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Reimagining Resilience - Informal Workers and Adaptive Strategies for Post-Disaster Urban Futures in Lagos, Nigeria

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Reimagining Resilience: Informal Workers and Adaptive Strategies for Post-Disaster Urban Futures in Lagos, Nigeria

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Abstract

Purpose - This article examines how informal workers in Lagos, Nigeria, construct urban resilience through adaptive strategies following climate-related disasters. It challenges top-down disaster risk reduction by positioning informal workers as active agents rather than merely vulnerable populations in shaping post-disaster urban futures.

Design/Methodology/Approach - Using qualitative methods, the study drew on semi-structured interviews with 45 informal workers, six focus group discussions with worker associations, and 150 hours of participant observation across Makoko, Oshodi, and Lagos Island. Iterative thematic analysis identified patterns in adaptive strategies and resilience practices.

Findings - Five adaptive strategies emerged: livelihood diversification; leveraging social networks, including rotating savings groups and kinship ties; spatial and mobility practices; collective organising through trade associations; and hybrid formal-informal responses integrating state and independent resources. While demonstrating sophisticated organisational capacity, these strategies are constrained by land tenure insecurity, infrastructure deficits, and political-economic marginalisation.

Practical Implications - Policy recommendations include institutionalising informal worker participation in urban governance, extending infrastructure to informal settlements, developing adaptive social protection schemes, securing land tenure, mainstreaming gender equity in resilience interventions, and establishing multi-stakeholder climate adaptation platforms.

Originality/Value - The research advances urban resilience scholarship by foregrounding informal workers' agency and demonstrating that resilience is constructed through social relations and informal institutions rather than formal planning systems alone. It enriches critical resilience frameworks by capturing both the resourcefulness and structural limits of "resilience from below," challenging deficit narratives about informality and offering empirical grounding for inclusive urban planning across Global South cities.

Keywords: informal economy, urban resilience, climate disasters, adaptive strategies, Lagos, Global South urbanism

Article Type: Research paper

Introduction

Lagos, Nigeria's commercial capital and one of Africa's fastest-growing megacities, presents a paradox of vulnerability and resilience. With an estimated population exceeding 20 million and projected to reach 35 million by 2030, Lagos faces intensifying climate-related disasters, including coastal flooding, erosion, and extreme heat events (Ajibade et al., 2021; Nwokoro et al., 2022; Adegun, 2023). These environmental challenges intersect with rapid urbanisation, inadequate infrastructure, and socioeconomic inequalities, creating complex vulnerabilities for the city's residents, as shown in the map of Lagos (Figure 1) (Adegun, 2023). Yet amid these challenges, Lagos demonstrates remarkable adaptive capacity, driven largely by its informal

sector, which employs approximately 60-70% of the city's workforce (Table 1) (Benjamin et al., 2020; Meagher, 2016).

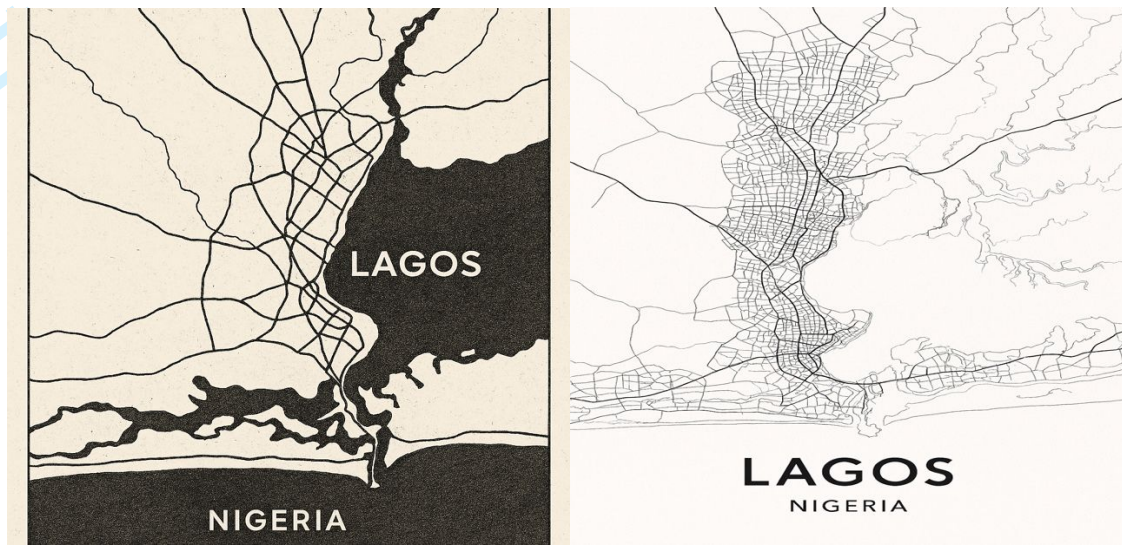


Figure 1: Map of Lagos, Nigeria

Table 1: The Urban Context of Lagos

Category	Indicator	Value / Insight
Population	Current (2024)	20+ million
	Projected (2030)	34–35 million
Informal Sector	Workforce in informal employment	60–70%
	Economic activity	Majority outside formal regulation
Climate Vulnerability	Land area < 1 m above sea level	~40%
	Rainfall pattern	Bimodal; 1,200–1,800 mm/year
	Recent major flood events	2011, 2012, 2017, 2019, 2023
Flood Exposure	Most affected areas	Informal settlements and open markets
Infrastructure	Drainage system coverage	Critically inadequate in informal zones

Source: Author, compiled from Adelekan (2010), Nwokoro et al. (2022); Benjamin et al. (2020), and IPCC (2022).

Informal workers - including market traders, street vendors, artisans, waste recyclers, and transport operators - occupy a critical but often overlooked position in Lagos' urban ecosystem.

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3 Informal workers matter for urban governance, particularly for two reasons: one, they fulfil
4 critical economic and service functions that the formal system does not adequately provide.
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6 For instance, Lagos market traders, street vendors, waste recyclers, and transport operators are
7 not merely filling gaps; they are actively delivering critical services and economic
8 opportunities that sustain daily life. Two, informal workers have significance because of their
9 functional role. By providing affordable goods, accessible transportation, waste management,
10 and livelihoods for millions, they are integral rather than peripheral to Lagos's functioning.
11 Effective urban governance thus has a responsibility to engage with these workers, not with a
12 view to regulating them, but as critical stakeholders whose activities shape urban functionality,
13 economic vitality, and social stability. Ignoring or marginalising them in governance decisions
14 means overlooking actors who are already governing essential aspects of urban life through
15 their economic and spatial practices. Operating outside formal regulatory frameworks,
16 informal workers navigate precarious conditions characterised by limited legal protection,
17 spatial insecurity, and exposure to environmental hazards (Brown & Mbogua, 2020; Stoltz et
18 al., 2025). However, their contributions to urban resilience extend beyond economic survival.
19 Through informal networks, collective action, and innovative adaptive strategies, informal
20 workers develop localised responses to disasters that complement, and sometimes compensate
21 for, inadequate state infrastructure and disaster management systems (Herrick, 2021; Rigon et
22 al., 2020).

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38 Understanding informal workers' adaptive strategies is increasingly urgent given the trajectory
39 of climate change in coastal West African cities. Lagos receives between 1,200 mm and 1,800
40 mm of rainfall annually, concentrated in bimodal wet seasons (April – July and September –
41 November). Flooding is not an occasional crisis but a chronic, recurrent condition: major floods
42 in 2011, 2012, 2019, 2022, and 2023 displaced hundreds of thousands and caused billions of
43 Naira in economic losses, with informal settlements and open-air markets among the hardest-
44 hit areas (Adelekan & Asiyebi, 2016; Nwokoro et al., 2022). The IPCC (2022) projects that
45 sea-level rise and increased rainfall intensity will worsen flood exposure in Lagos throughout
46 the twenty-first century. This article examines how informal workers in Lagos perceive,
47 experience, and respond to climate-related disasters, with particular attention to the adaptive
48 strategies and coping mechanisms they employ to maintain livelihoods and support community
49 resilience. By centring the perspectives and agency of informal workers, this research
50 challenges dominant narratives that position informality primarily as a problem to be formalised to
51 formalisation or eradicated (Roy, 2005). Instead, it demonstrates how informal workers
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3 actively shape post-disaster urban futures through practices that reveal alternative forms of
4 urban governance, risk management, and collective solidarity.
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9 The article situates itself within an established but growing body of scholarship on urban
10 resilience in the Global South. Studies in comparable megacities, including Dhaka (Rabbani et
11 al., 2022), Accra (Silver, 2014), Mumbai (Pelling, 2011), and Nairobi (Brown & Mbogua,
12 2020), have documented how informal workers employ analogous adaptive strategies:
13 livelihood diversification, social network activation, collective organisation, and spatial
14 mobility. However, while these studies provide important comparative evidence, they also
15 reveal context-specific dynamics shaped by distinct governance systems, land-tenure regimes,
16 and political economies. Lagos presents a particularly complex case given Nigeria's federal
17 structure, the history of state-sponsored evictions in informal settlements, and the dense
18 associational life of informal markets; all of which shape both vulnerabilities and adaptive
19 capacities in ways that warrant focused empirical investigation.
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29 Crucially, this research departs from deficit-oriented framings that position informal workers
30 primarily as vulnerable populations requiring formal intervention or formalisation. Instead,
31 drawing on Roy's (2005) reconceptualisation of informality as a mode of urbanisation and
32 Simone's (2004) notion of 'people as infrastructure,' this research treat informal workers as
33 active agents constructing post-disaster urban futures. This analytical orientation connects to
34 broader questions of urban justice: as Ribot (2014) argues, vulnerability is produced not merely
35 by exposure to hazards but by political-economic structures that constrain access to resources,
36 rights, and decision-making power. Thus, informal workers' adaptive strategies must be
37 understood both as expressions of resourcefulness and as adaptations to structural conditions
38 of marginalisation.
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47 The article is structured as follows. Following this introduction, I develop the theoretical
48 framework drawing on critical resilience scholarship, informality studies, and Global South
49 urbanism. I then present the methodology, including detailed site rationale and data analysis
50 procedures. The findings section documents five clusters of adaptive strategies with rich
51 interview and focus group evidence. The discussion addresses implications for resilience
52 theory and governance, followed by evidence-based policy recommendations, scholarly
53 contributions, limitations, and conclusions.
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Table 1 situates Lagos in its urban context, and Table 2 provides an overview of informal worker categories studied.

