *Encyclopedia of Natural Hazards*, Springer, 2016, 633–637. https://doi.org/10.1007/978-1-4020-4399-4_220..

IPCC. *Climate Change 2014: Impacts, Adaptation, and Vulnerability*. Cambridge: Cambridge University Press, 2014.

Jha, A. K., and Duyne, J. E. *Safer Homes, Stronger Communities: A Handbook for Reconstructing After Natural Disasters*. World Bank, 2010.

Masten, A. S. *Ordinary Magic: Resilience in Development*. New York: Guilford Press, 2014.

Silver, R. C., and Garfin, D. R. *Coping with Disasters*. In *APA Handbook of Clinical Psychology: Psychopathology and Health*, edited by J. C. Norcross et al., 597–611. American Psychological Association, 2016.

UN-Habitat. *World Cities Report 2016: Urbanization and Development—Emerging Futures*. Nairobi: United Nations Human Settlements Programme, 2016.

World Bank. *Enhancing Urban Resilience in Lagos: Flood Risk Management Strategy*. Washington, DC: World Bank Publications, 2020.

Thesis/Dissertation (Unpublished)

- Ade, M. A. *Flood Risk Assessment and Management in the Benue Trough Nigeria*. Unpublished doctoral thesis, University of Chester, 2022.
- Atufu, C. E. *Evaluating the Impacts of Flooding on the Residents of Lagos, Nigeria*. PhD Thesis, University of Northampton, 2022.
https://pure.northampton.ac.uk/files/56132977/Atufu_Cynthia_2022_Evaluating_the_Impacts_of_Flooding_on_the_Residents_of_Lagos_Nigeria.pdf.
- Butt, M. *The Role of Diaspora Remittances in the 2022 Pakistan Flood Recovery: Norwegian Pakistani Located in Oslo*. Master's Thesis, Norwegian University of Science and Technology, 2023. <https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/3101762>..
- Ciamei, L., and Hollekamp, J. K. *When the Waters Rise: Disaster Resilience in Manila's Informal Settler Communities*. Master Thesis Series in Environmental Studies and Sustainability Science, 2025.
- Dam, D. P., et al. *An Assessment of Post-Flood Disaster Risk Recovery and Reconstruction Responses of Urban Households in Makurdi Metropolis, Nigeria*. 2021. Ahmed, R. *Community Resilience to Urban Flooding: A Case Study of Shezidao, Taipei*. Master's Thesis, National Taiwan Normal University, 2024.
- Echendu, A. *Urban Flooding and Changing Landscapes: Investigating Urban Communities' Experiences, Perceptions, and Knowledge for Improvement of Flood Risk Management in Nigeria*. Doctoral Dissertation, 2023.
- Hwang, M. Y. *Flood Preparedness, Response and Recovery of Flood Affected Business Owners in Shah Alam in 2021*. Final Year Project, UTAR, 2022.

Joof, M. L. *Climate Change Adaptation and Injustice in Informal Settlements: The Case of EBO Town, The Gambia*. Doctoral Dissertation, Middle East Technical University, 2025.

Nwaokoro, A. O. *Social Vulnerability and Flood Resilience in Lagos State, Nigeria*. Doctoral dissertation, University of Portsmouth, 2024.

Ofori, A. *Household Flood Vulnerability and Resilience Strategies in Otodjor-Dansoman in the Accra-Tema City Region, Ghana*. Master's Thesis, Miami University, 2024.

Websites

Abolade, O. *Impacts of Flood Disaster in Agege Local Government Area Lagos, Nigeria*. 2023. Retrieved September 29, 2025, from <https://www.academia.edu/65628214>.

FloodList. *Nigeria – 100,000 Displaced After Flooding in Benue*. September 5, 2017. Retrieved September 29, 2025, from <https://floodlist.com/africa/nigeria-floods-benue-september-2017>

International Organization for Migration (IOM). *DTM Nigeria — Joint Post-Flood Situation Report — Lagos State*. December 30, 2024. *Nigeria Flood Response Update*. 2024. Retrieved September 29, 2025, from <https://www.iom.int>

Klippe, Andreas. *The Impact of Urbanization on Flood Risk*. February 15, 2023. Retrieved September 29, 2025, from <https://rsfloodcontrol.com/blog/urbanization-flood-risk/>

Lagos State Government. *Lagos Climate Action Plan: Building Resilience in a Coastal Megacity*. 2025. Retrieved September 29, 2025, from https://link.springer.com/chapter/10.1007/978-3-319-06388-1_6

Lagos State Emergency Management Agency (LASEMA). (2024, July). *NEMA–LASEMA lead historic gathering on emergency preparedness in Nigeria*. National Economy. Retrieved November 22, 2025, from <https://nationaleconomy.com>

Mpangi, K. *Urban Flooding and Its Effects on Informal Small Businesses in Zimbabwe: Insights from Gweru Urban*. SSRN, 2025. Retrieved September 29, 2025, from <https://ssrn.com/abstract=5116324>

National Emergency Management Agency (NEMA). (2024, June). *NEMA DG calls for stronger SEMA collaboration to build resilient communities in Lagos*. Distinct News. Retrieved November 22, 2025 from <https://distinctnews.com.ng>

National Population Commission (NPC). *Population Estimates for Lagos and Ogun States*. 2023. Retrieved September 29, 2025, from <https://www.npc.gov.ng>

Nigeria Hydrological Services Agency (NIHSA). *Annual Flood Outlook: Lagos Risk Zones*. 2025. Retrieved September 29, 2025.

Shamsuddoha, Md., Jenat, T. U., and Rabbi, S. N. A. *Effectiveness of Migration as Adaptation to Climate Change: A Gender-Focused Assessment in an Urban Slum of Barisal City Corporation, Bangladesh*. 2025. Retrieved September 29, 2025, from <https://ssrn.com/abstract=4958347>

Small and Medium Enterprises Development Agency of Nigeria (SMEDAN). *Informal Sector Statistics Report*. 2025. Retrieved September 29, 2025, from

<https://nairametrics.com/2025/01/14/over-50-million-informal-businesses-operating-in-lagos-smedan-manager/>

UN-Habitat. *Urban Expansion and Planning Challenges in Lagos*. 2022. Retrieved September 29, 2025, from <https://unhabitat.org>

UN-Habitat. *Urban Recovery Framework: An Enabling Institutional and Policy Framework to Support Resilient Urban Recovery*. 2022. Retrieved September 29, 2025, from https://unhabitat.org/sites/default/files/2022/04/unhabitat_urf_advocacy_note_march_2022_1.pdf

UN-Habitat. *Urban Recovery Framework: Guidance for Assessing and Planning Urban Recovery*. Nairobi: United Nations Human Settlements Programme, 2022. Retrieved September 29, 2025, from <https://unhabitat.org/urban-recovery-framework>

United Nations Development Programme (UNDP). *Urban Vulnerability and Resilience in Nigeria*. 2023. Retrieved September 29, 2025, from <https://www.undp.org/nigeria/publications>

Whitesock, D., Granfield, R., and Cloud, W. *Recovery Capital Index: A Validated Assessment Tool*. Face It TOGETHER, 2018. Retrieved September 29, 2025, from <https://commonlywell.com/the-recovery-capital-index-a-validated-assessment/>

Appendix I- Questionnaire

Introduction

This questionnaire is part of an MSc research study on postflood recovery strategies among streetlife populations in Lagos, Nigeria, with a focus on the Agbado axis. The purpose is to understand how street-based individuals and groups are affected by floods, the coping strategies they use, the support they receive, and their recovery outcomes.

Your participation is voluntary, and your responses will be kept confidential. You may choose to skip any question or stop the interview at any time. The questionnaire will take about 20–25 minutes to complete. Please answer based on your most recent flood experience in the last five years.

Section A: Demographics & Background

Purpose: This section collects basic socioeconomic and demographic information about respondents. It supports Research Question 1 and provides baseline variables for subgroup comparisons in the analysis. It also feeds into the Street-Based Recovery Index as part of the social and demographic profile.

A1. Which age group do you belong to?

- 15–17 years
- 18–30 years
- 31–45 years
- 46 years and above

A2. What is your gender?

- Male
- Female
- Other / Prefer not to say

A3. What is your religion?

- Islam
- Christianity
- Traditional
- Other (Specify)

A4. What is your migration status?

- Native of Lagos
- Migrated from another state in Nigeria
- Migrated from another country

A5. If you migrated, where did you come from? _____ [Skip if native of Lagos]

A6. What is the highest level of education you have completed?

- No formal schooling
- Primary education
- Junior secondary
- Senior secondary
- Vocational Training
- Islamiyah/Qur'anic
- Tertiary education

A7. What is your current marital status?

- Single
- Married
- Partnered (cohabiting)
- Divorced
- Separated
- Widowed
- If you are married, where does your family stay?
- Where are your children? How do you care for them?

