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(SCHOOL OF GRADUATE STUDIES AND RESEARCH)

**ASSESSING THE IMPLICATIONS OF FLOODING MENACE FOR URBAN
LIVELIHOODS IN GREATER ACCRA: A CASE OF AGBOGBLOSHIE, ALAJO, AND
DANSOMAN DESIGNATED AS FLOOD-PRONE AREAS**

BY

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FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER'S
DEGREE IN DEVELOPMENT COMMUNICATION.**

31stOCTOBER, 2025

CANDIDATE'S DECLARATION

I hereby declare that this dissertation is the result of my original research, and that no part of it has been presented for another degree in this institute or elsewhere. I am solely responsible for any shortcomings.

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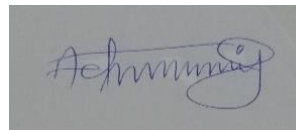
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SUPERVISOR'S CERTIFICATION

I hereby certify that the preparation of this dissertation was supervised by me in accordance with the guidelines of supervision of dissertation laid down by Ghana Institute of Journalism.

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A rectangular box containing a handwritten signature in blue ink. The signature is cursive and appears to read 'Adu-Bempah Brobbey'.

SIGNATURE

31ST October 2025

DATE

DEDICATION

I dedicate this dissertation to God Almighty, my beloved family, friends and colleagues for their support and morale throughout my education.

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First, I would like to thank the Almighty God for guiding me and giving me the needed strength to finish this dissertation within the stipulated time.

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ABSTRACT

Urban flooding in Accra has become increasingly frequent and severe, causing significant disruptions to the livelihoods of residents, particularly those engaged in informal economic activities. Despite the critical importance of understanding these impacts for effective policy formulation, there remains a significant knowledge gap regarding how flooding specifically affects different urban livelihood strategies and the adaptive mechanisms employed by affected households. This study employed a mixed-methods research design to assess flooding impacts on urban livelihoods in three flood-prone communities: Agbogbloshie, Alajo, and Dansoman. Data collection involved household surveys with 450 respondents, in-depth interviews with 45 key informants, focus group discussions, and direct observation. The study revealed that flooding impacts vary significantly across different livelihood activities, with location-dependent businesses experiencing more severe disruptions than mobile activities. Asset depletion patterns showed that financial assets are liquidated first, followed by physical assets, creating long-term vulnerability cycles. Household adaptation strategies included temporary inventory relocation, livelihood diversification, and community-level collective actions, though effectiveness was limited by resource constraints. The research identified critical gaps in institutional responses, particularly the lack of livelihood protection measures in existing flood management approaches. Recommendations include integrating livelihood considerations into flood management policies, expanding social protection coverage for disaster-affected populations, and strengthening community-based adaptation mechanisms to build urban resilience.

Keywords: urban flooding, livelihoods, vulnerability, adaptation, informal economy, resilience, asset depletion, Accra.

CHAPTER ONE

GENERAL OVERVIEW AND BACKGROUND TO THE STUDY

1.0. Introduction

Ghana's capital city, Accra, has experienced unprecedented urban growth over the past four decades, with its population expanding from approximately 0.8 million in 1984 to over 2.5 million by 2021 (Ghana Statistical Service, 2021). This rapid urbanization, coupled with inadequate infrastructure development and poor urban planning, has rendered the city increasingly vulnerable to flooding events. The Greater Accra Metropolitan Area (GAMA) experiences recurrent flooding; particularly during the rainy seasons from May to July and September to November, causing significant disruptions to urban livelihoods and economic activities (Amoako&Boamah, 2015).

Flooding in Accra is not merely a natural disaster but a complex socio-environmental challenge that intersects with poverty, informal settlements, and inadequate drainage systems. The phenomenon has become increasingly frequent and severe, with major flooding events recorded in 1999, 2001, 2007, 2010, 2011, 2014, 2015, and 2019, each causing substantial economic losses and human suffering (Oteng-Ababio, 2013). The 2015 flood, for instance, resulted in over 200 deaths and economic losses estimated at USD 45 million (National Disaster Management Organisation, 2015).

Urban livelihoods in Accra are predominantly characterized by informal economic activities, including petty trading, artisanal work, and service provision, which are particularly vulnerable to flooding disruptions (Yankson& Gough, 2019). The impacts extend beyond immediate physical damage to include loss of income, displacement of households, disruption of social networks, and long-term impacts on household welfare and poverty levels. Understanding these

multidimensional impacts is crucial for developing effective flood risk management strategies and building urban resilience. This study examines the complex relationship between flooding and urban livelihoods in selected flood-prone areas of Accra, analyzing both the immediate and long-term consequences of flood events on different livelihood strategies and household welfare outcomes. The research contributes to the growing body of literature on urban vulnerability and climate adaptation in sub-Saharan African cities, providing evidence-based insights for policy and planning interventions.

1.1. Statement of Problem

Accra faces an escalating flooding crisis that severely disrupts urban livelihoods and threatens the socio-economic well-being of its residents. Despite the city's economic importance as Ghana's commercial and administrative hub, inadequate drainage infrastructure, uncontrolled urban expansion, and poor waste management have created conditions where flooding has become an annual occurrence in many neighborhoods (ApeaningAddo et al., 2018).

The problem is particularly acute in low-income communities such as Agbogbloshie, Old Fadama, Alajo, Adabraka, and parts of Dansoman, where residents experience frequent flooding that destroys property, disrupts businesses, and forces temporary or permanent displacement (Rain et al., 2011). These communities often located in marginal areas such as wetlands, floodplains, and areas with poor drainage, house a significant proportion of Accra's population who depend on informal livelihood activities for survival.

Current flood management approaches in Accra have been largely reactive, focusing on emergency response rather than addressing the underlying vulnerabilities that make urban livelihoods susceptible to flooding impacts (Amoako, 2018). There is limited comprehensive understanding of how flooding affects different types of livelihood strategies, the adaptive

mechanisms employed by affected households, and the long-term implications for urban poverty and inequality. This knowledge gap hampers the development of effective, targeted interventions that could build resilience and reduce vulnerability. Furthermore, existing studies have tended to focus on the physical and environmental aspects of flooding in Accra, with limited attention to the socio-economic dimensions and livelihood impacts. This study addresses this critical gap by providing a comprehensive assessment of how flooding affects urban livelihoods, examining both the immediate disruptions and longer-term adaptation strategies employed by affected communities.

1.2. Research Questions

This study seeks to answer the following research questions:

1. What are the main characteristics and patterns of flooding in the selected flood-prone areas of Accra, and how do they relate to different urban livelihood activities?
2. How do flooding events affect different types of urban livelihood strategies in the short-term and long-term?
3. What coping and adaptation mechanisms do households employ to manage flood-related livelihood disruptions, and how effective are these strategies?
4. How effective are existing flood management interventions in protecting urban livelihoods, and what improvements are needed?

1.3. Research Objectives

The objective of this study is two-folds namely main and specific. The main objective is to assess assessing the menace of flooding and implications for urban livelihoods in Greater Accra: a case of Agbogbloshie, Alajo and Dansoman designated as flood-prone areas, . The specific objectives are to:

1. Examine the characteristics and patterns of flooding in selected flood-prone areas of Accra and their relationship to urban livelihood activities.
2. Assess the immediate and long-term impacts of flooding on different types of urban livelihood strategies in the study areas.
3. Analyze the coping and adaptation mechanisms employed by households to deal with flood-related livelihood disruptions.
4. Evaluate the effectiveness of existing flood management interventions in protecting urban livelihoods and identify opportunities for improvement.

1.4 Scope of the Study

This study focuses on the impact of flooding on urban livelihoods in three selected flood-prone communities in Accra: Agbogbloshie, Alajo, and Dansoman. These areas were selected based on their history of frequent flooding, diverse livelihood activities, and varying socio-economic characteristics. The study covers the period from 2015 to 2023, capturing recent major flooding events and their impacts.

The research examines various livelihood strategies including petty trading, artisanal activities, food vending, transportation services, and other informal economic activities that characterize urban economies in sub-Saharan Africa. The study focuses on household-level impacts and responses, while also considering community-level dynamics and institutional factors that influence vulnerability and resilience.

Geographically, the study is bounded by the Greater Accra Metropolitan Area, with detailed fieldwork conducted in the three selected communities. The temporal scope covers both seasonal flooding patterns and major flood events, analyzing their differential impacts on urban

livelihoods. The study does not cover rural flooding or coastal flooding impacts, maintaining its focus specifically on urban riverine and drainage-related flooding.

1.5 Justification of the Study

This study is justified on several grounds that highlight its academic and practical significance. First, from an academic perspective, there is a significant knowledge gap regarding the specific impacts of flooding on urban livelihoods in West African cities. While extensive research exists on flooding as a physical phenomenon and general disaster impacts, limited studies have comprehensively examined how flooding affects the complex web of informal livelihood strategies that characterize cities like Accra (Pelling & Wisner, 2009).

The practical significance lies in the urgent need to build urban resilience in the face of increasing climate variability. With climate change projections indicating increased frequency and intensity of extreme rainfall events in the region (Nkrumah et al., 2019), understanding current vulnerabilities and adaptive capacities is essential for developing effective resilience-building interventions.

1.6 Organization of the Study

This thesis is organized into five chapters.