Table 2: Informal Worker Categories and Characteristics

Category	Activities	Locations	Key Vulnerabilities	Key Strengths
Market Traders	Food, textiles, household goods	Formal markets; roadside stalls	Inventory loss; market closures; limited storage	Strong trade associations; supplier credit networks
Street Vendors	Mobile food and small goods	Street corners; transport hubs	Authority harassment; no fixed location; reduced footfall	High mobility; low capital requirements; demand flexibility
Artisans	Carpentry, welding, tailoring	Workshop clusters; home-based	Tool/equipment flood damage; reduced demand during crises	Specialised skills; apprenticeship networks
Waste Recyclers	Collection, sorting, selling recyclables	Dump sites; streets; residential areas	Health hazards; material contamination; lowest social protection	Environmental knowledge; high spatial mobility; post-disaster material availability

Source: Author, based on fieldwork data (2023–2024); synthesising Brown et al. (2010); Odewumi et al. (2013); Meagher (2016).

The analysis draws on qualitative fieldwork conducted between 2023 and 2024, including in-depth interviews with 45 informal workers across three Lagos communities - Makoko, Oshodi, and Lagos Island. Additional data came from focus group discussions with informal worker associations, and participant observation of market activities and community responses to flooding events. This research contributes to scholarly debates on urban resilience in the Global South by demonstrating how resilience is produced through everyday practices, social relations, and informal institutions that operate alongside, and often in tension with, formal urban governance structures (Simone, 2019; Wafer, 2021).

Theoretical Framework

Rethinking Resilience and Informality in Global South Cities: Resilience Beyond Bouncing Back - Critical Resilience Theory

The concept of resilience has gained prominence in urban studies, disaster risk reduction, and climate adaptation debates, yet its theoretical basis and practical uses remain contested

(Meerow et al., 2016). Traditional definitions emphasise resilience as the ability of systems to absorb shocks and return to equilibrium - what scholars call the “bouncing back” metaphor (Holling, 1973). However, this equilibrium-focused view has been criticised for ignoring power dynamics, structural inequalities, and the ways resilience efforts may worsen existing vulnerabilities (Cannon & Müller-Mahn, 2010; MacKinnon & Derickson, 2013). Recent research promotes more critical and transformative understandings of resilience that recognise its political aspects and suggest that “bouncing back” to pre-disaster states might sustain unjust social systems (Meerow & Newell, 2019). Drawing on political ecology and urban studies, scholars argue that resilience should be understood as contested, uneven, and shaped by intersecting inequalities along class, gender, ethnicity, and spatial lines (Anguelovski et al., 2016; Ziervogel et al., 2017). These scholars argue that resilience must address questions such as: resilience for whom, of what, over what time frame, and under what governance? They further contend that resilience should demonstrate how interventions like green infrastructure and coastal adaptation projects can reinforce inequalities through gentrification and displacement. Overall, the literature highlights that rights and justice should be central to resilience frameworks, not merely afterthoughts. All these perspectives resonate with Global South urbanism scholarship, which stresses how urban residents in cities like Lagos navigate precarity through improvisation, collective action, and the development of alternative urban infrastructures (Simone, 2004; Silver, 2014).

This theoretical lens is useful for this study because it shifts the focus from viewing informal workers merely as vulnerable populations who “bounce back” from shocks to examining how they actively adapt, transform, and navigate chronic urban challenges such as flooding. Thus, rather than measuring resilience as a return to pre-crisis conditions, this framework enables analysis of the ongoing, creative strategies informal workers employ to sustain livelihoods amid persistent environmental and governance failures. Hence, informal workers are positioned as agents who continuously reconfigure their economic practices and spatial arrangements, revealing their resilience as a process of transformation rather than a simple recovery in Lagos’s contested urban landscape.

This study adopts Pelling’s (2011) concept of “transformative resilience”, which moves beyond adaptive coping toward structural change. Bahadur and Tanner (2014) elaborate this as “bouncing forward”. For informal workers in Lagos, resilience cannot be reduced to bouncing back to precarious pre-disaster conditions characterised by spatial insecurity, income volatility,

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3 and limited access to basic services. Instead, their adaptive strategies reveal aspirations for
4 transformation - what Bahadur and Tanner (2014) describe as “bouncing forward” - toward
5 more secure and dignified livelihoods. This framing recognises informal workers as active
6 agents who not only cope with disasters but also contest the structural conditions that produce
7 vulnerability (Pelling, 2011).
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13 **Informality as Urban Practice**

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15 Understanding informal workers’ contributions to urban resilience requires moving beyond
16 binary formulations that position informality against formality. Conventional approaches have
17 characterised informal economies as backward, inefficient, and destined for formalisation
18 through economic development (Harris & Todaro, 1970). Subsequent scholarship by scholars
19 like Hart (1973) and Portes et al. (1989) demonstrated that informality is not a transitional state
20 but a structural feature of capitalist urbanisation in the Global South. However, scholars of
21 Global South urbanism demonstrate that informality is neither temporary nor marginal but
22 constitutive of urban life in cities like Lagos, where formal and informal practices are deeply
23 entangled (Roy, 2005; AlSayyad & Roy, 2004). Roy (2005) reconceptualises informality not
24 as a sector or space but as a mode of urbanisation - a set of practices through which urban
25 residents produce space, negotiate state authority, and construct livelihoods under conditions
26 of spatial and legal ambiguity. This framing dissolves the formal-informal binary (formality
27 and informality are not distinct sectors, but relational categories produced through planning
28 decisions, state authority, and political-economic power). AlSayyad and Roy (2004) extend
29 this to show that informality operates transnationally across the Global South, generating
30 diverse but structurally comparable urban conditions. This perspective illuminates how
31 informal workers in Lagos operate through what Simone’s ethnographic work on African cities
32 (2004, 2019) describes as “people as infrastructure,” whereby social networks, reciprocal
33 relationships, and collective knowledge constitute the organisational resources through which
34 urban life is sustained – often in the absence of state-provided infrastructure. This concept has
35 particular resonance for Lagos, where informal workers’ social relations actively produce the
36 city’s socio-economic infrastructure.
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55 Nevertheless, informality as an urban practice must be understood through the interconnected
56 dynamics of economic significance, social networks, and vulnerability. Informal workers are
57 economically embedded in urban economic systems as providers of essential goods and
58 services and as critical infrastructure that the formal sector has failed to deliver. This economic
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3 integration, however, does not translate to security (Pucheta & Kalil, 2025). Rather, it creates
4 a paradox: the same workers who sustain urban functionality operate under precarious
5 conditions marked by spatial insecurity, regulatory exclusion and environmental exposure.
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7 Social networks mediate this precarity, however, as informal workers rely on kinship ties,
8 ethnic associations, and professional networks not merely for social support but as critical
9 mechanisms for accessing capital, negotiating with authorities, sharing market information and
10 mobilising collective responses to threats (Miranda et al., 2025) These networks constitute a
11 form of adaptive capacity, enabling workers to navigate governance failures, gaps and
12 environmental shocks without formal institutional support. Vulnerability, then, is simply not
13 an individual condition but is structurally produced through the intersection of economic
14 informality and governance failures, while simultaneously being mediated by collective social
15 organisation. For the case of Lagos, this framework guides the empirical analysis to examine
16 how informal workers' economic activities position them within urban flood-prone areas; how
17 their social networks function as governance structures in the absence of state support, and how
18 vulnerability is both produced through their spatial and economic marginalisation and
19 negotiated through collective adaptive strategies.
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32 Research on informal economies in African cities has demonstrated their economic
33 significance, flexibility, and capacity for innovation (Meagher, 2016; Lindell, 2010). Informal
34 workers develop sophisticated organisational forms, including trade associations, rotating
35 savings groups, and apprenticeship networks that provide social protection, skill development,
36 and collective representation (Brown et al., 2010). These informal institutions become
37 particularly significant during disasters, when formal safety nets prove inadequate and informal
38 networks provide critical support for survival and recovery (Herrick, 2021; Rigon et al., 2020).
39 However, informality also entails precarity and vulnerability. Informal workers face constant
40 threats of eviction, harassment by state authorities, and exclusion from urban planning
41 processes that treat informal settlements and markets as obstacles to modernisation (Njeru,
42 2020). Their spatial marginalisation often places them in environmentally hazardous locations,
43 exposing them to flooding, erosion, and pollution (Ajibade & McBean, 2014). Understanding
44 informal workers' resilience, therefore, requires attention to both their adaptive capacities and
45 the structural constraints that shape their vulnerabilities. This body of evidence provides the
46 theoretical basis for understanding informal institutions as resilience infrastructure – a concept
47 further developed in the discussion.
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Climate Disasters and Urban Vulnerability in Lagos