A8. What is your main source of income now? (Select one)

- Street vending / Hawking
- Area work (motor park, loading)
- Waste Scavenging / Recycling
- Repairs / Handiwork (e.g., shoe, phone, metal work)
- Okada / Keke rider
- Begging / Alms
- Casual labour (construction, porter, offloading)
- Sex Workers
- Other (specify)

A9. How long have you lived or worked mainly on the street? _____ (State in months or years)

A10. Where do you usually sleep now?

- Under a bridge
- Market stall
- Pavement / Open space
- Abandoned building
- Roadside kiosk / Container
- Shared informal shelter
- Other (specify)

A11. Do you have any dependents who rely on your income or care?

- No
- Yes, how many? (Number)

A11b. [If A11 = Yes] Who are these dependents? (Select all that apply)

- Wife / Wives
- Children
- Siblings
- Parents
- Other relatives
- Non-relatives

A11c. [If A11 = Yes] Are you mainly responsible for making decisions and providing for these dependents?

- Yes
- No
- Shared responsibility with someone else

A12. How many of your family members live on the street with you?

- None (I am the only one)
- 1–2 family members
- 3–4 family members
- 5 or more family members

A12b. Who are these family members? (Select all that apply)

- Wife / Husband / Partner
- Children
- Siblings
- Parents
- Other relatives

A13. Do you have any difficulty that limits your daily activities (such as seeing, walking, hearing)?

- No
- Yes

A14. Which language should we use for this interview?

- English
- Yoruba
- Hausa

A15. Do you have any identity document with you now?

- None
- Voter's card
- NIN
- Work / Union card
- Other (specify)

A16. On average, what is your typical daily earnings range?

- Less than ₦3,000
- ₦3,000 – ₦6,000
- ₦6,001 – ₦10,000
- More than ₦10,000

A17. Do you have access to any of the following services? (Select all that apply)

- GSM (Mobile phones) / Telecom services
- Medical care
- Other (specify)

Section B: Flood Exposure & Loss

Purpose: To measure the extent and type of exposure participants had during their most recent flood, as well as losses incurred. This section contributes **10%** of the Street-Based Recovery Index.

B1. How many flood events have you personally experienced in the last five years? (Number)

B2. Thinking of the most recent flood you experienced, what month and year did it happen?

B3. Where were you living or working at that time?

B4. At the peak of the flood, how high did the water rise where you stayed?

- Below ankle
- Ankle to knee
- Knee to waist
- Waist to chest
- Above chest

B5. Did you receive any warning before the flood started?

- Yes
- No

B6. Did you need to evacuate your location because of the flood?

- Yes
- No

B7. How long were you displaced from your usual sleeping place after the flood?

- Not displaced
- 1–3 days
- 4–7 days
- 8–30 days
- More than 30 days

B8. What types of assets or belongings did you lose because of the flood? (Select all that apply)

- Personal documents
- Clothing
- Tools for work
- Merchandise for sale
- Savings/money
- Other (specify)

B9. Were you injured or did you fall sick because of the flood?

- Yes
- No

B10. Were you able to continue your work within one week after the flood?

- Yes
- No

B11. Does flooding happen in this area every year?

- Yes — If yes, in which month(s) does it usually occur? _____
- No

B12. Compared to five years ago, how would you describe the pattern of flooding in this area?

- About the same
- Less severe and less frequent
- More severe and more frequent
- Not sure

Section C: Coping Strategies (Brief COPE)

Purpose: This section measures the **personal coping strategies** you used after the most recent flood. It uses 12 items adapted from the **Brief COPE Inventory**, focusing on domains relevant to street-life populations. It contributes **30%** of the Street-Based Recovery Index.

Scale: 1 = Not at all; 2 = A little bit; 3 = A medium amount; 4 = A lot

Active Coping

C1. After the flood, I took concrete steps to repair or improve my shelter or workspace.

C2. I worked on specific actions to improve my situation quickly.

Planning

C3. I made a plan for what to do and when to do it.

C4. I thought about different ways to solve my problems after the flood.

Emotional Support

C5. I talked to someone about how I felt after the flood.

C6. I sought comfort and understanding from people I trust.

Instrumental Support

C7. I asked people or groups for practical help to meet my needs.

C8. I tried to get advice or information to deal with my problems.

Positive Reframing

C9. I looked for something good in what happened.

C10. I tried to see the situation in a more hopeful way.

Religion

C11. I prayed or relied on my faith to cope after the flood.

C12. I attended religious activities or used faith-based guidance for strength.

Section D: Support Systems Inventory

Purpose: This section explores the role of **formal and informal support systems** after the flood, including what type of support was received, when it was received, and how useful it was. It contributes **30%** of the Street-Based Recovery Index and answers **Research Question 4**.

Formal Support

D1. Which formal supports did you receive after the flood? (Select all that apply)

- NEMA/SEMA
- LASEMA
- Local Government officials
- NGOs (specify)
- Religious groups (formal support)
- Informal support from families and other social support systems
- Other (specify)

D2. When did you first receive this formal support?

- Within 3 days after the flood
- Within 1 week after the flood
- After 1 week
- None

D3. What kind of support did you receive from these organisations? (Select all that apply)

- Food (specify how long it lasted, portion size, quality)
- Money (amount and duration)
- Clothes
- Raincoat / protective items
- Temporary shelter
- Health treatment
- Mobility support (transport, relocation help)
- Other (specify)

D4. How useful was the formal support you received?

- 1 = Not useful
- 2 = Slightly useful
- 3 = Moderately useful
- 4 = Very useful

Informal/Community Support

D5. Which informal or community supports did you receive after the flood? (Select all that apply)

- Neighbours
- Friends
- Religious groups (informal)
- Ajo / Esusu savings group
- Work colleagues / Union members
- Other (specify)

D6. When did you first receive this informal/community support?

- Within 3 days after the flood
- Within 1 week after the flood
- After 1 week
- None

D7. What kind of support did you receive from these groups? (Select all that apply)

- Food (specify how long it lasted, portion size, quality)
- Money (amount and duration)
- Clothes
- Shelter / place to stay
- Emotional support / comfort
- Help to find work or restart business
- Other (specify)

D8. How useful was the informal/community support you received?

- 1 = Not useful
- 2 = Slightly useful
- 3 = Moderately useful
- 4 = Very useful

Barriers and Trust

D9. What were the main barriers to getting support? (Select all that apply)

- Did not know where to go
- Discrimination or unfair treatment
- Lack of ID or documents
- Distance or transport difficulty
- Long queues or delays
- Fear of authorities
- Language barrier
- Support finished before it reached me
- Other (specify)

D10. How much do you trust that institutions will help street life populations after floods?

- 1 = Not at all
- 2 = A little
- 3 = Somewhat
- 4 = Quite a lot
- 5 = Very much

Section E: Recovery Outcomes

Purpose: This section measures your **recovery status** after the most recent flood, focusing on livelihood restoration, shelter stability, access to health care, social inclusion, and preparedness for future floods. It forms the **largest share (40%)** of the Street-Based Recovery Index and answers **Research Question 3**

Livelihood

E1. How soon were you able to return to your main work after the flood?

- Same day
- 1–3 days
- 4–7 days
- 8–30 days
- More than 30 days
- Not yet returned

E2. How do your current daily earnings compare to before the flood?

- 0–25% of what I earned before
- 26–50% of what I earned before

- 51–75% of what I earned before
- 76–100% (about the same)
- More than 100% (better than before)

Shelter

E3. What is your current shelter situation?

- Same place as before the flood
- Moved to another informal location
- Temporary collective shelter (church/mosque/school)
- Staying with relatives or friends
- Still displaced with no regular place
- Other (specify)

E4. How well can you keep your belongings safe now?

- 1 = Not at all
- 2 = A little
- 3 = Somewhat
- 4 = Quite well
- 5 = Very well

Health & Services

E5. When you needed health care after the flood, how quickly were you attended to?

- Same day
- 1–3 days
- More than 3 days
- Did not seek health care

E6. Compared to before the flood, how is your current health?

- 1 = Much worse
- 2 = Worse
- 3 = About the same
- 4 = Better
- 5 = Much better

Social Inclusion

E7. In the last month, I felt welcome in public places I need to use (markets, parks, clinics).

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neither agree nor disagree
- 4 = Agree
- 5 = Strongly agree

E8. In the last month, I was stopped or sent away from public places because of how or where I live.

- 1 = Never
- 2 = Rarely
- 3 = Sometimes
- 4 = Often
- 5 = Very often

Preparedness and Early Warning

E9. I trust the flood warnings for this area.

- 1 = Not at all
- 2 = A little
- 3 = Somewhat
- 4 = Quite a lot
- 5 = Very much

E10. I feel better prepared for the next flood than I was before the last one.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neither agree nor disagree
- 4 = Agree
- 5 = Strongly agree

Section F: Cultural, Spiritual, and Informal Practices

Purpose: This section captures **local practices and informal resilience mechanisms** that respondents turned to after floods. It complements coping behaviours (Section C) and support systems (Section D) by focusing on **cultural and spiritual recovery strategies** specific to Lagos's street-life context.