Chapter one provides the introduction, problem statement, objectives, research questions and justification of the study.

Chapter Two presents literature review examining theoretical frameworks, empirical studies on urban flooding and livelihoods, and the specific context of Accra.

Chapter Three outlines the research methodology, including the research design, study areas, sampling procedures, data collection methods, and analytical approaches.

Chapter Four provides detailed findings and discusses their results.

Chapter Five presents the summary and evaluations, and provides recommendations on the impacts of flooding on urban livelihoods.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a comprehensive review of literature relevant to understanding the impacts of flooding on urban livelihoods, with particular emphasis on the context of sub-Saharan African cities. The review is organized around key thematic areas that inform the theoretical and empirical foundations of this study. The chapter begins with an examination of theoretical frameworks for understanding urban livelihoods and vulnerability, followed by an analysis of empirical studies on urban flooding impacts, adaptation mechanisms, and institutional responses. The review then focuses specifically on the Ghanaian and West African context before identifying key gaps in existing knowledge that this study addresses.

2.2 Theoretical Frameworks for Understanding Urban Livelihoods and Vulnerability

2.2.1 The Sustainable Livelihoods Approach (SLA)

The Sustainable Livelihoods Approach (SLA) provides the primary theoretical foundation for this study, offering a comprehensive framework for analyzing how people construct their livelihoods in the face of various constraints and opportunities. Originally developed by Robert Chambers and Gordon Conway in the 1990s and later refined by the Department for International Development (DFID, 1999), the SLA has become a dominant paradigm in development studies for understanding poverty and vulnerability.

The SLA conceptualizes livelihoods as comprising five types of capital assets: human capital (skills, knowledge, health), natural capital (land, water, forests), physical capital (infrastructure, tools, equipment), social capital (networks, institutions, relationships), and financial capital (savings, credit, income). According to Scoones (1998), people combine these assets in different

ways to pursue various livelihood strategies within specific vulnerability contexts shaped by trends, shocks, and seasonality.

Ellis (2000) emphasizes that the SLA's strength lies in its recognition that poor people are active agents who creatively combine different assets to construct diverse livelihood portfolios. This perspective is particularly relevant for understanding urban livelihoods in African cities, where households typically engage in multiple economic activities simultaneously. The framework's attention to asset portfolios helps explain why flooding impacts extend beyond immediate physical damage to affect long-term livelihood sustainability through asset depletion.

Bebbington (1999) critiques the original SLA for its limited attention to power relations and structural constraints, arguing that access to assets is fundamentally shaped by political and economic structures. This critique is particularly relevant for understanding urban flooding impacts, as vulnerability to floods is often determined by broader patterns of urban inequality and exclusion. De Haan and Zoomers (2005) further develop this critique, emphasizing the need to understand how livelihoods are embedded in broader social, political, and economic systems.

2.2.2 Asset Vulnerability Framework

Complementing the SLA, Moser's (1998) Asset Vulnerability Framework specifically focuses on how poor urban households use assets as buffers against vulnerability. Moser argues that the poor manage complex asset portfolios as their primary means of reducing vulnerability, with different assets serving different functions in household survival strategies. This framework is particularly relevant for understanding how flooding affects urban livelihoods through processes of asset accumulation and depletion.

The Asset Vulnerability Framework identifies several types of assets beyond the five capitals recognized in the SLA, including housing as a productive asset and the importance of location

specific assets. Moser (1998) emphasizes that vulnerability reduction requires not just asset accumulation but also asset protection during crises. This insight is crucial for understanding how flooding events can trigger vulnerability cycles through forced asset liquidation.

Rakodi (2002) applies the Asset Vulnerability Framework to urban contexts, highlighting how urban livelihoods depend on complex interactions between different types of assets. She emphasizes the importance of understanding spatial dimensions of asset access, particularly how location affects both opportunities and risks. This spatial perspective is essential for analyzing flooding impacts, as location in flood-prone areas simultaneously exposes households to risks while potentially providing access to certain livelihood opportunities.

2.2.3 Vulnerability and Resilience Frameworks

The concepts of vulnerability and resilience have become central to understanding how communities respond to environmental stresses and shocks. Chambers (1989) defines vulnerability as “defenselessness, insecurity and exposure to risk, shocks and stress” combined with limited capacity to cope without damaging loss. This definition encompasses both external threats and internal capacity limitations, providing a comprehensive framework for understanding flooding impacts on livelihoods.

Turner et al. (2003) develop a comprehensive vulnerability framework that integrates human-environment interactions, emphasizing that vulnerability emerges from the interaction between exposure to hazards, sensitivity to impacts, and adaptive capacity. This framework is particularly relevant for urban flooding analysis, as it recognizes that vulnerability is not simply a function of hazard exposure but also depends on social, economic, and institutional factors that shape adaptive capacity.

The resilience concept, originally developed in ecological systems theory, has been increasingly applied to social-ecological systems. Folke (2006) defines resilience as “the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks”. This definition emphasizes transformation and adaptation rather than simply returning to previous states.

Pelling (2003) applies resilience thinking to urban contexts, arguing that urban resilience requires understanding how cities adapt to multiple stresses and shocks simultaneously. He emphasizes that resilience is not equally distributed within cities, with marginalized communities often having limited resilience due to resource constraints and political exclusion. This perspective is crucial for understanding differential impacts of flooding within urban areas.

2.2.4 Social Construction of Vulnerability

Critical perspectives on vulnerability emphasize that vulnerability is socially constructed rather than simply a natural condition. Watts and Bohle (1993) argue that vulnerability emerges from specific social, economic, and political arrangements that expose certain groups to greater risks while limiting their capacity to respond. This perspective challenges technical approaches to disaster risk reduction that focus primarily on hazard reduction without addressing underlying social vulnerabilities.

Wisner et al. (2004) develop the Pressure and Release (PAR) model, which traces the root causes of vulnerability through a progression from underlying causes (economic systems, demographic pressure) through dynamic pressures (governance, institutions) to unsafe conditions (hazardous locations, unprotected buildings). This model is particularly relevant for understanding urban flooding vulnerability, as it highlights how broader structural factors create conditions where certain populations are disproportionately exposed to flood risks.

Pelling and Wisner (2009) apply this critical vulnerability perspective to African cities, arguing that urban vulnerability to disasters is deeply embedded in colonial legacies, structural adjustment policies, and contemporary neoliberal urban governance. Their analysis highlights how vulnerability is reproduced through everyday processes of urban development that marginalize certain populations and expose them to environmental risks.

2.3 Urban Flooding in Developing Country Cities

2.3.1 Drivers of Urban Flood Risk

Urban flooding in developing countries results from complex interactions between physical, social, and governance factors. Jha et al. (2012) identify rapid urbanization as a primary driver, noting that many cities in developing countries experience population growth rates that exceed infrastructure development capacity. This rapid growth leads to informal settlements in hazardous locations, inadequate drainage systems, and increased surface runoff from unplanned development.

Climate change adds another layer of complexity to urban flood risk. Satterthwaite et al. (2007) argue that while climate change will increase flood risks globally, impacts will be most severe in cities with limited adaptive capacity. They emphasize that current vulnerability levels in many developing country cities are so high that even modest increases in flood frequency or intensity will have catastrophic impacts.

Douglas et al. (2008) examine urban flooding specifically in African cities, identifying several continent-specific drivers including rapid urban growth, weak governance systems, limited financial resources, and high poverty levels. They argue that African cities face a “perfect storm” of increasing flood risks due to climate change combined with limited capacity to implement risk reduction measures.

Infrastructure deficits play a crucial role in urban flood vulnerability. McGranahan et al. (2007) estimate that over one billion urban residents in developing countries lack access to adequate water and sanitation infrastructure, with drainage systems particularly inadequate. They argue that infrastructure deficits are not simply technical problems but reflect broader patterns of urban inequality and political exclusion.

2.3.2 Spatial Patterns of Urban Flood Vulnerability

Urban flood vulnerability is highly spatially differentiated, with certain areas and populations facing disproportionate risks. Satterthwaite (2003) argues that poor urban households often live in the most hazardous locations due to limited access to safer land and housing markets. These locations include floodplains, steep slopes, areas near industrial facilities, and sites with inadequate infrastructure.

The concept of “geographies of vulnerability” has been developed to understand these spatial patterns. Few (2003) argues that vulnerability is concentrated in specific urban spaces through processes of social and spatial marginalization. These processes include formal and informal land markets that channel poor households to hazardous locations, infrastructure investment patterns that favor wealthy areas, and governance systems that provide inadequate protection for marginalized communities.

Hardoy et al. (2001) examine how environmental hazards are distributed across urban space in Latin American cities, finding that poor neighborhoods face multiple environmental risks simultaneously. They argue that this concentration of hazards reflects broader patterns of urban inequality and requires integrated approaches to risk reduction that address multiple hazards simultaneously.

2.3.3 Urban Flooding and Informal Settlements

Informal settlements are particularly vulnerable to flooding due to their typical location in marginal areas with inadequate infrastructure. Davis (2006) estimates that over one billion people live in informal settlements globally, with this population expected to double by 2030. He argues that informal settlements represent a “planet of slums” where residents face multiple vulnerabilities including environmental risks.