Lagos' vulnerability to climate-related disasters stems from the intersection of environmental, infrastructural, and socioeconomic factors. Situated on Nigeria's Atlantic coast with approximately 40% of its land area less than 1 meter above sea level, Lagos faces significant flood risk from sea-level rise, coastal storm surges, and intense rainfall events (Adelekan, 2010; Nwokoro et al., 2022). Climate projections indicate that these risks will intensify, with increased frequency and severity of extreme precipitation events and gradual sea-level rise threatening coastal settlements and infrastructure (IPCC, 2022). The city's rapid and largely unplanned urbanisation exacerbates environmental vulnerabilities. Inadequate drainage infrastructure, construction in floodplains and coastal wetlands, and widespread blockage of waterways with solid waste contribute to recurring flooding that affects millions of residents (Ajibade et al., 2021). These environmental hazards disproportionately impact low-income communities and informal settlements where infrastructure deficits are most acute (Douglas et al., 2008). Research documents how flooding disrupts livelihoods, damages property, spreads waterborne diseases, and forces temporary or permanent displacement (Adelekan & Asiyani, 2016; Ajibade & McBean, 2014).

For informal workers, climate disasters create cascading impacts on livelihoods and well-being. Market traders lose inventory and face extended business interruptions when markets flood or are closed for cleanup (Benjamin et al., 2020). Waste recyclers confront health hazards and income losses when flooding contaminates materials or renders collection areas inaccessible (Odewumi et al., 2013). Street vendors experience reduced customer traffic and harassment by authorities during and after disasters (Brown & Mbogua, 2020). These livelihood disruptions compound existing economic precarity and can push informal workers deeper into poverty. However, focusing exclusively on vulnerability risks overlooks informal workers' adaptive capacities and the resources they mobilise to navigate disasters. As Ribot (2014) argues, vulnerability is produced not by exposure to hazards alone but by political-economic structures that constrain people's access to resources, rights, and decision-making power. This perspective directs attention to how informal workers employ agency within structural constraints, developing adaptive strategies that reveal both resourcefulness and the limitations imposed by marginalisation.

Methodology

This research used qualitative methods to explore the experiences of informal workers in Lagos facing climate-related disasters and their adaptive strategies. The interpretivist qualitative approach is based on a constructionist ontology and a reflexive epistemology. It views informal workers' accounts not as straightforward reflections of an external reality, but as co-constructed knowledge influenced by participants' social positions, experiences, and interpretive frameworks (Dezin & Lincoln, 2011). Qualitative methods suit the research questions because the study aims to understand the meanings, processes, and social relations involved in developing and implementing adaptive strategies, as well as aspects of social life that cannot be captured solely through quantitative methods. This approach aligns with an established tradition of critical qualitative urbanism that utilises ethnographic and interview techniques to foreground marginalised voices in knowledge creation (Pellow, 2017). The study focused on three Lagos communities, purposely chosen to ensure diversity across three axes representing different types of informal economic activities, governance contexts, and environmental vulnerabilities. These communities - Makoko (a waterfront settlement with fish traders and sawmill workers), Oshodi (a major transport hub with dense markets and artisan activities), and Lagos Island (the city's commercial centre with significant street vending and waste recycling) - follow Patton's (2002) "maximum variation" sampling strategy, a core element of purposive sampling that seeks to highlight various aspects of the phenomenon rather than statistical representativeness.

Makoko is a densely populated waterfront settlement built largely on stilts over Lagos Lagoon. Home to an estimated 100,000 residents, Makoko is primarily characterised by fish-trading and sawmill activities. It represents the highest environmental flood exposure of the three sites - several areas experience regular inundation during heavy rainfall - and has been the subject of controversial government demolition attempts, making it a critical site for examining spatial adaptation and land-tenure insecurity. Oshodi is a major transportation hub on the Lagos mainland with the highest concentration of market traders and artisans among our sites. Its dense informal economy, relative proximity to formal infrastructure, and strong associational life - including some of Lagos' most organised market traders' unions - make it an important site for examining collective organisation and hybrid formal-informal responses. Lagos Island is the city's historic commercial core, home to significant street-vending and waste-recycling communities alongside formal businesses. Its mixed formal-informal character and the

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3 complex governance dynamics between state authorities and informal workers make it valuable
4 for examining negotiation, advocacy, and hybrid response strategies.
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7 Together, the three sites provide analytical variation in flood exposure (high, medium, mixed),
8 economic activity (fishing/sawmill, trading/artisanal, vending/recycling), and governance
9 dynamics (demolition threat, established association networks, mixed commercial
10 governance). The convergent and divergent patterns across sites are noted explicitly in the
11 findings.
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16 17 18 **Data Collection**

19 Data collection occurred between January 2023 and December 2024 through three primary
20 methods. First, in-depth semi-structured interviews were conducted with 45 informal workers,
21 purposively selected to capture diversity in occupation (market traders, street vendors, artisans,
22 waste recyclers), gender, age, and length of residence. Interview questions explored
23 experiences of climate disasters, particularly flooding; impacts on livelihoods and households;
24 adaptive strategies and coping mechanisms employed before, during and after flooding;
25 sources of support (social, financial and institutional); relationships with formal institutions,
26 including government agencies, NGOs, and trade associations; and perspectives on
27 government responses and policy priorities. Interviews lasted 45-90 minutes and were
28 conducted in English, Yoruba, or Pidgin English, depending on the participant's preference,
29 with translation support as needed. Second, six focus group discussions (FGDs) were organised
30 with informal worker associations and community groups, each with 8-12 participants. FGD
31 participants were recruited through trade association networks with purposive selection to
32 include women's groups, youth members, and association leadership. These discussions
33 examined collective responses to disasters, the roles of associations and networks, and the
34 priorities of policy interventions. FGDs provided insights into shared experiences and
35 collective strategies while revealing internal differences and tensions within informal worker
36 communities, which were integrated throughout the findings, enabling triangulation with
37 individual interview data and deepening understanding of collective-level dynamics.
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54 Third, participant observation was conducted at market sites, waste recycling depots, and
55 artisan workshops over 150 hours across the three communities. This included observing daily
56 economic activities, interactions with customers and authorities, and community responses
57 during and after flooding events in July 2022 and October 2023, to retrospectively account for
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flooding events that occurred in 2022. Fieldnotes documented spatial arrangements, work practices, social interactions, infrastructure conditions, and adaptive behaviours, including practices not typically articulated in interviews, such as specific physical adaptations made to market stalls and the choreography of collective drainage cleaning.

Tables 3 – 6

Study Period	
Start: January 2023	End: December 2024

Table 3: Study Period

Site	Location	Key Workers	Flood Exposure	Governance Dynamics
Makoko	Lagoon waterfront	Fish traders, sawmill workers	Highest — regular inundation	History of demolition threats; strong community solidarity
Oshodi	Mainland transport hub	Market traders, artisans	Medium — seasonal flooding	Established market unions; active trader advocacy
Lagos Island	Commercial core	Waste recyclers, street vendors	Mixed — variable by area	Complex formal-informal authority negotiation

Table 4: Research Sites. Source: Author, based on fieldwork (2023–2024).

Method	Details	Analytical Contribution
In-depth Interviews	N=45; 45–90 mins; English/Yoruba/Pidgin; purposive sampling	Individual experiences, strategies, meanings
Focus Group Discussions	N=6 groups (8–12 participants); trade associations & community groups	Collective dynamics, shared interpretations, internal tensions
Participant Observation	150+ hours; market sites, flood events (July 2022, October 2023)	Embodied practices, spatial adaptations, authority interactions

Table 5: Data Collection Methods. Source: Author.

Occupation	% of Sample	Gender	Age Distribution
Market traders	35%	Female: 58%	18–30: 22%
Artisans	24%	Male: 42%	31–45: 47%
Street vendors	22%		46+: 31%
Waste recyclers	19%		

Table 6: Participant Demographics (N=45). Source: Author.

Data Analysis

All interviews and focus groups were audio-recorded with informed consent and transcribed verbatim. Data analysis followed an iterative thematic approach, combining inductive coding to identify emergent themes with deductive analysis guided by theoretical frameworks on resilience, informality, and adaptation (Braun & Clarke, 2006). This reflexive thematic analysis approach highlighted the researcher's active role in constructing interpretations rather than merely "finding" themes in the data. Initial coding identified experiences of disasters, types of adaptive strategies, sources of support and constraint, and perceptions of government responses. Subsequent analysis examined patterns across occupation types, gender, and spatial locations while considering contradictions and complexities in participants' accounts.

