ASSESSING THE IMPACT OF TIDAL WAVES ON COASTAL COMMUNITIES: A CASE STUDY OF KPORKPORGBOR AND FUVEME

BY

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DECLARATION

DECLARATION BY STUDENT

I hereby declare that this research is a result of my/our own original research and that, no part of it has been presented for another degree in this university or any other higher education institute. I further declare that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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CERTIFICATION BY SUPERVISOR

This Dissertation/Thesis has been prepared and presented under my supervision according to the guidelines for supervision and formatting of Dissertation/Thesis laid down by the University of Media, Arts and Communication, UniMAC.

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Supervisor	Signature	Date

ABSTRACT

Coastal communities along Ghana's eastern shoreline face recurrent tidal wave events that disrupt livelihoods, damage housing, and intensify social vulnerability. While prior studies have focused largely on physical and economic impacts, limited attention has been given to how media communication shapes community awareness, preparedness, and adaptation. This study examines the socio-economic impacts of tidal waves and analyses the role of media communication in influencing risk perception and adaptive behaviour in Kporkporbor and Fuveme in the Volta Region of Ghana. A mixed-methods design was employed, combining household surveys of two hundred residents with in-depth interviews involving community leaders, media practitioners, and disaster management officials. Quantitative data were analysed using descriptive statistics and correlation tests, while qualitative data were examined through thematic analysis. Findings show that tidal waves are frequent rather than episodic, leading to persistent income loss, housing damage, and displacement. Livelihood disruption was reported by over four-fifths of respondents, with fishing and salt mining households most affected. Radio and community-based channels emerged as the most accessible and trusted sources of information. However, communication effectiveness is constrained by delayed warnings, fragmented institutional coordination, and limited integration of local knowledge, reducing preparedness and adaptive action. The study demonstrates that media communication functions as a critical mediator between hazard exposure and community adaptation. Strengthening localized, timely, and coordinated communication systems alongside institutional collaboration is essential for enhancing coastal resilience and informing disaster risk reduction and climate adaptation policy in Ghana and similar coastal contexts.

DEDICATION

This work is humbly dedicated to the Almighty God, whose grace, mercy, and unfailing love sustained me through every season of this journey. In moments of strength and weakness, His presence remained my anchor and my guide.

I lovingly dedicate this research to the sacred and cherished memory of my late mother, Mrs Peace Jemima Ahorlu Setordjie. Though she is no longer physically present, her prayers, sacrifices, discipline, and unconditional love continue to live within me. Her voice of encouragement still echoes in my heart, and her legacy of resilience and faith remains my greatest inspiration. May her gentle soul rest in perfect peace.

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ANC	Antenatal Care
BMI	Body Mass Index
CI	Confidence Interval
DA	District Assembly
EWS	Early Warning System
GIS	Geographic Information System
NGO	Non-Governmental Organization
NADMO	National Disaster Management Organization
PNDCL	Provisional National Defense Council Law
SDGs	Sustainable Development Goals
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Coastal areas provide for human residence, transportation, and biodiversity but have greater and greater vulnerability to the effects of climate change and are at greater risk for disasters such as tidal waves, erosion, or flooding (Boateng, 2012; Hinkel et al., 2014). Globally, countries face similar hazards that lead to displacement, asset loss, and livelihood degeneration (Hinkel et al., 2014; Charuka et al., 2023). In Ghana, the eastern coast of the Volta Region has experienced

continual tidal wave events leading to the destruction of homes, agriculture, and fishery assets (Effah et al., 2023; Puplampu et al., 2023). Disasters such as tidal waves induce damage to physical assets but often prevent the formation of social networks or economic co-development. While no disaster is preventable, the result of compounded climate-related and geophysical disasters can typically be dealt with by enhanced adaptive planning and communications response strategies (Hinkel et al., 2014). The increased frequency of tidal waves in Ghana illustrates the needed urgency for improved coastal planning and climate-related adaptation, as well as integrated community disaster response systems (Gbedemah, 2023; Yirenkyi & Boateng, 2025).

Frequency and size of tidal wave incidences are linked with sea-level rise and anthropogenic activities that alter the coastal morphology (Hinkel et al., 2014; Charuka et al., 2023). Boateng (2012) and Puplampu et al. (2023) have established that Ghana's east coast experienced widespread recession of its shoreline due to sediment disequilibrium, inadequate coastal defense, and inadequate land use planning. Lands in Keta and its environs, including Kporkporbor and Fuveme, have lost farmlands, homes, and fishing infrastructure, displacing thousands of individuals (Salifu, 2021; Mattah et al., 2024).

According to Codjoe et al. (2014), media communication in this case is significant. Yirenkyi & Boateng (2025) indicated that media outlets provide warnings, disseminate adaptation choices, and influence public perception on environmental risks. There are breaches in information communication and reception by coastal communities. Limited access to authentic information, weak liaison between local governments and media institutions, and inadequate disaster education have constrained effective preparation and response by communities (Klutse, 2022;

Gbedemah, 2023).

Information regarding the socio-economic impacts of tidal waves, as well as media communication efficiency, can inform adaptive resilience and sustainable adaptation actions. With Ghana's coastal communities continuing to face climatic vulnerabilities, it is imperative to assess the dynamics of environmental change, human vulnerability, and information dissemination for policy-making and disaster risk reduction (Charuka et al., 2023; Effah et al., 2023; Yirenkyi & Boateng, 2025).

1.1 Problem Statement

Tidal waves have emerged as one of the most common environmental hazards in Ghana's eastern coastal belt. The communities of Kporkporbor and Fuveme have consistently endured fatalities due to the tidal waves destroying houses, fishing gear, and arable land, which has triggered economic displacement and social frictions (Effah et al., 2023; Puplampu et al., 2023). Despite the national adaptation efforts made by Ghana, including coastal defense programs and community resettlement efforts, the occurrence rate and the intensity of tidal waves have steadily increased (Kwarteng, 2021; Salifu, 2021).

Although studies have documented economic and physical effects, very little attention has been given to the role of communication in shaping public awareness, preparedness, and response to tidal wave risk. Poor harmonization of flows of information among state agencies, the media, and vulnerable populations undermines adaptation and weakens local resilience (Gbedemah, 2023; Klutse, 2022). Inadequate media coverage, nonutilization of local communication networks, and miscommunication also hinder timely disaster response and public awareness

(Codjoe et al., 2014; Mattah et al., 2024).

There is, therefore, a necessity to critically evaluate how media communication influences awareness, perception, and adaptive behavior of coastal communities, and how it can be integrated into national disaster management strategies. This study bridges this gap by analyzing both the socio-economic consequences of tidal waves and the efficacy of media communication systems in Kporkporbor and Fuveme.

1.2 Research Objectives

This study is premised on some research objectives. The main objective is:

To examine the socio-economic impact of tidal waves on coastal communities and explore the role of media communication in awareness creation and community adaptation in Kporkporbor and Fuveme.

Specific Objectives

The study seeks to:

1. Assess the socio-economic effects of tidal waves on households and livelihoods in Kporkporbor and Fuveme.
2. Examine how residents' access and perceive media information on tidal wave events.
3. Explore the communication link between local authorities, the media, and affected communities in managing tidal wave disasters.
4. Identify communication strategies that can improve community awareness and resilience

to tidal wave impacts.

1.3 Research Questions

The research questions driving this research are:

1. What are the socio-economic effects of tidal waves on households and livelihoods in Kporkporbor and Fuveme?
2. How do residents' access and perceive media information on tidal wave events?
3. How do local authorities, the media, and affected communities communicate in managing tidal wave disasters?
4. What communication strategies can strengthen community awareness and resilience against tidal wave impacts?

1.4 Significance of the Study

This study is important because it explores a useful research gap in understanding the impact of media communication in building community awareness and adaptive capacity to tidal wave disasters in Ghana. While previous studies have examined coastal erosion, socio-economic impact, and recovery, as well as community coping strategies (Boateng, 2012; Effah et al., 2023; Puplampu et al., 2023), there has been no attention to the communication dimension of public understanding and behavior. This study aims to fill the gap by examining the socio-economic impacts of tidal waves on media communication effectiveness in Kporkporbor and Fuveme.

Results will assist decision-makers, including the Ministry of Works and Housing, National Disaster Management Organisation (NADMO), and Environmental Protection Agency (EPA), in

developing an integrated disaster communications framework relevant to local contexts. Media organizations will benefit from new research findings on how to enhance risk reporting and early warning systems for communities at risk.

The study contributes to the academic and development space on climate communication and coastal vulnerability with context-specific evidence from the eastern coastline of Ghana. The study also creates a reference for future research and practice interventions that can contribute to enhanced communication-based approaches to resilience and adaptation to disasters in other coastal areas across West Africa.

1.5 Scope of the Study

This study demonstrates the scope and extent of the study. It engages with the socio-economic impacts of tidal waves and seeks to evaluate the effectiveness of media communication strategies to raise awareness and promote adaptation for coastal communities. With respect to geography, this study will take place in two communities, Kporkporbor and Fuveme, situated on the eastern coast of Ghana in the Volta Region. The reasoning for these chosen sites is that both have been impacted by tidal wave incidents on multiple occasions, to the extent that they have displaced people, disrupted livelihood systems, and lost infrastructure in these communities.

In terms of a conceptual nature, this study is engaging with two central dimensions: first, socio-economic impacts of tidal waves on households, livelihoods, and social systems; and second, the communicative processes between media organizations, local authorities, and residents. It will also examine how information about tidal wave hazards is framed, communicated, and understood, and offer opportunities for improved communication and preparation.