F1. After the flood, did you engage in any religious or spiritual practices for protection or recovery?

- No
- Yes

F2. If yes, which of the following did you do? (Select all that apply)

- Prayer
- Fasting
- Church or mosque offering
- *Saara* / Ritual offering
- Cleansing
- Visit to a religious or traditional leader
- Other (specify)

F3. Did you participate in any group savings for recovery?

- No
- Yes (Ajo / Esusu savings group)
- Other (specify)

F4. Did a patron, oga, or union leader provide you with protection, materials, or other help after the flood?

- No
- Yes

F5. How important were these cultural or informal practices for your recovery?

- 1 = Not important
- 2 = Slightly important
- 3 = Moderately important
- 4 = Important
- 5 = Very important

Section G: Open Suggestions

Purpose: This section allows respondents to share their own ideas on improving recovery support. It directly informs **Research Question 5** and will guide recommendations for strengthening resilience among street-life populations.

G1. In your own words, what is the one thing that will help you recover faster if another flood happens? (Open-ended)

G2. Capacity strengthening options — to cope better in the future, what empowerment do you need as an individual or group? (Open-ended)

G3. May we contact you for a short follow-up interview if needed?

- No
- Yes — If yes, please provide your phone number or contact details (optional)

Appendix II- Interview Guide

Introduction

Thank you for agreeing to speak with me today. My name is Adepeju Babalola, and I am conducting research as part of my MSc studies on how street-life populations in Lagos recover from flooding. I'm particularly interested in your own experiences, how you coped, the support you received, and what could be improved in the future.

This discussion will last about 30 minutes. Your responses will be kept confidential and will not be linked to your name. You can skip any question or stop the interview at any time.

With your permission, I would like to record our conversation to help me remember your exact words. Is that okay?

A. Flood Experience

Purpose: To capture personal accounts of the most recent flood(s) participants experienced, including the scale of impact and immediate responses.

Questions:

1. Can you tell me about the last time you experienced a flood? What happened?
2. How did the flood affect your daily life in the days immediately after it happened?
3. Where were you when it started, and what did you do first?

B. Coping Strategies

Purpose: To understand the actions, behaviours, and practices participants used to deal with the challenges during and after the flood, including cultural and spiritual responses.

Questions:

1. What did you do to manage the situation during the flood?
2. After the flood, what steps did you take to try and get back to normal?
3. Did you use any cultural or spiritual practices to help you cope?

C. Support Systems

Purpose: To explore the role of formal and informal networks, institutions, and community relationships in helping participants recover.

Questions:

1. Who helped you the most after the flood, and how?
2. Did you receive help from any organisations or government agencies?
3. How important was support from friends, neighbours, or other people in your area?

D. Recovery Pathways

Purpose: To examine how participants have rebuilt their lives since the flood, including changes in livelihood, housing, health, and preparedness for future floods.

Questions:

1. How is your situation now compared to before the flood?
2. Were you able to return to your work or income activities?
3. Do you feel better prepared for future floods?

E. Participant Recommendations

Purpose: To gather suggestions from participants on how recovery could be improved, both for themselves and for others in similar situations.

Questions:

1. If another flood happened, what would you want to be different in the way help is given?
2. What is the single most important thing that could help you recover faster?

F. Capacity Strengthening Options

1. To cope better with flood disasters, what will you need as capacity support?
2. If there is an opportunity for training and empowerment, will you be willing to be a part and in what way?

Appendix III- R-Script for My Analysis

```
library(readxl)

library(dplyr)

dat <- read_excel("C:/Users/Adepeju Paige/OneDrive/Documents/SBRI_Research/SBRI_raw.xlsx")

glimpse(dat)

dat %>% count(age_group, earn_range) %>% group_by(age_group) %>% mutate(pct =
round(100*n/sum(n), 1)) %>% ungroup()

dat %>% count(interview_lang, name = "n", sort = TRUE) %>% mutate(pct = round(100*n/sum(n), 1))

dat <- read_excel("C:/Users/Adepeju Paige/OneDrive/Documents/SBRI_Research/SBRI_raw.xlsx")

geo_dat <- dat %>%

  filter(!is.na(`_start-geopoint_latitude`) & !is.na(`_start-geopoint_longitude`)) %>%

  select(Respondent_ID, `_start-geopoint_latitude`, `_start-geopoint_longitude`, Community,
LGA)

install.packages(sf)

library(sf)

geo_sf <- st_as_sf(geo_dat,

                  coords = c("_start-geopoint_longitude", "_start-geopoint_latitude"),

                  crs = 4326) # WGS84

library(ggplot2)

ggplot() +

  geom_sf(data = geo_sf, aes(color = LGA, shape = Community)) +

  theme_minimal() +

  labs(title = "Map of Respondent Locations by LGA/Community",

       x = "Longitude", y = "Latitude")

library(sf)

nga_lga <-
read_sf("C:/Users/AdepejuPaige/OneDrive/Documents/SBRI_Research/NGA_LGA_Boundaries_2_-
5383648833805565856/grid3_nga_boundary_vacclgas.shp")

glimpse(nga_lga)

geo_lga <- nga_lga %>% filter (!is.na(lganame) & !is.na(statename)) %>% select(lganame,
statename, geometry)

lagos_lga <- geo_lga[geo_lga$statename == "Lagos", ]

plot(st_geometry(lagos_lga), main = "Lagos State LGAs")

nrow(lagos_lga)

lagos_lga <- st_transform(lagos_lga, 4326)

geo_sf <- st_transform(geo_sf, 4326)

p <- ggplot() +

  geom_sf(data = lagos_lga, fill = NA, color = "grey30", linewidth = 0.5) +

  geom_sf(data = geo_sf,

        aes(color = LGA, shape = Community),

        size = 2) +

  coord_sf(expand = FALSE) +

  theme_minimal() +
```

```

labs(
  title = "Study Area: Distribution of Respondents in Lagos",
  subtitle = "Points colored by LGA and shaped by Community",
  x = "Longitude", y = "Latitude",
  color = "LGA", shape = "Community"
)
print(p)
coord_sf(xlim = c(3.2, 3.5), ylim = c(6.4, 6.8), expand = FALSE)
p <- ggplot() +
  geom_sf(data = lagos_lga, fill = "grey95", color = "black", linewidth = 0.4) +
  geom_sf(data = geo_sf, aes(color = LGA, shape = Community), size = 3) +
  coord_sf(xlim = c(3.2, 3.5), ylim = c(6.4, 6.8), expand = FALSE) +
  theme_minimal() +
  labs(
    title = "Study Area: Distribution of Respondents in Lagos",
    subtitle = "Points colored by LGA and shaped by Community",
    x = "Longitude", y = "Latitude",
    color = "LGA", shape = "Community"
  ) +
  theme(
    plot.title = element_text(size = 14, face = "bold"),
    plot.subtitle = element_text(size = 11),
    axis.text = element_text(size = 10),
    legend.position = "bottom"
  )
print(p)
library(RColorBrewer)
library(ggplot2)
p <- ggplot() +
  geom_sf(data = lagos_lga, fill = "white", color = "grey40", linewidth = 0.5) +
  geom_sf(data = geo_sf, aes(color = LGA, shape = Community), size = 3) +
  scale_color_brewer(palette = "Set1") + # bright, distinct colors
  coord_sf(xlim = c(3.2, 3.5), ylim = c(6.4, 6.8), expand = FALSE) +
  theme_minimal(base_size = 12) +
  labs(
    title = "Study Area: Distribution of Respondents in Lagos",
    x = "Longitude", y = "Latitude",
    color = "LGA", shape = "Community"
  ) +
  theme(
    legend.position = "bottom",

```

```

    plot.title = element_text(face = "bold"),
    panel.grid = element_line(color = "grey85", size = 0.2)
  )
print(p)
names(dat)
coping_strategies <- c("c1_steps", "c2_actions", "c3_plan", "c4_alternatives", "c5_talk",
" c6_comfort", "c7_help", "c8_advice", "c9_positive", "c10_reframe", "c11_pray",
" c12_religious_activities")
cope_items <- dat[coping_strategies]
install.packages(psych)
library(psych)
alpha(cope_items)
cope_summary <- data.frame(
  Strategy = names(cope_items),
  Mean = round(colMeans(cope_items, na.rm = TRUE), 2),
  SD = round(apply(cope_items, 2, sd, na.rm = TRUE), 2)
)
library(ggplot2)
ggplot(cope_summary, aes(x = reorder(Strategy, Mean), y = Mean)) +
  geom_col(fill = "steelblue") +
  coord_flip() +
  labs(title = "Coping Strategies Ranked by Mean Score",
       x = "Strategy", y = "Mean Score")
  theme_minimal()
Good_morning_oo
names(dat)
summary(dat$coping_emp)
install.packages("rstatix")
library(ggpubr)
recovery_ind <- c(
  "back_to_work_duratn",      # Livelihood
  "current_earnings",         # Livelihood
  "current_shelter",          # Shelter
  "safe_belongings",          # Shelter
  "health_care",              # Health services
  "current_health_status",    # Health
  "access_to_public_places_pos", # Inclusion (positive)
  "access_to_public_places_neg", # Inclusion (negative)
  "flood_warnings",           # Preparedness
  "flood_preparedness"        # Preparedness
)
socio_group <- c(