Analysis proceeded through six phases: (1) familiarisation - repeated reading of transcripts alongside fieldnote review; (2) initial coding - line-by-line open coding of all data using Nvivo 12 software; (3) theme development - clustering of initial codes into candidate themes, informed by both inductive patterns emerging from the data and deductive engagement with our theoretical frameworks on resilience, informality, and adaptation; (4) theme review - systematic checking of themes against the data corpus to ensure coherence and distinctiveness; (5) theme refinement and naming - precise definition of each theme with attention to their explanatory power; and (6) writing - integration of analytic narrative with representative quotations and fieldnote excerpts.

The combination of inductive and deductive coding was deliberate: inductive coding ensured responsiveness to participants' own conceptual categories (for example, participants' use of terms like 'ajo' for rotating savings groups and 'Lagos sense' for spatial knowledge), while deductive coding enabled engagement with existing theoretical debates. Coding was conducted by the author, supported with a 15% sub-sample independently coded by a research collaborator; inter-coder discussion resolved divergences and refined code definitions.

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3 Triangulation across data sources: interviews, FGDs, and participant observation - was central
4 to analytical rigour. When patterns identified in interviews were confirmed by FGD discussion
5 and observed in fieldnotes, they were reported with greater confidence. When sources diverged,
6 for example, when FGD participants' accounts of collective action differed from individual
7 interview accounts, this divergence was treated as analytically significant and investigated
8 further. Analytical memos tracked the development of interpretations throughout the process.
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15 **Ethical Considerations**

16 The research received ethics approval from the University of Sheffield. Informed consent was
17 obtained from all participants through a process adapted to the research context, with particular
18 attention to ensuring voluntary participation and confidentiality, given informal workers'
19 precarious legal status and potential vulnerability to harassment by authorities. Written consent
20 was sought where participants were literate, while verbal consent was recorded for those who
21 preferred it. Participants were informed they could withdraw at any time, and pseudonyms were
22 used throughout this article to protect anonymity, while data were stored securely and
23 accessible only to the research team. Given informal workers' documented vulnerability to
24 state harassment, a concern particularly salient in Makoko, given its history of demolition,
25 additional steps were taken to anonymise site-specific details in quotations that could identify
26 individuals.
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38 As reflexivity is integral to the research, the researcher has maintained a long-term research
39 engagement with Lagos informality, which has facilitated access and contextual understanding
40 but also required ongoing attention to the risk of over-identifying with research partners or
41 romanticising their strategies. Fieldwork journals documented methodological decisions,
42 analytic interpretations, and reflexive observations throughout the research process. The
43 research team – including collaborators at the University of Lagos - helped establish direct
44 community connections, which enabled ongoing critical dialogue that challenged emerging
45 interpretations.
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53 **Limitations**

54 This research has several limitations. The focus on three communities in Lagos limits
55 generalisability to other contexts, though it provides depth of understanding about local
56 experiences and strategies. The sample may underrepresent the most marginalised informal
57 workers who lack membership in associations or stable work locations, potentially introducing
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3 selection bias in favour of workers with stronger social networks. Additionally, the cross-
4 sectional research design captures perspectives at specific points in time, whereas experiences
5 and strategies evolve dynamically, suggesting that longitudinal research could provide more
6 robust insights into resilience trajectories. Despite these limitations, the findings offer valuable
7 insights into informal workers' adaptive capacities and contributions to urban resilience.
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13 **Findings: Adaptive Strategies and Resilience Practices**

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15 Analysis of interviews, focus groups, and observational data from the three Lagos communities
16 (Makoko, Oshodi, and Lagos Island) reveals that informal workers in Lagos employ diverse
17 adaptive strategies in response to climate-related disasters, particularly flooding. These
18 strategies operate at individual, household, and collective levels, reflecting both
19 resourcefulness and constraints imposed by marginalisation. Five key themes emerged from
20 the data: livelihood diversification and flexibility, social networks and mutual support, spatial
21 adaptation and mobility, collective organisation and advocacy, and hybrid formal-informal
22 responses. Each theme is presented with evidence from interviews, attributed by pseudonyms,
23 occupation site, and dates, enabling readers to assess the contextual grounding of
24 interpretations. Table 7 provides an overview
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34 **Livelihood Diversification and Flexibility**

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36 A dominant theme across all participant groups was the importance of livelihood
37 diversification as an adaptive strategy. Informal workers described maintaining multiple
38 income sources that could be activated or de-emphasised in response to seasonal patterns,
39 market conditions, and disaster impacts. This flexibility represents both strategic adaptation
40 and necessity driven by income volatility and precarity.
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45 Amina, a 38-year-old market trader in Oshodi, explained:
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48 *“I sell vegetables in the market, but I also process palm oil that I can sell when the market*
49 *floods. My sister and I share a grinding machine, so when the market is closed, I can still*
50 *make an income from processing. You cannot depend on just one thing in Lagos” (Personal*
51 *interview, March 2024).*
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57 Her account illustrates how informal workers strategically maintain diverse income streams
58 that provide fallback options during disruptions. Livelihood diversification takes multiple
59 forms. Some workers maintain spatially dispersed activities across different market locations
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3 or neighbourhoods, enabling them to shift operations when one location becomes inaccessible
4 due to flooding.
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8 Chidi, a 42-year-old waste recycler, described how he maintains collection routes in three
9 different areas:
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13 *“During the rains, some areas flood badly. But I know other areas that are higher ground*
14 *where I can still collect materials. I move my operations around depending on where I can*
15 *work” (Personal interview, April 2024).*
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20 Others diversify across different products or services within their primary occupation. Several
21 market traders reported stocking both perishable and non-perishable goods, recognising that
22 flooding often disrupts supply chains for fresh produce while demand for non-perishables may
23 increase. Street vendors described switching between food items, household goods, and repair
24 services depending on demand patterns during and after disasters.
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30 Gender differences emerged in diversification strategies. Female traders often combined
31 market trading with home-based activities such as food processing, tailoring, or hairdressing
32 that could continue even when markets were flooded. Male artisans more commonly described
33 diversifying within construction-related trades: for example, combining carpentry with roofing
34 or plumbing work. These patterns reflect gendered divisions of labour and spatial constraints,
35 with women’s caregiving responsibilities often limiting mobility while creating opportunities
36 for home-based income generation.
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44 However, livelihood diversification has limits. Participants emphasised that multiple income
45 sources often yield marginal returns individually, and the time and resources required to
46 maintain diverse activities can be burdensome. Younger workers with less established social
47 networks and capital found diversification more challenging.
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52 As Tolani, a 25-year-old street vendor, noted:
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56 *“The older women have many connections and can do different things. For me, I am still*
57 *building my customer base. When flooding comes, I just have to wait it out” (Personal*
58 *interview, June 2024).*
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Social Networks and Mutual Support

The second major adaptive strategy centres on social networks and mutual support systems that provide critical resources during disasters. Informal workers described dense networks of reciprocal relationships based on kinship, ethnicity, hometown associations, religious communities, and workplace connections. These networks function as informal insurance mechanisms or what Klinenberg (2018) termed ‘social infrastructure’ (which is less visible than physical infrastructure but equally critical for disaster response), enabling resource sharing, temporary accommodation, and assistance with business recovery. Participants emphasised the importance of rotating savings and credit associations (locally known as “*ajo*” or “*esusu*”), which enable members to accumulate capital and access emergency funds.

Bisi, a 45-year-old fabric trader, explained:

“In our group, we contribute every week. When flooding damaged my goods last year, I could collect my round early to replace the stock. Without this, I would have lost my business” (Personal interview, May 2024).

These associations provide not only financial support but also social solidarity and collective problem-solving. In the financial inclusion literature, they would be classified as “informal rotating credit,” which provides rapid access to capital without collateral requirements, documentation, or bureaucratic delays. FGD participants in Oshodi elaborated that well-established “Ajo” groups sometimes have explicit provisions for emergency early collection, effectively functioning as disaster insurance. The social solidarity generated through *ajo* participation extends beyond financial support to include collective problem-solving, information sharing about market conditions and flood risks and mutual emotional support.

Kinship networks emerged as particularly significant for housing security during floods. Multiple participants across all sites described staying with relatives on higher ground during flooding, enabling them to continue attending the market even when their homes were inaccessible. However, this dependence on kinship ties has limitations. Participants noted that repeated displacement strains relationships, especially when entire neighbourhoods flood simultaneously and housing options become scarce.

