ASSESSING CLIMATE CHANGE COMMUNICATION STRATEGIES AND COMMUNITY PERCEPTION IN SELECTED COASTAL COMMUNITIES IN SOUTH VOLTA, GHANA.

BY

FAUSTINA JUNIOR SIKA MASPRM24063

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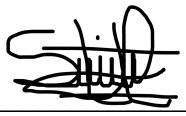
DECLARATION

I declare that this work is the result of my own independent research and has not been submitted, in whole or in part, for the award of any other degree or qualification at this or any other institution of higher learning. I can also confirm that all sources of information used or cited have been duly acknowledged and fully referenced.

Name: Faustina Junior Sika

Index Number: MASPRM24063

Signature: 

Date: 17th December, 2025

CERTIFICATION

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

Supervisor: Dr. Priscilla Teika Odoom

Signature: 

Date: 19th December 2025

DEDICATION

To my grandfather, whose wisdom and love have been a guiding light in my life.

This work is also dedicated to the resilient people of Abutiakope, Kedzikope, and Agavedzi, and to all coastal communities facing the harsh realities of climate change. May this research contribute to amplifying your voices and advancing meaningful climate action.

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This accomplishment would not have been possible without each of you.

ABSTRACT

Climate change poses severe threats to Ghana's coastal communities through sea-level rise, coastal erosion, and flooding, yet the effectiveness of communication strategies in promoting adaptive behaviours remains inadequately understood. This study examined the impact of communication strategies on climate change advocacy in three coastal communities in the Volta Region: Abutiakope, Kedzikope, and Agavedzi, using a quantitative cross-sectional design with 100 respondents selected through stratified random sampling. Key findings revealed that social media dominates climate information reception while traditional channels remain underutilised, a critical language barrier exists with messages failing to incorporate local languages despite Ewe being the primary communication language, and communities exhibit strong threat perception alongside low technical understanding of climate science. Social mobilisation failures and institutional inadequacies, rather than economic constraints, emerged as primary adaptation barriers, while communication exposure showed no correlation with knowledge acquisition. The study recommends a fundamental reorientation toward local-language communication, incorporating Ewe translations, strengthening peer-to-peer networks and community-based channels, building institutional credibility through practical adaptation support rather than generic messaging, developing context-specific actionable guidance addressing community-specific vulnerabilities, and engaging trusted scientific voices to bridge the credibility gap between institutional communicators and community trust patterns.

Keywords: Climate change communication, coastal communities, adaptive behaviours, risk perception, communication strategies, Ghana

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ABBREVIATIONS

ANOVA	Analysis of Variance
GHS	Ghana Cedis
KAP	Knowledge, Attitude, and Practice
M	Mean
NGO	Non-Governmental Organization
OECD	Organisation for Economic Co-operation and Development
SCT	Social Cognitive Theory
SD	Standard Deviation
SPSS	Statistical Package for Social Sciences
UNDP	United Nations Development Programme

CHAPTER ONE

INTRODUCTION

1.1 CHAPTER OVERVIEW

Chapter One provides the foundation for understanding the critical intersection between climate change impacts and communication strategies in Ghana's vulnerable coastal communities. This chapter establishes the research context by highlighting the severe climate threats facing Abutiakope, Kedzikope, and Agavedzi and demonstrates the urgent need for effective communication approaches to enhance community resilience and adaptive capacity.

1.2 BACKGROUND OF THE STUDY

Climate change represents one of the most pressing global challenges of the 21st century, with profound implications for vulnerable coastal communities worldwide. Overall, Ghana has experienced a 1.0 °C increase in temperature since 1960 (Awuni et al., 2023), accompanied by changing precipitation patterns and rising sea levels that particularly affect low-lying coastal areas. These environmental changes have created an urgent need for effective climate communication strategies to enhance community awareness, promote adaptation behaviours, and build resilience among vulnerable populations.

Globally, the role of communication in climate change advocacy has gained increasing recognition as a critical component of climate action, recognising that scientific knowledge alone is insufficient to inspire behavioural change. Effective climate communication must translate climate information into messages that are accessible, contextually relevant, and capable of motivating timely protective action (Net Impact, 2023), particularly in regions where communities face immediate

threats from environmental changes. Yet, evidence shows that many communities continue to struggle to interpret climate risks accurately or act on available information, often due to gaps in message clarity, cultural resonance, and trust in communication sources. This indicates that the challenge lies not only in transmitting information but in ensuring that messages resonate with local communities, inspire behavioural change, and facilitate practical adaptation measures.

Ghana's coastal regions, particularly in the Volta Region, exemplify the intersection of climate vulnerability and communication challenges. Data indicate a sea-level increase of 2.1 mm annually as a result of climate change over the past years in the country, impacting eastern coastal communities such as Keta Municipality, Ketu South, and other areas (Golo et al., 2025; Salifu, 2021; Darko et al., 2021). Communities along the Volta estuary face perennial threats from tidal waves, coastal erosion, and flooding, with Agavedzi, a coastal town in the Ketu South District of the Volta Region, experiencing the loss of over 50 houses in 7th March 2025, displacing approximately 300 people (Adomonline, 2025). Projections indicate that on the eastern side of the Volta Estuary, communities are facing a greater threat of being totally eroded in the next few decades (Modern Ghana, 2023). These realities emphasise the importance of culturally appropriate and locally relevant climate communication approaches that not only raise awareness but also facilitate adaptive decision-making among affected populations (Odonkor et al., 2020).

While national policies and frameworks exist, including the National Climate Change Policy and adaptation strategies, these do not work effectively in practice, especially at the local level (Arhin, 2022). The generally top-down approach to climate change decision-making hinders the adoption of ideas from local communities already experiencing the effects of climate impacts, limiting

adaptation and mitigation efforts and learning from local knowledge (Awuni et al., 2023). Understanding how different communication strategies impact community awareness, perception, and adaptive behaviours in specific coastal communities like Abutiakope, Kedzikope, and Agavedzi is essential for developing more effective climate advocacy approaches that can contribute to building resilient coastal communities in Ghana.

1.3 PROBLEM STATEMENT

Despite the increasing severity of climate change impacts on Ghana's coastal communities, current climate change communication strategies have demonstrated limited effectiveness in promoting meaningful behavioural change and adaptation responses. Although awareness of climate risks is high in many coastal areas, behavioural responses remain weak, indicating a persistent gap between information dissemination and meaningful action (Gbagbo et al., 2025; Babapoorkamani & Ricci, 2025). Evidence further suggests widespread dissatisfaction with current communication channels and institutional responses, indicating that messages often fail to resonate with local realities or support practical decision-making (Odoom, 2024). This paradox of high awareness coupled with low adaptive action suggests fundamental flaws in how climate information is framed, communicated, and interpreted at the community level.

Coastal communities in the Volta Region, such as Abutiakope, Kedzikope, and Agavedzi, offer a critical context for examining this communication challenge. These settlements experience recurrent tidal flooding, coastal erosion and displacement, yet adaptive practices remain limited even as vulnerability increases (Modern Ghana, 2023). Socio-economic constraints, low levels of formal education, and weak institutional support further complicate the communication landscape,

suggesting that climate messages may not be adequately tailored to community needs or aligned with local knowledge systems (Mattah et al., 2023; Babanawo et al., 2023). The persistence of high perceived risk alongside constrained adaptive responses highlights gaps in how communication strategies translate climate awareness into action.