```



```

"gender",
"age_group",
"migration_status",
"income_main",
"income_other",
"years_street",
"education"
)

df_recovery <- dat %>% select(all_of(c(recovery_ind, socio_group)))
glimpse(df_recovery)
df_recovery <- df_recovery %>%
  mutate(return_to_work = case_when(
    back_to_work_duratn == "same_day" ~ 5,
    back_to_work_duratn == "1_3_days" ~ 4,
    back_to_work_duratn == "4_7_days" ~ 3,
    back_to_work_duratn == "8_30_days" ~ 2,
    back_to_work_duratn == "More_than_30_days" ~ 1,
    TRUE ~ NA_real_
  ))
df_recovery <- df_recovery %>%
  mutate(current_shelter_num = case_when(
    current_shelter == "same_place_as_before_the_flood" ~ 5,
    current_shelter == "moved_to_another_informal_loca" ~ 4,
    current_shelter == "temporary_collective_shelter(church/mosque/school)" ~ 3,
    current_shelter == "staying_with_relatives_or_friends" ~ 2,
    current_shelter == "still_displaced_with_no_regular_place" ~ 1,
    current_shelter == "other(specify)" ~ NA
  ))
df_recovery <- df_recovery %>%
  mutate(safe_belongings_num = case_when(
    safe_belongings == "not_at_all" ~ 1,
    safe_belongings == "a_little" ~ 2,
    safe_belongings == "somewhat" ~ 3,
    safe_belongings == "quite_well" ~ 4,
    safe_belongings == "very_well" ~ 5
  ))
table(df_recovery$back_to_work_duratn, useNA = "ifany")
df_recovery <- df_recovery %>%
  mutate(health_care_num = case_when(
    health_care == "same_day" ~ 4,
    health_care == "1_3_days" ~ 3,

```

```

    health_care == "more_than_3_days" ~ 2,
    health_care == "did_not_seek_health_care" ~ 1
  ))
df_recovery <- df_recovery %>%
  mutate(current_health = case_when(
    current_health_status == "much_worse" ~ 1,
    current_health_status == "worse" ~ 2,
    current_health_status == "about_the_same" ~ 3,
    current_health_status == "better" ~ 4,
    current_health_status == "much_better" ~ 5
  ))
access_to_public_places_pos_num <- as.numeric(df_recovery$access_to_public_places_pos)
View(access_to_public_places_pos_num)
df_recovery <- df_recovery %>%
  mutate(positive_access = case_when(
    access_to_public_places_pos == "strongly_disagree" ~ 1,
    access_to_public_places_pos == "disagree" ~ 2,
    access_to_public_places_pos == "neither_agree_nor_disagree" ~ 3,
    access_to_public_places_pos == "agree" ~ 4,
    access_to_public_places_pos == "strongly_agree" ~ 5
  ))
df_recovery <- df_recovery %>%
  mutate(negative_access = case_when(
    access_to_public_places_neg == "never" ~ 1,
    access_to_public_places_neg == "rarely" ~ 2,
    access_to_public_places_neg == "sometimes" ~ 3,
    access_to_public_places_neg == "often" ~ 4,
    access_to_public_places_neg == "very_often" ~ 5
  ))
df_recovery <- df_recovery %>%
  mutate(flood_ew = case_when(
    flood_warnings == "not_at_all" ~ 1,
    flood_warnings == "a_little" ~ 2,
    flood_warnings == "somewhat" ~ 3,
    flood_warnings == "quite_a_lot" ~ 4,
    flood_warnings == "very_much" ~ 5
  ))
df_recovery <- df_recovery %>%
  mutate(flood_ep = case_when(
    flood_preparedness == "strongly_disagree" ~ 1,
    flood_preparedness == "disagree" ~ 2,

```

```

    flood_preparedness == "neither_agree_nor_disagree" ~ 3,
    flood_preparedness == "agree" ~ 4,
    flood_preparedness == "strongly_agree" ~ 5
  ))
df_recovery <- df_recovery %>%
  mutate(current_earnings_num = case_when(
    current_earnings == "0_25__of_what_i_earned_before" ~ 1,
    current_earnings == "26_50__of_what_i_earned_before" ~ 2,
    current_earnings == "51_71__of_what_i_earned_before" ~ 3,
    current_earnings == "76_100___almost_the_same" ~ 4,
    current_earnings == "more_than_100___better_than_before" ~ 5
  ))
library(rstatix)
library(dplyr)
df_recovery %>%
  wilcox_test(flood_ep ~ gender) %>%
  add_significance() %>%
  print()
migrant_status_group = as.factor(migrant_status_group)
df_recovery %>%
  kruskal_test(flood_ep ~ age_group)
glimpse(df_recovery$migration_status)

df <- df %>%
  mutate(migrant_status_group = case_when(
    migration_status == "native_of_lagos" ~ "nonmigrant",
    migration_status == "migrated_from_another_state_in" ~ "migrant",
  ))

table(df_recovery$migrant_status_group)
library(tidyverse)
d> df_recovery %>%
  + select(
    +   return_to_work,
    +   current_earnings_num,
    +   current_shelter_num,
    +   safe_belongings_num,
    +   health_care_num,
    +   current_health,
    +   positive_access,
    +   negative_access,

```

```

+   flood_ew,
+   flood_ep,
+   migrant_status_group ) %>% pivot_longer(
+   cols = -migrant_status_group,
+   names_to = ".y.",
+   values_to = "score" ) %>%
+   group_by(.y.) %>%
+   kruskal_test(score ~ migrant_status_group) %>%
+   add_significance()
library(rstatix)

```

```

df_recovery %>%
  select(
    return_to_work,
    current_earnings_num,
    current_shelter_num,
    safe_belongings_num,
    health_care_num,
    current_health,
    positive_access,
    negative_access,
    flood_ew,
    flood_ep,
    years_group,
  ) %>%
  pivot_longer(
    cols = -years_group,
    names_to = "variable",
    values_to = "score"
  ) %>%
  group_by(variable) %>%
  kruskal_test(score ~ years_group) %>%
  add_significance()

```

```

df_recovery %>%
  group_by(years_group) %>%
  summarise(
    return_to_work = median(return_to_work, na.rm = TRUE),
    current_earnings = median(current_earnings_num, na.rm = TRUE),
    current_shelter = median(current_shelter_num, na.rm = TRUE),
    safe_belongings = median(safe_belongings_num, na.rm = TRUE),

```

```

health_care = median(health_care_num, na.rm = TRUE),
current_health = median(current_health, na.rm = TRUE),
positive_access = median(positive_access, na.rm = TRUE),
negative_access = median(negative_access, na.rm = TRUE),
flood_ew = median(flood_ew, na.rm = TRUE),
flood_ep = median(flood_ep, na.rm = TRUE)
) %>%
t()
dat %>%
  summarise(
    'informal_support_type/neighbours' = median('informal_support_type/neighbours', na.rm =
TRUE),
    'informal_support_type/friends' = median('informal_support_type/friends', na.rm = TRUE),
    'informal_support_type/religious_groups' = median('informal_support_type/religious_groups',
na.rm = TRUE),
    'informal_support_type/ajo_esusu_savings_group' =
median('informal_support_type/ajo_esusu_savings_group', na.rm = TRUE),
    'informal_support_type/work_colleagues_union' =
median('informal_support_type/work_colleagues_union', na.rm = TRUE),
    'informal_support_type/other__specify' = median('informal_support_type/other__specify',
na.rm = TRUE)
  ) %>%
  t()
library(janitor)
dat <- dat %>% clean_names()

df <- df %>%
  mutate(years_group = case_when(
    years_street <= 2 ~ "Newcomers",
    years_street <= 5 ~ "Short-term",
    years_street <= 10 ~ "Mid-term",
    years_street <= 20 ~ "Long-term",
    years_street > 20 ~ "Very long-term"
  ))

formal_vars <- c("formal_support_type/nema_sema",
  "formal_support_type/lasema",
  "formal_support_type/local_government_officials",
  "formal_support_type/ngos",
  "formal_support_type/religious_groups__formal_supp",
  "formal_support_type/other")

formal_summary <- df %>%
  select(all_of(formal_vars)) %>%