Trade associations and market unions constitute another layer of social support. These organisations collect dues from members and maintain emergency funds for disaster assistance,

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3 advocacy with authorities, and collective infrastructure improvements. The leadership of these
4 associations often plays a critical role in coordinating disaster response and negotiating with
5 government officials.
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10 Alhaji Musa, chairman of a market traders association, described how his organisation
11 responded to flooding in 2023:

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13 *“We organised our members to clean the drains and pump out water. We contributed money*
14 *to buy sandbags for the most vulnerable stalls. The government did not come for three days,*
15 *so we had to act for ourselves” (Personal interview, November 2024).*
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20 Religious communities also provide vital support networks. Participants described how
21 churches and mosques offer temporary shelter, food assistance, and small grants to affected
22 members.
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27 Pastor Emmanuel, who leads a church in Makoko, noted:

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29 *“When flooding comes, we open the church for people to sleep. We collect offerings to help*
30 *those who lost everything. For our members who are traders, we try to give them small*
31 *capital to restart their business” (Personal interview, August 2024).*
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36 However, social networks demonstrate unevenness and exclusions. Recent migrants and those
37 without ethnic or religious affiliations to dominant community groups described greater
38 difficulty accessing support. Women reported that male-dominated trade associations
39 sometimes marginalise female members' concerns.
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44 Additionally, the most severe disasters can overwhelm network capacities, as Nneka, a 52-
45 year-old trader, explained:

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47 *“When the flooding is very bad and affects everyone, who can help who? We are all suffering*
48 *together” (Personal interview, October 2024).*
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53 **Spatial Adaptation and Mobility**

54 The third adaptive strategy involves spatial modifications and mobility practices that enable
55 informal workers to continue economic activities despite environmental hazards. These
56 practices range from temporary adjustments during flooding events to longer-term spatial
57 adaptations and relocation decisions. Many informal workers described developing detailed
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3 knowledge of neighbourhood topography, drainage patterns, and flooding history (“flood
4 literacy” or topographic knowledge of which areas flood first, how quickly water rises, and
5 which routes remain accessible) that informs their spatial practices. Whilst this knowledge is
6 not formally documented, it is, however, transmitted through associational networks,
7 mentorship relationships, and accumulated personal experience. Market traders operating in
8 flood-prone areas, particularly in Makoko and parts of Lagos Island, reported using strategies
9 such as elevating merchandise on raised platforms, storing goods in waterproof containers, and
10 maintaining inventories across multiple locations. Observations confirmed these practices,
11 with many market stalls featuring raised floors or mobile carts that could be quickly moved to
12 higher ground. Waste recyclers demonstrated particular spatial adaptability, modifying
13 collection routes in response to flooding patterns and seasonal variations in material
14 availability.

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26 Emeka, a 39-year-old waste collector, explained:

27 *“I know which streets flood first when rain is coming. I collect from those areas early in the*
28 *day before the water rises. After flooding, there are different materials available - more*
29 *plastics and metals from people cleaning out damaged goods. You have to know where to go*
30 *for what you need” (Personal interview, July 2024).*

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36 This account reveals both the sophisticated spatial intelligence that informal workers develop
37 and how this knowledge, this “bouncing forward” mindset, suggests a tacit resilience capacity
38 and agency, demonstrating that resilience is socially produced and enabled, and that post-
39 disaster economic opportunity is created by informal workers that formal waste management
40 systems, for instance, cannot rapidly exploit. Physical adaptations to market stalls (elevated
41 platforms, waterproof storage containers, and removable raised flooring) were documented
42 extensively throughout participant observation across all three sites. For workers whose
43 economic activities depend on specific locations, such as waterfront fish traders or market stall
44 holders, spatial adaptation involves infrastructure modifications. In Makoko, observations
45 revealed extensive use of elevated walkways, stilted structures, and sandbag barriers, enabling
46 continued residence and economic activity in flood-prone areas. However, these adaptations
47 require resources, and participants noted that the poorest households lack the capital for even
48 basic flood-proofing measures. Mobility represents another dimension of spatial adaptation,
49 with some informal workers relocating temporarily or permanently in response to repeated
50 flooding. However, mobility decisions involve complex trade-offs. Moving to higher ground
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3 or inland areas often means a greater distance from markets, customers, and economic
4 opportunities. Several participants described attempting relocation but returning due to
5 livelihood constraints.
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10 Grace, a 41-year-old food vendor, explained:

11 *“I moved to my brother’s place on the mainland after flooding destroyed my house. But I was*
12 *travelling three hours to reach my customers. I was spending all my profit on transport. I had*
13 *to come back even though I know the flooding will happen again” (Personal interview,*
14 *September 2024).*
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20 These accounts show how spatial adaptation is limited by informal workers’ reliance on
21 specific locations for livelihood security. The account further demonstrates how many informal
22 workers face a “spatial trap” in high-risk areas, where the concentration of livelihoods in
23 particular places (customer relationships, supplier networks, and market positions) creates
24 strong incentives to return even to flood-prone zones. This concentration limits mobility
25 options, trapping some workers in high-risk locations despite their knowledge of the hazards.
26 FGDs across all sites confirmed this pattern, with participants describing how relocation
27 attempts were reversed due to livelihood constraints. This spatial immobility is not irrational
28 risk-taking but a logical response to the economic geography of Lagos’s informal markets.
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38 **Collective Organisation and Advocacy**

39 The fourth adaptive strategy involves collective organisation and advocacy through which
40 informal workers seek to influence government disaster response and urban planning decisions.
41 While often overlooked in resilience discourse, these practices reveal informal workers’
42 political agency and aspirations for structural transformation rather than merely coping with
43 existing conditions.
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50 Market associations and trade unions emerged as primary vehicles for collective action. These
51 organisations engage in multiple forms of advocacy, including petitioning government
52 agencies for infrastructure improvements, negotiating with authorities during eviction threats,
53 and demanding inclusion in disaster planning processes. Interview data revealed numerous
54 examples of collective action, from organising protests against market closures after flooding
55 to submitting formal proposals for drainage improvements to local government. FGD
56 participants in Oshodi explained how their association successfully petitioned the Local
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3 Government Area to clean drainage channels before the 2023 rainy season, demonstrating
4 effective advocacy within a community with strong associational networks.
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8 Alhaja Kemi, a trader and association leader, described their advocacy efforts:

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10 *“We are not just sitting and waiting for the government. We organised our members to meet*
11 *with the local chairman. We showed him how the blocked drains are causing flooding and*
12 *how traders are losing money. We demanded they clean the drains before the rainy season.*
13 *When they did nothing, we organised a peaceful protest. Only then did they send workers to*
14 *clean some of the drains” (Personal interview, June 2024).*
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21 These advocacy efforts demonstrate the collective capacity of informal workers to demand
22 state responsiveness and accountability. However, as confirmed in the FGD discussion,
23 participants noted significant challenges, including limited political influence, co-optation of
24 association leaders by politicians, and internal divisions that weaken collective action. Women
25 traders particularly emphasised their marginalisation in association decision-making despite
26 comprising the majority of membership in many markets. In Makoko, where the demolition
27 threat creates a more adversarial governance context, collective organisation takes on a
28 different character, focused more on community solidarity and resistance to eviction than on
29 infrastructure advocacy. In Lagos Island, the more mixed formal-informal commercial
30 environment means associations engage in more regularised negotiation with market
31 management authorities.
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41 Some informal workers engage in what might be termed “insurgent planning” (Miraftab, 2009)
42 or take direct action to produce infrastructure and services when state systems fail. Examples
43 include collective drainage cleaning, construction of raised walkways and bridges, and the
44 establishment of informal early warning systems for flooding (including neighbourhood
45 WhatsApp groups sharing rainfall and flood-level information). These initiatives demonstrate
46 both resourcefulness and the failure of formal urban governance to provide basic services.
47 Community-based organisations and NGOs constitute another channel for collective action.
48 Several participants in the FGDs described collaborating with civil society organisations on
49 flood-preparedness training, advocacy for slum upgrading, and documentation of disaster
50 impacts to pressure the government to respond. However, NGO engagement proves uneven
51 across communities, with better-connected areas receiving more support. Nevertheless,
52 collective advocacy faces significant structural limitations: political patronage relationships
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3 shape which associations receive government attention and assistance, creating inequality
4 between well-connected and peripheral communities. For instance, the co-optation of
5 association leadership by politicians, as reported in Oshodi and Lagos Island FGDs, is a
6 dynamic that can also undermine collective action by redirecting associations from member
7 advocacy to political mobilisation. Women's marginalisation in association decision-making
8 was reported across all sites despite women constituting majorities of membership in most
9 markets.
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17 **Hybrid Formal-Informal Responses**

18 The fifth adaptive strategy involves hybrid practices that blend formal and informal systems,
19 revealing the entanglement of state institutions and informal networks in disaster response.
20 Rather than operating in separate spheres, formal and informal resilience mechanisms often
21 intersect, with informal workers strategically engaging state resources while maintaining
22 autonomous support systems. Some informal workers described accessing government disaster
23 relief programmes, though often through informal intermediaries and social networks rather
24 than formal eligibility criteria. Political patronage relationships emerged as a significant
25 pathway for accessing relief, with traders describing how supporting particular politicians
26 during elections created expectations of assistance during disasters. This politicisation of
27 disaster aid creates inequality, with benefits flowing disproportionately to those with political
28 connections; for example, traders who had supported particular politicians during elections
29 received preferential access to post-flood assistance.
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41 Participants in all sites also described informal negotiations with government officials
42 responsible for market management and waste collection. These negotiations often involve
43 informal payments (that participants described variously as 'settlement', 'tax', or 'extortion',
44 constitute another dimension of hybrid response), meant to prevent harassment or ensure
45 service provision, revealing how corruption and informality intersect in ways that can either
46 facilitate or hinder resilience. FGD discussions in Lagos Island most explicitly addressed this
47 dynamic, with participants describing both the pragmatic utility of political connections and
48 their resentment of the inequity it produced. While some informal workers described these
49 arrangements pragmatically as "working within the system," others criticised them as
50 exploitative practices that perpetuate vulnerability. NGO interventions sometimes create
51 hybrid spaces for formal-informal collaboration. Several participants had participated in
52 climate adaptation projects that provided training on flood-proofing techniques, distributed
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emergency supplies, or facilitated dialogue between informal workers and government agencies. These initiatives demonstrated potential for more inclusive disaster governance, though sustainability beyond project funding periods remained uncertain. FGD participants across all sites identified NGO engagement as valuable when it builds lasting institutional relationships rather than short-term project delivery. However, sustainability beyond project funding periods remained a consistent concern.