As hinted earlier, although national frameworks exist to guide climate adaptation, their predominantly top-down communication approaches often neglect locally grounded strategies that foster engagement, trust, and behavioural change (Arhin, 2022). Empirical research evaluating the effectiveness of communication strategies in specific high-risk communities remains limited, leaving a gap in understanding which approaches best support community-level adaptation, particularly in communities like Abutiakope, Kedzikope, and Agavedzi, where traditional livelihoods and cultural practices intersect with modern climate challenges. There is, therefore, a critical need to examine the impact of communication strategies and community perception in selected coastal communities in South Volta, Ghana.

1.4 RESEARCH QUESTION AND OBJECTIVES

How do different climate change communication strategies shape community awareness, understanding, and adaptive behaviours in the coastal communities of Abutiakope, Kedzikope, and Agavedzi, and what factors determine their effectiveness in promoting climate resilience? The specific objectives the study addresses are to:

1. Assess the current climate change communication channels and strategies to which community members are exposed.
2. Evaluate community perceptions and knowledge levels of climate change communication.

3. Examine community behavioural responses to climate change communication.
4. Identify barriers and facilitators influencing the adoption of climate change adaptive behaviours.

1.5 SCOPE OF THE STUDY

This research focuses specifically on three coastal communities - Abutiakope, Kedzikope, and Agavedzi - located in the Volta Region of Ghana, which are among the most vulnerable to climate change impacts, including sea-level rise, coastal erosion, and flooding (Tumawu et al., 2024). The study examines climate change communication strategies implemented between 2020 and 2025, encompassing both formal channels (government programs, NGO initiatives, media campaigns) and informal networks (traditional leaders, community groups, peer-to-peer communication). The research investigates communication effectiveness across multiple dimensions, including message content, delivery channels, cultural appropriateness, and behavioural outcomes. While the study acknowledges the broader context of climate change impacts and adaptation in Ghana, it specifically concentrates on communication aspects rather than technical adaptation measures or infrastructure interventions. The geographical limitation to these three communities allows for in-depth analysis while recognising that findings may have broader applicability to similar coastal contexts in Ghana and West Africa.

1.6 SIGNIFICANCE OF THE STUDY

This research contributes significantly to both theoretical understanding and practical applications of climate change communication in vulnerable coastal contexts. By examining the specific cases of Abutiakope, Kedzikope, and Agavedzi, the study provides empirical evidence on the

effectiveness of various communication strategies in promoting climate resilience among coastal communities in Ghana. An understanding of the diverse needs, expectations and visions of communities is particularly insufficient and requires more attention to enable policymakers and project developers to address gaps and uncertainties on climate change and to create effective and sustainable pathways for adaptation initiatives (Arhin, 2022). The findings are expected to inform policymakers, development practitioners, and climate advocates on evidence-based approaches for designing and implementing culturally appropriate communication interventions.

Furthermore, the study addresses critical knowledge gaps identified in existing literature regarding the intersection of communication, local knowledge systems, and adaptive capacity, thereby contributing to the growing body of research on climate change communication in developing country contexts. The practical recommendations emerging from this research will support the development of more effective climate advocacy programs that can enhance community resilience and contribute to achieving Ghana's national climate adaptation goals.

1.7 ORGANISATION OF THE STUDY

This dissertation is organised into five chapters. Chapter one introduces the study by establishing the background, problem statement, research aim, objectives, and questions, along with the significance and scope of the research. Chapter two presents a comprehensive literature review examining theoretical frameworks on climate communication, empirical studies on climate change impacts in coastal Ghana, and a critical analysis of existing communication strategies and their effectiveness. Chapter three details the research methodology, including the study design, population and sampling techniques, data collection instruments, analytical procedures, and ethical

considerations. Chapter four presents the findings and analysis of data collected from the three coastal communities, examining current communication channels, community perceptions, behavioural responses, and factors influencing communication effectiveness. Chapter five concludes the study with a summary of key findings, conclusions drawn from the research, practical recommendations for improving climate change communication strategies, and suggestions for future research directions.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter provides a comprehensive review of existing literature on climate change communication strategies and their effectiveness in coastal communities, with particular emphasis on the Ghanaian context. The review establishes the theoretical foundation for understanding how communication interventions can enhance climate resilience and adaptive capacity in vulnerable coastal populations by examining key concepts and definitions, relevant theoretical frameworks, empirical evidence from global and local studies, and developing an integrated conceptual framework to guide the research. Given the critical importance of effective climate communication in promoting adaptation behaviours among Ghana's vulnerable coastal communities, this literature review synthesises current knowledge from risk communication theory and social cognitive theory to understand the complex relationships between communication strategies, psychological mediating factors, and behavioural outcomes. The review addresses significant gaps in existing literature, particularly the limited research on climate communication effectiveness in Sub-Saharan African coastal contexts, and provides the theoretical foundation for examining how different communication approaches impact community awareness, understanding, and adaptive behaviours in the specific coastal communities of Abutiakope, Kedzikope, and Agavedzi. Through this comprehensive analysis, the chapter establishes the rationale for the study's theoretical framework and identifies key variables and relationships that will guide the empirical investigation of climate communication effectiveness in Ghana's coastal communities.

2.2 KEY CONCEPTS AND DEFINITIONS

2.2.1 Climate Change Communication

Climate change communication represents a complex, multifaceted field that extends beyond simple information transmission to encompass the dynamic processes through which societies develop climate awareness, understanding, and action. The field of communication has historically focused on translating the natural science of climate change to increase public understanding and awareness of the challenges facing societies across the globe and to boost public engagement with climate change (Tschötschel et al., 2025). At its surface level, climate change communication involves educating, informing, warning, persuading, mobilising, and problem-solving around this critical global challenge. However, at a deeper level, it is fundamentally shaped by diverse experiences, mental and cultural models, and underlying values and worldviews that influence how climate information is received, processed, and acted upon.

Contemporary understanding acknowledges that communication occurs within rich, highly complex, and dynamic systems of individuals, organisations, and institutions with widely divergent knowledge, politics, and cultures. More recently, the field has recognised the role of communication in spurring pro-environmental behaviour change and devoted attention to building support for robust climate policies, with a marked shift increasingly focusing on the societal dimension of the climate crisis and climate politics (Tschötschel et al., 2025).

The complexity of climate change communication is further emphasised by the recognition that communication itself involves complex systems, including information users, information itself, and communication channels (Lee et al., 2024). This systemic perspective highlights the need for

more sophisticated approaches that understand and anticipate how information may be distributed and received before communication occurs, leading to more proactive and precise climate communication strategies.

Effective climate change communication has been defined as communication that improves individual and population outcomes by helping people better make connections between climate change and risks, and empowering them to act on newfound knowledge and understanding. This definition emphasises both cognitive and behavioural outcomes as measures of communication effectiveness. Research has shown that standard information-based interventions struggle to change environmentally impactful behaviours, highlighting the need for more sophisticated approaches that engage non-analytical systems and can be crucial for changing beliefs about behavioural efficacy (Plechatá et al., 2023).