Satterthwaite (2000) provides a more nuanced analysis of informal settlements, arguing that while they face significant challenges, residents also demonstrate remarkable innovation and resilience. He emphasizes that informal settlement residents are not passive victims but actively work to improve their living conditions within severe resource constraints.

UN-Habitat (2003) examines the relationship between informal settlements and environmental risks, finding that flooding is one of the most common hazards faced by informal settlement residents. The report emphasizes that flooding impacts in informal settlements are often exacerbated by inadequate building materials, lack of drainage, overcrowding, and limited access to emergency services.

Jabeen et al. (2010) study flooding in informal settlements in Dhaka, Bangladesh, finding that residents employ diverse strategies to cope with flooding including house raising, temporary evacuation, and livelihood diversification. However, they also find that these strategies have limited effectiveness during severe floods and may increase other forms of vulnerability.

2.4 Flooding Impacts on Urban Livelihoods

2.4.1 Direct Economic Impacts

Flooding affects urban livelihoods through multiple pathways, beginning with direct economic impacts on businesses, employment, and assets. Tschakert (2007) examines flooding impacts on

small businesses in Ghana, finding that location-dependent businesses face the greatest immediate losses due to inventory damage, equipment destruction, and temporary closure. She emphasizes that these direct impacts are often compounded by limited insurance coverage and restricted access to credit for recovery.

The informal nature of many urban economic activities in developing countries creates particular vulnerabilities to flooding. Chen (2007) argues that informal workers face multiple disadvantages during disasters including lack of employment security, limited access to social protection, and absence of workplace safety measures. These disadvantages mean that flooding impacts on informal livelihoods are often more severe and longer-lasting than impacts on formal employment.

Pantuliano (2006) studies flooding impacts on market traders in Kenya, finding that women traders are particularly vulnerable due to their concentration in food vending activities that are highly sensitive to flooding. She identifies several mechanisms through which flooding affects trading activities including direct stock losses, disrupted supply chains, reduced customer access, and temporary market closures.

2.4.2 Indirect and Long-term Impacts

While direct impacts of flooding on livelihoods are often immediately visible, indirect and long-term impacts may be more significant for household welfare. Carter et al. (2007) examine how environmental shocks affect asset accumulation patterns, finding that repeated shocks can trap households in “poverty traps” where they are unable to accumulate sufficient assets to escape vulnerability. The concept of “coping erosion” helps explain how repeated flooding events can undermine long-term livelihood sustainability. Davies (1996) argues that while households may successfully cope with individual shocks, repeated shocks can erode coping capacity over time

through asset depletion, debt accumulation, and social network breakdown. This erosion makes households increasingly vulnerable to future shocks.

Health impacts of flooding can have significant livelihood consequences through reduced work capacity and increased medical expenses. Few et al. (2004) study health impacts of flooding in Argentina, finding that flooding increases incidence of waterborne diseases, respiratory problems, and mental health issues. These health impacts disproportionately affect poor households who have limited access to healthcare services.

2.4.3 Differential Impacts across Social Groups

Flooding impacts on livelihoods are not equally distributed across social groups, with certain populations facing disproportionate risks and limited recovery capacity. Gender emerges as a particularly important factor shaping flooding impacts. Fordham (2003) argues that women face specific vulnerabilities during floods due to their roles in household management, restrictions on mobility, and limited control over resources.

Neumayer and Plumper (2007) provide quantitative evidence that natural disasters disproportionately affect women, with this disparity increasing with the severity of disasters and the socioeconomic status of countries. They argue that these gender disparities reflect broader patterns of gender inequality in society rather than biological differences in vulnerability.

Age is another important factor shaping vulnerability to flooding. Cutter and Finch (2008) develop a social vulnerability index that identifies elderly populations as particularly vulnerable to disasters due to limited mobility, health problems, and social isolation. However, they also note that vulnerability varies significantly within age groups based on other social and economic factors. Ethnicity and social status also influence flooding vulnerability. Blaikie et al. (1994) argue that marginalized ethnic groups often face the greatest disaster risks due to their location in

hazardous areas, limited political voice, and restricted access to resources. This marginalization is often reinforced during disaster response when aid distribution may not reach the most vulnerable populations.

2.5 Adaptation and Coping Mechanisms

2.5.1 Household-level Adaptation Strategies

Households employ diverse strategies to cope with and adapt to flooding risks, ranging from short-term coping measures to longer-term adaptive adjustments. Smit and Wandel (2006) distinguish between autonomous adaptation (spontaneous adjustments by individuals and households) and planned adaptation (deliberate policy interventions), noting that most household-level responses to flooding represent autonomous adaptation.

Income diversification emerges as one of the most common household adaptation strategies. Ellis (1998) argues that rural households in Africa typically pursue diversified livelihood strategies as a risk management mechanism, and this pattern is increasingly evident in urban areas as well. In the context of flooding, diversification can involve spreading economic activities across different locations, sectors, or seasons to reduce exposure to flood risks.

Temporary migration is another important adaptation strategy. Tacoli (2009) examines rural-urban migration in the context of environmental change, finding that migration can serve as both a coping mechanism during crises and a longer-term adaptation strategy. In urban areas, temporary migration may involve moving to stay with relatives in safer areas during flood seasons or seeking employment in non-flood-affected areas.

2.5.2 Community-level Adaptation

Community-level adaptation involves collective actions to reduce flood risks and impacts. Pelling and High (2005) argue that community-based adaptation can be more effective than

individual household strategies because it addresses collective action problems and builds social capital. They identify several types of community-level adaptation including infrastructure improvements, early warning systems, and collective resource management.

Social capital plays a crucial role in community adaptation to flooding. Aldrich and Meyer (2015) provide evidence that communities with higher levels of social capital recover more quickly from disasters. They argue that social networks facilitate information sharing, resource pooling, and collective action, all of which are important for disaster resilience.

However, community-level adaptation faces several constraints including limited resources, weak governance, and coordination challenges. Adger et al. (2005) identify several barriers to community adaptation including lack of access to information, limited technical capacity, inadequate financial resources, and weak institutional support. These barriers are particularly acute in urban informal settlements where communities often lack formal recognition and support.

2.5.3 Institutional Adaptation

Institutional adaptation involves changes in formal and informal institutions to better manage flood risks and support livelihood resilience. Agrawal (2008) argues that successful adaptation requires institutional innovation that builds on existing institutions while addressing their limitations. This may involve creating new institutions, modifying existing ones, or improving coordination between different institutional levels.

Local government plays a crucial role in institutional adaptation to flooding. Pelling (2003) argues that effective urban disaster risk management requires strong local government capacity for planning, implementation, and coordination. However, many local governments in

developing countries lack the technical and financial capacity to implement effective flood management measures.

Civil society organizations also play important roles in institutional adaptation. Lewis (2006) examines the role of NGOs in disaster risk reduction, finding that they often provide crucial services including emergency response, livelihood support, and advocacy for policy change. However, he also notes that NGO interventions are often fragmented and may not address underlying causes of vulnerability.

2.6 Flood Management and Urban Governance

2.6.1 Evolution of Flood Management Approaches

Flood management approaches have evolved significantly over recent decades, moving from purely engineering solutions toward more integrated approaches that consider social and environmental dimensions. Kundzewicz and Takeuchi (1999) trace this evolution from early flood control approaches focused on structural measures toward contemporary integrated flood management that combines structural and non-structural measures.

The shift toward integrated approaches reflects growing recognition that purely technical solutions are insufficient for managing complex urban flood risks. Pahl-Wostl et al. (2007) argue that effective flood management requires adaptive management approaches that can respond to changing conditions and incorporate learning from experience. This adaptive approach is particularly important in urban contexts where flood risks are constantly evolving due to ongoing development.

Ecosystem-based approaches to flood management have gained increasing attention as alternatives to traditional grey infrastructure. Kabisch et al. (2016) examine urban green infrastructure as a flood management strategy, finding that green infrastructure can provide

multiple benefits including flood reduction, biodiversity conservation, and improved quality of life. However, they also note that green infrastructure requires ongoing maintenance and may have limited effectiveness during extreme events.

2.6.2 Institutional Frameworks for Flood Management

Effective flood management requires appropriate institutional frameworks that coordinate different actors and integrate different approaches. Mitchell (2003) argues that flood management institutions must balance multiple objectives including hazard reduction, environmental protection, and socioeconomic development. This balancing act is particularly challenging in developing country contexts where resources are limited and competing demands are high.

Decentralization trends in many developing countries have shifted flood management responsibilities to local levels, but this shift has not always been accompanied by adequate capacity building or resource allocation. Smoke (2003) examines decentralization experiences in Africa, finding that while decentralization can improve responsiveness to local needs; it may also create coordination challenges and capacity gaps.

Regional and international cooperation emerge as important dimensions of flood management in contexts where flood risks cross administrative boundaries. Rahaman et al. (2004) examine trans-boundary flood management, finding that effective cooperation requires appropriate institutional frameworks, shared information systems, and mechanisms for resolving conflicts.

2.6.3 Participatory Approaches to Flood Management

Participatory approaches to flood management emphasize the importance of involving affected communities in planning and implementation processes. Maskrey (1989) argues that community participation is essential for effective disaster risk reduction because communities have detailed

knowledge of local risks and capacities. This knowledge is often overlooked in top-down planning approaches but is crucial for developing effective interventions.