```

```

summarise(across(everything(), ~ mean(. == 1, na.rm = TRUE)*100)) %>%
pivot_longer(cols = everything(),
              names_to = "Formal_Support",
              values_to = "Percentage")

class(df)
df <- dat

barrier_summary <- df %>%
  select(all_of(barrier_vars)) %>%
  summarise(across(everything(), ~ mean(. == 1, na.rm = TRUE)*100)) %>%
  pivot_longer(cols = everything(),
              names_to = "Barriers",
              values_to = "Percentage")

informal_vars <- c("informal_support_type/neighbours",
                  "informal_support_type/friends",
                  "informal_support_type/religious_groups",
                  "informal_support_type/ajo_esusu_savings_group",
                  "informal_support_type/work_colleagues_union",
                  "informal_support_type/other_specify")

view(informal_summary)

df <- df %>%
  mutate(formal_usefulness = case_when(
    formal_support_useful == "not_useful" ~ 1,
    formal_support_useful == "slightly_useful" ~ 2,
    formal_support_useful == "moderately_useful" ~ 3,
    formal_support_useful == "very_useful" ~ 4,
    TRUE ~ NA_real_
  ),
  informal_usefulness = case_when(
    informal_support_use == "not_useful" ~ 1,
    informal_support_use == "slightly_useful" ~ 2,
    informal_support_use == "moderately_useful" ~ 3,
    informal_support_use == "very_useful" ~ 4,
    TRUE ~ NA_real_
  ))

df %>%
  summarise(median_informal = median(informal_usefulness, na.rm = TRUE))
table(dat$informal_timing, useNA = "ifany")

```

```

library(ggplot2)

df %>%
  select(formal_usefulness, informal_usefulness) %>%
  pivot_longer(cols = everything(), names_to = "Support_Type", values_to = "Score") %>%
  ggplot(aes(x = factor(Score), fill = Support_Type)) +
  geom_bar(position = "dodge") +
  labs(title = "Perceived Usefulness of Support Types",
       x = "Usefulness Rating",
       y = "Number of Respondents") +
  theme_minimal()

df %>%
  group_by(migrant_status_group) %>%
  summarise(
    median_formal = median(formal_usefulness, na.rm = TRUE),
    median_informal = median(informal_usefulness, na.rm = TRUE)
  )

library(reshape2)
library(tidyverse)

m_support_data <- data.frame(
  migrant_status_group = c("migrant", "nonmigrant"),
  Formal = c(1, 1),
  Informal = c(3, 3)
)

m_support_long <- melt(m_support_data, id.vars = "migrant_status_group", variable.name =
"Support_Type", value.name = "Median_Score")

ggplot(m_support_long, aes(x = Support_Type, y = migrant_status_group, fill = Median_Score)) +
  geom_tile(color = "white") +
  scale_fill_gradient(low = "red", high = "green") +
  labs(
    title = "Perceived Usefulness of Support by Migrant Status",
    x = "Support Type",
    y = "Type of Migrant",
    fill = "Median Score"
  ) +
  theme_minimal()

df %>%
  count(informal_usefulness) %>%
  mutate(prop = round(100 * n / sum(n), 1))

barrier_vars <- c("main_support_barrier/did_not_know_where_to_go",

```

```

      "main_support_barrier/discrimination",
      "main_support_barrier/lack_of_id_or_documents",
      "main_support_barrier/distance_or_transport_difficul",
      "main_support_barrier/long_queues_or_delays",
      "main_support_barrier/fear_of_authorities",
      "main_support_barrier/language_barrier",
      "main_support_barrier/support_finished_before_it_rea",
      "main_support_barrier/other__specify"
    )

df %>%
  count(barrier_vars) %>%
  mutate(prop = round(100 * n / sum(n), 1))
table(df$informal_support_time)

dat <- dat %>%
  mutate(informal_timing = case_when(
    informal_support_time == "within_3_days" ~ 4,
    informal_support_time == "within_1_week" ~ 3,
    informal_support_time == "after_1_week" ~ 2,
    informal_support_time == "none" ~ 1
  ))

formal_time_var <- c("within_3_days", "within_1_week", "after_1_week", "none")
dat %>%
  count(informal_timing) %>%
  mutate(prop = round(100 * n / sum(n), 1))
formal_time_new <- dat %>%
  select(all_of(formal_time_var)) %>%
  summarise(across(everything(), ~ mean(. == 1, na.rm = TRUE)*100)) %>%
  pivot_longer(cols = everything(),
    names_to = "Formal_T",
    values_to = "Percentage")
names(df)
table(df$formal_time_)
table(dat$formal_support_time, useNA = "ifany")
ls()
rm(informal_time_var, informal_timing, formal_time_var, formal_timing)
dat <- dat %>%
  mutate(
    formal_support_any = if_else(
      (formal_support_type_nema_sema +
        formal_support_type_lasema +

```



```

    formal_support_type_local_government_officials +
    formal_support_type_ngos +
    formal_support_type_religious_groups_formal_supp +
    formal_support_type_other) > 0, 1, 0
  ),
  informal_support_any = if_else(
    (informal_support_type_neighbours +
     informal_support_type_friends +
     informal_support_type_religious_groups +
     informal_support_type_ajo_esusu_savings_group +
     informal_support_type_work_colleagues_union +
     informal_support_type_other_specify) > 0, 1, 0
  )
)

table(dat$formal_support_type_religious_groups_formal_supp)
results$formal_gender <- chisquare("gender", "formal_support_any", dat)
library(dplyr)
library(chisquare)
table(dat$gender, dat$formal_support_any, useNA = "ifany")
formal_kind <- df %>%
  select(starts_with("formal_support_kind/")) %>%
  summarise(across(everything(), ~ mean(. == 1, na.rm = TRUE) * 100)) %>%
  pivot_longer(cols = everything(), names_to = "SupportKind", values_to = "Percent")
informal_kind <- df %>%
  select(starts_with("informal_support_kind/")) %>%
  summarise(across(everything(), ~ mean(. == 1, na.rm = TRUE) * 100)) %>%
  pivot_longer(cols = everything(), names_to = "SupportKind", values_to = "Percent")
df %>%
  count(money_informal_support_duratio) %>%
  mutate(prop = round(100 * n / sum(n), 1))

table(df$institutional_trust)
df <- df %>%
  mutate(institutional_trust = case_when(
    institutional_trust == "quite_a_lot" ~ 4,
    institutional_trust == "somewhat" ~ 3,
    institutional_trust == "a_little" ~ 2,
    institutional_trust == "not_at_all" ~ 1
  ))
df %>%
  count(institutional_trust) %>%

```

```

mutate(prop = round(100 * n / sum(n), 1))
df %>%
  summarise(median_trust = median(institutional_trust, na.rm = TRUE))
df %>%
  select(starts_with("spiritual_practices_type/")) %>%
  summarise(across(everything(), ~ mean(. == 1, na.rm = TRUE) * 100)) %>%
  pivot_longer(cols = everything(), names_to = "Practice", values_to = "Percent")
df %>%
  count(spiritual_importance) %>%
  mutate(prop = round(100 * n / sum(n), 1))
df <- df %>%
  mutate(food_duration_cat = case_when(
    str_detect(food_duration, "immediate|that day|moment") ~ "Immediate/That Day",
    str_detect(food_duration, "2 days|3 days") ~ "2-3 Days",
    str_detect(food_duration, "week") ~ "1 Week+",
    str_detect(food_duration, "not long|day only|lasted") ~ "Short",
    TRUE ~ "Other/Unclear"
  ))
df <- df %>%
  mutate(food_portion_cat = case_when(
    str_detect(food_portion_size, "small|few") ~ "Small",
    str_detect(food_portion_size, "moderate|medium|fair") ~ "Moderate",
    str_detect(food_portion_size, "plenty") ~ "Large",
    TRUE ~ "Other/Unclear"
  ))
df <- df %>%
  mutate(food_quality_cat = case_when(
    str_detect(food_quality, "good|nice") ~ "Good",
    str_detect(food_quality, "okay|ok|cool") ~ "Okay",
    str_detect(food_quality, "not much|not to much") ~ "Poor",
    TRUE ~ "Other/Unclear"
  ))

df %>% count(food_portion_cat) %>%
  mutate(prop = round(100 * n / sum(n), 1))
dat %>% count(id_cols) %>%
  mutate(prop = round(100 * n / sum(n), 1))
id_cols <- c(
  "identity_groups_hausa_migrant",
  "identity_groups_agbero",
  "identity_groups_waste_scavenger",