2.2.2 Climate Change Adaptation and Vulnerability

Climate change adaptation refers to the process of adjustment to actual or expected climate change and its effects, aimed at moderating harm or exploiting beneficial opportunities (UNDP, 2025). In coastal contexts, adaptation encompasses a range of strategies including ecosystem-based approaches, infrastructure modifications, and community-based initiatives designed to strengthen resilience against climate impacts such as sea-level rise, storm surges, flooding, and ecosystem degradation.

Vulnerability in the climate change context represents the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and

extremes (Dolan & Walker, 2006). The vulnerability framework recognises inherent susceptibilities of human-environment systems exposed to climate variability and change, acknowledging that climate change impacts are unevenly distributed among and within nations, regions, communities, and individuals due to differential exposures and vulnerabilities.

The conceptual framework of vulnerability typically comprises three key components: exposure, sensitivity, and adaptive capacity (Sales, 2009). Exposure refers to the nature and degree to which a system is exposed to significant climatic variations. Sensitivity represents the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. Adaptive capacity constitutes the ability of a system to adjust to climate change, to moderate potential damages, to take advantage of opportunities, or to cope with consequences.

Coastal vulnerability specifically encompasses the susceptibility of coastal social-ecological systems to climate change impacts, with effects distributed unequally amongst human communities (Nelson et al., 2023). Coastal communities face particular vulnerabilities due to their exposure to multiple climate hazards, including sea-level rise, increased storm intensity, coastal erosion, and saltwater intrusion, often compounded by high population densities and economic dependencies on climate-sensitive activities.

Adaptive capacity, a critical component of vulnerability assessments, can be influenced by factors such as management skills, access to financial, technical and information resources, infrastructure, institutional environment, and political influence (Dolan & Walker, 2006). In coastal contexts, adaptive capacity is further shaped by community characteristics, including social capital,

traditional knowledge systems, livelihood diversification options, and access to early warning systems.

2.2.3 Communication Effectiveness

Communication effectiveness in the climate change context refers to the degree to which communication interventions achieve their intended outcomes in terms of knowledge transfer, attitude change, and behavioural modification. Effective climate communication is characterised by its ability to facilitate audience comprehension and engagement while boosting audience readiness to contemplate or embrace pro-environmental behaviours (O'Callaghan et al., 2025). Research has demonstrated that experience-based communication approaches can be more effective than traditional information-based methods in changing environmentally impactful behaviours by engaging non-analytical cognitive systems (Plechatá et al., 2023).

The measurement of communication effectiveness typically employs frameworks such as the Knowledge, Attitude, and Practice (KAP) model, which assesses changes across three interconnected domains (Zarei, 2024). Knowledge encompasses factual understanding of climate change causes, impacts, and solutions. Attitudes reflect emotional and evaluative responses to climate information, including risk perceptions, concern levels, and support for climate policies. Practice refers to actual behavioural changes, including mitigation actions, adaptation measures, and pro-environmental behaviours.

Research has identified several key determinants of communication effectiveness, including message characteristics and framing, source credibility and trustworthiness, audience

characteristics and segmentation, cultural relevance and appropriateness, timing and frequency of communication, and availability of feedback mechanisms (O'Callaghan et al., 2025). Effective climate communication strategies emphasise simplicity and local relevance, audience segmentation, storytelling approaches, and the provision of actionable steps that individuals and communities can take.

Behavioural change communication represents a specialised approach within climate communication that specifically targets the adoption of climate-friendly behaviours. This approach recognises that knowledge alone is insufficient to drive behavioural change, requiring attention to psychological factors such as self-efficacy, social norms, perceived benefits and barriers, and outcome expectations (Lee et al., 2024).

The complexity of measuring communication effectiveness is acknowledged in recent research, which highlights the need for comprehensive evaluation frameworks that go beyond simple knowledge assessments to include measures of engagement, empowerment, and sustained behavioural change. Contemporary approaches to effectiveness measurement also emphasise the importance of participatory evaluation methods that involve target communities in defining success criteria and assessing outcomes (Plechatá et al., 2023).

Furthermore, communication effectiveness must be understood within broader contextual factors, including political climate, media landscape, cultural values, and existing institutional frameworks. This contextual sensitivity is particularly important in developing country contexts where communication strategies must navigate diverse linguistic, cultural, and socioeconomic

landscapes while addressing varying levels of literacy, technology access, and institutional capacity (Tschötschel et al., 2025).

2.3 THEORETICAL FOUNDATION

2.3.1 Risk Communication Theory

Risk communication theory provides a foundational framework for understanding how climate change information is transmitted, processed, and acted upon by vulnerable communities. Risk communication involves the exchange and sharing of information about climate-related risks between various stakeholders, aimed at enhancing understanding, facilitating informed decision-making, and promoting adaptive behaviours (Sichach, 2024). In the context of climate change, risk communication extends beyond simple information transmission to encompass complex psychological, social, and cultural processes that can heighten or attenuate individual and social perceptions of risk and shape risk behaviours.

The theoretical foundations of risk communication recognise that hazards interact with psychological, social, and cultural processes in ways that can heighten or attenuate individual and social perception of risk and shape risk behaviour (Renn et al., 1992; Sichach, 2024). This understanding emphasises that debates concerning societal values and worldviews require a good understanding of the social context on which risk management decisions are made (OECD, 2002; Sichach, 2024). The importance of collective action in influencing individual action in climate change risk management further underscores the social dimensions of risk perception and communication.

Central to risk communication theory is the concept of risk perception, which represents individuals' subjective assessment of the probability and magnitude of potential harm from climate change impacts. Risk perception is shaped not only by objective threats but also by multiple personal and social factors, including cognitive factors, experiential elements, socio-cultural influences, and socio-demographic characteristics (Clayton et al., 2015; Slovic, 2016; van der Linden, 2017). Research has demonstrated that individual and social characteristics, particularly risk perception, interact with underlying values to form subjective and mutable limits to adaptation that currently hinder society's ability to act, potentially precluding adaptation at societal scales (Adger et al., 2009; Sichach, 2024).

Risk communication theory emphasises the critical role of trust and credibility in determining communication effectiveness. The literature shows that a promising risk communication strategy for decision makers and scientists is to acknowledge uncertainty to counter scepticism, improve communication transparency, and enhance trust and credibility (MacIntyre et al., 2019). This approach recognises that improved communications about uncertain aspects of climate change require collaboration and carefully targeting messages to each unique audience, particularly important in coastal communities where environmental uncertainties intersect with livelihood dependencies.

The psychological distance concept within risk communication theory explains how individuals perceive climate change risks as temporally, spatially, socially, or hypothetically distant from their immediate experience (Cologna et al., 2018). This distance can significantly influence risk perception and subsequent behavioural responses, with closer psychological proximity generally

associated with higher concern and greater willingness to act. Understanding psychological distance is particularly relevant for coastal communities experiencing immediate climate impacts, as direct experience with climate hazards can reduce psychological distance and enhance risk perception.

Risk communication theory also incorporates the social amplification of risk framework, which explains how risk perceptions can be amplified or attenuated through social processes, including media coverage, interpersonal communication, and institutional responses (Cologna et al., 2018). This framework recognises that risk communication occurs within complex social systems where multiple actors, including media, government agencies, scientists, and community leaders, influence how risks are perceived and understood by target audiences.