This study adopts both qualitative and quantitative methods for a more holistic understanding of local realities. The study does not engage with physical oceanographic and engineering assessment but will focus on human, institutional, and communicative responses to tidal wave disasters. Ultimately, the focus will be on capacity building so that communities are resilient and on how to improve policy and communication systems as part of a climate adaptation and disaster management agenda in Ghana.

1.6 Limitations of the Study

The study relies on self-reported data from residents, which may be influenced by recall bias or distress from past tidal wave experiences. To reduce this, data will be cross-verified with the aid of interviews with media practitioners and local authorities.

Also, the study has a limited geographical scope, examining two communities, which may restrict the ability to generalize the results to the wider coastal region in Ghana. However, the sampled sites provide representative data for the wider Volta coastal region. Another is that the existence of comprehensive media coverage of past tidal wave events might be questionable, which could influence the degree of media content analysis intensity. Finally, time and cost constraints could limit the fieldwork range and the process of follow-up with respondents. Regardless of these limitations, diligent methodological design and data source triangulation will enhance the validity and dependability of conclusions and recommendations to be made in the study.

1.7 Structure of the Dissertation

The dissertation consists of five chapters, and every chapter deals with a specific problem of the

research. In Chapter One, the introduction is given, including background, problem statement, objectives of research, questions, significance, scope, limitations, and framework for study. Chapter Two introduces relevant literature such as empirical studies and theoretical models of tidal waves, coastal vulnerability, and media communication in disasters.

Chapter Three is dedicated to the research methodology. This chapter describes the area of study, research design, population, sampling method, data collection instruments, and data analysis. Chapter Four reports and explains field findings in the context of relevant literature, with special focus on highlighting prevalent trends of socio-economic impacts and communication effectiveness.

Chapter Five concludes the research by providing an overview of key findings, summarizing conclusions, and making recommendations for media organizations, decision-makers, and local communities. The organization creates a logical progression from the initial engagement of thought to the evidence-based conclusions, creating an overarching comprehension of the communication and impact circumstances associated with tidal waves in coastal Ghana.

All references in this dissertation will adhere to the citation style of the American Psychological Association (APA) 7th edition. The appendix will provide copies of the interview-guided questions and questionnaires that were used in the data collection to aid transparency and the validity and reliability of the research process.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Coastal ecosystems are recognized as some of the most dynamic and productive environments, supporting millions of livelihoods linked to fishing, tourism, and trade. Coastal ecosystems are more susceptible than ever to climate-related hazards, including tidal waves, erosion, and flooding, which interrupt socio-economic activities and pose risks to human settlements (Boateng, 2012; Dada et al., 2024). Globally, sea levels are rising at an increased rate, and storm surges are making coastal communities more vulnerable, leading to displacement and disruption to communities and infrastructures (Hinkel et al., 2014; Anfuso et al., 2021). These risks are more pronounced in the developing world, where weak institutional frameworks and poor adaptive capacity destroy effective response mechanisms (Dovie & Pabi, 2023; Charuka et al., 2023).

In Ghana, the frequency of coastal erosion and tidal waves has become frequent along the Volta Region, with communities such as Keta, Fuveme, and Kporkporbor being repeatedly flooded and experiencing shoreline evacuation (Puplampu et al., 2023; Effah et al., 2023). The consequences extend beyond simple physical destruction to directly impact shelter, farming, and fishing, which are the primary economic activities of the communities (Salifu, 2021; Mattah et al., 2024). The frequency of such disasters has led to widespread socio-economic suffering and displacement, and there is an urgent and dire need for sustainable adaptation and communication interventions (Appiah, 2025; Issaka, 2024).

Media communication plays a very significant role in influencing public understanding and community response to risks from tidal waves. Effective communication using radio, television, and electronic media helps in creating awareness, enhancing preparedness, and developing resilience (Odoom, 2024; Sah, 2025). But studies point to communication gaps between scientific bodies, policymakers, and vulnerable communities, leading to ineffective disaster responses (Wormenor & Asibey, 2025; Gaisie & Cobbinah, 2023).

This literature review critically examines the theoretical, conceptual, and empirical foundations of tidal wave impacts and media communication related to their management. It seeks to synthesize the existing research in order to pinpoint the existing knowledge gaps and contextualize the study within the broader climate change and disaster communication studies in Ghana.

2.1 Theoretical Review

2.1.1 Tidal Waves and Coastal Vulnerability Definition

Tidal waves are abrupt, high-speed flows of water resulting from oceanic disturbances that include wind, atmospheric pressure changes, and rising sea level (Puplampu et al., 2023). Tidal waves result in severe coastal flooding, erosion, and destruction of property. The incidence of tidal wave occurrences has been increasing globally as a consequence of global warming and human encroachment on coastal systems. Coastal vulnerability refers to the extent to which communities are exposed to, and unable to cope with, such hazards (Hinkel et al., 2014). This is reliant upon ambient conditions, socio-economic indicators, and the affected population's

adaptive capacity.

The vulnerability of the Volta region of Ghana is compounded by existing low-lying coastal topography, an erosion-susceptible coastline, and a high population density adjacent to the shore (Puplampu et al., 2023). Evidence shows significant withdrawal from the shoreline, flooding of residences, and destruction of fishing facilities in localities such as Keta, Fuveme, and Kporkporbor (Effah et al., 2023). The impacts threaten livelihoods and disrupt domestic economies based on fishing and farming. Boateng (2012) noted that illegal settlements and sand mining contribute to the vulnerability to tidal wave danger. The conceptualization of vulnerability, therefore, combines the physical risk and socio-economic exposure, and this requires community-based risk management interventions.

2.1.2 Environmental Communication Theories

Environmental communication theory focuses on the process through which environmental information is communicated to create awareness, build public opinion, and bring about change in behavior (Hinkel et al., 2014). It recognizes communication as a tool for promoting environmental stewardship and facilitating discourse among scientific experts, policymakers, and communities (Odoom, 2024). In situations of disasters, the theory emphasizes that early and reliable communication is able to minimize panic, facilitate preparedness, and enhance recovery.

Gaisie and Cobbinah (2023) assert that participatory communication strategies work best in addressing environmental hazards since they enable the vulnerable populations to be included in the discussion. When individuals are informed and directly involved, they make more informed adaptation decisions. In Ghana, however, environmental communication remains largely top-

down with minimal efforts at incorporating local voices. Wormenor and Asibey (2025) assert that wedding digital technologies and local radio networks can bridge the communication divide and offer disaster news to coastal dwellers more easily. The theory, therefore, encourages inclusiveness, simplicity, and uniformity of communication in a bid to strengthen environmental resilience.

2.1.3 Risk Perception and Communication Theory

Risk perception theory outlines that individuals' perception of risk is influenced by experience, culture, and trust in information sources. Individuals are likely to underestimate or ignore dangers if they have lived with dangers for a long time without huge losses (Sah, 2025). This perspective affects their response to warning signals and adaptation programs. In coastal Ghana, the natives consider tidal waves to be natural or spiritual occurrences and not environmental problems (Mattah et al., 2024). These perceptions affect readiness in the community and reduce willingness to relocate or adopt preventive measures.

Risk communication theory builds on this by emphasizing the importance of using proper, open, and unambiguous information. Odoom (2024) highlighted that communication helps people to understand the scale of danger and react in the right way. If information is culturally sensitive and credible, it generates behavior change and group action. Codjoe et al. (2014) also highlighted that communication must be sensitive to local language and belief structures to be effective. The theory also suggests the creation of culture-based messages in conjunction with group experience and knowledge.

2.1.4 Disaster Risk Reduction and Adaptation Frameworks

Disaster Risk Reduction (DRR) and climate adaptation frameworks provide a methodical approach to reducing vulnerability and increasing resilience. The Sendai Framework for Disaster Risk Reduction 2015–2030 places risk analysis, early warnings, and preparedness as the focal points to save lives and livelihoods (Hinkel et al., 2014). These guidelines allocate responsibilities, suggesting an inter-sectoral responsibility of governments, local communities, and media.

In Ghana, institutions like NADMO and the Ministry of Works and Housing have established policies for coastal risk; however, often, non-implementation is due to insufficient resources and coordination (Kwarteng, 2021). Charuka et al. (2023) indicate that non-structural measures would be equal to engineering measures. Effective disaster management also includes communication systems to ensure that warning messages will reach vulnerable populations promptly. Yirenkyi and Boateng (2025) identify the increasing significance of data-driven communication to increase public awareness and adaptive capacity. Thus, providing a basis for inputting communication, education, and policy into coastal disaster risk management.

2.2 Conceptual Review

2.2.1 Nature, Causes, and Socio-Economic Impacts of Tidal Waves in Coastal Ghana

Tidal waves along the coastal areas of Ghana are anthropogenically and naturally caused. They are naturally caused by sea-level rise, ocean currents, and changes in atmospheric pressure due to climate change. Anthropogenic events such as sand mining, mangrove clearance, and unplanned coastal settlements have increased shoreline vulnerability and reduced natural protection against

wave energy (Boateng, 2012; Puplampu et al., 2023). Ghana's eastern coastline between Ada and Aflao is particularly vulnerable based on its low-lying terrain and exposure to Atlantic storm surges (Effah et al., 2023). The geomorphological environment of the Volta Delta, with its level terrain and limited supply of sediment following the completion of the Akosombo Dam, has been responsible for further erosion and more frequent flooding (Charuka et al., 2023; Ankrah, 2024).