The relationship between informal workers and formal disaster management agencies proves complex and often contradictory. On one hand, informal workers expressed frustration with inadequate government response to flooding and the perception that authorities prioritise wealthy areas over informal settlements. On the other hand, some participants described positive interactions with emergency responders and appreciated specific government interventions such as post-flood cleanup operations. This ambivalence reflects the uneven and contingent nature of state-society relations in Lagos, where government responsiveness varies across neighbourhoods, administrative levels, and political contexts.

Table 7: Informal Workers' Adaptive Strategies: Summary

Strategy	Key Mechanisms	Site Variation	Key Limitations
1. Livelihood Diversification	Multiple income streams; spatial dispersion; product/service switching	Home-based diversification more prominent in Makoko (spatial constraint); trade diversification more visible in Oshodi	Marginal individual returns; burdensome to maintain; age/capital dependent
2. Social Networks & Mutual Support	Ajo/esusu; kinship housing; trade association emergency funds; religious institutions	Network density highest in Oshodi; kinship ties more prominent in Makoko; religious institutions strong across all sites	Network fatigue in severe events; exclusions by ethnicity, gender, newcomer status
3. Spatial Adaptation & Mobility	Elevated platforms; topographic knowledge; temporary relocation; route modification	Physical infrastructure adaptations most extensive in Makoko; spatial mobility highest among Lagos Island waste recyclers	Spatial trap: livelihood attachment limits relocation; poorest cannot afford flood-proofing
4. Collective Organisation & Advocacy	Petitions; protests; community infrastructure; early warning systems	Advocacy most institutionalised in Oshodi; community solidarity most evident in	Political co-optation; women's marginalisation; power imbalances limit gains

Strategy	Key Mechanisms	Site Variation	Key Limitations
		Makoko; negotiation-focused in Lagos Island	
5. Hybrid Formal-Informal Responses	Patronage-based relief access; NGO partnerships; informal negotiations with officials	Political connections most mobilised in Lagos Island; NGO presence strongest in Makoko	Access depends on political capital; corruption; sustainability of NGO engagement

Table 7: Source: Author, based on fieldwork data (2023–2024).

Discussion: Implications for Urban Resilience Theory and Practice

The findings reveal several important insights regarding informal workers' contributions to urban resilience and the implications for theory, policy, and practice in Lagos and other Global South cities. This discussion addresses four key themes: reconceptualising resilience from below, recognising informal institutions as resilience infrastructure, addressing the limits of adaptive strategies, and reimagining urban governance for inclusive resilience.

Reconceptualising Resilience from Below

The adaptive strategies documented in this research demonstrate that resilience in Lagos is produced not primarily through formal planning systems or disaster management agencies but through everyday practices, social relationships, and informal institutions developed by informal workers and their communities. This finding resonates with scholarship on “resilience from below” that emphasises how urban residents in Global South cities create stability and security through improvisation, collective action, and alternative organisational forms (Pelling & Manuel-Navarrete, 2011; Fayombo, 2021; Wafer, 2021). However, the research also reveals tensions in celebrating resilience from below without attending to its political-economic context. Informal workers' adaptive strategies emerge from conditions of marginalisation, precarity, and state neglect. Their resourcefulness reflects not a choice but necessity, as Simone (2019) describes: “people doing things in lieu of other possibilities.” To romanticise informal resilience without acknowledging that it compensates for systematic exclusion from formal protections and services risks normalising vulnerability and absolving states of responsibility for providing basic infrastructure and disaster protection.

This tension suggests the need for what Pelling (2011) calls “transformative resilience” or approaches that strengthen adaptive capacities while simultaneously addressing root causes of

vulnerability through structural change. For informal workers in Lagos, this would mean not only supporting their existing coping mechanisms but also challenging the political-economic arrangements that produce their precarity, including land tenure insecurity, lack of legal recognition, inadequate infrastructure investment in informal settlements, and exclusion from urban planning processes.

Recognising Informal Institutions as Resilience Infrastructure

The research highlights how informal institutions - trade associations, rotating savings groups, kinship networks, religious communities - constitute critical resilience infrastructure that enables disaster response, livelihood recovery, and collective action. These institutions demonstrate organisational sophistication, social solidarity, and the capacity for rapid mobilisation that often exceed those of formal disaster management systems in their reach and responsiveness. These findings challenge dominant disaster risk reduction frameworks that privilege formal institutions and technical interventions while treating informal systems as gaps to be replaced by formalised alternatives (Tierney, 2014). Instead, the research suggests the value of what Herrick (2021) describes as “institutional bricolage”, or hybrid approaches that recognise and strengthen informal institutions while improving the capacities of formal systems. However, informal institutions also demonstrate limitations and exclusions. Social networks based on kinship, ethnicity, or religion may reinforce particularistic solidarities while marginalising outsiders. Rotating savings groups require regular contributions that the poorest workers cannot afford. Trade associations may be captured by elites or dominated by gender, ethnic, or occupational groups. Recognising these limitations is essential to avoid overgeneralising informal institutions’ resilience contributions or overlooking internal inequalities.

Furthermore, informal institutions cannot substitute for state responsibility to provide basic services, infrastructure, and disaster protection. The burden of resilience should not fall entirely on marginalised communities and their self-organised support systems. As Ribot (2014) argues, focusing on community resilience without addressing state accountability risks shifting responsibility for adaptation from those who created climate risks to those least responsible but most vulnerable. The burdens of informal resilience are borne disproportionately by those with the fewest resources.

Addressing the Limits of Adaptive Strategies

While the research documents impressive adaptive capacities, it also reveals significant limits to informal workers' resilience strategies. Livelihood diversification provides some buffer against shocks but often yields marginal returns and can be exhausting to maintain. Social networks offer critical support but can become overwhelmed by severe or repeated disasters affecting entire communities simultaneously. Spatial adaptations enable continued economic activity but leave underlying flood risks unaddressed (Gilber & Shi, 2023). Collective advocacy achieves some gains but faces formidable power imbalances and political obstacles. These limits reflect what Watts and Bohle (1993) describe as structural vulnerability - disadvantage produced by political-economic arrangements rather than individual deficits.

Informal workers' vulnerability stems from land tenure insecurity, exclusion from formal financial services, inadequate public infrastructure, and marginalisation from urban planning processes. Their adaptive strategies operate within these constraints but cannot fundamentally transform the structural conditions that produce vulnerability. This analysis suggests that supporting the resilience of informal workers requires interventions at multiple scales. At the micro level, this includes strengthening existing adaptive capacities through skills training, access to credit, and disaster preparedness programs. At the meso level, it involves recognising and supporting informal institutions, facilitating collective organisation, and creating channels for informal worker participation in urban governance. At the macro level, it requires addressing structural drivers of vulnerability through secure land tenure, infrastructure investment in informal settlements, inclusive urban planning, and social protection systems that extend to informal workers.

Gender Dimensions of Resilience

The research reveals systematic gendered patterns in both vulnerability and adaptive capacity that align with and extend findings from feminist urban studies. Women informal workers face distinct constraints: time poverty from care responsibilities limits spatial mobility; marginalisation in male-dominated trade associations restricts access to collective resources; concentration in lowest-income activities reduces capital for diversification. These constraints are not inevitable; they reflect gendered divisions of labour, ownership, and institutional power. Yet women also demonstrate specific adaptive strengths: denser social networks, particularly

through 'ajo' groups and women-only support collectives; home-based livelihood diversification that leverages domestic space; and strong participation in community-level disaster response. Table 8 illustrates these gendered patterns. Gender-sensitive resilience approaches must attend to both constraints and capacities without essentialising women's roles or treating gendered differences as fixed.