```

```

"identity_groups_street_child",
"identity_groups_adolescent",
"identity_groups_sex_worker",
"identity_groups_casual_laborer",
"identity_groups_person_with_disability",
"identity_groups_under_bridge_dweller",
"identity_groups_sleeping_in_kiosk_container_ma",
"identity_groups_migrant_youth_displaced_from_f",
"identity_groups_other_specify"
)
library(janitor)
dat <- dat %>% clean_names()
dat_ids <- dat %>%
  mutate(across(all_of(id_cols), ~ as.integer(replace_na(as.numeric(.), 0))))
dat <- dat %>%
  mutate(across(all_of(id_cols), ~ as.numeric(replace_na(. , 0))))
id_labels <- c(
  "Hausa migrant", "Agbero", "Waste scavenger", "Street child",
  "Adolescent", "Sex worker", "Casual laborer", "Person with disability",
  "Under-bridge dweller", "Sleeping in kiosk/container",
  "Migrant youth (flood displaced)", "Other (specified)"
)
names(id_labels) <- id_cols
id_freq <- dat %>%
  summarise(across(all_of(id_cols), ~ sum(. == 1, na.rm = TRUE))) %>%
  pivot_longer(everything(), names_to = "identity_col", values_to = "n") %>%
  mutate(
    identity = id_labels[identity_col],
    pct = round(100 * n / nrow(dat), 1)
  ) %>%
  arrange(desc(n)) %>%
  select(identity, n, pct)
M <- as.matrix(dat[, id_cols, drop = FALSE])
mode(M) <- "numeric"

co_mat <- t(M) %*% M
co_long <- as.data.frame(co_mat) %>%
  mutate(identity_1 = rownames(.)) %>%
  pivot_longer(cols = all_of(id_cols), names_to = "identity_2", values_to = "count") %>%
  filter(identity_1 < identity_2) %>%
  mutate(

```

```

    identity_1_label = id_labels[identity_1],
    identity_2_label = id_labels[identity_2]
  ) %>%
  arrange(desc(count)) %>%
  select(identity_1_label, identity_2_label, count)
id_load <- dat %>%
  mutate(identity_count = rowSums(across(all_of(id_cols)))) %>%
  summarise(
    min = min(identity_count),
    q1 = quantile(identity_count, 0.25),
    median = median(identity_count),
    mean = mean(identity_count),
    q3 = quantile(identity_count, 0.75),
    max = max(identity_count)
  )

dat <- dat %>%
  mutate(displacement = recode(displacement,
                                "not_displaced" = "Not displaced",
                                "1_3_days" = "1-3 days",
                                "4_7_days" = "4-7 days",
                                "8_30_days" = "8-30 days",
                                "more_than_30_days" = ">30 days")) %>%
  mutate(displacement = factor(displacement, levels = c("Not displaced", "1-3 days", "4-7
days", "8-30 days", ">30 days")))

dat <- dat %>%
  mutate(peak_water_level = recode(peak_water_level,
                                    "below_ankle" = "Below ankle",
                                    "ankle_to_knee" = "Ankle-knee",
                                    "knee_to_waist" = "Knee-waist",
                                    "waist_to_chest" = "Waist-chest",
                                    "above_chest" = "Above chest")) %>%
  mutate(peak_water_level = factor(peak_water_level,
                                    levels = c("Below ankle", "Ankle-knee", "Knee-waist", "Waist-
chest", "Above chest")))

yn_cols <- c("warning", "evacuate", "injury_sick", "work_week", "annual_flood")
dat <- dat %>%
  mutate(across(all_of(yn_cols), ~ case_when(
    tolower(.) == "yes" ~ "Yes",
    tolower(.) == "no" ~ "No",
    TRUE ~ NA_character_
  )))

```

```

)))
dat <- dat %>%
  mutate(flood_trend = recode(flood_trend,
    "more_severe_more_frequent" = "More severe & frequent",
    "less_severe_less_frequent" = "Less severe & less frequent",
    "about_the_same"           = "About the same",
    "not_sure"                  = "Not sure")) %>%
  mutate(annual_months = recode(annual_months,
    "june"                     = "June",
    "july"                     = "July",
    "september"                = "September",
    "june_and_july"            = "June & July",
    "june_and_september"       = "June & September",
    "july_and_august"          = "July & August",
    "july_and_october"         = "July & October",
    "june_and_august"          = "June & August",
    "july_and_september"       = "July & September",
    "july_june_and_september" = "June, July & September",
    "heavy_rain"               = "Heavy-rain season"
  ))

freq_tbl <- function(x, label){
  tibble(value = x) %>%
    mutate(value = ifelse(is.na(value), "Missing", as.character(value))) %>%
    count(value, name = "n") %>%
    mutate(pct = round(100*n/sum(n), 1)) %>%
    arrange(desc(n)) %>%
    mutate(Indicator = label, .before = 1)
}

floodcount_summary <- dat %>%
  summarise(
    min  = suppressWarnings(min(as.numeric(flood_count), na.rm = TRUE)),
    q1   = suppressWarnings(quantile(as.numeric(flood_count), 0.25, na.rm = TRUE)),
    median = suppressWarnings(median(as.numeric(flood_count), na.rm = TRUE)),
    mean  = suppressWarnings(mean(as.numeric(flood_count), na.rm = TRUE)),
    q3    = suppressWarnings(quantile(as.numeric(flood_count), 0.75, na.rm = TRUE)),
    max   = suppressWarnings(max(as.numeric(flood_count), na.rm = TRUE))
  ) %>%
  mutate(Indicator = "Flood count (last 5 years)", .before = 1)
print(floodcount_summary)

```

```

tab_peak      <- freq_tbl(df$peak_water_level, "Peak water level")
tab_warning   <- freq_tbl(df$warning,          "Received a warning before flood?")
tab_evacuate  <- freq_tbl(df$evacuate,         "Had to evacuate?")
tab_disp      <- freq_tbl(df$displacement,     "Displacement duration")
tab_injury    <- freq_tbl(df$injury_sick,      "Injured / fell sick due to flood?")
tab_workwk    <- freq_tbl(df$work_week,        "Able to continue work within a week?")
tab_annflood  <- freq_tbl(df$annual_flood,     "Does flood occur yearly in this area?")
tab_annmonths <- freq_tbl(df$annual_months,    "Typical flood months (self-report)")
tab_trend     <- freq_tbl(df$flood_trend,      "Perceived flood trend (5-year comparison)")

exposure_loss_distributions <- bind_rows(
  tab_peak, tab_warning, tab_evacuate, tab_disp,
  tab_injury, tab_workwk, tab_annflood, tab_annmonths, tab_trend
)

print(exposure_loss_distributions)
print(n = 35, exposure_loss_distributions)

loss_cols <- names(dat) %>% str_subset("^loss_items_")

loss_cols <- setdiff(loss_cols, "loss_items")
glimpse(loss_cols)
table(dat$loss_cols)
names(loss_cols)

loss_tbl <- dat %>%
  select(all_of(loss_cols)) %>%
  mutate(across(everything(), ~ as.numeric(.))) %>%
  summarise(across(everything(), ~ mean(. == 1, na.rm = TRUE) * 100)) %>%
  pivot_longer(cols = everything(),
    names_to = "Loss_category",
    values_to = "Percent") %>%
  mutate(Loss_category = str_replace(Loss_category, "loss_items_", ""),
    Loss_category = str_replace_all(Loss_category, "_", " ")) %>%
  arrange(desc(Percent))

print(loss_tbl)

warn_evacuate_quick <- tibble(
  Indicator = c("Received warning (Yes)", "Evacuated (Yes)"),
  n_yes      = c(sum(dat$warning == "Yes", na.rm = TRUE),
    sum(dat$evacuate == "Yes", na.rm = TRUE)),
  pct_yes    = round(100 * n_yes / nrow(dat), 1)

```

```

)print(warn_evacuate_quick)

non_numeric <- sapply(dat, function(x) !is.numeric(x))
non_numeric_cols <- names(dat)[non_numeric]
print(non_numeric_cols)

clean_df$displacement_num <- recode(clean_df$displacement...103,
                                   "not_displaced" = 0,
                                   "1_3_days" = 1,
                                   "4_7_days" = 2,
                                   "8_30_days" = 3,
                                   "more_than_30_days" = 4)

clean_df$flood_trend_num <- recode(clean_df$flood_trend...226,
                                   "Less severe & less frequent" = 1,
                                   "About the same" = 2,
                                   "More severe & frequent" = 3,
                                   "Not sure" = 4)

table(clean_df$flood_trend_num, clean_df$displacement_num)

normalize <- function(x) {
  return((x - min(x, na.rm = TRUE)) /
         (max(x, na.rm = TRUE) - min(x, na.rm = TRUE)))
}

clean_df <- clean_df %>%
  mutate(
    coping_index = rowMeans(select(., c1_steps, c2_actions, c3_plan, c4_alternatives, c5_talk,
c6_comfort, c7_help, c8_advice, c9_positive, c10_reframe, c11_pray, c12_religious_activities),
na.rm = TRUE),
    coping_norm = normalize(coping_index),
    recovery_index = rowMeans(select(., return_to_work, current_earnings_num,
current_shelter_num, safe_belongings_num, health_care_num, current_health, positive_access,
negative_access, flood_ew, flood_ep), na.rm = TRUE),
    recovery_norm = normalize(recovery_index),
    support_index = rowMeans(select(., formal_usefulness, informal_usefulness), na.rm = TRUE),
    support_norm = normalize(support_index),
    exposure_index = rowMeans(select(., displacement_num, flood_trend_num), na.rm = TRUE),
    exposure_norm = normalize(exposure_index),
    trust_norm = normalize(institutional_trust...180))
glimpse(df)
glimpse(df_recovery)
merged_df <- bind_cols(df_recovery, clean_df)
duplicated(names(merged_df))