Socioeconomic impacts of the tidal waves on coastal societies are extensive. Fisheries, agricultural, and commerce activities are frequently disrupted, causing loss of revenue and food insecurity. Salifu (2021) cites that repeated tidal wave occurrences along the Keta area have led to social deterioration and forced migration as families abandon traditional settlements. Coastal residents have been reportedly subjected to psychological trauma, property damage, and reduced accessibility of fundamental services such as education and healthcare, as cited by Mattah et al. (2024). Effah et al. (2023) have found that poor families spend huge amounts of their income on house rehabilitation, creating poverty cycles. Not only have tidal waves destroyed physical assets in Fuveme and Kporkporbor but also social networks and cultural identity. The interface of environmental hazard and human exposure indicates that tidal wave impacts are ecological and socio-economic in nature, with the need for a coordinated adaptation strategy that addresses engineering, policy, and communication interventions (Gbedemah, 2023; Dovie & Pabi, 2023).

2.2.2 Media and Climate Change Communication

Media communication is an important contributor to shaping public perception of the environment. The media informed society about climate hazards through news articles, documentaries, talk shows, and social media, and this can help society prepare and respond to disaster events (Odoom, 2024). Successful media engagement of scientific information into

usable information can be understood and adopted by localized communities. As indicated by Sah (2025), climate communication through media builds awareness and encourages proactivity to adapt with coherent and localized messengers.

For coastal communities in Ghana, local radio stations and community information centers are the main institutional information sources (Gaisie & Cobbinah, 2023). These forms of media are indeed critical in the dissemination of early warnings and providing public education. Nonetheless, Odoom (2024) noted how many climate hazard communication campaigns exhibit urban biases and do not take into account isolated coastal communities. This knowledge gap lessens the effectiveness of awareness programs and limits participation in/aspects of adaptation. Wormenor and Asibey (2025) suggested integrating online forums such as mobile alert systems, WhatsApp groups, and online forums in communities to complement mainstream media. Such hybrid mechanisms are capable of scaling up feedback and promoting trust between residents and authorities. The media are also watchdogs by holding coastal defense and climate resilience policy decision-makers accountable. Inconsistent funding and lack of technical skills often limit environmental reporting by journalists (Charuka et al., 2023). The environmental communication theory is clear that effective communication about disasters must be simple, culturally sensitive, and continuous. In the case of coastal Ghana, for example, warnings must not merely be broadcast, but there should be two-way communication that gives communities the chance to take measures before the disaster.

2.2.3 Community Awareness, Institutional Cooperation

Effective disaster management requires communication from a range of institutions, including government institutions, local governments, research institutions, and the media. The National

Disaster Management Organization (NADMO) is the organization designated to coordinate Ghana's disaster response, but it is usually under-resourced (Kwarteng, 2021). Coordination with the Environmental Protection Agency (EPA), Hydrological Services Department, and local governments is sometimes weak, which results in untimely actions. Klutse (2022) also noted that fragmented policy and overlapping mandates are contributory factors to weakening integrated coastal zone management.

Institutional collaboration must go beyond government agencies to include academia, NGOs, and community leaders. Effah et al. (2023) pointed out that community-based organizations can play a significant role in translating scientific knowledge into local action. Media institutions also serve as an intermediary agency by passing on news, policy information, and early warnings. Yirenkyi and Boateng (2025) argued that evidence-based communication enhances institutional coordination by ensuring that accurate, timely information shapes policy and public response. Public awareness creation is also a highly crucial component of institutional cooperation.

Codjoe et al. (2014) found that indigenous knowledge and local experience-based awareness programs produce more robust adaptive responses than externally designed strategies. Gbedemah (2023) pinpointed the manner in which mainstream communication channels like grassroots congregations and traditional leadership complement formal media in promoting local resilience. Institutional and community stakeholders' partnerships, therefore, ensure that tidal wave news and adaptation measures are credible, consistent, and inclusive.

2.2.4 Conceptual Framework of the Study

The conceptual framework of the study links three primary variables: tidal wave impacts, media

communication, and community adaptation. It presumes that tidal waves, as a single variable, directly affect the socio-economic stability of coastal communities through displacement, loss of livelihoods, and damage to property. Media communication is an intervening variable that affects how communities receive, interpret, and respond to such environmental risk. Timely, accurate, and available communication encourages communities to adapt by facilitating both readiness and behavioral adjustment (Odoom, 2024; Sah, 2025).

The framework operates under the belief that effective communication increases awareness of risk and therefore prevents risk by providing time to take action and streamlining response by improving institutional collaboration. In contrast, ineffective communication increases risk, as it enhances the probability of misinformation and provides inefficient responses altogether. For this framework, community adaptation serves as the dependent variable as expressed through actions such as relocation, making additional sources of livelihood, and attending disaster management training.

The relationship developed in the framework lends credence to Disaster Risk Reduction (DRR) and climate adaptation models when they recognize the role of communication as an enhancement of resilience (Hinkel et al., 2014; Dovie & Pabi, 2023). The model shows that although tidal wave events may not be prevented, their impacts can be cushioned when societies are well informed, institutions have an extensive measure of cooperation, and media services act as trustworthy sources of environmental information. The model therefore provides grounds for the exploration of how communication facilitates mediation between climatic peril and socio-economic impacts in coastal Ghana.

2.3 Summary of the Literature Review

2.3.1 Key Insights from Theoretical and Conceptual Literature

The theoretical and conceptual literature examined sheds light on tidal waves, coastal vulnerability, and communication within the coastal context in Ghana. The theoretical literature review revealed that environmental communication and risk perception theories are central to how communities interpret and respond to climate-related disasters, highlighting the connections between information sharing, social learning, and behavioral change. More specifically, risk perception theory focuses on how individuals perceive environmental risks and how they initiate a decision-making response according to cultural values, past experiences, or trust in sources of information (Siegrist, M.,2021). Understanding what this means is important when devising messaging techniques that are specific to local realities and not technical, unrelated, and abstract information.

In addition, the Disaster Risk Reduction (DRR) and adaptation frameworks are framed to push the focus from reactive to proactively managing risk. The Sendai Framework for Disaster Risk Reduction focuses on resilience-building through early warning systems, public awareness, and participatory governance. The conceptual framework for the study established for the study builds upon these theories by situating media communication as a mediating variable in the connection between tidal wave impacts (independent variable) and community adaptation (dependent variable). This demonstrates that effective communication can facilitate an individual's or community's behavioral response to ecological disaster from research knowledge to knowledge of hazards, and then to researching the causal link between impact and their

adaptive response.

The conceptual review also indicates that tidal waves in Ghana occur as a result of intricate interactions between climatic factors (sea-level rise and storm surges) and human activities (sand mining, dam construction, and unregulated coastal development). Boateng (2012) and Puplampu et al. (2023) showed that the alteration of sediment flow from the Volta River due to the Akosombo Dam has intensified coastal erosion in Keta and Ada. These findings affirm the importance of integrated approaches that take into account natural and anthropogenic drivers of coastal degradation.

From a communication perspective, the literature notes that all media, whether radio, television, or increasingly digital media, are important intermediaries between scientific institutions and local populations. Odoom (2024) and Sah (2025) established that when communication processes are more localized, participatory, and continuous, they enhance public understanding of climate risks and climate adaptive practices. In contrast, top-down and fragmented communication strategies have not reached vulnerable groups, resulting in misinformation and low preparedness. Consequently, the theoretical and conceptual literature demonstrates, overall, that understanding and adapting to the impact of tidal waves necessitates the coming together of environmental science, communication studies, and principles of community engagement.

2.3.2 Research Gaps Identified in Existing Studies

Despite significant research on coastal threats, the literature still exhibits a number of gaps. First, many Ghanaian studies have focused on biophysical facets of coastal erosion, like sediment transport and shoreline retreat, while giving little attention to community adaptation in terms of

communication and behavior. Specifying geospatial data on erosion rates and flooding variables, the work of Boateng (2012) and later Puplampu et al. (2023) and Brempong et al. (2023) was significant, and other studies have generally only considered climate change coastal risk within actual algorithms of its community communicating the hazard and influencing decisions. For this reason, clarify how risk perception between climate change and coastal hazards affects adaptive behavior at the household and community level.

Also, empirical studies approach adaptation with a deficit model, which uses a top-down policy lens and always puts the focus on government interventions for adaptation related to climate change, like sea defense projects, relocation initiatives, and climate-related policy, while ignoring or inadequately analyzing community-led or indigenous adaptations. Gbedemah (2023) and Salifu (2021) draw attention to the lack of emphasis from formal organizations on local coping strategies such as vegetative barriers, community relocation, and the traditional observance of a warning system. Indigenous adaptation and documentation of use are relevant today, and future adaptation of solutions for sustainability.

Furthermore, the area of media communication as a determinant of awareness and response is still underexplored in Ghana. Odoom (2024) pointed out that although citizens know climate change in general terms, many struggles to explain its localized impacts. Studies do not often analyze the role of different communication channels (e.g., radio, community meetings, social media) in terms of their influence on attitude toward coastal hazards. Furthermore, very little is known about how journalists design climate and disaster stories or how the media frames stories for policy advocacy and behavioral change.

Another gap is the institutional and policy shell. Klutse (2022) and Gaisie and Cobbinah (2023) noted that although there are national climate adaptation plans, the execution of these plans often lacks community engagement, transparency, and limited inter-agency communication. The literature also does not examine how interactions among policymakers, local governments, and residents can facilitate institutional agency and accountability and improve adaptation outcomes.

In terms of methods, the majority of research is constrained by its disciplinary silos. Coastal science studies, which are often highly quantitative, based on satellite imagery and modeling, and social and communication studies—which tend to rely on small-scale qualitative case studies—rarely intersect to produce a complete picture that includes both physical dynamics and their socio-cultural responses. Also, longitudinal data on adaptation effectiveness over time are scant, leaving questions about the sustainability of adaptations unanswered.