However, participation faces several challenges including power imbalances, limited technical capacity, and time constraints. Cooke and Kothari (2001) provide a critical analysis of participatory development, arguing that participation can sometimes reinforce existing power relations rather than challenging them. These critiques highlight the need for careful attention to how participatory processes are designed and implemented.

Gender-sensitive approaches to flood management recognize that men and women may have different knowledge, priorities, and capacities related to flood risk management. Fordham (2003) argues that women's knowledge and roles in disaster management are often overlooked despite their crucial contributions to household and community resilience. She advocates for gender-sensitive approaches that recognize and build on women's capacities while addressing structural constraints they face.

2.7 Urban Flooding and Livelihoods in West African Cities

2.7.1 Regional Context and Characteristics

West African cities share several characteristics that influence urban flooding patterns and livelihood impacts. Freund (2007) argues that West African urbanization has been characterized by rapid growth, limited infrastructure development, and high levels of informality. These characteristics create conditions where urban flooding becomes a particularly acute problem with severe livelihood consequences.

Climate patterns in West Africa create specific flood risks for urban areas. Nicholson (2013) examines rainfall patterns across the region, finding high variability both within and between

years. This variability creates challenges for urban planning and flood management, as infrastructure must be designed to handle both drought and flood conditions.

Economic structures in West African cities are characterized by high levels of informality and dependence on trade and services. Potts (2008) examines urban economies in sub-Saharan Africa, finding that informal activities provide the primary source of livelihoods for the majority of urban residents. This economic structure creates particular vulnerabilities to flooding, as informal activities are often poorly protected and have limited access to insurance or credit.

2.7.2 Comparative Studies across West African Cities

Several comparative studies examine flooding patterns and impacts across West African cities, providing insights into common challenges and different responses. Douglas et al. (2008) compare flooding in five African cities including Accra, finding that while specific manifestations vary, all cities face common challenges including inadequate drainage, informal settlements in hazardous locations, and limited institutional capacity.

Pelling and Wisner (2009) examine disaster risk reduction in African cities, including several West African examples. They find that effective risk reduction requires addressing underlying causes of vulnerability including poverty, inequality, and weak governance. Their analysis emphasizes the importance of understanding local contexts while learning from comparative experiences. Tacoli et al. (2015) examine climate change adaptation in African cities, finding that flooding is consistently identified as a priority concern across different cities. However, they also find significant variation in adaptive capacity and response strategies, with some cities demonstrating innovative approaches while others struggle with basic service provision.

2.7.3 Urban Planning and Governance Challenges

Urban planning and governance challenges are particularly acute in West African cities, creating conditions that exacerbate flooding risks and limit effective responses. Yankson and Gough (2019) examine urban governance in Ghana, finding that rapid urbanization has outpaced planning capacity, leading to uncontrolled development in hazardous areas.

Corruption and weak governance systems create additional challenges for flood management. Aryeetey and Kanbur (2017) examine governance challenges in Ghana, finding that corruption undermines public service delivery and infrastructure development. These governance challenges are particularly problematic for flood management, which requires sustained investment and coordinated action across multiple agencies.

Land tenure systems in West African cities create particular challenges for flood risk management. Kasanga and Kotey (2001) examine land tenure in Ghana, finding that complex and overlapping land rights create obstacles to effective planning and risk reduction. Insecure tenure in informal settlements makes residents reluctant to invest in flood protection measures while also limiting their access to formal credit and insurance.

2.8 The Case of Accra: Specific Context and Studies

2.8.1 Historical Development and Flood Patterns

Accra's development as a major urban center has been closely linked to its role as Ghana's colonial and post-colonial capital. Konadu-Agyemang (2001) traces Accra's urban development from colonial times, highlighting how colonial spatial planning created patterns of segregation and uneven development that continue to influence contemporary flood vulnerability.

The city's physical geography creates particular flood risks due to its location on a coastal plain with several rivers and lagoons. Karley (2009) provides a comprehensive analysis of flooding

causes in Accra, identifying both natural factors (topography, rainfall patterns) and human factors (urban development, infrastructure deficits) that contribute to flood risk.

Recent decades have seen increasing frequency and severity of flooding in Accra. Oteng-Ababio (2013) documents major flood events since 1990, showing an increasing trend in both frequency and severity. He attributes this trend to rapid urbanization, climate change, and inadequate infrastructure development.

2.8.2 Socio-economic Impacts of Flooding in Accra

Several studies have examined socioeconomic impacts of flooding in specific Accra communities. Rain et al. (2011) study flooding in Old Fadama, one of Accra's largest informal settlements; finding severe impacts on housing, livelihoods, and social networks. They document how flooding forces temporary and permanent migration, disrupts children's education, and undermines community social cohesion.

Amoako and Boamah (2015) examine the 2015 floods in Accra, which caused over 200 deaths and extensive economic damage. Their analysis highlights how flooding disproportionately affects poor communities while also causing significant damage to infrastructure and economic activities throughout the city.

Gender dimensions of flooding impacts in Accra have received limited attention, though some studies highlight differential impacts. Codjoe et al. (2018) examine gender and climate change in Ghana, finding that women face particular vulnerabilities to environmental shocks due to their roles in household management and limited control over resources.

2.8.3 Livelihood Impacts and Responses

Limited research has specifically examined flooding impacts on urban livelihoods in Accra, though several studies provide relevant insights. Yankson and Gough (2019) examine informal

businesses in Accra, finding that location-dependent activities face greater risks from environmental shocks including flooding. They identify several factors that influence business vulnerability including location, asset ownership, and access to credit.

Owusu (2010) examines livelihood strategies in Accra's informal settlements, finding high levels of livelihood diversification as a risk management strategy. However, he also finds that diversification options are limited by education levels, access to capital, and social networks, constraining households' ability to adapt to shocks.

Community responses to flooding in Accra have received some attention from researchers. AppeaningAddo et al. (2018) examine community-based adaptation in coastal Accra, finding that communities employ various strategies including early warning systems, infrastructure improvements, and temporary evacuation. However, they also find that community capacity is limited by resource constraints and weak institutional support.

2.8.4 Institutional Responses and Policy Frameworks

Ghana's institutional framework for disaster management has evolved significantly since the 1990s, with the establishment of the National Disaster Management Organization (NADMO) and development of national disaster management policies. Oteng-Ababio (2013) examines *NADMO's* role in flood management, finding that while the organization has developed significant capacity for emergency response, prevention and preparedness remain weak.

Local government capacity for flood management in Accra faces several constraints. Amoako (2018) examines the role of local government in flood management, finding that metropolitan assemblies lack adequate resources and technical capacity for effective flood risk management. He argues that this capacity gap reflects broader challenges in Ghana's decentralization process.

Recent policy developments have begun to address flooding more systematically. The Ghana National Climate Change Policy Framework recognizes flooding as a key climate risk and calls for integrated approaches to flood management. However, implementation remains challenging due to limited resources and coordination difficulties.

2.9 Knowledge Gaps and Research Needs

2.9.1 Methodological Gaps

Despite growing research on urban flooding and livelihoods, several methodological gaps remain. Most studies focus on single communities or specific flood events, limiting understanding of comparative patterns and broader trends. There is need for more comparative research that examines flooding impacts across different urban contexts and livelihood systems.

Longitudinal research on flooding impacts and recovery processes is particularly limited. Most studies provide snapshots of conditions at specific points in time rather than tracking changes over extended periods. This limitation makes it difficult to understand long-term adaptation processes and the effectiveness of different response strategies.

Mixed-methods research that combines quantitative and qualitative approaches remains relatively rare in this field. While some studies employ mixed methods, many rely primarily on either quantitative surveys or qualitative interviews, missing opportunities for triangulation and deeper understanding.

2.9.2 Thematic Gaps

Several thematic areas require additional research attention. The relationship between flooding and livelihood transformation is not well understood, particularly how repeated flood exposure drives changes in livelihood strategies and urban spatial patterns. This gap is important for understanding long-term urban development trajectories.

Gender dimensions of flooding impacts on livelihoods require more systematic attention. While some studies recognize differential impacts on men and women, few examine how gender intersects with other social factors to shape vulnerability and adaptive capacity. This gap is particularly important given women's crucial roles in urban informal economies.

The effectiveness of different adaptation strategies is not well documented. While many studies describe various coping and adaptation mechanisms, few provide systematic evaluation of their effectiveness or factors that influence success and failure. This evaluation gap limits ability to identify best practices and design effective interventions.

2.9.3 Policy and Practice Gaps

Research on institutional responses to urban flooding and livelihoods remains limited, particularly regarding coordination between different agencies and levels of government. Understanding these institutional dynamics is crucial for identifying opportunities to improve policy effectiveness.

The integration of livelihood considerations into flood management policies and practices has received limited research attention. Most flood management research focuses on technical and physical aspects with limited consideration of livelihood protection and recovery needs.

Private sector roles in urban flood management and livelihood protection are not well understood. While some research examines public sector responses, the roles of private businesses, financial institutions, and informal networks in supporting livelihood resilience require more attention.