The application of risk communication theory to climate change in coastal contexts requires recognition of the unique characteristics of these environments. Coastal communities face multiple, interconnected risks, including sea-level rise, storm surges, erosion, and saltwater intrusion, creating complex risk communication challenges. Effective risk communication in these contexts must address uncertainty, acknowledge local knowledge and experience, and provide actionable information that communities can use to make informed adaptation decisions.

2.3.2 Social Cognitive Theory

Social Cognitive Theory (SCT) provides a comprehensive framework for understanding how individuals develop and maintain climate-related behaviours through dynamic interactions between personal factors, environmental influences, and behavioural outcomes. Developed by

Bandura (1977, 1986), SCT describes the influence of individual experiences, the actions of others, and environmental factors on individual behaviours, offering valuable insights for designing effective climate communication strategies that promote adaptive behaviours in coastal communities.

Central to SCT is the concept of reciprocal determinism, which posits that behaviour, cognitive and other personal factors, and environmental influences operate as interacting determinants of each other (Bandura, 1986). This triadic model of reciprocal determinism recognises that behaviour is not solely a function of environmental influences but involves complex interactions between individual cognition, personal factors, and environmental context. In climate change contexts, this means that adaptive behaviours result from dynamic interactions between individual knowledge and beliefs, social and physical environmental factors, and previous behavioural experiences.

Self-efficacy represents the core construct of SCT, defined as individuals' beliefs in their capability to organise and execute courses of action required to produce given attainments (Bandura, 1977). In climate change communication, self-efficacy encompasses both individual beliefs about personal capacity to engage in climate-protective behaviours and collective efficacy beliefs about community capacity to address climate challenges. Research has demonstrated that self-efficacy positively predicts climate change discussions, knowledge acquisition, and engagement in pro-environmental behaviours (Loy et al., 2020; Tian et al., 2023).

The concept of informational self-efficacy has particular relevance for climate communication, referring to the subjective capability of informing oneself satisfactorily about climate change to reach goals such as forming opinions, evaluating political decisions, or behaving in climate-protective ways (Loy et al., 2020). Research has shown that informational self-efficacy positively predicts people's exposure to climate change communication in media, their knowledge about the climate system, and their engagement in climate protective behaviours, suggesting its crucial role in determining engagement with climate information.

Outcome expectations represent another key component of SCT, referring to individuals' beliefs about the anticipated consequences of their actions (Bandura, 1986). In climate communication contexts, outcome expectations encompass beliefs about both the effectiveness of climate actions in achieving desired environmental outcomes and the personal benefits or costs associated with engaging in these behaviours. Research has shown that individuals who believe their actions will yield positive outcomes are more likely to invest effort in initiating and sustaining climate-protective behaviours compared to individuals with low outcome expectations (Tian et al., 2023).

SCT emphasises the importance of observational learning and modelling in behaviour change processes. Individuals learn not only through direct experience but also by observing the actions and outcomes experienced by others in their social environment. In coastal communities, this suggests that climate communication strategies can be enhanced by showcasing local role models and success stories of community members who have successfully implemented adaptation measures. Social norms, which reflect the behaviour of others, provide evidence of others' efficacy

beliefs and can significantly influence individual decisions to engage in climate discussions and actions (Tian et al., 2023).

The theory also incorporates concepts of behavioural capability and self-regulation, which are essential for sustained behaviour change. Behavioural capability refers to having the knowledge and skills necessary to perform climate-protective behaviours, while self-regulation involves the ability to monitor and control one's own actions toward achieving climate-related goals. These components suggest that effective climate communication must not only raise awareness and motivation but also provide practical skills and ongoing support for behaviour implementation and maintenance.

SCT's emphasis on the role of social environment makes it particularly relevant for community-based climate communication approaches. The theory recognises that individuals are embedded within social networks that influence their beliefs, attitudes, and behaviours through various mechanisms, including social support, social pressure, and access to information and resources. In coastal communities, social cognitive approaches to climate communication can leverage existing social structures, including family networks, community organisations, and traditional leadership systems, to enhance message reach and effectiveness.

The application of SCT to climate change communication in coastal contexts requires attention to the specific environmental and social factors that influence adaptive capacity in these communities. Coastal environments present unique challenges, including exposure to multiple climate hazards, dependence on climate-sensitive livelihoods, and often limited access to resources

and infrastructure. Understanding how these contextual factors interact with individual cognitive processes and social influences is essential for designing culturally appropriate and effective communication interventions that can enhance both individual and collective capacity to respond to climate challenges.

2.4 CLIMATE CHANGE COMMUNICATION

2.4.1 Climate Communication Effectiveness

A growing body of empirical research has examined the effectiveness of climate communication strategies across diverse contexts and populations. Systematic reviews of climate communication research have revealed important insights about what works and what doesn't in climate communication practice. A comprehensive analysis of climate communication literature indicates that the field has evolved from focusing primarily on information transmission to recognising the complex psychological, social, and cultural factors that influence communication effectiveness (Wu et al., 2022).

Research has demonstrated that effective climate communication requires more than simply providing accurate scientific information. Evidence suggests that communication strategies must be audience-centred, culturally appropriate, and designed to address specific psychological barriers to engagement (Lee et al., 2024). Studies have shown that the concept of public engagement has been systematically described as a psychological construct that directly links with behaviours that may help mitigate climate change, with empirical studies within this framework attesting to the social relevance of climate communication research (Kumpu, 2022).

The literature reveals significant challenges in climate communication effectiveness. One major finding is that many communication efforts fail to translate increased awareness into behavioural change. Studies indicate that while information-based approaches can increase knowledge, they often struggle to motivate sustained behavioural changes (Plechatá et al., 2023). This has led researchers to explore alternative approaches, including experience-based communication methods that engage non-analytical cognitive systems and have shown greater promise for facilitating behavioural change.

Evaluation frameworks for climate communication effectiveness have evolved to encompass multiple dimensions beyond simple knowledge transfer. Contemporary research emphasises the importance of measuring engagement, empowerment, and sustained behavioural change, rather than focusing solely on short-term awareness increases (Etim et al., 2024). These comprehensive evaluation approaches recognise that effective climate communication must address cognitive, affective, and behavioural dimensions of engagement.

Research has also highlighted the critical importance of source credibility and message framing in determining communication effectiveness. Studies have shown that messages from trusted sources tend to be more persuasive, with people following recommendations more when they come from trusted individuals or organisations (Bolsen et al., 2019). The source of climate communication can significantly enhance the impact of appeals, with research demonstrating that messages attributed to military leaders or Republican Party leaders can enhance effectiveness in certain contexts.

2.4.2 Climate Communication In Developing Countries

Climate communication research in developing countries has revealed unique challenges and opportunities that differ significantly from developed country contexts. The literature shows that developing countries face distinct barriers to effective climate communication, including limited access to communication technologies, lower literacy levels, and different cultural contexts for understanding environmental issues (Shanahan, 2010; Moser, 2010).

A major challenge identified in developing countries is the lack of training for journalists to make climate change relevant and interesting to local audiences. Climate change is often perceived as an immense topic that feels remote and involves complex jargon and difficult concepts to describe (Shanahan, 2010; Moser, 2010). This problem is compounded by a lack of access to specialist knowledge, with much of the climate science being Western-oriented and written in English, while many local scientists lack awareness of media needs for clarity and brevity.