```

```

merged_df <- merged_df[, !duplicated(names(merged_df))]
duplicated_cols <- duplicated(as.list(merged_df))
clean_df <- merged_df[, !duplicated_cols]
sum(duplicated_cols)

w_coping    <- 0.30
w_recovery  <- 0.40
w_support   <- 0.20
w_exposure  <- 0.10

clean_df<- clean_df %>%
  mutate(
    coping_score    = coping_norm    * w_coping,
    recovery_score  = recovery_norm  * w_recovery,
    support_score   = support_norm   * w_support,
    exposure_score  = exposure_norm  * w_exposure,

    SBRI = coping_score + recovery_score + support_score + exposure_score )

SBRI_df <- clean_df %>%
  select(Respondent_ID, Community, LGA, SBRI, SBRI_category, age_group...12, income_main...14,
migrant_status_group...28)

migrant_s <- SBRI_df %>%
  group_by(migrant_status_group...28) %>%
  summarise(
    n = n(),
    mean_SBRI = mean(SBRI, na.rm = TRUE),
    median_SBRI = median(SBRI, na.rm = TRUE),
    sd_SBRI = sd(SBRI, na.rm = TRUE)
  )

income_summary <- SBRI_df %>%
  group_by(income_main...14) %>%
  summarise(
    n = n(),
    mean_SBRI = mean(SBRI, na.rm = TRUE),
    median_SBRI = median(SBRI, na.rm = TRUE),
    sd_SBRI = sd(SBRI, na.rm = TRUE)
  )

```



```

print(migrant_s)

clean_df <- clean_df %>%

  mutate(

    SBRI_category = case_when(

      SBRI <= 0.33 ~ "Very Vulnerable",

      SBRI > 0.33 & SBRI <= 0.66 ~ "Partial Recovery",

      SBRI > 0.66 ~ "High Recovery"

    )

  )

summary(clean_df$SBRI)

coping_var <- clean_df %>%

  select(starts_with("SBRI$"))

clean_df <- clean_df %>%

  mutate(

    SBRI_category = case_when(

      is.na(SBRI) ~ "Missing",

      SBRI <= 0.33 ~ "Very Vulnerable",

      SBRI > 0.33 & SBRI <= 0.66 ~ "Partial Recovery",

      SBRI > 0.66 ~ "High Recovery"

    )

  )

SBRI_summary <- clean_df %>%

  count(SBRI_category) %>%

  mutate(percent = round(100 * n / sum(n), 1))

clean_df %>%

  select(Respondent_ID, coping_norm, recovery_norm, support_norm, exposure_norm) %>%

  print(n = Inf)

```

Appendix IV- Thematic Coding Tables

Transcript_ID	Extract/Quote (Summary)	Initial Coding (Summary)	Final Codes/Themes	Notes
For Migrants				
IDI-IJU-002	Describes a sudden flood destroying farmland, leading to migration to Lagos. In Lagos, survival depends on begging due to lack of capital and institutional support.	Sudden flood; Livelihood collapse; Forced migration; No capital; Institutional neglect	Livelihood Disruption; Precarious Coping; Social Exclusion	Highlights rural displacement and urban survival struggles.
IDI-IJU-003	Recounts traumatic nighttime flood that killed relatives and forced migration. Recovery supported by family and community, not institutions.	Trauma; Death; Forced migration; Informal support	Trauma-Induced Displacement; Informal Support Systems	Displacement shaped by trauma and sustained by informal networks.
IDI-IJU-004	Lost mother in a night flood. Coping is faith-based, relying on prayer and spiritual endurance.	Night flood; Loss; Faith reliance	Recurrent Trauma; Faith-Based Coping	Frames coping as spiritual resilience amid repeated trauma.
IDI-AGB-011	Describes unpredictable flooding disrupting mobility and threatening lives. Coping involves withdrawal and faith.	Unpredictable flooding; Faith reliance; Avoidance	Everyday Disruptions; Fatalistic Coping	Emphasizes constant risk and spiritual framing of floods.
IDI-AGB-012	Migration is the default response to flooding. Institutional support is unequal and inaccessible to the poor.	Migration; Institutional blindness	Displacement as Coping; Institutional Inequality	Highlights systemic neglect and migration as survival.
IDI-AGB-0XX	Recounts tragic loss of children during flood. Calls for safe evacuation routes and shelters.	Loss; Trauma; Family protection	Traumatic Loss; Safety Recommendations	Personal tragedy drives advocacy for family-focused planning.
IDI-AGB-001	Describes repeated flood-related deaths and displacement. Recovery came through diaspora support, not government aid.	Repeated flooding; Diaspora aid	Chronic Displacement; Informal Recovery	Unique case of overseas support amid institutional absence.
IDI-AGB-014	Floods damage merchandise and disrupt trading. Recovery is temporary and financial setbacks are frequent.	Trading disruption; Financial setbacks	Livelihood Damage; Cyclical Recovery	Shows fragility of petty trading under flood pressure.
IDI-FAG-003	Floods cause temporary disruption but recede quickly. Coping involves lifting tools and waiting indoors.	Temporary disruption; Asset protection	Moderate Exposure; Protective Coping	Localized risk with practical, non-displacement coping.
IDI-FAG-004	Flood destroyed resale goods. Coping involves reducing stock, sacrificing income to minimize risk.	Goods loss; Risk minimisation	Informal Asset Loss; Risk-Averse Coping	Recovery strategy trades income for safety.
FGD-AGB-Women	Group recounts cumulative flood trauma, seasonal rebuilding, broken government promises, and need for financial tools.	Repeated loss; Shelter rebuilding; Broken promises; Empowerment needs	Trauma and Displacement; Cyclical Coping; Institutional Absence; Women's Empowerment	Collective narrative of endurance and unmet recovery needs.

For Non-Migrants

IDI-AGB-003	Narrates witnessing a flood-related death, personal near-death experience, relocation due to flooding, and lack of government support. Emphasizes reliance on neighbors and calls for drainage infrastructure.	Witnessed death; Near-death experience; Informal support; Forced relocation; Infrastructure need	Severe Flood Risk; Traumatic Experience; Displacement; Institutional Neglect; Infrastructure Recommendations	Highlights vulnerability of women, reliance on informal networks, and urgent need for drainage systems in Agbado.
IDI-AGB-004	Describes chronic flood exposure over 20 years, minimal coping among neighbors, lack of government intervention, and deadly infrastructure hazards. Calls for drainage and railway repairs.	Long-term exposure; Weak coping; Institutional absence; Infrastructure hazard; Policy suggestions	Chronic Flood Exposure; Minimal Coping Capacity; Institutional Neglect; Infrastructure-Related Risk; Recommendation for Structural Support	Highlights enduring vulnerability, community helplessness, and urgent need for structural interventions in Agbado.
IDI-AGE-001	Describes constant dripping water from the bridge and surface runoff during rain. Coping involves lifting goods and shifting position. No institutional support; relies on fellow vendors. Recovery means resuming sales. Recommends bridge repair and drainage construction. Suggests microloans for protective gear.	Dripping water; Surface runoff; Swift coping; Informal support; Recovery through continuity; Infrastructure recommendations; Financial aid	Urban Infrastructure Hazards; Reactive Coping; Informal Support Systems; Recovery as Continuity; Recommendations for Drainage and Financial Support	Highlights unique flood exposure under bridge, practical coping, and need for structural and financial interventions to support market women.
IDI-AGE-002	Describes annual flooding that recedes quickly. Coping involves patience, prayer, and raising household items. Recovery supported by church and family. Recommends drainage desilting and financial support for single parents.	Quick recession; Faith-based coping; Informal support; Recovery through continuity; Drainage recommendations; Empowerment needs	Reactive Coping; Faith and Family Support; Recovery as Continuity; Infrastructure Maintenance; Support for Single Parents	Highlights spiritual resilience, informal recovery networks, and practical recommendations for drainage and empowerment in Agege.
FGD-AGB-Children	Children describe daily exposure to flood hazards, disrupted schooling and hawking, lack of support, and survival through informal means. They express moral agency, vulnerability, and call for safer infrastructure.	Hazard exposure; Dual vulnerability; Disruption to school/work; Survival strategies; Police harassment; Infrastructure demands	Urban Flood Hazards; Marginalisation; Educational Disruption; Faith-Based Coping; Child-Sensitive Infrastructure	Highlights how street children navigate danger, stigma, and abandonment while advocating for safer urban environments.
FGD-AGB-THUGS	Participants describe knee-level flooding at their park, improvising by carrying people for money. They rely on each other, lack institutional support, and view recovery as shallow survival. Recommend road and drainage repairs, and request training or microloans to escape the cycle.	Frequent flooding; Survival hustle; Informal support; Shallow recovery; Infrastructure demands; Youth empowerment	Urban Flood Exposure; Survival-Based Coping; Institutional Neglect; Recovery as Stagnation; Infrastructure Recommendations; Youth Capacity Building	Reveals how young men navigate hazard through informal labor, highlighting resilience, frustration, and desire for upward mobility.