2.10 Conclusion

This literature review reveals that urban flooding has severe implications for livelihoods represent a complex phenomenon that requires interdisciplinary understanding and context-specific analysis. The review demonstrates that while significant research has been conducted on various aspects of urban flooding and livelihoods, important gaps remain that this study aims to address.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the search methodology employed to assess the impact of flooding on urban livelihoods in selected flood-prone areas of Accra. The chapter outlines the search design, study areas, population and sampling procedures, data collection methods, data analysis techniques, and ethical considerations. The methodology is designed to address the research objectives and answer the research questions outlined in Chapter One.

3.2 Research Design

This study employed a mixed-methods research design, combining both quantitative and qualitative approaches to provide a comprehensive understanding of flooding impacts on urban livelihoods. The mixed-methods approach is particularly appropriate for this study as it allows for triangulation of data sources, provides depth and breadth of understanding, and enables the capture of both measurable impacts and contextual factors that influence livelihood outcomes (Creswell & PlanoClark, 2017).

The research design is primarily explanatory, seeking to understand causal relationships between flooding events and livelihood outcomes, while also incorporating exploratory elements to identify adaptation mechanisms and their effectiveness. The study uses a case study approach, focusing on three flood-prone communities in Accra, which allows for in-depth analysis of complex social phenomena within their real-life contexts (Yin, 2018).

Collection and analysis preceded qualitative data collection. This sequence allowed the qualitative phase to help explain and elaborate on the quantitative findings, providing deeper insights into the mechanisms through which flooding affects livelihoods (Ivankova et al. 2006).

3.3 Study Areas

3.3.1 Selection Criteria

Three flood- prone communities were selected based on the following criteria:

- History of frequent flooding over the past decade
- Diversity of livelihood activities practiced by residents
- Varying socio- economic characteristics
- Different spatial locations within Accra
- Accessibility for research activities
- Willingness of community leaders to participate

3.3.2 Description of Study Areas

Agboglobshie

Agboglobshie is located in the Ablekuma Central Municipal District, approximately 3 kilometers from Accra's Central Business District. The area is situated near the Korle Lagoon and is characterized by its large informal market and extensive-waste recycling activities. The community experiences regular flooding due to its low-lying topography and proximity to water bodies. The area houses approximately 80,000 people, predominantly engaged in trading, e-waste processing, and various artisanal activities (Oteng-Ababio, 2018).

Alajo

Alajo is located in the Ayawaso Central Municipal District and represents a mixed-income residential and commercial area. The community has experienced increased flooding in recent years due to rapid development and inadequate rain age infrastructure. The area is characterized by diverse livelihood activities including trading, services, and small-scale manufacturing. The

population is estimated at 45,000 people with varying socio-economic backgrounds (Amoako, 2018).

Dansoman

Dansoman is situated in the Ablekuma West Municipal District and was originally developed as a planned residential area in the 1960s. However, infrastructure deterioration and increased development density have led to drainage problems and flooding. The area has a population of approximately 60,000 people engaged in various formal and informal economic activities. The community represents a middle-income area that has experienced increasing vulnerability to flooding (Rain, etal. 2011).

3.4. Population and Sampling

The target population for this study consists of households in the three selected flood-prone communities who have experienced flooding impacts on their livelihoods. The population includes individuals engaged in various livelihood activities including trading, artisanal work, service provision, and other informal economic activities.

3.4.2 Sampling Procedure

The study employs a multi-stage sampling approach combining purposive and systematic random sampling techniques.

Stage 1: Community Selection

Purposive sampling was used to select the three study communities based on the criteria outlined above.

Stage 2: Household Selection

Within each community, systematic random sampling was used to select households for the quantitative survey. A sampling interval was calculated based on the estimated number of households in each community. Every household was selected, starting from a randomly selected starting point. A total of 150 households were selected from each community, resulting in a sample size of 450 households.

Stage 3: Key Informant Selection

Purposive sampling was used to select key informants for in-depth interviews. Key informants included:

- ✓ Community leaders and traditional authorities
- ✓ Business operators and traders
- ✓ Local government officials
- ✓ Representatives from NGOs and CBOs
- ✓ Religious leaders
- ✓ Women's group leaders
- ✓ A total of 45 key informants were selected (15 from each community).

Stage 4: Focus Group Participants

Purposive sampling was used to select participants for focus group discussions. Six focus groups were conducted (two per community) with the following categories:

- Women's groups
- Youth groups
- Elderly persons
- Traders and business operators

- Artisans and skilled workers
- Community leaders

3.5 Data Collection Methods

3.5.1 Primary Data Collection

Household Survey

A structured questionnaire was administered to 450 households to collect quantitative data on household characteristics, livelihood activities, flooding experiences, impacts, and coping strategies. The questionnaire was developed based on the research objectives and pre tested in a similar community not included in the main study. Data collection was conducted over a period of four weeks by trained enumerators under the supervision of the researcher.

In – Depth Interviews

Semi structured interviews were conducted with 45 key informants to gather detailed information on flooding impacts, adaptation strategies, and institutional responses. Interview guides were developed for different categories of informants, focusing on their specific roles and perspectives. Interviews were conducted in English and local languages as appropriate, with most interviews lasting between 45-60minutes.

Focus Group Discussions

Six focus groups were conducted with 8-12 participants each to explore community-level perspectives on flooding impacts and responses. Focus group guides were developed to facilitate discussions on community experiences, collective responses, and recommendations for improvement. Each focus group session lasted approximately 90minutes.

Systematic observation was conducted to document flooding patterns, livelihood activities, infrastructure conditions, and community responses. Observation checklists were developed to

ensure consistent data collection across different times and locations. Photo graphic documentation was included where appropriate and with consent.

3.5.2 Secondary Data Collection

Secondary data was collected from various sources to provide context and triangulate primary findings:

Government Sources:

- Ghana Meteorological Agency (rain fall and weather data)
- National Disaster Management Organization (flood records and response data)
- Ghana Statistical Service (demographic and socio- economic data)
- Metropolitan/ Municipal Assemblies (local development and flood management data)

Academic and Research Sources:

- Previous research reports on flooding in Accra
- Academic publications on urban livelihoods and vulnerability
- Policy documents related to disaster management and urban development

International Sources:

- World Bank reports on urban development in Ghana
- UN- Habitat reports on informal settlements
- Climate change projections for Ghana

3.6 Data Analysis

3.6.1 Quantitative Data Analysis

Quantitative data from the household survey was analyzed using Statistical Package for Social Sciences (SPSS) version 28. The analysis included:

Descriptive Statistics:

Frequency distributions and percentages for categorical variables

Means and standard deviations for continuous variables

Inferential Statistics:

Chi- square tests to examine associations between categorical variables

Analysis of Variance (ANOVA) to compare means across groups

Correlation analysis to examine relationships between continuous variables

Multiple regression analysis to identify factors influencing livelihood outcomes

Comparative Analysis:

Comparison of impacts across different livelihood activities

Analysis of variations across the three study communities

Assessment of differential impacts across demographic groups

3.6.2 Qualitative Data Analysis

Qualitative data from interviews and focus groups was analyzed using thematic analysis (Braun & Clarke, 2006). The analysis process involved:

Data Preparation:

Transcription of audio recordings

Translation of local language content to English

Initial reading and familiarization with data

Coding:

Development of initial codes based on research questions

Inductive coding to identify emerging themes

Use of N-Vivo software for data management and coding

Theme Development:

Grouping of codes into broader themes

Identification of patterns and relationships between themes

Development of thematic maps to visualize relationships

Interpretation:

Integration of themes with research objectives

Triangulation with quantitative findings

Development of explanatory narratives

3.6.3 Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative findings followed a convergent parallel approach (Fetters et al. 2013), where:

Both types of data were analyzed separately

Findings were compared and contrasted

Areas of convergence and divergence were identified

Integrated interpretations were developed

Meta - inferences were drawn from combined findings

3.7 Validity and Reliability

Several measures were taken to ensure the validity of the research findings. Research instruments were reviewed by experts in urban planning and disaster management. Pre Testing was conducted to ensure questions were clear and appropriate. Feedback from pre-testing was incorporated into final instruments. Theoretical frameworks guided the development of research instruments and multiple indicators were used to measure key constructs. Multiple study sites

were selected to enhance generalize ability and comparison with findings from other studies was conducted. Regular briefing sessions were held to ensure consistent interpretation.

3.8 Ethical Considerations

Ethical approval was obtained from the University of Ghana Ethics Committee prior to data collection. The research adhered to international ethical standards for research involving human subjects. All participants were provided with detailed information about the study objectives, methods, and potential risks and benefits. Written informed consent was obtained from all participants before data collection. Participants were informed of their right to withdraw from the study at any time without penalty. All data were kept confidential.

3.9 Limitations of the Study

The study focused on three communities, limiting generalize ability to all flood-prone areas in Accra. Systematic random sampling may have missed some vulnerable households and self-selection bias may have affected participation rates. Social desirability bias may have influenced some responses. Language barriers may have affected some interviews despite translation. The study captured conditions at a specific time period, hence, seasonal variations in flooding may not have been fully captured and long-term impacts may not have been evident during the study period. Limited funding restricted the scope of data collection and time constraints limited the duration of field work. Some areas were difficult to access during flooding periods and some participants were reluctant to discuss sensitive topics.

3.10 Conclusion

This chapter has outlined the comprehensive methodology employed to investigate the impact of flooding on urban livelihoods in Accra. The mixed-methods approach, combining quantitative surveys with qualitative interviews and focus groups, provides a robust framework for understanding the complex relationships between flooding events and livelihood outcomes. The multi-stage sampling approaches activities, though it also indicates limited representation of elderly voices in the sample.