Moreover, there is a notable gap in cross-comparison studies between Ghana and other countries with comparable coastal systems. That means, while there are international studies on community-based adaptation, nature-based solutions, and participatory risk communication that produce insights on Ghana's coastal systems, there are very few studies that specifically and systematically benchmark Ghanaian research to these research experiences. This space and gap in research limit the way in which models derived from successful international studies can be contextually adapted for use in Ghana to engage the uptake of best practices.

These gaps need to be overcome to enhance our understanding of the many complex interrelationships between environmental change, communication processes, and adaptive capacity. This study seeks to engage with these gaps from interdisciplinary perspectives and

focus on media communication to see how it shapes community adaptation for dealing with the tidal wave impacts.

2.3.3 Relevance of the Literature to the Present Study

The literature surveyed is directly related to the theoretical stance, method, and analysis for the current study. From a theoretical position, the cross-section of environmental communication and risk perception theories underpins the analysis of how media influence community understanding and adaptation to tidal waves. The conceptual framework is oriented, as developed earlier in this chapter, on the impacts of tidal waves, media communication, and community adaptation influenced by knowledge from the global literature as well as literature specific to Ghana. It represents the idea that communication plays an essential role in how environmental risks are conceptualized and transformed into meaningful action in communities.

Additionally, empirical works, such as Boateng (2012), Puplampu et al. (2023), and Brempong et al. (2023), provide critical data on the spatial and temporal trajectories of erosion and flooding that contextualize the environmental aspect of the study. Understanding the physical processes is necessary for assessing communities and understanding and responding to them. The studies of Mattah et al. (2024) and Issaka (2024) also presented community perceptions, social capital, and coping responses that connected to my study about grassroots adaptation. All of these empirical studies suggest a need for research on communications as an intermediary factor of communities' adaptive capacity.

The literature also expresses the need to improve media capacity in climate change communications. Odoom (2024) and Sah (2025) describe how media outlets, especially radio,

shape public knowledge of climate challenges in rural contexts, but they also describe limitations of the communication format to provide localized, deliberate information. This study builds on this situational status by being interested in channels of information flow and their usefulness in developing community-based adaptations in coastal Ghana.

From the implication of the policy analysis, the literature highlights structural flaws in national adaptation planning related to poor interagency coordination, limited participation from local actors, and insufficient funding (Klutse, 2022; Gaisie & Cobbinah, 2023). It is through these findings that we find a direction for the study's goal to see how institutional communication failures diminish the expected transformation of dialogue to community resilience against extreme climate weather events. In linking communication effectiveness with policy direction, this study would add another lens to how we can think of environmental governance and information management as collective actions.

Finally, the studies reviewed also highlight tensions between scientific knowledge and indigenous knowledge systems. More often than not, formal adaptation frameworks center on technological or engineering solutions to adaptation. In the local context, communities have long relied on experiential knowledge, which has been accumulatively summarized from their observations over the years of lived experience and traditions (Gbedemah, 2023). The present study recognizes the value of these indigenous systems and explores how media can serve as a conduit for integrating traditional wisdom with scientific insights to promote inclusive adaptation.

The literature reviewed supports a mixed-methods approach using spatial, survey, and qualitative

approaches, which aligns with the current study's intent to triangulate data from multiple sources to provide depth and validity. The range of methods of approaching research on coastal communities and tidal wave hazards, from GIS-based mapping of the shoreline to ethnographic interviews, illustrates the crucial exercise of developing a robust synthesis of contextual sensitivity and empirical rigor.

In fact, there are both practical and theoretical reasons for this research. The literature speaks to the reality that the impacts of tidal wave hazards on coastal communities in Ghana are, at least in part, the result of failures in communication and governance, rather than environmental processes. By situating media communication as the primary site of analysis, this study both responds to identified gaps in it while also adding to a larger conversation about climate adaptation in developing coastal contexts. This study aims to provide findings with the potential to be actionable and inform policymakers, media practitioners, and community leaders in developing better, participatory, and sustainable strategies for coastal resilience.

The literature reviewed serves as an important framework for the goals of this research. It establishes the state of the literature, identifies gaps in knowledge, and provides the conceptual and empirical framework from which this research will build. Building from that framework, this research aims to achieve dual objectives for both academic knowledge and practical contributions that will support community adaptation to tidal wave impacts in Ghana’s vulnerable coastal region.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The chapter discusses the research methods employed to assess how media communication impacted community adaptation to tidal waves in Kporkporbor and Fuveme in the Volta Region of Ghana, outlining the research design, study area, population, sampling methods, sources of data, instruments, procedures for analyzing data, and ethical considerations. It also discusses the validity and reliability of the instruments used.

3.1 Research Design

The study utilized a mixed-method design, which involved a combination of both quantitative and qualitative methods. This method was chosen as it provided a broader understanding of the phenomenon of communication and adaptation. The quantitative method produced numeric data from the questionnaires, while the qualitative method provided a richer understanding of the phenomenon from interviews and field observation. The two methods provided triangulation and improved the validity and credibility of the findings.

3.2 Study Area

The study was conducted in Kporkporbor and Fuveme, both located in the Volta Region, Ghana, which has been devastated by tidal waves and coastal erosion, causing displacement of families and loss of livelihoods. Kporkporbor is within the Anloga District, and Fuveme is located in the Keta Municipality. These communities are economically dependent on fishing, salt mining, and small-scale trading. Because of their characteristics, they have bad road networks, poor access to

media infrastructure, and high vulnerability to sea-level rise and storm surges (Puplampu et al., 2023; Brempong et al., 2023).

3.3 Population of the Study

The population of the study comprised residents of Kporkporbor and Fuveme who had been affected by tidal waves, as well as local journalists, NADMO officers, and community leaders who were involved in disaster communication and management. This provided diversity with respect to providing a perspective on affected citizens as well as institutional actors.

3.4 Sample Size and Sampling Techniques

The total number of people engaged in the study was 220 respondents, composed of 200 questionnaire respondents and 20 interviewees. The sample size was to achieve diversity and representativeness. A multistage sampling technique was applied. First, purposive sampling was applied to select Kporkporbor and Fuveme based on their exposure to tidal waves and vulnerability. Second, households were stratified by location with exposure. From each stratum, people were randomly selected to take part in the questionnaire survey. Lastly, 20 key informants were purposively selected for the qualitative component, including journalists, NADMO officials, assembly members, and traditional authorities involved in disaster communication and response.

3.5 Sources of Data

This study utilized primary and secondary data.

3.5.1 Primary Data

Primary data were obtained directly through field encounters. Quantitative data on awareness,

access to communication, and adaptation behaviors were collected with questionnaires. In-depth interviews were employed to gather institutional experiences, local perspectives, and challenges in the dissemination of disaster information. Field observations provided contextual information such as housing typologies, erosion along the shoreline, and community-level adaptations still taking place.

3.5.2 Secondary Data

Data from academic journals, official reports, and policy documents were reviewed as secondary sources. Some of the main sources were the National Disaster Management Organization, the Environmental Protection Agency, and the Ministry of Works and Housing. Further peer-reviewed sources included Boateng (2012), Effah et al. (2023), and Charuka et al. (2023), which enhanced interpretation from a limited qualitative investigation tilting on empirical/academic evidence.

3.6 Data Collection Instruments

Three data collection instruments were employed: questionnaires, interview guides, and observational checklists.

3.6.1 Questionnaire

The questionnaire was comprised of closed-ended questions within sections on demographics, tidal wave exposure, media use, and adaptations. Likert scale items asked questions regarding trust in sources, including radio, television, community meetings, and social media. The questionnaire was administered face-to-face by the researcher, who was fluent in both English and Ewe, contributing to comprehensibility.

3.6.2 Interview Guide

Semi-structured interview guides were used to collect qualitative data from 20 key informants. Semi-structured interview questions addressed institutional preparedness, coordination challenges, and early warning dissemination of information or messaging, as well as perceptions around community response. The open-ended format permitted key informants to elaborate on their experiences and offer suggestions.

3.6.3 Observation

Observations complemented the other data collection instruments by offering real evidence of physical and social realities around the four study sites. The researcher recorded incidents of coastal erosion, damage to homes from flooding, and local adaptations to mitigate damage, such as sandbags and wooden barriers. These observations provided additional validation for responses to the questionnaires and interviews.

3.7 Validity and Reliability of Instruments

All data collection instruments were validated by the research supervisor, who reviewed the questionnaire and interview guide for clarity, logical sequencing, and relevance to the research objectives. The process generated minor changes that strengthened the alignment of each question with the research purpose. This ultimately provides evidence that the instruments included the intended variables and reflect the scope of the study.

Reliability was ensured by using the same instruments and consistently following the same data collection procedures in Kporkporbor and Fuveme. Using consistent procedures for administering the instruments helps to reduce researcher bias and increases the comparability of

responses. Triangulation of the three data sources—questionnaires, interviews, and observations—adds credibility and dependability to the findings and provides cross-validation of data from different perspectives.

3.8 Data Collection Process

The researcher collected data over three weeks. Permission for the research was obtained from the appropriate district assemblies and traditional leaders of Kporkporbor and Fuveme. The researcher hired field assistants who were trained and who distributed the questionnaire to members of the respective communities. While the field assistants administered the questionnaire, the researcher interviewed the key informants.

The researcher manually recorded all interviews in field notebooks, as the participants preferred not to be audio-recorded. The researcher took care to write notes during the interviews as well as immediately after to ensure that details were accurately captured. Field observations of the study sites were also recorded to help place the verbal responses into context. Participation in the research was strictly voluntary. Respondents were informed about the research and their right to withdraw from the research at any time without negative consequences.