Resource constraints represent another significant barrier in developing countries. Studies have documented a lack of resources for journalists to travel outside city centres to gather first-hand evidence and testimony, limiting the ability to create compelling local stories about climate impacts (Moser, 2010). Additionally, many developing countries face challenges with unsympathetic editors who do not see the importance of climate stories compared to other, more pressing daily concerns.

Despite these challenges, research has identified promising approaches for climate communication in developing country contexts. Studies have shown that locally relevant communication strategies

that connect climate change to immediate concerns and daily experiences can be more effective than abstract, global framings (Lee et al., 2024). The use of local languages, cultural symbols, and community-based communication channels has been shown to enhance message reach and acceptance.

The role of traditional and community media has emerged as particularly important in developing countries. Research indicates that radio remains the most effective medium for reaching rural populations, while community-based communication approaches that leverage existing social networks can overcome barriers related to literacy and technology access (Baffour-Ata et al., 2022). The integration of traditional knowledge systems with scientific climate information has also shown promise for creating more culturally appropriate and credible communication approaches.

Climate finance and communication intersect in important ways in developing countries. Research has shown that access to climate finance continues to inhibit the transition of developing economies to low-carbon, climate-resilient futures, with communication playing a crucial role in building awareness about available financial mechanisms and building capacity for accessing these resources (Pillay et al., 2025).

2.4.3 Climate Communication Research in Ghana

Ghana has been the subject of several important climate communication studies that provide insights into the specific challenges and opportunities within the Ghanaian context. Research has revealed that Ghana's economy is highly climate-sensitive, with more than 80% of agricultural

production being rainfall dependent and only 2% of irrigation potential utilised, making effective climate communication critical for adaptation planning (Awuni et al., 2023).

Studies on climate awareness and knowledge in Ghana have revealed mixed findings. A nationally representative survey of Ghanaian adults found significant public knowledge of global warming, with respondents demonstrating awareness of basic climate science concepts (Odonkor & Sallar, 2020). However, other research has identified important knowledge gaps, particularly regarding the connections between climate change and health impacts, and the specific adaptation strategies available to different communities.

Research on climate information services in Ghana has provided insights into communication channel effectiveness and barriers. A study in Northern Ghana found that 70% of surveyed farmers had access to varied forms of climate information services, with radio, television, and advice from extension agents reported as the major dissemination channels (Baffour-Ata et al., 2022). However, significant barriers were identified, including a lack of communication devices, mistrust in weather and climate forecasts, and a lack of visual representations in forecasts.

Gender dimensions of climate communication have received particular attention in Ghanaian research. Studies have revealed significant gender differences in access to climate information, with only 31% of female farmers compared to 50% of male farmers being willing to pay for climate information services (Antwi-Agyei et al., 2021). This research highlights the importance of designing gender-sensitive communication strategies that address differential access patterns and information needs.

Educational research in Ghana has examined climate change knowledge among university students, revealing important gaps in understanding. A study at the University of Ghana found that while students demonstrated basic awareness of climate change, significant misconceptions existed regarding causes, impacts, and potential solutions (Ofori et al., 2023). This research underscores the need for improved climate education at all levels of the educational system.

Communication about climate-related migration has emerged as an important research area in Ghana. Studies in the Upper West Region have examined how climate vulnerability intersects with migration patterns, revealing the complex relationships between environmental changes, communication about risks, and population movements (Lindegaard et al., 2024). This research highlights the need for communication strategies that address both adaptation in place and planned relocation options.

2.4.4 Coastal Climate Communication

Research on climate communication in coastal environments has revealed unique challenges and opportunities related to the immediate and visible nature of climate impacts in these settings. Studies have shown that coastal communities often experience more direct and immediate climate impacts, which can reduce psychological distance and enhance risk perception compared to inland populations (Nelson et al., 2023).

The immediacy of coastal climate impacts creates both opportunities and challenges for communication. While direct experience with sea-level rise, coastal erosion, and storm surges can make climate change more tangible and urgent, research has also shown that repeated exposure to

climate hazards can lead to adaptation normalcy and decreased sensitivity to warnings (Cologna et al., 2018). This suggests that communication strategies in coastal areas must be carefully designed to maintain urgency while avoiding fatigue.

Studies have examined the role of local knowledge and experience in coastal climate communication. Research has shown that coastal communities often possess a sophisticated understanding of environmental changes based on direct observation and traditional knowledge systems (Nelson et al., 2023). Effective communication strategies must find ways to integrate this local knowledge with scientific information to create more credible and actionable messages.

The economic dimensions of coastal climate communication have received attention in research examining tourism, fisheries, and other coastal livelihoods. Studies have shown that communication about climate impacts must address the economic concerns of coastal communities, including potential losses to traditional livelihoods and opportunities for alternative economic activities (Bolsen et al., 2019).

Research has also examined the role of visual and experiential communication in coastal settings. The visible nature of coastal climate impacts, including eroding shorelines and flooding, provides opportunities for visual communication approaches that can make abstract climate concepts more concrete and compelling (MacIntyre et al., 2019).

2.4.5 Communication Barriers and Success Factors

Empirical research has identified numerous barriers that impede effective climate communication across different contexts. Psychological barriers represent one major category, including cognitive biases that lead people to discount future risks, motivated reasoning that allows people to reject information that conflicts with existing beliefs, and emotional barriers such as fear and despair that can lead to disengagement (Lee et al., 2024).

Cultural and social barriers have been extensively documented in the literature. Research has shown that climate communication often fails when it conflicts with existing cultural values, worldviews, or social identities (Moser, 2010). Political polarisation represents a particularly significant barrier, with studies showing that climate change has become associated with particular political identities in ways that impede objective consideration of scientific evidence.

Communication infrastructure and capacity barriers are particularly relevant in developing country contexts. Studies have documented challenges related to limited media capacity, lack of trained science communicators, and inadequate resources for sustained communication campaigns (Shanahan, 2010; Moser, 2010). These structural barriers often require systemic interventions rather than simple improvements to message design.

Despite these barriers, research has identified several key success factors for effective climate communication. Trust and credibility emerge as fundamental requirements, with studies consistently showing that messages from trusted sources are more likely to be accepted and acted upon (Bolsen et al., 2019). Local relevance is another critical factor, with research demonstrating

that communication is more effective when it connects climate change to local experiences and concerns.

The importance of two-way communication and community engagement has been highlighted in numerous studies. Research shows that communication approaches that involve communities as active participants rather than passive recipients tend to be more successful in building understanding and motivating action (Kumpu, 2022). This participatory approach allows for the integration of local knowledge and addresses community-specific concerns and priorities.

Timing and persistence represent additional success factors identified in the literature. Studies suggest that effective climate communication requires sustained efforts over time rather than one-off campaigns, and that communication must be timed to connect with relevant events and decision-making processes (MacIntyre et al., 2019). The integration of communication with practical support and resources has also been shown to enhance effectiveness.

2.5 COMMUNICATION CHANNELS AND STRATEGIES IN CLIMATE CHANGE

Traditional mass media channels, particularly radio and television, have historically played significant roles in climate change communication in developing countries. Research in Ghana has demonstrated that radio, television, and advice from extension agents are reported as major dissemination channels for climate information (Baffour-Ata et al., 2022). However, the effectiveness of traditional media faces significant constraints, including a lack of training for journalists to make climate change relevant to local audiences, with climate change often perceived as remote and involving complex jargon (Moser, 2010). Resource constraints further limit

effectiveness, with a lack of resources for journalists to travel outside city centres to gather first-hand evidence limiting compelling local storytelling (Shanahan, 2010).