CHAPTER FOUR

ANALYSIS OF THE IMPLICATIONS OF FLOODING MENACE FOR URBAN LIVELIHOODS IN GREATER ACCRA: A CASE OF AGBOGBLOSHIE, ALAJO, AND DANSOMAN DESIGNATED AS FLOOD-PRONE AREAS

4.0 Introduction

This chapter is devoted to the analysis and discussions of key findings reflecting the menace of flooding and implications for urban livelihoods in Greater Accra using Agbogbloshie, Alajo, and Dansoman designated as flood-prone areas as a case study. The chapter is therefore divided into four thematic sections namely; introduction, analysis of key findings to highlight the statistical representations and interpretations of data the discussion of the results in the light of the objectives and finally, draw conclusions.

4.1.0 Analysis of Key Findings

4.1.1. Gender Distribution

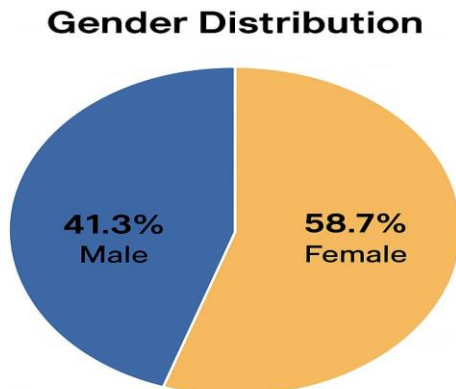


Figure 1

The gender distribution in figure 1 shows 58.7% female respondents and 41.3% male respondents. This distribution reflects the higher participation of women in household-level decision-making regarding livelihood activities, particularly in informal trading and service

provision. Focus group discussions revealed that women often bear primary responsibility for household livelihood decisions, making them key informants for understanding flooding impacts. Educational levels among respondents vary significantly, with 28.9% having completed junior high school, 24.4% having senior high school education, 18.7% having only primary education, 15.1% having no formal education, and 12.9% having some form of tertiary education. This distribution indicates relatively low educational attainment, which has implications for livelihood opportunities and adaptive capacity.

The average household size is 5.2 people, with 34.2% of households having 4-5 members, 29.8% having 6-7 members, 21.3% having 2-3 members, and 14.7% having 8 or more members. Larger household sizes create both vulnerabilities (more people to support during crises) and potential assets (more potential income earners and support networks).

4.2.2 Key Informants' Characteristics

Key Informants' Characteristics

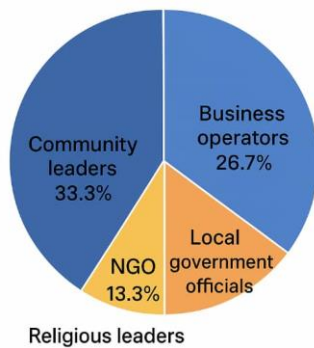


Figure 2

The 45 key informants represented diverse perspectives on flooding impacts and responses is shown in figure 2. They included 15 community leaders, 12 business operators, 8 local government officials, 6 NGO representatives, and 4 religious leaders. This diversity ensured comprehensive coverage of different institutional perspectives and community experiences.

4.3 Flooding Patterns and Characteristics

4.3.1 Frequency and Timing of Flooding

Community	At least once (%)	More than 5 times (%)
Agbogbloshie	89.3	34.7
Alajo	76.0	18.0
Dansoman	68.7	12.7

Table 1: Frequency of Flooding

Season	Frequency (%)
Major rainy season (May-July)	78.4
Minor rainy season (September-November)	45.6

Table 2: Timing of Flooding

The study reveals significant variations in flooding frequency and timing across the three communities. In Agbogbloshie, 89.3% of households experienced flooding at least once in the past five years, with 34.7% experiencing flooding more than five times. In Alajo, 76.0% of households experienced flooding, with 18.0% experiencing it more than five times. In Dansoman, 68.7% of households experienced flooding, with 12.7% experiencing it more than five times.

These patterns reflect the different physical vulnerabilities of the communities, with Agbogbloshie's proximity to the Korle Lagoon and low-lying topography making it most susceptible to frequent flooding. As one community leader in Agbogbloshie explained: *“Every year during the rains, we expect flooding. It is not a matter of if, but when and how bad it will be. The*

water comes from the lagoon, from the rains, from everywhere. We have learned to live with it, but it still destroys our lives every time.”

The timing of flooding is predominantly during major rainy season (May-July) and the minor rainy season (September-November), with 78.4% of flood-affected households reporting flooding during May-July and 45.6% reporting flooding during September-November. However, Agbogbloshie residents also report flooding during other months due to tidal influences and lagoon overflow.

4.3.2 Causes of Flooding

Cause	Frequency (%)
Poor drainage systems	87.3
Heavy rainfall	82.6
Blocked gutters/drains	76.9
Poor waste management	69.4
Unplanned development	54.2
River overflow	43.7

Table 3: Causes of Flooding

Survey respondents identified multiple causes of flooding in their communities, with poor drainage systems being the most commonly cited factor (87.3%), followed by heavy rain fall (82.6%), blocked gutters and drains (76.9%), poor waste management (69.4%), and unplanned development (54.2%). River over flow was cited by 43.7% of respondents, primarily in Agbogbloshie.

Qualitative interviews revealed more nuanced understanding of flooding causes. A local government official in Alajo explained: “The drainage system was designed for the area as it was

30 years ago. Now we have tripled the population, more buildings, more concrete, but the same old drains. When it rains heavily, the water has nowhere to go. The gutters are also blocked with solid waste because waste collection is irregular.”

Community members emphasized the inter connected nature of flooding causes. A trader in Dansoman noted: “The flooding is not just about rain. It's about the whole system failing. The drains are too small, people build anywhere, garbage blocks the water, and nobody takes responsibility. Each small problem becomes a big problem when it rains.”

4.3.3 Flooding Characteristics and Implications

The characteristics of flooding vary significantly across the three communities, influencing the types and severity of impacts experienced. In Agbogbloshie, flooding is characterized by standing water that may persist for several days, contamination from the lagoon and waste processing activities, and depths that can reach 1-2 meters in some areas. In Alajo, flooding is typically characterized by fast-moving water that recedes within hours, but with high velocity that can cause significant property damage. In Dansoman, flooding tends to be more localized but can affect specific areas repeatedly due to poor drainage in low-lying sections.

These different flooding characteristics create different types of risks and impacts. As a focus group participant in Agbogbloshie explained: “When the water comes, it doesn't just flood and go away. It stays, and its dirty water mixed with everything-waste, chemicals, everything. Our children get sick, our goods get contaminated, and we can't work for days.”

4.4 Livelihood Characteristics and Strategies

4.4.1 Primary Livelihood Activities

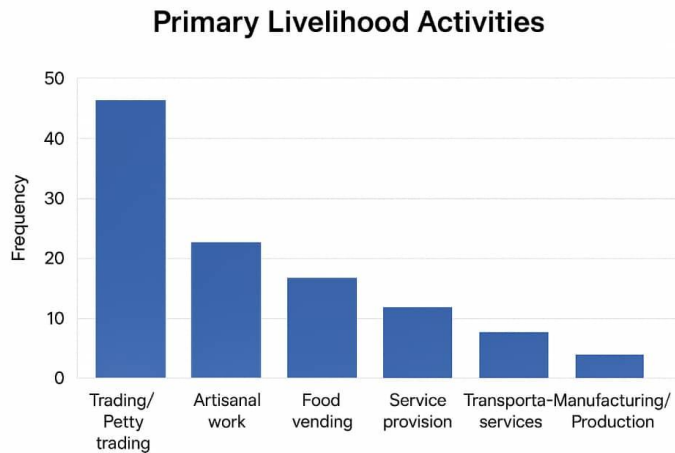


Figure 3

Figure 3 reveals diverse livelihood activities across the three communities, reflecting the complex nature of urban informal economies. Trading and petty trading represent the most common primary livelihood activity (43.6%), followed by artisanal work (18.9%), food vending (14.2%), service provision (12.4%), transportation services (6.7%), and manufacturing/production (4.2%).

However, these figures mask significant variations across communities. In Agbogboshie, artisanal work (particularly metal working and e-waste processing) is more common (31.3%), while food vending is less common (8.0%). In Alajo, trading dominates (52.0%), while transportation services are more common (12.0%). In Dansoman, the distribution is more balanced, with higher levels of formal employment and service provision.

4.4.2 Livelihood Diversification

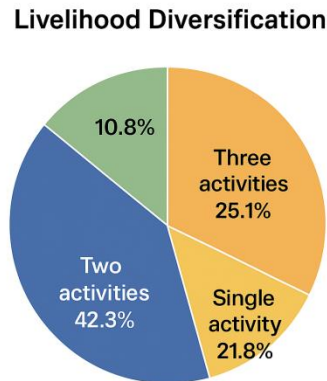


Figure 4

Figure 4 reveals high levels of livelihood diversification, with 78.2% of households engaging in multiple income-generating activities. Among these, 42.3% engage in two activities, 25.1% in three activities, and 10.8% in four or more activities. This diversification serves multiple functions including risk spreading, income maximization, and seasonal adaptation.