IDI-STK-001	Describes how swift political intervention led to drainage construction, eliminating flood risks. Emphasizes market stability, reduced need for coping, collaboration with officials, and annual spiritual rituals for protection.	Political intervention; Drainage effectiveness; Market stability; Community collaboration; Religious rituals	Infrastructure Solutions; Reduced Vulnerability; Institutional Engagement; Livelihood Stability; Cultural Resilience	Contrasts sharply with migrant narratives of neglect, showing how leadership and infrastructure foster long-term recovery and community cohesion.
IDI-STK-002	Describes inherited flood vulnerability due to topography, and how canal construction transformed risk exposure. Reflects on faith-based endurance, government support, long-term stability, and the role of rituals.	Vulnerable topography; Canal construction; Faith attribution; Government aid; Infrastructure protection; Ritual practices	Chronic Flooding; Drainage Effectiveness; Faith and Endurance; Institutional Support; Infrastructure Stability; Environmental Discipline; Cultural Resilience	Illustrates how structural, spiritual, and institutional responses converge to build long-term flood resilience in Abule-Egba.
IDI-STK-003	Describes reduced flooding due to natural slope and drainage works. Emphasizes leadership role, prayer, enforcement-driven sanitation, and stable livelihood. Advocates for shared responsibility and community sensitisation.	Drainage interventions; Leadership; Prayer; Enforcement; Livelihood stability; Community ownership	Natural and Structural Factors Reducing Flooding; Faith-Based Coping; Environmental Enforcement; Livelihood Stability; Shared Responsibility	Contrasts migrant vulnerability with local stability; blends structural, behavioral, and spiritual approaches to flood management.

Appendix V - Bio-Data

EDUCATION

Kwara State University (KWASU)

Aug 2016 –Dec 2020

Bachelor of Science, Microbiology

CGPA: 2.86/4:00

LEADERSHIP & RESEARCH EXPERIENCE

Research Assistant & Field Facilitator

2024 - Present

PALM-TREES Project, CLARE & Lead City University & University of Lagos & NISER

Principal Investigator: Professor Grace Oloukoi

- Assisted in facilitating community workshops and stakeholder dialogues in flood-prone urban settlements.
- Documented 50+ lived-experience interviews on climate extremes, informing transdisciplinary policy discussions.

Concept Founder & Project Lead, MOBI AGROTECH — Nigeria

2022

- Conceptualized a group project addressing small-scale farmers' vulnerability to climate shocks.
- Designed a framework for resource-sharing, training modules, and partnership strategies.
- Coordinated a diverse student team and drafted sustainability impact goals for future pilot test.

PROFESSIONAL EXPERIENCE

Business Analyst

Dec 2021 – Present

5R Analysis (Project Athena & Project MFB), United Kingdom (Remote)

- Translated business requirements into clear documentation, improving development efficiency.
- Collaborated with technical teams to enhance feature implementation and streamline operations.
- Led QA processes, reducing post-release defects and ensuring high-quality deliverables.
- Developed strategic business plans, increasing brand visibility, and securing stakeholder investment.
- Managed project workflows using Azure DevOps, improving efficiency and turnaround time.
- Conducted market analysis to drive product enhancements and competitiveness.

PUBLICATIONS & PRESENTATIONS ([Full List](#))

Journal Publications

Babalola, A., Bolukale, O., Omotosho, A., Ajagbe, J., Braham, C., Rasdaq, O., Irewole, O., 2025. The Cycle of Contamination: Exploring the Role of Microplastics in Food Chain Disruption. *Wastewater Purification* 1 (1), 20250311190637. <https://doi.org/10.6084/m9.figshare.29430155>

Omotosho, A., **Babalola, A.,** Braham, C., & Osigwe, S. (2025). Emerging solutions to microplastic pollution: A review. *Wastewater Purification*, 1(1), 14–25. <https://doi.org/10.5281/zenodo.15068024>

Babalola, A., Kehinde, O., & Abdul-Muteen. (2025). Water quality, sanitation practices, and public health outcomes in major urban areas of Nigeria: A comparative analysis. *International Journal of Research and Scientific Innovation*, 12(15), 27–43. <https://doi.org/10.51244/IJRSI.2025.12150004P>

Book Chapters

Babalola, A., Bolukale, A. O., & Kehinde, O. J. (2025). The evolution of disaster management laws: A review of gaps and opportunities in environmental law. In *Issues in Housing, Urban Planning and Environmental Resources Management in Nigeria: A Festschrift in Honor of Dr. S.A.O Adegoke*.

Babalola, A., Bolukale, O., Kehinde, O., Ajagbe, J., Oyewole, O., & Irewole, O. (2025). Urban climate resilience in the Global South: Lessons from high-risk cities. In *Knowledge in the Emerging Global Order: An Interdisciplinary Festschrift in Honour of Jide Owoeye at Seventy*.

Conference Papers

- Babalola, A.** & Oloukoi, G. (2025, October). *Factors influencing post-flood recovery outcomes and equitable strategies amongst marginalized populations: A scoping review*. Paper presented at the 2nd Multidisciplinary International Conference, Lead City University, Ibadan, Nigeria.
- Kehinde, O., Bolukale, O., & **Babalola, A.** (2025, June). Integrating local knowledge in enhanced flood resilience among communities of West African coastal cities. *Global Affairs and Sustainable Development Institute (GASDI)*, Osun State University.
- Babalola, A.**, Bolukale, O., & Kehinde, O. (2024, November). Can sump pumps provide a sustainable solution for flood resilience in Nigerian flood-prone households? *Third International Conference on Engineering and Environmental Sciences (ICEES)*, University of Osun.
- Ajagbe, J., **Babalola, A.**, Bolukale, O., Kehinde, O., Oyewole, O., & Irewole, O. (2024, March). Integrating biodiversity into the built environment: Innovative approaches for sustainable urban restoration. *1st International Conference on Sustainable Environmental Design and Management (SEDM)*, Lead City University.
- Irewole, O., Bolukale, O., Kehinde, O., **Babalola, A.**, Ajagbe, J., & Oyewole, O. (2024, March). The nexus of climate change and land degradation: Challenges, impacts, and solutions. *1st International Conference on Sustainable Environmental Design and Management (SEDM)*, Lead City University.

LEADERSHIP & AWARDS

- Class President, MSc Environmental Management (2024–25).
- Selected as a GirlLead Women in Data Scholar (2024)
- Most Influential Female, Department of Microbiology, Kwara State University (2020).
- Outstanding Director of Socials, National Association of Microbiology Students (NAMS) 2020
- Most Hardworking Junior Staff of the Quarter Year, Biomedical Limited (2019)
- Vice President, National Association of Microbiology Students, Kwara State University (2018–2019).
- Class President, BSc Microbiology (2017–2020).

Teaching Experience

Teaching Assistant, Ricom High School, Nigeria

2022

- Taught a class of 30 students, both Junior High and Senior High Subjects like Civic Education, National Values Education (NVE), and Pre-Vocational Studies

SKILLS & CERTIFICATIONS

Sustainability: Life Cycle Assessment (LCA), ESG / CSR Reporting, Environmental Footprinting, Climate Adaptation

Analysis: Requirements Analysis, Project Management, Quality Assurance, Gap Analysis, Risk Management.

Tools: MS Word, MS PowerPoint, Visio, Draw.io, Azure DevOps, MS Excel

Technical Skills: R Programming, GIS Mapping

Certifications:

- Sustainability Analyst Fundamentals (Arizona State University).
- Sustainability Consulting (University of Illinois Urbana-Champaign).
- Climate Adaptation in Africa (University of Cape Town).

Languages: English (Fluent, IELTS 8.0); Yoruba (Native).

University Compliance Certificate

This is to certify that this thesis by Adepeju Nusirat BABALOLA with Matric Number LCU/PG/006009 in the Department of Urban and Regional Planning, Faculty of Environmental Design and Management, Lead City University, Ibadan, Oyo State, is in FULL Compliance with the approved University Format and Style.

.....

Signature

.....

Date

Lead City University Ibadan DO NOT COPY