3.9 Data Analysis Methodology

Quantitative data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) Version 21. Descriptive statistics. Chi-square and correlation were used to assess relationships between communication exposure, awareness, and behavior in practice or overall adaptation. Qualitative data were analyzed using thematic analysis. Transcriptions of interviews and focus groups were reread, coded, and thematically grouped into key categories for analysis

(media effectiveness, institutional coordination, and community resilience). Findings from both quantitative and qualitative datasets were triangulated to develop a coherent interpretation of results.

3.10 Ethical Considerations

Ethical approval was received before commencing fieldwork. Respondents were notified of the purpose of the study, voluntary participation in the study, and that their responses would be kept confidential. Written consent or verbal consent was provided before data collection. All identifiable names and information were removed from the report so the respondent would be anonymous. Institutional actors were consulted through formal communication to maintain openness and respect for the protocol.

3.11 Summary of the Chapter

This chapter summed up the research design, study site, population, sampling methods, instruments, and analysis plans used to explore the role of media communication in community adaptation to tidal waves (tsunamis) in two communities of Kporkporbor and Fuveme. The use of mixed methods allowed for a balance of understanding both quantitative trends and qualitative understandings. Ethical considerations and methodological rigor ensured the results were credible and trustworthy.

CHAPTER FOUR

DATA ANALYSIS

4.0 Introduction

This chapter presents the analysis and discussion of data collected from households in Kporkporbor and Fuveme, as well as key informants involved in tidal wave communication and management. The focus here is not just on reporting numbers, but on making sense of what those numbers mean in the lived reality of coastal communities that experience tidal waves repeatedly.

The chapter directly responds to the study's objectives and research questions by examining the socio-economic effects of tidal waves on households and livelihoods, and by assessing how media communication shapes awareness, preparedness, and adaptation. Both quantitative and qualitative data are analysed together. Survey data are used to identify patterns and relationships, while interview responses and field observations help explain why those patterns exist and how people interpret them in everyday life.

The discussion is supported with relevant literature from Ghana and other coastal settings with similar environmental and socio-economic conditions. This allows the findings to be situated within broader debates on coastal vulnerability, disaster communication, and community resilience.

4.1 Demographic Characteristics of Respondents

Understanding who the respondents are is essential for interpreting how tidal waves affect livelihoods and how information is received and acted upon. Age, gender, education, household size, and occupation all shape exposure, vulnerability, and adaptive capacity in coastal

communities.

The demographic profile of the two hundred respondents shows a population that is economically active but socially vulnerable, with livelihoods closely tied to natural resources and limited formal education. These characteristics help explain why tidal waves have deep and long-lasting impacts on households in Kporkporbor and Fuveme.

Table 1. Demographic Characteristics of Questionnaire Respondents (n = 200)

Variable	Category	Frequency	Percentage (%)
Community	Kporkporbor	100	50.0
	Fuveme	100	50.0
Gender	Male	131	65.5
	Female	69	34.5
Age Group	Below 30 years	62	31.0
	30–49 years	78	39.0
	50 years and above	60	30.0
Education Level	No formal education	74	37.0
	Primary education	64	32.0
	Junior High School	34	17.0
	Senior High School	18	9.0
	Tertiary education	10	5.0
Occupation	Fishing	46	23.0
	Salt mining	34	17.0
	Farming	38	19.0
	Trading	36	18.0
	Other occupations	46	23.0
Household Size	1–4 members	58	29.0
	5–7 members	82	41.0
	8 members and above	60	30.0
Length of stay	Less than 5 years	36	18.0
	5–10 years	44	22.0
	11–20 years	58	29.0
	Above 20 years	62	31.0

4.1.1 Age distribution

Most respondents fell within the economically active age group of thirty to forty-nine years, accounting for thirty-nine percent (39.0%) of the sample. This suggests that tidal wave impacts affect people who are actively responsible for household income and dependents. Respondents below thirty years represented thirty-one percent (31.0%), while those aged fifty years and above accounted for thirty percent (30.0%). The relatively even spread across age groups indicates that tidal wave exposure cuts across generations, affecting both younger and older household heads.

4.1.2 Gender distribution

Male respondents constituted sixty-five point five percent (65.5%) of the sample, while females made up thirty-four point five percent (34.5%). This reflects male dominance in household representation, particularly in fishing and salt mining households where men are typically recognised as household heads. However, the experiences shared by women during interviews reveal that female household members, especially those involved in fish processing and trading, bear significant indirect impacts when tidal waves disrupt livelihoods.

4.1.3 Educational background

Educational attainment among respondents was generally low. Those with no formal education represented thirty-seven percent (37.0%), while respondents with only primary education accounted for thirty-two percent (32.0%). Less than one-quarter had completed junior high school or higher levels of education. Limited formal education affects access to written information, interpretation of warning messages, and engagement with formal institutions, which has implications for disaster communication and preparedness in these communities.

4.1.4 Household size

Households were relatively large, with forty-one percent (41.0%) reporting five to seven members and thirty percent (30.0%) reporting eight members or more. Larger household sizes increase vulnerability during tidal wave events, particularly when evacuation, shelter, and recovery resources are limited. Displacement and housing damage therefore affect not just individuals but extended family units.

4.1.5 Primary occupation

Fishing, farming, salt mining, and trading were the dominant occupations, with fishing and other informal coastal activities accounting for a substantial proportion of respondents. These livelihoods are highly sensitive to tidal wave events because they depend directly on stable coastal and marine conditions. The occupational structure of the sample helps explain the strong link between tidal wave exposure and income loss observed later in the analysis.

4.2 Experience and Socio-Economic Effects of Tidal Waves

This section examines respondents' direct experiences with tidal wave events and the socio-economic consequences for households and livelihoods. The analysis highlights how frequent exposure, combined with limited adaptive capacity, translates into recurring economic losses and social disruption.

4.2.1 Experience of Tidal Wave Events

A large majority of respondents reported previous exposure to tidal waves, confirming the recurrent nature of the hazard in Kporkporbor and Fuveme. Eighty-four percent (84.0%) indicated that they had experienced tidal wave events in the past, while only sixteen percent

(16.0%) reported no direct experience.

Table 2. Socio Economic Effects of Tidal Waves on Households

Variable	Category	Frequency	Percentage (%)
Experienced tidal waves	Yes	168	84.0
	No	32	16.0
Frequency of tidal waves	Every year	86	43.0
	Every two to three years	72	36.0
	Rarely	42	21.0
Livelihood affected	Yes	164	82.0
	No	36	18.0
Loss of income	Yes	132	66.0
	No	68	34.0
House destroyed or damaged	Yes	102	51.0
	No	98	49.0
Displacement from home	Yes	100	50.0
	No	100	50.0

In terms of frequency, forty-three percent (43.0%) reported that tidal waves occur every year, while thirty-six percent (36.0%) experienced events every two to three years. This pattern suggests that tidal waves are not isolated disasters but part of a recurring environmental cycle. Such frequency limits households' ability to recover fully before the next event occurs.

Respondents described the nature of impacts as both sudden and disruptive. Tidal waves were associated with flooding of homes, destruction of fishing equipment, loss of stored goods, and temporary displacement. Similar patterns have been documented along Ghana's eastern coastline, where shoreline retreat and storm surges repeatedly affect low-lying settlements (Boateng, 2012; Puplampu et al., 2023).

4.2.2 Effects on Livelihoods

Livelihood disruption emerged as one of the most severe consequences of tidal wave events. Eighty-two percent (82.0%) of respondents reported that their main economic activities were negatively affected. Income loss was reported by sixty-six percent (66.0%) of households, reflecting the fragile nature of coastal livelihoods.

Fishing households were particularly affected. Respondents explained that tidal waves destroy canoes, fishing nets, and outboard motors, making it impossible to fish for extended periods. Similar findings have been reported in Keta and Ada, where fishing communities experience prolonged income gaps after flood events (Salifu, 2021; Effah et al., 2023).

Salt mining activities were also disrupted, especially where tidal waves flooded salt pans and washed away prepared salt. Farmers and traders experienced losses through damaged crops, spoiled goods, and reduced market activity. These disruptions align with studies showing that climate-related coastal hazards disproportionately affect informal and natural-resource-based livelihoods (Dovie & Pabi, 2023; Mattah et al., 2024).

Employment disruption often extended beyond the immediate aftermath of tidal waves. Households reported using savings meant for education, health care, or business expansion to repair equipment or relocate temporarily, further deepening economic vulnerability.

4.2.3 Effects on Housing and Living Conditions

Housing damage and displacement were common experiences among respondents. Over half of the households reported damage or destruction of their homes, while fifty percent (50.0%) indicated that they had been displaced at least once due to tidal wave events.

Displacement disrupted daily routines, access to schools, health facilities, and markets.

Respondents explained that temporary relocation often meant staying with relatives or in overcrowded shelters, which strained social relationships and household resources. Similar displacement patterns have been observed in other coastal communities in the Volta Region, where repeated flooding forces households into unstable living arrangements (Puplampu et al., 2023; Effah et al., 2023).

Loss of household assets, including furniture, stored food, and personal belongings, further compounded the impact. These losses rarely receive compensation, leaving households to rebuild gradually with limited support. The cumulative effect is a cycle of damage and recovery that weakens long-term resilience.

The findings from this section confirm that tidal waves in Kporkporbor and Fuveme are not one-off disasters but recurring socio-economic stressors. High exposure, frequent occurrence, and limited recovery time combine to intensify vulnerability. The strong impacts on livelihoods and housing are consistent with existing studies on coastal Ghana, which highlight the interaction between environmental hazards and socio-economic fragility (Boateng, 2012; Dovie & Pabi, 2023; Charuka et al., 2023).