Table 8: Gendered Patterns in Resilience Strategies

Gendered Patterns in Resilience Strategies

Women & Men Informal Workers	Adaptive Strengths
<p>Women Informal Workers</p> <p>PRIMARY CONSTRAINTS</p> <ul style="list-style-type: none"> • Time poverty due to care responsibilities • Limited spatial mobility • Marginalization in male-dominated associations • Lower access to credit & capital • Concentration in lowest-income activities 	<ul style="list-style-type: none"> • Dense social networks & mutual support • Home-based livelihood diversification (food processing, tailoring, hairdressing) • Strong participation in rotating savings groups • Women-only support collectives • Greater spatial mobility • Diversification within construction-related trades (carpentry, roofing) • Stronger representation in trade association leadership • Access to post-disaster reconstruction opportunities
<p>Male Informal Workers</p> <p>PRIMARY CONSTRAINTS</p> <ul style="list-style-type: none"> • Pressure as primary breadwinners • Higher capital investment in tools & equipment • Masculine norms limiting help-seeking 	
<p>KEY INSIGHT Gender shapes both vulnerabilities and adaptive capacities. Effective resilience interventions must address structural constraints while building on existing strengths across gender lines.</p>	

Source: Author

Reimagining Urban Governance for Inclusive Resilience

The research reveals fundamental disconnections between formal urban planning systems and the lived realities of informal workers who constitute the majority of Lagos' workforce. Current disaster management approaches often treat informal settlements as problems to be removed rather than communities to be protected. Market traders and street vendors face harassment and eviction rather than support to enhance their resilience. Infrastructure investments prioritise formal areas while neglecting informal settlements, which are most at risk of flooding. These patterns reflect what Roy (2009) describes as the selective deployment of informality by states

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3 - strategically tolerating certain informal practices while criminalising others, often in ways
4 that reinforce existing inequalities. Reimagining urban governance for inclusive resilience
5 requires several shifts in approach (Stoltz et al., 2025).
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10 First, recognising informal workers as legitimate urban stakeholders entitled to participate in
11 decision-making processes affecting their livelihoods and communities. This means creating
12 institutional mechanisms for informal worker representation in urban planning, disaster risk
13 reduction committees, and climate adaptation initiatives. Several participants emphasised the
14 importance of being consulted rather than merely receiving top-down interventions that may
15 not address their actual needs. Second, integrating informal settlements and markets into urban
16 infrastructure systems rather than treating them as temporary anomalies awaiting formalisation
17 or removal. This includes extending drainage systems, waste-collection infrastructure, and
18 flood-protection infrastructure to informal areas. It also involves in-situ upgrading approaches
19 that improve environmental conditions while enabling residents to remain, rather than forced
20 relocation, which disrupts livelihoods and social networks (Huchzermeyer, 2011).
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31 Third, developing social protection systems that extend to informal workers, including disaster
32 insurance schemes, emergency cash transfers, and livelihood recovery support. Current social
33 protection programmes in Nigeria often exclude informal workers due to bureaucratic
34 requirements, lack of documentation, or formal employment criteria (Author, 2022).
35 Expanding coverage requires flexible approaches adapted to informal workers' circumstances,
36 potentially building on existing informal institutions such as trade associations. Fourth,
37 addressing land tenure security, which emerged as a fundamental concern underlying many
38 participants' vulnerability. Insecure tenure prevents investments in flood-proofing, creates a
39 constant threat of eviction, and undermines long-term adaptive planning (Fayombo, 2021).
40 While full formal land titling faces significant political and administrative obstacles in Lagos,
41 intermediate approaches such as certificates of occupancy, recognition of customary tenure, or
42 protected tenant status could enhance security (Durand-Lasserve & Selod, 2009).
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53 **Policy Recommendations**

54 Based on the research findings and discussion, this section offers recommendations for urban
55 planning, disaster risk reduction, and climate resilience policies in Lagos and similar cities in
56 the Global South. These recommendations are categorised into three tiers of policy actions:
57 short-term, medium-term, and long-term.
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Short-Term Recommendations:

1. Institutionalise Informal Worker Participation in Urban Governance

Lagos state and local government authorities should create formal mechanisms for informal worker participation in urban planning and disaster risk reduction processes. This includes reserving seats for informal worker representatives on urban planning committees, establishing consultative forums between trade associations and government agencies, and requiring impact assessments for proposed policies affecting informal workers. The Lagos State Ministry of Physical Planning and Urban Development should develop participatory planning protocols adapted explicitly to informal settlement contexts.

2. Support Informal Institutions and Collective Organisation

Government agencies and development partners should recognise and support informal institutions that enable resilience, including trade associations, rotating savings groups, and community-based organisations. This includes capacity-building for association leadership, small grants for collective infrastructure improvements, and facilitating linkages between informal institutions and formal service providers. However, support should avoid co-optation or undermining the autonomous character of informal institutions.

3. Establish a Multi-Stakeholder Climate Adaptation Platform

Lagos State should convene a multi-stakeholder platform that brings together government agencies, informal worker organisations, NGOs, researchers, and private-sector actors to coordinate climate adaptation efforts. This platform should facilitate information sharing, align interventions across sectors, and enable informal workers to shape adaptation priorities and implementation approaches. The platform should operate transparently with public documentation of decisions and resource allocations.

Medium-Term Recommendations:

4. Develop Adaptive Social Protection for Informal Workers

The Federal Government of Nigeria, in collaboration with Lagos State, should develop social protection programmes designed explicitly for informal workers. This includes disaster insurance schemes subsidised through trade-association partnerships, emergency cash transfers triggered by flooding events, and livelihood recovery grants for business replacement. Programmes should use flexible eligibility criteria adapted to the challenges of informal

workers' documentation and income verification, potentially building on existing informal institutions rather than requiring formalisation as a prerequisite.

5. *Mainstream Gender and Social Equity in Resilience Interventions*

All resilience programmes should include explicit gender analysis and measures to address women's specific vulnerabilities and marginalisation in decision-making. This includes ensuring women's representation in consultations, designing interventions responsive to women's time constraints and mobility limitations, and addressing gendered patterns of asset ownership and credit access. Intersectional approaches should also attend to the vulnerabilities of youth, elderly persons, persons with disabilities, and ethnic minorities.

Long-Term Recommendations:

1. *Extend Infrastructure Investment to Informal Settlements and Markets*

Government infrastructure budgets should prioritise flood-prone informal settlements and markets where vulnerable populations are concentrated. This includes drainage system improvements, waste collection services, raised walkways, and flood early warning systems. Rather than pursuing relocation, authorities should invest in in-situ upgrading that improves environmental conditions while enabling residents to remain. Infrastructure planning should involve affected communities to ensure interventions address actual needs and leverage local knowledge of flooding patterns.

2. *Secure Land Tenure and Prevent Arbitrary Evictions*

Lagos State should implement land tenure reforms that provide security for residents of informal settlements and market traders. This includes moratoriums on evictions from flood-prone areas without adequate resettlement provisions, the issuance of certificates of occupancy or other tenure documents, and the recognition of customary tenure arrangements. The state should adopt the principle that evictions must be a measure of last resort, preceded by meaningful consultation, an impact assessment, and the provision of adequate alternative accommodation, as specified in international human rights standards (UN-Habitat, 2014).

3. *Invest in Applied Research and Monitoring*

Government and development partners should invest in applied research documenting informal workers' experiences, adaptive strategies, and policy needs. This includes establishing monitoring systems to track the impacts of disasters on informal economies, conducting

participatory action research with informal worker communities, and evaluating the effectiveness of resilience programmes. Research findings should be systematically incorporated into policy development through accessible formats and intentional knowledge exchange mechanisms with policymakers and practitioners, as empirical evidence indicates that effective inclusive urban governance involving informal workers not only reduces vulnerability but also strengthens the adaptive capacity for the long-term sustainability of Lagos's urban ecosystem.

Table 9. Summary of Policy Recommendations, Scales, Lead Actors, and Key Considerations

Recommendation	What it entails (from article)	Primary scale	Lead actors	Key risks / considerations
Institutionalise informal worker participation in urban governance	Create formal mechanisms for representation of informal workers in urban planning and DRR; establish consultative forums and participatory protocols.	Meso / Macro	Lagos State Ministry of Physical Planning & Urban Development; Local Government; Trade associations	Tokenism or exclusion of key groups; capture by elites; need for clear mandates and transparent selection.
Extend infrastructure investment to informal settlements and markets	Prioritise drainage, waste collection, raised walkways, and early warning systems; favour in-situ upgrading over relocation with community co-design.	Macro / Meso	State & Local Government (works/environment); Community organisations	Risk of evictions or disruptive relocations; infrastructure maintenance and equitable targeting.
Develop adaptive social protection for informal workers	Design disaster insurance, emergency cash transfers, and livelihood recovery grants with flexible eligibility adapted to informality.	Macro	Federal Government of Nigeria; Lagos State; Trade associations as delivery partners	Documentation barriers; excluding the most vulnerable; sustainability of financing.
Secure land tenure and prevent arbitrary evictions	Implement tenure reforms (e.g., certificates of occupancy, recognition of customary tenure); moratoriums on evictions without adequate resettlement.	Macro	Lagos State land and planning authorities	Political resistance; legal complexity; ensure evictions are last resort with due process and alternatives.
Support informal institutions and collective organisation	Recognise and resource trade associations, rotating savings groups, and CBOs through capacity-building and small grants; link to formal services.	Meso	Government agencies; Development partners; NGOs; Informal worker organisations	Avoid co-optation; address internal exclusions (gender/ethnicity); preserve autonomy.

Mainstream gender and social equity in resilience interventions	Ensure women's representation; design around time/mobility constraints; address asset and credit gaps; apply intersectional approach.	Cross-cutting	All implementing agencies; Trade associations; NGOs	Risk of tokenistic inclusion; need for gender-responsive budgets and monitoring.
Establish a multi-stakeholder climate adaptation platform	Convene government, informal worker orgs, NGOs, researchers, and private sector for coordinated adaptation with transparent decision logs.	Meso / Macro	Lagos State (convener); Platform members	Coordination fatigue; ensure genuine power-sharing and accountability.
Invest in applied research and monitoring	Set up systems to track disaster impacts on informal economies; promote participatory/action research and policy uptake mechanisms.	Macro / Meso	Government; Development partners; Research institutions	Data quality and continuity; ensure findings inform policy and practice beyond project cycles.