A female trader in Alajo explained the logic of diversification: "I sell vegetables in the morning, but in the afternoon, I do hair dressing. My husband drives a taxi, but he also repairs electronics. If one thing fails, we have others. During flooding, the vegetable business stops, but people still need their hair done, so I can still earn something."

However, diversification strategies are constrained by various factors including capital requirements, skill limitations, and market access. A focus group discussion in Dansoman revealed: "We want to do many things, but each business needs money to start. When flooding destroys one business, we don't have money to start another. So we are stuck doing the same things that flood every year."

4.4.3 Income Levels and Financial Security

Monthly household income levels are generally low, with 34.7% of households earning below GHS500 per month, 31.6% earning GHS500-1,000, 21.3% earning GHS1,001-2,000, 8.9% earning GHS2,001-3,000, and only 3.6% earning above GHS3,000. These income levels place most households below or near the poverty line, creating significant vulnerabilities to flooding impacts.

Financial security is further compromised by limited access to formal financial services. Only 23.1% of households have bank accounts, 12.4% have access to formal credit, and 8.7% have any form of insurance. This lack of financial security means that flooding impacts directly translate into livelihood crises without buffers.

4.5 Discussion of Results

In the previous chapters, chapters 1, 2, and 3, this study attempted to diagnose the research problem by reviewing the literature relative to the topic under review, provided clear objectives, and appealing research questions to aid and guide the direction of data collection. Here, the discussions reflect the implications of flooding menace for urban livelihoods in Greater Accra using Agbogbloshie, Alajo, and Dansoman designated as flood-prone areas as a case study.

The objective of this study is two-folds namely main and specific. The main objective is to assess assessing the menace of flooding and implications for urban livelihoods in Greater Accra: a case of Agbogbloshie, Alajo and Dansoman designated as flood-prone areas. The specific objectives are to:

1. Examine the characteristics and patterns of flooding in selected flood-prone areas of Accra and their relationship to urban livelihood activities.

2. Assess the immediate and long-term impacts of flooding on different types of urban livelihood strategies in the study areas.
3. Analyze the coping and adaptation mechanisms employed by households to deal with flood-related livelihood disruptions.
4. Evaluate the effectiveness of existing flood management interventions in protecting urban livelihoods and identify opportunities for improvement.

4.5.1 Immediate Effects by Livelihood Type

The analysis reveals significant variations in flooding impacts across different livelihood activities. Location-dependent businesses experience the most severe immediate impacts, with 87.3% of traders reporting moderate to severe impacts, compared to 45.6% of service providers and 52.3% of transport operators.

Trading Activities

Trading activities, particularly those involving perishable goods and fixed locations, experience the most severe impacts. Market traders report inventory losses averaging 68% of stock during major floods, with complete losses not uncommon. A market trader in Agbogbloshie described a typical flood experience: “When the big flood came in 2019, I lost everything. All my yams, plantain, vegetables- everything was under water for three days. The water was dirty, so even what didn't spoil, customers wouldn't buy. I lost over GHS2, 000 that day, and it took me six months to build back my stock.”

The impact extends beyond immediate inventory losses to include damage to trading infrastructure, loss of customers, and disruption of supply chains. Fixed market structures suffer damage requiring costly repairs, while mobile traders face challenges with water logged equipment and spoiled goods.

Artisanal Activities

Artisanal workers, particularly those engaged in metal working, carpentry, and electronics repair, face severe impacts from flooding. Equipment damage is a primary concern, with 73.5% of artisans reporting equipment an age during floods. Recovery is particularly challenging because specialized tools and equipment are expensive to replace.

A metal worker in Agbogbloshie explained: “My welding machine, cutting tools, all my metal stock-the water destroyed everything. These are not things you can buy in the market easily. I had to borrow money to replace them, and I'm still paying that debt two years later.”

Food Vending

Food vending faces unique challenges during flooding, with immediate concerns about food safety and customer access. Most food vendors (82.3%) report complete business closure during flood periods, with average closure periods of 4-6days. The impacts are compounded by health concerns, as flooding often contaminates food preparation areas.

Service Provision

Service-based activities show more resilience to flooding impacts, though they are not immune. Hair dressing, phone repair, and similar services can often relocate temporarily, but they face reduced customer demand and accessibility challenges. However, some services actually benefit from flooding, as repair services see increased demand.

Transportation Services

Transportation services face mixed impacts from flooding. While some operators benefit from increased demand for transportation during floods, others face vehicle damage and route disruptions. Motor cycle taxi operators are particularly vulnerable, with 65.4% reporting vehicle damage from flooding.

4.5.2 Long-term Impacts and Recovery Patterns

The study reveals that flood impacts extend well beyond the immediate flood period, with long-term consequences for livelihood sustainability and household welfare. Recovery patterns vary significantly across different livelihood activities and household characteristics.

Asset Depletion Cycles

One of the most significant long-term impacts is the triggering of asset depletion cycles, where households are forced to sell assets to recover from flooding impacts. The study finds that 67.4% of flood-affected households sold assets to recover from flooding, with financial assets (savings) being liquidated first (78.2%), followed by non-productive physical assets (65.3%), and finally productive assets (34.7%).

This pattern reflects rational asset management strategies, but also creates long-term vulnerability cycles. A focus group discussion in Dansoman revealed: “After the flood, we first use our savings. When that’s finished, we sell our furniture, our jewelry, anything we can sell. The last thing we sell is our equipment for work, because without that, we cannot earn money. But sometimes we have to sell that too, and then we are really in trouble.”

Debt Accumulation

Flooding also triggers debt accumulation, with 54.7% of flood-affected households taking on debt to recover from flooding impacts. Sources of debt include informal money lenders (43.2%), family and friends (67.8%), and rotating savings associations (23.4%). While debt can facilitate recovery, it also creates long-term financial burdens that increase vulnerability to future shocks.

Livelihood Transformation

Repeated flooding exposure is driving gradual transformation in livelihood strategies. The study documents several patterns of livelihood change:

Complete livelihood abandonment (12.3% of severely affected households): Some households completely abandon flood-vulnerable activities. A former fish seller in Agbogbloshie explained: “I used to sell fish, but every flood spoiled my fish. Now I sell phone cards instead. It's less money, but the floods can't spoil phone cards.”

Livelihood modification (34.7% of affected households): More commonly, households modify their livelihood strategies to reduce flood vulnerability. This includes changing product types, adjusting operating schedules, or relocating activities to safer areas.

Temporal livelihood suspension (67.8% of affected households): Most households temporarily suspend flood-vulnerable activities during high-risk periods, though this reduces income and may not be sustainable long-term.

4.5.3 Differential Implications across Social Groups

The analysis reveals that flooding impacts are not equally distributed across social groups, with certain populations facing disproportionate vulnerabilities and limited recovery capacity.

Gender Differences

Female-headed households face particular vulnerabilities to flooding impacts. The study finds that female-headed households are more likely to experience severe impacts (72.3% vs. 58.7% for male-headed households) and have longer recovery periods (average 8.3 months vs. 5.7 months). This disparity reflects several factors including concentration in flood-vulnerable activities, limited mobility.

4.6. Conclusion

The chapter concludes that urban flooding in Accra has become increasingly frequent and severe, causing significant disruptions to the livelihoods of residents, particularly those engaged in informal economic activities. Despite the critical importance of understanding these implications

for effective policy formulation, there remains a significant knowledge gap regarding how flooding specifically affects different urban livelihood strategies and the adaptive mechanisms employed by affected households. This study by employing a mixed-methods research design to investigate the flooding menace and the implications for urban livelihoods in three flood-prone communities: Agbogbloshie, Alajo, and Dansoman. The study revealed that flood menace has serious implications for livelihood and that it varies significantly across different livelihood activities with location-dependent businesses experiencing more severe disruptions than mobile activities. Asset depletion patterns showed that financial assets are liquidated first, followed by physical assets, creating long-term vulnerability cycles. Household adaptation strategies included temporary inventory relocation, livelihood diversification, and community-level collective actions, though effectiveness was limited by resource constraints. The research addressed critical gaps in institutional responses, particularly the lack of livelihood protection measures in existing flood management approaches.

CHAPTER FIVE

SUMMARY OF KEY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents an evaluation of the research findings in relation to the study objectives and the broader literature, followed by conclusions. The evaluation synthesizes the extent to which flooding impacts urban livelihoods in Accra's flood-prone communities, assesses the effectiveness of coping mechanisms and institutional responses, and highlights implications for policy, planning, and recommendations for future research.

5.2 Summary of Key Findings

5.2.1 Characteristics and Patterns of Flooding

The study established that flooding in Agbogbloshie, Alajo, and Dansoman is seasonal but varies in frequency and severity due to geographical and infrastructural differences. Poor drainage systems, unplanned development, and waste mismanagement were key drivers of flood risk, consistent with previous studies in Accra (Karley, 2009; Oteng-Ababio, 2013). Agbogbloshie, because of its location near the Korle Lagoon, remains the most vulnerable, experiencing prolonged flood waters contaminated with industrial and domestic waste. This confirms Douglas et al. (2008), who argue that weak urban governance and rapid urbanization amplify African cities' flood risks.