Digital communication technologies have transformed climate communication landscapes, creating new opportunities for interactive and participatory engagement. However, the digital divide remains a significant concern, particularly in developing countries where access to smartphones and internet connectivity varies considerably between urban and rural areas, potentially exacerbating existing inequalities in access to climate information (Moser, 2010). The effectiveness of digital channels also depends on digital literacy and informational self-efficacy, referring to the subjective capability of informing oneself satisfactorily about climate change, which positively predicts exposure to climate communication and knowledge acquisition (Loy et al., 2020).

Community-based communication approaches leverage existing social structures, networks, and trusted community figures to disseminate climate information. These approaches recognise that communication effectiveness depends on alignment with local social dynamics, cultural values, and trust relationships (Bandura, 1986). However, research in Ghana reveals that integration of traditional leadership into formal climate communication strategies remains underdeveloped, with predominantly top-down approaches often neglecting locally grounded strategies that foster engagement and trust (Arhin, 2022). Community meetings provide opportunities for participatory communication that can facilitate collective sense-making and decision-making around climate risks (Sichach, 2024).

Interpersonal communication through family, friends, and peer networks represents a crucial but often underestimated channel for climate information dissemination. Social Cognitive Theory emphasises that individuals learn through observing actions and outcomes experienced by others in their social environment (Bandura, 1977). Research has shown that social norms significantly influence individual decisions to engage in climate discussions and actions, with observational learning particularly relevant for understanding how climate adaptation behaviours spread through communities (Tian et al., 2023). Trust emerges as critical, with messages from trusted sources tending to be more persuasive than those from institutional actors (Bolsen et al., 2019).

Contemporary understanding emphasises integrated, multi-channel approaches that leverage complementary strengths of different communication platforms. Research shows that communication involves complex systems, including information users, information itself, and communication channels, requiring strategies that understand how information may be distributed and received (Lee et al., 2024). Audience segmentation has emerged as a key principle, acknowledging that one-size-fits-all approaches are unlikely to be effective across diverse populations (O'Callaghan et al., 2025). Integrated strategies combining mass media for awareness, digital platforms for engagement, community-based approaches for localised planning, and interpersonal networks for behavioural reinforcement may achieve greater effectiveness than single-channel approaches.

Language and cultural appropriateness represent critical considerations in channel selection and implementation. Research highlights that language barriers represent significant obstacles to effective climate communication, particularly when scientific information is predominantly

available in languages not widely understood by vulnerable populations (Moser, 2010). In Ghana's multilingual context, while English serves as the official language, local languages such as Ewe remain primary languages of daily communication, with research showing that use of local languages influences comprehension and engagement (Shanahan, 2010). Cultural appropriateness extends beyond language to encompass culturally resonant symbols, narratives, and communication styles that align with local knowledge systems and meaning-making processes (Lee et al., 2024).

2.6 AWARENESS AND PERCEPTIONS OF CLIMATE CHANGE COMMUNICATION

Climate change awareness represents foundational public engagement, encompassing basic recognition that climate change is occurring and a general understanding of causes and consequences. Research in Ghana reveals varying awareness levels across populations and regions, with a nationally representative survey finding significant public knowledge of global warming and basic climate science concepts (Odonkor & Sallar, 2020). However, other studies identify important knowledge gaps, particularly regarding connections between climate change and specific impacts, and differentiation between mitigation and adaptation strategies (Ofori et al., 2023). Educational research revealed that even university students demonstrated basic awareness alongside significant misconceptions about causes, impacts, and solutions, suggesting superficial awareness may mask substantial understanding gaps (Ofori et al., 2023).

Risk perception represents individuals' subjective assessment of the probability and magnitude of potential harm from climate impacts, shaped by cognitive factors, experiential elements, socio-cultural influences, and socio-demographic characteristics (Clayton et al., 2015; Slovic, 2016; van

der Linden, 2017). The concept of psychological distance explains how individuals perceive climate risks as temporally, spatially, socially, or hypothetically distant from immediate experience, significantly influencing risk perception and behavioural responses (Cologna et al., 2018). In coastal communities experiencing immediate impacts such as erosion and flooding, direct experience can reduce psychological distance and enhance risk perception. However, research reveals that repeated exposure to climate hazards can lead to adaptation normalcy and decreased sensitivity to warnings, requiring careful communication design to maintain urgency while avoiding fatigue (Cologna et al., 2018).

A persistent challenge is the knowledge-action gap between awareness and actual behavioural change. Research demonstrates that while information-based approaches can increase knowledge, they often struggle to motivate sustained behavioural changes (Plechatá et al., 2023). Studies in coastal Ghana document this paradox of high awareness coupled with limited adaptive action, with evidence suggesting messages often fail to resonate with local realities or support practical decision-making (Odoom, 2024). Understanding this gap requires attention to mediating factors, including self-efficacy, outcome expectations, perceived barriers, and social support, with Social Cognitive Theory positing that behaviour is influenced not only by knowledge but also by beliefs in the capability to execute behaviours and expectations about outcomes (Bandura, 1986; Tian et al., 2023).

Trust in information sources emerges as critical for how climate information is received, interpreted, and acted upon. Research shows that messages from trusted sources tend to be more persuasive, with source credibility significantly enhancing communication impact (Bolsen et al.,

2019). A promising strategy is acknowledging uncertainty to counter scepticism, improve transparency, and enhance trust and credibility (MacIntyre et al., 2019). In developing countries, trust relationships between communities and institutional actors are shaped by historical experiences, power dynamics, and perceived alignment of interests, with scientists and environmental experts potentially commanding greater trust than government or political actors (Bolsen et al., 2019).

Climate perceptions are fundamentally shaped by cultural values, worldviews, and social identities, influencing how individuals interpret environmental changes and assess appropriate responses. Research shows that hazards interact with psychological, social, and cultural processes in ways that heighten or attenuate risk perception and shape risk behaviour (Sichach, 2024). In coastal Ghanaian contexts, traditional belief systems and local knowledge frameworks significantly influence climate understanding, creating complex interpretive landscapes where multiple causal frameworks coexist. Social norms and collective identities influence whether climate change is perceived as an urgent priority requiring collective action or a lower priority relative to other immediate concerns (Moser, 2010).

Gender represents significant differentiation in climate awareness, perception, and communication effectiveness. Research in Ghana reveals important gender differences, with only 31% of female farmers compared to 50% of male farmers willing to pay for climate information services, reflecting gendered patterns of access, valuation, and utilisation (Antwi-Agyei et al., 2021). These disparities reflect broader social inequalities, including differential access to education, information technologies, economic resources, and decision-making authority. Gender also

influences risk perception and adaptive responses, with women potentially perceiving climate risks differently due to different social roles, livelihood activities, and vulnerabilities, requiring communication approaches recognising gendered dimensions of vulnerability and adaptive capacity (Antwi-Agyei et al., 2021).