Contributions to Urban Resilience Scholarship

This research makes several contributions to scholarly debates on urban resilience in Global South cities. First, it advances critical resilience scholarship by demonstrating how resilience is produced through everyday practices and social relations rather than primarily through formal planning systems. The detailed documentation of informal workers' adaptive strategies reveals the sophisticated organisational capacities and collective knowledge that enable urban life under precarious conditions. This empirical evidence challenges deficit-oriented narratives that position informal workers merely as vulnerable populations in need of external intervention.

Second, the research contributes to debates on the relationship between formal and informal urban governance systems. Rather than operating in separate spheres, the findings reveal complex entanglements, negotiations, and hybrid practices that characterise disaster response in Lagos. Informal workers strategically engage formal institutions while maintaining autonomous support systems, revealing what Silver (2014) describes as "tactical formalisation", - selective engagements with state authority that advance specific interests without surrendering informal autonomy. Understanding these hybrid dynamics is essential for developing governance approaches that strengthen rather than undermine existing resilience capacities.

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5 Third, the research demonstrates the importance of scalar analysis in understanding urban
6 resilience. Informal workers' adaptive strategies operate simultaneously at individual,
7 household, community, and city-wide scales, with different strategies effective at different
8 scales. Livelihood diversification represents an individual/household-level strategy, social
9 networks operate at the community scale, and collective advocacy addresses city-wide
10 governance systems. Effective resilience interventions must work across these scales rather
11 than focusing exclusively on individual behaviour change or citywide planning systems.
12 Fourth, the research contributes to feminist urban studies by illuminating gendered dimensions
13 of resilience and vulnerability. Women informal workers face distinct constraints, including
14 time poverty due to care responsibilities, limited mobility, and marginalisation in male-
15 dominated trade associations. Yet they also demonstrate specific adaptive capacities, including
16 dense social networks, home-based livelihood diversification, and collective savings groups.
17 Gender-sensitive approaches to resilience must attend to both constraints and capacities while
18 avoiding essentialist assumptions about women's roles.
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31 Fifth, the research advances understanding of the relationship between climate adaptation and
32 development. The findings reveal that adaptation cannot be addressed separately from broader
33 questions of urban equity, livelihood security, and infrastructure access. Informal workers'
34 vulnerability to flooding stems not only from climate change but also from the intersections of
35 environmental hazards with land tenure insecurity, infrastructure deficits, and economic
36 precarity. Effective adaptation, therefore, requires integrated approaches that address multiple
37 dimensions of vulnerability simultaneously.
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44 **Limitations and Future Research Directions**

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46 While this research provides important insights, several limitations suggest directions for future
47 investigation. First, the focus on three communities in Lagos limits generalisability to other
48 contexts. Comparative research across different cities in Nigeria and other Global South
49 countries would illuminate how informal workers' adaptive strategies vary with different urban
50 governance systems, hazard exposures, and political-economic contexts. Such comparative
51 work could identify transferable lessons while respecting the specificity of context. Second,
52 the research captures experiences at specific moments in time, providing a snapshot rather than
53 a longitudinal perspective. Future research employing panel study designs that track the same
54 informal workers over multiple years would reveal how adaptive strategies evolve, which
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3 strategies prove sustainable, and how repeated disasters affect resilience capacities over time.
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5 Longitudinal research would also enable assessment of whether adaptive strategies enable
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7 “bouncing forward” toward transformed circumstances or merely reproduce precarity.
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11 Third, while the research documents informal workers’ perspectives extensively, it provides
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13 limited analysis of government actors’ viewpoints and the political-economic factors shaping
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15 state responses to informal workers. Future research should examine decision-making
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17 processes within government agencies, the political economy of urban planning in Lagos, and
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19 the influence of electoral politics on disaster response. Understanding the constraints facing
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21 well-intentioned officials, as well as the political barriers to reform, is essential for developing
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23 feasible policy interventions. Fourth, the research could be strengthened by a more systematic
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25 quantitative analysis of the impacts of disasters on informal workers’ livelihoods. While
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27 qualitative methods effectively captured experiential dimensions, quantitative data on income
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29 losses, recovery timeframes, and costs of adaptive strategies would provide complementary
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31 evidence useful for policy advocacy and program design. Mixed-methods research combining
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33 qualitative depth with quantitative breadth represents an important direction.

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35 Fifth, future research should examine the role of digital technologies in informal workers’
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37 adaptive strategies. Several participants mentioned using mobile phones for market
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39 information, weather alerts, and mobile money transfers, but the research did not systematically
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41 investigate digital practices. As smartphone penetration increases in Lagos, understanding how
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43 informal workers use digital tools for adaptation could inform technology-enabled resilience
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45 interventions. Sixth, more research is needed on the environmental and climate justice
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47 dimensions of urban resilience in Lagos. While this research documented differential
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49 vulnerabilities, a deeper analysis of how race, ethnicity, class, and citizenship status intersect
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51 to produce uneven disaster impacts would advance environmental justice scholarship. Research
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53 should also examine how resilience interventions may inadvertently reinforce inequalities
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55 through processes such as green gentrification.

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57 Finally, action research partnerships between researchers, informal workers, and government
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59 agencies could generate knowledge while directly supporting resilience-building. Participatory
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action research approaches that position informal workers as co-researchers rather than merely
research subjects could produce more relevant knowledge while building capacity and

empowering communities. Such approaches align with calls to decolonise urban research methodologies and to centre Global South voices in knowledge production.

Conclusion: Toward Post-Disaster Urban Futures Grounded in Social Justice

This article has examined how informal workers in Lagos, Nigeria, navigate climate-related disasters and contribute to urban resilience through diverse adaptive strategies. The research reveals that informal workers are not merely passive victims of disasters but active agents who employ livelihood diversification, social networks, spatial adaptation, collective organisation, and hybrid formal-informal practices to maintain livelihoods and support community resilience. These strategies demonstrate impressive resourcefulness and organisational capacity, often compensating for inadequate state infrastructure and disaster management systems.

However, the research also reveals significant limits to informal workers' adaptive capacities and the structural constraints that produce their vulnerability. Informal workers' resilience emerges from conditions of marginalisation, precarity, and state neglect. Their adaptive strategies enable survival but cannot fundamentally transform the political-economic arrangements that generate vulnerability in the first place. Celebrating informal resilience without addressing these structural conditions risks normalising precarity and absolving states of responsibility for providing basic protections and services. Reimagining post-disaster urban futures in Lagos and other Global South cities requires approaches grounded in social justice that strengthen existing adaptive capacities while simultaneously transforming the conditions that produce vulnerability. This means recognising informal workers as legitimate urban stakeholders entitled to participate in decision-making, extending infrastructure and social protection to informal settlements and markets, securing land tenure, and supporting rather than undermining informal institutions that enable resilience.

Such approaches challenge dominant paradigms that treat informality as a problem to be eradicated or formalised. Instead, they recognise informal economies as constitutive of urban life in Global South cities and informal workers as essential contributors to urban resilience whose knowledge, organisational capacities, and collective action offer resources for building more adaptive and equitable cities (Choorapulakkai et al., 2025). The question is not whether informal workers contribute to resilience- the evidence presented here demonstrates that they clearly do, but whether urban planning and disaster governance systems will recognise,

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3 support, and learn from these contributions. The COVID-19 pandemic and intensifying climate
4 impacts have made clear that business-as-usual approaches to urban development and disaster
5 management are inadequate to meet the challenges facing cities like Lagos. Building post-
6 disaster urban futures requires fundamental rethinking of who counts as an expert, whose
7 knowledge matters, and whose interests urban planning serves. It requires moving beyond
8 technocratic approaches that privilege formal systems toward more inclusive and democratic
9 governance that centres the experiences, priorities, and agency of those most affected by urban
10 vulnerabilities.
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19 Informal workers in Lagos and cities across the Global South are already constructing
20 alternative urban futures through their everyday practices, social solidarities, and collective
21 struggles for dignity and security (Tillermuir et al., 2025). The task for researchers,
22 policymakers, and practitioners is to support rather than undermine these efforts, to learn from
23 rather than dismiss informal workers' knowledge, and to work in solidarity toward urban
24 futures characterised by resilience, equity, and justice. Only by grounding resilience
25 approaches in these principles can we hope to build cities capable of weathering the climate
26 crisis while ensuring that the burdens and benefits of adaptation are distributed fairly. The
27 adaptive strategies documented in this research offer both inspiration and caution. They reveal
28 human ingenuity and collective capacity in the face of profound challenges. But they also
29 reveal the injustice of a system that forces vulnerable populations to bear primary responsibility
30 for adapting to crises they did not create. True resilience requires not only strengthening
31 informal workers' adaptive capacities but also transforming the political-economic structures
32 that produce their vulnerability. This is the essential work of building just and sustainable urban
33 futures.
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