5.2.2 Immediate and Long-term Impacts on Livelihoods

Flooding impacts were found to be highly differentiated across livelihood types. Location-dependent activities such as market trading and artisanal workshops suffered the greatest inventory and equipment losses, while mobile and service-based activities were relatively more resilient. These findings support Tschakert's (2007) conclusion that informal, asset-intensive

businesses are most exposed to flood damage. Long-term impacts were observed in the form of asset depletion, indebtedness, and gradual shifts in livelihood strategies. Such transformations often entailed reduced income and heightened vulnerability, rather than resilience.

5.2.3 Household Coping and Adaptation Strategies

Households adopted a mix of short-term coping measures (inventory relocation, temporary migration, suspension of activities) and longer-term adaptations (livelihood diversification, relocation, and investment in resilient infrastructure). However, resource constraints limited the sustainability of these measures, particular among female-headed households, who reported longer recovery periods. This aligns with Moser's (1998) asset vulnerability framework, which underscores the centrality of asset ownership in shaping adaptive capacity. Community-level adaptations, such as collective drainage maintenance, proved effective but lacked sustained institutional support.

5.2.4 Effectiveness of Institutional Responses

Institutional responses to flooding remained largely reactive and relief-focused, with limited integration of livelihood protection. The National Disaster Management Organization (NADMO) and local assemblies provided emergency support but offered little in terms of long-term livelihood recovery. This gap supports Amoako's (2018) critique that Accra's flood management is infrastructure-oriented and insufficiently livelihood-sensitive. Moreover, the absence of comprehensive social protection mechanisms for flood-affected households further entrenched vulnerability, reflecting findings by Pelling (2003) on socially constructed urban risks.

5.3 Policy and Practical Implications

The evaluation highlights the need for:

1. **Livelihood-sensitive flood management:** Flood management policies must prioritize protection of informal economic activities, which constitute the back bone of Accra's urban livelihoods.
2. **Strengthened social protection systems:** Expanding cash transfers, micro-credit, and temporary employment schemes for flood-affected populations can reduce asset depletion cycles.
3. **Participatory planning and governance:** Incorporating local knowledge in drainage management and urban planning can enhance resilience.
4. **Gender-sensitive interventions:** Tailored strategies must address the disproportionate vulnerabilities of women traders and female-headed households.
5. **Climate-resilient infrastructure:** Investments in drainage, flood-resistant market places, and resilient housing can protect both lives and livelihoods.

5.4 Conclusions

The chapter concludes that urban flooding in Accra has become increasingly frequent and severe, causing significant disruptions to the livelihoods of residents, particularly those engaged in informal economic activities. Despite the critical importance of understanding these implications for effective policy formulation, there remains a significant knowledge gap regarding how flooding specifically affects different urban livelihood strategies and the adaptive mechanisms employed by affected households. This study by employing a mixed-methods research design to investigate the flooding menace and the implications for urban livelihoods in three flood-prone communities: Agbogbloshie, Alajo, and Dansoman. revealed that flooding menace has serious implications for livelihood and that it varies significantly across different livelihood activities, with location-dependent businesses experiencing more severe disruptions than mobile activities.

Asset depletion patterns showed that financial assets are liquidated first, followed by physical assets, creating long-term vulnerability cycles. Household adaptation strategies included temporary inventory relocation, livelihood diversification, and community-level collective actions, though effectiveness was limited by resource constraints. The research addressed critical gaps in institutional responses, particularly the lack of livelihood protection measures in existing flood management approaches.

Finally the study has demonstrated that flooding in Accra is both an environmental and socio-economic challenge with profound livelihood implications. The research confirmed that vulnerability is not only determined by physical exposure to flood hazards but is also deeply embedded in poverty, gender inequality, and institutional shortcomings. While households and communities demonstrate ingenuity in coping and adaptation, their efforts are constrained by limited resources and inadequate institutional support.

Ultimately, strengthening livelihood resilience requires a shift from reactive emergency responses to proactive, integrated flood risk management that embeds livelihood protection within urban planning, social protection, and community-based adaptation. Such measures are essential not only for reducing the impacts of recurrent flooding but also for promoting inclusive and sustainable urban development in Accra.

It concludes that flooding menace in Accra is both an environmental and socio-economic challenge with profound livelihood implications. The research confirmed that vulnerability is not only determined by physical exposure to flood hazards but is also deeply embedded in poverty, gender equality, and institutional shortcomings. While households and communities demonstrate ingenuity in coping and adaptation, their efforts are constrained by limited resources and inadequate institutional support.

5.5 Recommendations

The study made a number of recommendations which include the need to integrating livelihood considerations into flood management policies, expanding social protection coverage for disaster-affected populations, and strengthening community-based adaptation mechanisms to build urban resilience. Ultimately, strengthening livelihood resilience should require a shift from reactive emergency responses to proactive, integrated flood risk management that embeds livelihood protection within urban planning, social protection, and community-based adaptation. Such measures are essential not only for reducing the implications for recurrent flooding but also for promoting inclusive and sustainable urban development in Accra. Furthermore, it offers the following recommendations for policy action.

5.5.1 Policy Makers

1. Main stream Livelihood Protection into Flood Policy–National and local flood management frameworks must incorporate livelihood protection strategies, not just physical infrastructure responses.
2. Expand Social Protection for the Vulnerable–Introduce emergency cash transfers, subsidized micro-loans, and temporary employment schemes targeted at flood-affected household stop prevent destructive asset depletion cycles.
3. Strengthen Enforcement of Spatial Planning–Restrict construction in high-risk flood zones, while offering safer relocation alternatives for vulnerable communities.

5.5.2 Urban Planners and Municipal Assemblies

4. Design Climate-Resilient Market places and Workspaces–Invest in flood-resistant economic zones, especially for traders, artisans, and food vendors whose businesses are most affected.

5. Upgrade Drainage and Waste Management Systems—Expand and maintain drainage networks while integrating waste management strategies to prevent blockages that worsen flooding.

5.5.3 Community Organizations and Civil Society

6. Promote Community-Based Adaptation—Strengthen collective initiatives such as local drainage clearing, early warning systems, and neighborhood emergency committees.

7. Support Livelihood Diversification—Facilitate skills training and access to credit that allow households to spread risk across multiple income sources.

5.5.4 Households and Individuals

8. Adopt Household-level Resilience Measures—Where feasible, invest in flood-resistant storage, elevate work spaces, and diversify economic activities to reduce exposure.

9. Leverage Social Networks—Strengthen savings groups, rotating credit schemes, and kinship-based safety nets to provide buffers against post-flood recovery costs.

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APPENDIX
RESEARCH QUESTIONNAIRES

My name is **Bimpong Abigail**, a master's student at University of Media Arts and Communication (UNIMAC) of Ghana, pursuing masters in Development Communication. Please feel free as you respond to the issues asked in this questionnaire. All information will be treated as private and confidential. The questionnaire is intended to collect information on the Impact of Flooding on Urban Livelihoods in Accra.

Section A: Demographic Information

1. What is your age?

18-25 years

26-35 years

36-45 years

46-55 years

Above 55 years

2. What is your gender?

Male

Female

Other (please specify): _____

3. What is your highest level of education?

No formal education

Primary education

Junior High School

Senior High School

Technical/Vocational training

Tertiary education

Section B: Household and Livelihood Characteristics

4. What is your primary occupation/livelihood activity?

Trading/Petty trading

Artisanal work (specify): _____

Food vending

- Transportation services
- Service provision (specify): _____
- Manufacturing/Production
- Other (specify): _____

Section C: Flooding Experience and Patterns

5. How many times has your household been affected by flooding in the last 5 years?

- Never
- Once
- 2-3 times
- 4-5 times
- More than 5 times

6. During which months do you typically experience flooding in your area?

- January-March
- April-June
- July-September
- October-December
- Year-round

7. What are the main causes of flooding in your area? (Select all that apply)

- Heavy rainfall
- Poor drainage systems
- Blocked gutters/drains
- River overflow
- Poor waste management
- Unplanned development
- Other (specify): _____

Section D: Flooding Impacts on Livelihoods

8. How has flooding affected your primary livelihood activity?

- No impact
- Minimal impact
- Moderate impact
- Severe impact

Complete disruption

9. What specific impacts has flooding had on your livelihood? (Select all that apply)

Loss of inventory/stock

Damage to equipment/tools

Temporary business closure

Loss of customers

Reduced income

Increased expenses

Forced relocation

Other (specify): _____

10. Describe the most significant flooding event you experienced and how it affected your livelihood activities.

Section E: Coping and Adaptation Strategies

11. What strategies do you use to cope with flooding impacts? (Select all that apply)

Temporary relocation of goods/activities

Diversifying income sources

Seeking financial assistance

Temporary migration

Reducing business operations

Community collective action

Other (specify): _____

12. How effective are these coping strategies in helping you recover from flooding impacts?

Very effective

Somewhat effective

Not very effective

Not effective at all

13. What support would be most helpful for protecting your livelihood from flooding? (Open-ended)

Section F: Institutional Support and Recommendations

14. Have you received any assistance from government agencies or NGOs during or after flooding events?

Yes (specify type and source): _____

No

15. What improvements would you like to see in flood management in your community?

16. How has repeated flooding changed your livelihood strategies over time?

Thank you for your participation in this research. Your responses will contribute to better understanding of flooding impacts on urban livelihoods and inform policy recommendations for building resilience in Accra.