2.7 BEHAVIOURAL RESPONSES TO CLIMATE CHANGE COMMUNICATION

Information-seeking behaviour reflects individuals' proactive efforts to acquire climate knowledge, with informational self-efficacy positively predicting exposure to climate communication, knowledge acquisition, and engagement in pro-environmental behaviours (Loy et al., 2020). Public engagement has been described as a psychological construct directly linking with behaviours that may help mitigate climate change (Kumpu, 2022). Interpersonal communication represents important information-seeking, with individuals discussing climate information with family and community members to validate, interpret, and elaborate on information received through formal channels. Social norms significantly influence decisions to engage in climate discussions, with these interpersonal exchanges serving multiple functions, including information sharing, collective sense-making, and reinforcement of adaptive behaviours (Tian et al., 2023).

Protective and adaptive actions represent tangible behavioural responses to climate information, encompassing measures to reduce vulnerability and enhance resilience, including property protection, livelihood modifications, diversification, and emergency preparedness. Research shows effective communication should help people make connections between climate change and risks, empowering them to act on knowledge (Plechatá et al., 2023). Research in Ghana documents various adaptation practices employed by coastal communities, though the extent and effectiveness

vary considerably (Arhin, 2022). Adoption is influenced by reciprocal determinism, where behaviour results from dynamic interactions between cognition, personal factors, and environmental context, with self-efficacy beliefs and outcome expectations representing particularly important determinants (Bandura, 1986; Tian et al., 2023).

Community engagement and collective action extend beyond individual adaptation to encompass coordinated community-level efforts. Research emphasises that collective action's importance in influencing individual action underscores social dimensions of risk perception and communication (Sichach, 2024). Effectiveness depends on social capital networks, norms, and trust, facilitating coordination and cooperation. Communities with higher social capital are better positioned to organise collective responses, share information and resources, and support implementation of adaptive measures. However, studies in Ghana identify limited cooperation among community members as a significant barrier to collective action (Odoom, 2024). Traditional governance structures represent important platforms for facilitating collective action, though top-down approaches have sometimes marginalised local institutions (Arhin, 2022).

Understanding barriers to behavioural change is essential for designing effective communication strategies. Research identifies barriers operating at individual, social, and structural levels, including cognitive biases discounting future risks, motivated reasoning rejecting conflicting information, and emotional barriers like fear leading to disengagement (Lee et al., 2024). Economic and resource constraints are frequently cited, though research findings present more nuanced pictures than simple scarcity models suggest. Social and institutional barriers significantly constrain behaviours, with research in Ghana revealing inadequate government support, absent

local policies, and difficult program access as important barriers (Arhin, 2022). Limited social cooperation can impede community-level adaptation even when individual motivation exists, with top-down decision-making hindering the adoption of local community ideas (Awuni et al., 2023).

Facilitators enable individuals and communities to translate awareness into action. Self-efficacy represents a core facilitator, with beliefs in the capability to execute actions serving as the primary determinant of behavioural initiation and persistence (Bandura, 1977; Loy et al., 2020). Social support from family, friends, and community members represents another important facilitator, with observational learning and social norms significantly influencing decisions (Tian et al., 2023). Access to practical resources and institutional support also facilitates behaviour, with research in Northern Ghana finding farmers with access to climate information services better positioned to implement adaptive practices (Baffour-Ata et al., 2022). However, significant barriers were identified, including a lack of devices, mistrust in forecasts, and a lack of visual representations, suggesting access alone is insufficient without attention to quality, credibility, and usability.

Sustained behavioural change requires ongoing motivation, reinforcement, and support. Research emphasises that timing and persistence represent important success factors, with sustained efforts proving more effective than one-off campaigns (MacIntyre et al., 2019). Self-regulation, involving the ability to monitor and control actions toward achieving goals, requires not only initial motivation but the capacity to overcome obstacles and maintain focus on long-term objectives (Bandura, 1986). Feedback and outcome visibility influence maintenance, with individuals more likely to maintain behaviours when observing tangible benefits. Outcome expectations significantly influence behaviour, with individuals more likely to sustain actions when perceiving

positive results (Tian et al., 2023). Communication strategies helping communities recognise and attribute positive outcomes to adaptive actions can strengthen behaviour maintenance.

2.8 CHAPTER SUMMARY

This chapter provided a comprehensive literature review on climate change communication strategies and effectiveness in coastal communities, establishing theoretical foundations through Risk Communication Theory and Social Cognitive Theory, which together explain how communication interventions influence awareness, understanding, and adaptive capacity through risk perception, trust, self-efficacy, and social learning processes. The review examined key concepts including climate communication, adaptation, vulnerability, and communication effectiveness, synthesised empirical evidence on communication channels, awareness and perceptions, and behavioural responses, and identified critical gaps, particularly regarding limited research in Sub-Saharan African coastal contexts and insufficient examination of how communication effectiveness varies across demographic groups within vulnerable communities. The literature revealed that while significant progress exists in understanding climate communication globally, substantial gaps remain in understanding dynamics operating in specific vulnerable coastal contexts such as Ghana's Volta Region communities, with predominantly top-down approaches not adequately engaging local knowledge systems and cultural values, justifying the current study's empirical examination of communication experiences, perceptions, and behavioural responses in Abutiakope, Kedzikope, and Agavedzi to inform more effective, culturally appropriate climate advocacy strategies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the methodological approach employed to investigate the impact of communication strategies on climate change advocacy in the coastal communities of Abutiakope, Kedzikope, and Agavedzi in Ghana. The methodology is designed to systematically examine the relationships between climate communication strategies, community perceptions, knowledge levels, and adaptive behaviours as conceptualised in chapter two. Given the need for systematic measurement and objective assessment of communication outcomes, this study adopts a quantitative research approach that enables statistical analysis of these relationships. The methodological design balances scientific rigour with cultural appropriateness and practical feasibility within the resource constraints and ethical considerations relevant to research in vulnerable coastal communities. This chapter presents the research design, sampling strategy, data collection procedures, analytical techniques, and ethical considerations that guide the empirical investigation.

3.2 RESEARCH APPROACH

The study was guided by a positivist research paradigm that emphasises empirical observation, measurement, and statistical analysis to understand social phenomena. This approach assumes that climate communication effectiveness can be objectively measured through standardised instruments and that relationships between communication strategies and behavioural outcomes can be quantified and analysed statistically (Baffour-Ata et al., 2022). The positivist approach

aligns with the study's objective to provide evidence-based findings that can inform policy and practice in climate communication.

Consistent with the positivist paradigm, this study adopted a quantitative research design to examine the impact of climate communication strategies on community adaptive behaviours in coastal Ghana. A quantitative approach was selected because it enables systematic measurement of variables, statistical analysis of relationships, and objective assessment of communication effectiveness across the target population (Schoonenboom & Johnson, 2017).

The quantitative approach also enabled the use of validated measurement scales and standardised data collection procedures that enhance the reliability and validity of findings. By employing structured questionnaires with closed-ended questions and Likert scales, the study ensured consistency in data collection across all respondents and communities, reducing potential bias and measurement error while enabling robust statistical analysis of the study data.

3.3 RESEARCH DESIGN

The study employed a cross-sectional survey design, collecting data at a single point in time to capture current patterns of climate communication exposure, community perceptions, knowledge levels, and behavioural responses. This design was chosen for its efficiency in data collection, cost-effectiveness, and ability to provide a comprehensive snapshot of the current state of climate communication in the study communities (Wang & Cheng, 2020). The cross-sectional approach enables comparison across different demographic groups and communities while maintaining feasibility within the study's resource and time constraints.