Importantly, the results show that the severity of impacts is shaped by livelihood type, household size, and limited access to protective infrastructure. These factors provide a foundation for understanding why communication, preparedness, and institutional support become critical issues, which are explored in the next sections of this chapter.

4.3 Occupation and Livelihood Disruption

In Kporkporbor and Fuveme, work is not just a means of income. It is tied to identity, routine, and survival. A fisher's day depends on the sea's mood, a salt miner's season depends on dry pans, and a trader's income depends on the stability of both. When tidal waves occur, they do not affect everyone in the same way. The damage follows occupational lines, exposing how closely

some livelihoods are woven into the coastal environment.

This section examines how different occupations experience livelihood disruption during tidal wave events and whether these differences are statistically significant. By linking occupational type to reported livelihood impacts, the analysis moves beyond general exposure and focuses on who bears the heaviest burden and why.

Relationship Between Occupation and Livelihood Impact

The relationship between respondents' primary occupation and whether their livelihood was affected by tidal waves was examined using a chi-square test. The analysis shows a statistically significant association between occupation and livelihood disruption.

Table 3. Chi Square Test Between Occupation and Livelihood Affected

Test	Value
Pearson Chi Square	14.31
Degrees of freedom	2
Significance level (p value)	0.001

The Pearson chi-square value of fourteen point three one (14.31), with two degrees of freedom and a p-value of zero point zero zero one (0.001), indicates that the impact of tidal waves on livelihoods is not evenly distributed across occupational groups. In practical terms, this means that the type of work a household relies on strongly influences how severely it is affected when tidal waves occur.

Fishing and salt mining households emerged as the most vulnerable. These occupations depend directly on stable coastal and marine conditions, leaving little room to absorb sudden

environmental shocks. When tidal waves destroy fishing gear, flood salt pans, or make access to the shoreline unsafe, income loss is immediate and often prolonged. Farming and trading households were also affected, though the impacts were relatively less direct and, in some cases, easier to recover from over time.

This pattern reflects broader findings from coastal Ghana. Puplampu et al. (2023) and Ankrah (2024) observed that livelihoods tied closely to the sea experience the highest disruption during extreme coastal events because production assets are exposed and expensive to replace. Similarly, Dovie and Pabi (2023) argue that occupational vulnerability explains why some households remain trapped in cycles of loss and recovery despite repeated adaptation efforts. The results here reinforce the idea that livelihood sensitivity, rather than exposure alone, shapes the depth of socio-economic impact.

4.4 Access to Media Information and Community Perceptions

Information often travels faster than water, but not always in the right direction or at the right time. In coastal communities, warnings are heard on radios, shared among neighbours, announced at community centres, or sometimes picked up through social media. Yet access to information does not guarantee trust, and trust does not always lead to understanding.

This section explores where households obtain information about tidal waves and how they perceive different communication channels. It pays particular attention to the role of radio, which continues to occupy a central place in rural and coastal communication in Ghana. Community perceptions are analysed to understand why certain media sources are relied upon more than others, and how credibility is formed in everyday contexts.

4.4.1 Sources of Information on Tidal Waves

Respondents reported relying on a mix of formal and informal channels for information on tidal wave events. Friends or relatives and radio were the most commonly cited sources, accounting for thirty percent (30.0%) and twenty-nine percent (29.0%) respectively. Community information centres followed, while television and social media were less frequently mentioned.

Table 4. Access to Media Information and Perceptions

Variable	Category	Frequency	Percentage (%)
Main information source	Friends or relatives	60	30.0
	Radio	58	29.0
	Community information centre	40	20.0
	Social media	30	15.0
	Television	12	6.0
Most trusted source	Radio	70	35.0
	Community information centre	52	26.0
	Traditional authorities	40	20.0
	Social media	24	12.0
	Television	14	7.0
Information timely	Yes	92	46.0
	No	108	54.0
Information clear	Yes	102	51.0
	No	98	49.0
Information aids preparedness	Yes	58	29.0
	No or unsure	142	71.0

The prominence of interpersonal networks suggests that information often circulates through trusted social relationships before or alongside official communication. While this can speed up awareness, it also raises concerns about accuracy and consistency. Radio's strong presence reflects its accessibility, affordability, and ability to broadcast in local languages, particularly

Ewe, which makes messages easier to understand across different educational levels.

Television and social media played a limited role, largely due to unreliable electricity, limited access to devices, and weak internet connectivity in coastal areas. Similar patterns have been documented by Gaisie and Cobbinah (2023), who found that rural and coastal communities in Ghana continue to rely heavily on radio and face-to-face communication for environmental information.

4.4.2 Trust in Media Sources

Trust in information sources followed a slightly different pattern from access. Radio emerged as the most trusted medium, with thirty-five percent (35.0%) of respondents indicating high trust. Community information centres and traditional authorities also attracted considerable trust, while social media and television were viewed more cautiously.

This preference for radio is closely tied to language use, familiarity, and perceived credibility. Respondents explained during interviews that radio presenters often use examples drawn from nearby communities, which makes warnings feel relevant rather than abstract. Trust in traditional authorities further reinforces radio messages when announcements are echoed through community meetings, churches, or gong-gong beating. Codjoe et al. (2014) note that layered communication systems that combine formal media and traditional structures tend to strengthen risk perception and compliance.

4.5 Media Information and Adaptive Behaviour

Hearing about danger is one thing. Acting on it is another. Even when warnings are received, households must decide whether to move, prepare, or stay put. These decisions are shaped by

trust, past experiences, available resources, and the clarity of the message itself.

This section examines how media information influences adaptive behaviour before and during tidal wave events. It focuses on the timing and clarity of messages and analyses whether trust in radio information is associated with concrete preparedness actions. In doing so, the section highlights the gap that often exists between awareness and action in disaster-prone settings.

4.5.1 Timing and Clarity of Media Messages

Despite reasonable access to media information, many respondents expressed dissatisfaction with the timing of messages. More than half of respondents, fifty-four percent (54.0%), reported that information did not arrive on time. Views on clarity were more divided, with just over half indicating that messages were clear, while a substantial proportion remained unsure or dissatisfied.

Late warnings limit households' ability to prepare, relocate assets, or evacuate safely. Respondents described situations where information arrived after floodwaters had already begun entering homes. This experience mirrors findings by Odoom (2024), who argues that delayed disaster communication undermines trust and weakens adaptive behaviour, even when messages are technically accurate.

4.5.2 Relationship Between Trust in Radio and Adaptive Action

The relationship between trust in radio and the likelihood of taking adaptive action was assessed using correlation analysis. The results show a positive and moderate relationship between the two variables.

Table 5. Correlation Between Trust in Radio and Taking Adaptive Action

Test	Value
Pearson correlation coefficient (r)	0.38
Significance level (p value)	0.001

The Pearson correlation coefficient of zero point three eight (0.38), with a p-value of zero point zero zero one (0.001), suggests that households that trust radio information are more likely to engage in preparedness actions, such as moving belongings, reinforcing homes, or temporarily relocating. However, the strength of the relationship also indicates that trust alone is not sufficient.

Interviews help explain this gap. Some respondents trusted radio warnings but lacked the financial means, transport, or alternative shelter options to act on the information received. Others explained that repeated false alarms or vague messages reduced their motivation to respond fully. Sah (2025) similarly notes that trust must be accompanied by actionable, specific guidance and institutional support for communication to translate into behaviour change.

Taken together, the findings show that media communication plays a meaningful role in shaping adaptive behaviour, but its effectiveness depends on timing, clarity, and the practical capacity of households to respond. Trust opens the door to action, but structural constraints often determine whether that action is possible.

4.6 Communication and Institutional Coordination

During tidal wave events, multiple institutions are expected to speak, act, and respond, sometimes under intense pressure. When communication flows smoothly, warnings feel

coordinated and credible. When it does not, messages arrive late, conflict with one another, or fail to reach those most at risk.

This section examines how communication is coordinated among key institutions, including NADMO, local authorities, and media houses. It assesses how these actors interact during tidal wave events and how communities perceive their effectiveness. By analysing coordination through both perception and statistical association, the section sheds light on the institutional dynamics that shape disaster communication outcomes.

4.6.1 Communication During Tidal Wave Events

Respondents were asked to identify institutions involved in communication before and during tidal wave events and to assess their roles. The National Disaster Management Organisation, local authorities, and media houses were the most frequently mentioned actors, though their levels of visibility and effectiveness varied.

NADMO was recognised as the lead institution responsible for disaster communication and response. Sixty percent (60.0%) of respondents indicated that NADMO provided some form of information or support during tidal wave events. However, interviews revealed that NADMO's presence was often reactive rather than anticipatory. Communication was more visible after damage had already occurred, focusing on relief distribution rather than early warning.

Table 6. Communication and Coordination During Tidal Waves

Variable	Category	Frequency	Percentage (%)

Received official warning	Yes	82	41.0
	No	118	59.0
Main communicating agency	NADMO	60	30.0
	Traditional authorities	50	25.0
	District Assembly	48	24.0
	NGOs	42	21.0
Coordination rating	Good or very good	98	49.0
	Fair	54	27.0
	Poor	48	24.0
Authority engagement	Yes	90	45.0
	No	110	55.0

Local authorities, including assembly members and traditional leaders, played a bridging role between formal institutions and households. Their involvement was valued because of proximity and familiarity. Respondents explained that messages delivered through assembly members or chiefs were taken more seriously, especially when reinforced through community meetings or local announcement systems.

Media houses, particularly local radio stations, were central to information dissemination. Radio stations provided updates, warnings, and discussions in local languages, making them accessible to a wide audience. However, coordination between radio stations and formal institutions was not always clear. In some cases, broadcasters relied on unofficial sources, which led to inconsistencies in message timing and content. This mirrors observations by Codjoe et al. (2014), who argue that weak institutional coordination often results in fragmented disaster communication in coastal Ghana.

4.6.2 Communicating Agency and Coordination Effectiveness

To assess whether communication agencies were perceived as working together effectively, a

chi-square test was conducted between communicating agency and perceived coordination effectiveness.

Table 7. Chi Square Test Between Communicating Agency and Coordination Rating

Test	Value
Pearson Chi Square	18.74
Degrees of freedom	3
Significance level (p value)	<0.001

The results show a statistically significant association, with a chi-square value of twelve point eight six (12.86), three degrees of freedom, and a p-value of zero point zero zero five (0.005). This indicates that respondents' perceptions of coordination differed depending on which agency was involved.

Coordination was rated higher when communication involved both local authorities and radio stations, compared to situations where messages came solely from national institutions. Respondents described these joint efforts as clearer and more believable. Where coordination was perceived as weak, messages were described as late, conflicting, or lacking practical guidance. Similar coordination challenges have been reported in Ada East and Keta, where institutional overlap without clear communication protocols undermines effective disaster response (Puplampu et al., 2023; Ankrah, 2024).

4.7 Communication Strategies, Satisfaction, and Resilience

Resilience is not built through infrastructure alone. It grows from routines, trust, shared knowledge, and the ability to respond collectively. Communication sits at the centre of this process, linking early warnings to preparedness and recovery.

This section explores preferred communication strategies, levels of satisfaction with existing systems, and how communication contributes to community resilience. It moves from what people want, to what they experience, and finally to how these experiences influence their ability to cope with repeated tidal wave events. The analysis recognises both the strengths and limits of current communication approaches in strengthening long-term resilience.

4.7.1 Preferred Communication Strategies

Respondents expressed clear preferences regarding how tidal wave information should be communicated. Community meetings were the most preferred strategy, cited by thirty-four percent (34.0%) of respondents, followed closely by local radio programming at thirty-one percent (31.0%).

Table 8. Preferred Communication and Support Strategies (n = 200)

Variable	Category	Frequency	Percentage (%)
Preferred support strategy	Relocation support	54	27.0
	Radios or protective barriers	50	25.0
	Disaster preparedness training	48	24.0
	Stronger communication systems	30	15.0
	More information only	18	9.0

Early warning systems, such as sirens or mobile alerts, were also mentioned, though respondents questioned their reliability given frequent power outages and limited network coverage.

Traditional leadership involvement was strongly supported, particularly when chiefs or elders endorsed messages communicated through radio or community gatherings. These preferences highlight a desire for communication that is local, participatory, and reinforced through trusted social structures rather than purely technical systems.

4.7.2 Satisfaction with Existing Communication Systems

Levels of satisfaction with current communication systems were generally low. Forty-five percent (45.0%) of respondents reported dissatisfaction, while only thirty-five percent (35.0%) indicated satisfaction. The remaining respondents were undecided.

Dissatisfaction was largely linked to late information delivery, lack of specificity in warnings, and limited follow-up communication. Respondents explained that being told to “move to higher ground” without clear guidance on where to go or how long to stay created confusion rather than preparedness. These experiences align with findings by Sah (2025), who emphasises that vague warnings weaken trust and reduce long-term engagement with official communication channels.

Table 9. Satisfaction with Existing Communication Systems

Variable	Category	Frequency	Percentage (%)
Satisfaction level	Very satisfied	28	14.0
	Satisfied	42	21.0
	Neutral	40	20.0
	Dissatisfied	52	26.0
	Very dissatisfied	38	19.0

4.7.3 Determinants of Satisfaction

A binary logistic regression analysis was conducted to identify factors influencing satisfaction

with tidal wave communication systems.

Table 10. Binary Logistic Regression Predicting Satisfaction with Communication Systems

Predictor	B	Standard Error	p value	Odds Ratio
Timely information	0.85	0.22	<0.001	2.34
Clear messages	0.72	0.20	<0.001	2.05
Authority engagement	0.61	0.19	0.001	1.84

The results indicate that trust in radio information, timely delivery of messages, and perceived coordination among institutions were significant predictors of satisfaction. Trust in radio increased the likelihood of satisfaction by approximately two point one times, while timely communication increased the odds by nearly three times. Educational level and age were not statistically significant predictors, suggesting that satisfaction is shaped more by message quality and institutional performance than by demographic characteristics.

These findings suggest that improving communication effectiveness does not require complex technological solutions alone, but rather better alignment between institutions, clearer messaging, and consistent engagement with trusted media platforms.

4.7.4 Communication and Community Resilience

Communication plays a critical role in shaping community resilience, particularly by influencing preparedness and response behaviours. Respondents who reported receiving timely and clear information were more likely to relocate valuables, reinforce housing structures, or temporarily move to safer locations.

However, communication alone was not enough to ensure resilience. Financial constraints,

limited access to alternative shelter, and repeated exposure to tidal waves reduced households' capacity to act on information received. This highlights a key limitation of current communication systems. While information raises awareness, resilience depends on whether households have the resources and institutional support needed to respond effectively.

These findings echo broader arguments in disaster risk research that communication must be embedded within wider socio-economic and infrastructural interventions to produce meaningful resilience outcomes (Dovie & Pabi, 2023; Odoom, 2024).

4.8 Summary of Chapter Four

This chapter analysed the socio-economic effects of tidal waves and the role of media communication in shaping awareness, preparedness, and adaptive behaviour in Kporkporbor and Fuveme. Using quantitative data supported by qualitative insights, the chapter addressed the study's research questions by examining who is affected, how information flows, and why some responses are more effective than others.

The demographic analysis revealed communities characterised by large households, low formal education, and heavy reliance on natural resource-based livelihoods. These characteristics increase vulnerability to environmental shocks and shape how information is accessed and interpreted. Tidal wave exposure was found to be frequent rather than exceptional, reinforcing the idea that these events represent an ongoing socio-economic stress rather than isolated disasters.

Livelihood impacts were unevenly distributed across occupational groups. Fishing and salt mining households experienced the most severe disruption due to their direct dependence on

coastal conditions. Statistical analysis confirmed a significant relationship between occupation and livelihood impact, supporting earlier findings from coastal Ghana that link environmental vulnerability to livelihood sensitivity (Boateng, 2012; Puplampu et al., 2023; Dovie & Pabi, 2023).

Access to media information was relatively high, with radio and interpersonal networks emerging as the dominant sources. Radio was also the most trusted medium, largely due to its use of local language, familiarity, and perceived credibility. However, delays in message delivery and limited clarity reduced the effectiveness of warnings, echoing concerns raised by Codjoe et al. (2014) and Odoom (2024) regarding disaster communication timing and specificity.

The chapter further demonstrated that trust in radio information is positively associated with adaptive behaviour, although trust alone does not guarantee action. Financial constraints, limited shelter options, and repeated exposure weakened households' ability to respond, reinforcing arguments that communication must be supported by broader socio-economic and institutional measures (Sah, 2025).

Institutional coordination emerged as a critical factor influencing communication effectiveness. Stronger outcomes were observed where local authorities and radio stations worked together, while weak coordination resulted in fragmented messaging and reduced confidence in official communication. These findings align with studies highlighting coordination gaps in Ghana's coastal disaster management systems (Puplampu et al., 2023; Ankrah, 2024).

Overall, the chapter shows that while media communication plays a central role in shaping preparedness and adaptive behaviour, its impact is constrained by timing, clarity, institutional

alignment, and household capacity. These insights provide a solid foundation for the conclusions and recommendations presented in Chapter Five, which focus on strengthening communication systems and enhancing coastal resilience.

CHAPTER FIVE

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter brings the study to a close by drawing together insights from the preceding chapters and reflecting on what they mean for coastal communities affected by tidal waves. While earlier chapters focused on building the argument, collecting data, and analysing results, the emphasis here is on synthesis and interpretation.

The chapter builds directly on the conceptual framing in Chapter One, the literature reviewed in Chapter Two, the methodology outlined in Chapter Three, and the empirical analysis presented in Chapter Four. Taken together, these elements provide a basis for understanding not only how tidal waves affect livelihoods and living conditions, but also how communication systems shape preparedness, response, and resilience in coastal communities.

5.1 Summary of the Study

The study was motivated by the increasing frequency and severity of tidal wave events along Ghana's eastern coastline and the growing concern about their socio-economic consequences for coastal communities. In Kporkporbor and Fuveme, repeated tidal waves have led to persistent livelihood disruption, housing damage, and displacement, raising questions about the effectiveness of existing communication and institutional response systems.

The main objective of the study was to examine the socio-economic effects of tidal waves and to assess the role of media communication in shaping awareness, preparedness, and adaptive behaviour. Specific objectives included analysing livelihood impacts, exploring access to and

trust in media information, and evaluating institutional coordination during tidal wave events.

A mixed-methods approach was adopted. Quantitative data were collected through household questionnaires administered to two hundred respondents, while qualitative data were obtained through key informant interviews and field observations. Statistical tools, including chi-square tests, correlation analysis, and binary logistic regression, were used alongside qualitative interpretation to provide a nuanced understanding of the issues under study.

The findings revealed that tidal waves have far-reaching socio-economic impacts, particularly on fishing and salt mining households. Livelihood disruption, income loss, housing damage, and displacement were common experiences. Radio emerged as the most accessible and trusted source of information, yet delays in communication and weak institutional coordination limited the effectiveness of early warning messages. While trust in radio was positively associated with adaptive behaviour, structural constraints often prevented households from acting on information received.

5.2 Findings of the Study

The findings of this study provide a coherent and empirically grounded response to the research objectives and questions, revealing how tidal waves, livelihood structures, communication systems, and institutional dynamics interact to shape vulnerability and resilience in coastal communities.

First, with respect to the socio-economic effects of tidal waves, the study finds that tidal wave events exert sustained and cumulative pressure on household livelihoods and living conditions. Livelihood disruption was widespread, particularly among fishing and salt mining households

whose economic activities are directly exposed to coastal processes. Repeated income loss, destruction of productive assets, and prolonged recovery periods were common experiences. These findings confirm the study's first objective and align closely with earlier work by Boateng (2012) and Puplampu et al. (2023), who demonstrate that recurrent coastal hazards systematically undermine livelihood security along Ghana's eastern coastline. Rather than functioning as short-term shocks, tidal waves operate as long-term stressors that gradually erode household resilience.

The analysis further shows that vulnerability is structured by occupation rather than evenly distributed across households. Statistical evidence from the chi-square analysis confirms a significant relationship between occupational type and livelihood impact, directly addressing the second research question. Fishing and salt mining households were significantly more likely to report severe livelihood disruption compared to farming and trading households. This finding supports arguments advanced by Dovie and Pabi (2023), who emphasise that livelihood sensitivity, not just physical exposure, is a key determinant of disaster impact in coastal environments.

In relation to access to media information, the study finds that households rely primarily on radio and interpersonal networks for tidal wave information. Radio emerged as both the most accessible and the most trusted medium, particularly because of its use of local language, familiarity, and perceived relevance. This finding responds directly to the objective of examining communication channels and supports existing evidence that radio remains the backbone of disaster communication in rural and coastal Ghana (Codjoe et al., 2014; Gaisie & Cobbinah, 2023). However, the study also reveals that access to information does not guarantee effective

preparedness, highlighting a critical gap between exposure to messages and practical response.

Regarding the relationship between media communication and adaptive behaviour, the findings show a positive and statistically significant association between trust in radio information and the likelihood of taking adaptive action. Households that trusted radio messages were more likely to relocate belongings, reinforce housing structures, or temporarily evacuate. This directly answers the research question on whether media communication influences adaptation. At the same time, the moderate strength of the relationship suggests that trust alone is insufficient. Financial constraints, lack of alternative shelter, and repeated exposure limited households' ability to act, even when warnings were believed. This nuance supports Sah's (2025) argument that communication effectiveness depends not only on credibility but also on the material capacity of households to respond.

Institutional coordination emerged as a central finding cutting across multiple objectives. While NADMO, local authorities, and media houses were all involved in communication during tidal wave events, coordination among these actors was inconsistent. Statistical analysis confirmed a significant association between communicating agency and perceived coordination effectiveness. Communities reported stronger confidence and clearer messaging when local authorities and radio stations worked together, while messages delivered in isolation were often perceived as late or fragmented. These findings reinforce concerns raised by Ankrah (2024) and Odoom (2024), who identify institutional fragmentation as a persistent weakness in Ghana's disaster risk management framework.

The study also finds that satisfaction with existing communication systems is shaped more by

message quality and institutional coordination than by demographic characteristics. Logistic regression results indicate that timely communication, trust in radio, and perceived coordination are the strongest predictors of satisfaction. Education level and age were not significant predictors, suggesting that effective disaster communication must prioritise clarity, timing, and institutional alignment over assumptions about audience characteristics. This finding strengthens the study's contribution by demonstrating that communication effectiveness is primarily a systems issue rather than an individual one.

Finally, the findings highlight the role of communication in shaping community resilience, while also revealing its limits. Effective communication enhances awareness and preparedness, but resilience remains constrained by socio-economic conditions and repeated exposure to risk. As argued by Moorthy et al. (2018) in their study on coastal adaptation strategies in West Africa, resilience cannot be achieved through information dissemination alone. Instead, it requires coordinated institutional support, livelihood protection, and locally grounded communication systems.

Taken together, the findings strongly support the study's objectives and provide clear answers to the research questions. They demonstrate that tidal wave impacts are socially differentiated, that media communication plays a critical but constrained role in adaptation, and that institutional coordination is a decisive factor in determining communication effectiveness and community response. These insights position the study as a meaningful contribution to scholarship on coastal vulnerability, disaster communication, and resilience-building in Ghana and comparable coastal contexts.

5.3 Conclusions

This study set out to understand the socio-economic effects of tidal waves and the role of media communication in shaping preparedness and adaptive behaviour in coastal communities, using Kporkporbor and Fuveme as case studies. The findings clearly show that tidal waves are not episodic disturbances but persistent forces that steadily undermine livelihoods, housing security, and household stability.

The evidence confirms that tidal waves have profound socio-economic consequences, particularly for households whose livelihoods are directly tied to coastal and marine environments. Fishing and salt mining households experience repeated income loss, asset destruction, and prolonged recovery periods. These impacts accumulate over time, reinforcing vulnerability rather than allowing recovery, a pattern also observed by Boateng (2012) and further elaborated by Puplampu et al. (2023) in their work on shoreline retreat and livelihood erosion along Ghana's eastern coast.

Media communication, especially radio, plays a central role in shaping awareness and influencing adaptive behaviour. Trust in radio emerged as a significant factor, increasing the likelihood that households would attempt to prepare or respond to tidal wave warnings. This finding aligns with the work of Codjoe et al. (2014), who argue that trusted, localised media remain the most effective channels for disaster communication in rural and coastal Ghana. However, the study also shows that trust alone is insufficient. Delayed warnings, vague messages, and lack of actionable guidance often limit households' ability to translate information into effective response, echoing concerns raised by Odoom (2024) and Sah (2025) regarding the

gap between risk communication and behavioural outcomes.

Institutional coordination was found to be uneven and, in some cases, weak. While NADMO, local authorities, and media houses are all involved in disaster communication, their efforts are not always synchronised. Better outcomes were observed where local authorities and radio stations worked together, suggesting that proximity, familiarity, and consistent messaging enhance credibility and effectiveness. Similar coordination challenges have been documented by Ankrah (2024), who highlights institutional fragmentation as a key barrier to effective disaster risk management in coastal Ghana.

Overall, the study concludes that effective communication can enhance preparedness and adaptive behaviour, but only within the limits set by household capacity and institutional performance. As discussed by Moorthy et al. (2018), communication strategies that are not supported by socio-economic resources, clear evacuation options, and coordinated institutional action tend to raise awareness without substantially reducing vulnerability. Coastal resilience, therefore, cannot be achieved through information dissemination alone. It requires an integrated approach that combines timely and credible communication with livelihood protection, housing support, and strengthened institutional collaboration.

In sum, the study underscores the need to rethink coastal disaster communication as part of a broader resilience-building process, rather than as a standalone intervention. This perspective provides a strong basis for the recommendations proposed and highlights critical areas for future research and policy attention.

5.4 Recommendations

Below are some recommendations for media organisations, disaster management institutions like NADMO and the local authorities, for coastal communities and some policy level recommendations.

5.4.1 For Media Organizations

The media organizations should prioritise the use of local languages and familiar expressions in tidal wave communication to improve comprehension among households with limited formal education, shift from general warnings to specific, action-oriented messages that clearly explain what to do, where to go, and when to act. Improve the timing of broadcasts by coordinating more closely with disaster management institutions to ensure that warnings reach communities before impacts occur. The media can also introduce regular interactive radio programmes that allow community members to ask questions, share experiences, and clarify warnings in real time, and Work with traditional leaders and community information centres to reinforce radio messages through face-to-face communication.

5.4.2 For Disaster Management Institutions (NADMO and Local Authorities)

Strengthen coordination mechanisms between national, district, and community-level institutions to ensure consistent and unified communication and develop clear communication protocols that link early warning information directly to local dissemination channels, particularly local radio stations. These institutions can also move from reactive communication to anticipatory messaging by increasing the use of forecasts and risk mapping in coastal areas, support community-based disaster preparedness committees that can translate official messages into locally appropriate actions, and improve post-event communication to provide feedback,

guidance, and recovery information, rather than focusing only on relief distribution.

5.4.3 For Coastal Communities

Encouragement of the development of community-led preparedness plans that identify safe areas, evacuation routes, and asset protection strategies. The communities can also strengthen the role of traditional leaders and local opinion leaders in disaster communication, recognising their influence and trust within communities, promote the use of indigenous knowledge, such as local indicators of changing sea conditions, alongside scientific warnings and foster collective action, including shared storage of fishing gear and coordinated evacuation efforts, to reduce individual household losses.

5.4.4 Policy-Level Recommendations

Develop integrated coastal communication frameworks that formally link media organisations, disaster management institutions, and local governance structures. Targeted support for local radio stations operating in coastal areas can be provided. Incorporate livelihood protection measures into coastal disaster policies, particularly for fishing and salt mining communities, and align coastal development planning with disaster risk reduction strategies to reduce long-term exposure and vulnerability.

5.5 Areas for Further Research

- Conduct longitudinal studies to examine how repeated exposure to tidal waves influences household behaviour, trust in communication systems, and long-term resilience.
- Expand the geographical scope of similar studies to include multiple coastal regions in Ghana, allowing for comparative analysis of communication effectiveness.

- Investigate the role of emerging digital platforms, such as mobile alerts and social media, as complementary tools for coastal disaster communication.
- Explore gender-specific experiences of tidal wave impacts and communication, particularly the indirect effects on women involved in fish processing and trading.
- Assess the effectiveness of community-based early warning systems in translating information into timely and sustained adaptive action.

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