3.4 POPULATION AND SAMPLING

3.4.1 Study Population

The target population for this study comprises all adult residents (18 years and above) living in climate-vulnerable coastal communities in Ghana. The study population, drawn from this broader target group, consists of adult residents of three coastal communities in the Volta Region of Ghana: Abutiakope, Kedzikope, and Agavedzi. These communities were selected because they are among the most vulnerable to climate change impacts in Ghana, experiencing regular threats from sea-level rise, coastal erosion, storm surges, and flooding (Addo et al., 2011). The total estimated population of the three districts is approximately 331,984 residents (Ghana Statistical Service, 2021). The population is predominantly engaged in fishing, farming, and small-scale trading activities, with varying levels of formal education and access to modern communication technologies.

Adult residents were chosen as the study population because individuals aged 18 and above are more likely to be involved in household decision-making processes, have greater exposure to various communication channels, and are better positioned to provide informed responses about climate change awareness, communication experiences, and adaptive behaviours. This population also has the cognitive and social capacity to engage meaningfully with climate information and make decisions about adaptation strategies for themselves and their households.

3.4.2 Sampling Strategy/Technique

The study employed a stratified random sampling technique to ensure representation from all three target communities while maintaining the scientific rigour required for quantitative research. Each

community served as a stratum, and proportional allocation was used to determine the number of respondents from each community based on their relative population sizes (Wang & Cheng, 2020). This stratified approach ensured that all communities were adequately represented in the sample while allowing for comparative analysis between communities.

Within each community stratum, systematic random sampling was employed to select households. A sampling frame was developed using existing community records and house numbering systems, where available. For communities without formal house numbering, a systematic approach was used by selecting every nth household along a predetermined route through the community. From each selected household, one adult resident was randomly selected to participate in the study using a random selection procedure when multiple eligible adults were present.

3.4.3 Sample Size

The study used a total sample size of 100 respondents, selected based on feasibility considerations typical of community-based fieldwork in rural Ghana. This sample size was distributed proportionally across the three communities based on their adult population sizes: Agavedzi (47 respondents), Kedzikope (29 respondents), and Abutiakope (24 respondents). The sample size of 100 is sufficient for conducting correlation analysis, multiple regression analysis, and other statistical tests planned for this study, following established practices for quantitative research in climate communication studies (Baffour-Ata et al., 2022).

The proportional allocation ensures that each community is represented in the sample according to its relative size, maintaining the representativeness of the overall sample while enabling meaningful analysis at both the community level and across the entire study area.

3.5 INSTRUMENTATION AND DATA COLLECTION PROCEDURE

Primary data was collected using a structured questionnaire administered through face-to-face interviews with selected respondents. The questionnaire was developed based on the study's objectives and included four main sections: demographic information, current climate change communication channels and strategies, community perceptions and knowledge levels, and barriers and facilitators to communication effectiveness. The instrument consisted of 53 questions, with demographic questions using categorical response options and the three research sections using 5-point Likert scales (1 = Strongly Disagree to 5 = Strongly Agree) to ensure consistency and facilitate statistical analysis.

All questions were closed-ended to facilitate quantitative analysis and ensure standardisation. The instrument was translated into the local language (Ewe) and back-translated to English to ensure accuracy and cultural appropriateness. Data collection was conducted by trained research assistants who were familiar with the local communities and languages to ensure proper administration of the questionnaire and minimise potential bias.

3.6 DATA ANALYSIS

Quantitative data analysis was conducted using Statistical Package for Social Sciences (SPSS) version 26.0, following established practices for analysing survey data in climate research contexts

(Baffour-Ata et al., 2022). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed to summarise participant characteristics, communication exposure patterns, knowledge levels, and behavioural outcomes. These descriptive analyses provided a comprehensive overview of the current state of climate communication in the study communities.

3.7 ETHICAL CONSIDERATIONS

The study adhered to international ethical standards for research involving human subjects and obtained ethical clearance from the Institutional Review Board of the University of Media, Arts and Communication. Additional permissions were obtained from regional and district authorities, traditional leaders, and community representatives before commencing data collection activities. All participants provided verbal informed consent before participating in the study, and they were informed about the purpose of the research, their rights as participants, the voluntary nature of their participation, and their right to withdraw at any time without penalty.

Confidentiality and anonymity were maintained throughout the research process through several measures, including secure storage of completed questionnaires and restriction of data access. No personal identifying information was collected on the questionnaires, and all data were aggregated for analysis and reporting purposes. Following best practices for research in climate-vulnerable communities, the study ensured that participants were not placed at risk through their participation and that the research contributed positively to community understanding of climate communication issues (Baffour-Ata et al., 2022). Participants were informed that aggregate

findings would be shared with participating communities through community meetings to ensure that the research benefits the communities that contributed to it.

3.8 CHAPTER SUMMARY

This chapter outlined the methodological approach employed to investigate climate communication effectiveness in three coastal communities in Ghana's Volta Region, adopting a positivist research paradigm and quantitative design to enable systematic measurement and statistical analysis of relationships between communication strategies and adaptive behaviours. The study employed a cross-sectional survey design with 100 respondents selected through stratified random sampling from Abutiakope (24 respondents), Kedzikope (29 respondents), and Agavedzi (47 respondents), ensuring proportional representation based on community population sizes. Primary data was collected using a structured questionnaire with 53 closed-ended items organised into demographic information and four research sections measuring communication channels, community perceptions and knowledge, behavioural responses, and barriers and facilitators using 5-point Likert scales, administered through face-to-face interviews in the local language (Ewe) by trained research assistants. Data analysis was conducted using SPSS version 26.0, employing descriptive statistics (frequencies, percentages, means, standard deviations), reliability analysis, correlation analysis, and regression analysis to examine relationships among study variables. The research adhered to international ethical standards with approval from the University's Institutional Review Board, obtaining informed consent from all participants, ensuring confidentiality and anonymity through secure data storage and aggregated reporting, and committing to share findings with participating communities to ensure research benefits those who contributed to it.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

This chapter presents the analysis and interpretation of data collected from 100 respondents across three coastal communities in Ghana: Abutiakope, Kedzikope, and Agavedzi. The analysis examines demographic characteristics, current climate change communication strategies, community perceptions and knowledge, behavioural responses, and factors influencing adaptive behaviours. Descriptive statistics, including frequencies, percentages, means, and standard deviations, are presented for all variables, followed by reliability analysis, correlation analysis, and regression analysis to test the relationships proposed in the conceptual framework.

4.1 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Table 4.1 presents the demographic profile of the 100 respondents who participated in the study. The demographic variables include gender, age group, education level, occupation, marital status, household size, length of residence in the community, and monthly household income.

Table 4.1: Demographic Characteristics of Respondents

Demographic Variable	Category	Frequency	Percent (%)
Gender	Male	48	48.0
	Female	52	52.0
Age Group	18-25 years	18	18.0
	26-35 years	32	32.0
	36-45 years	28	28.0
	46-55 years	15	15.0

	Above 55 years	7	7.0
Education Level	No formal education	12	12.0
	Primary education	25	25.0
	Secondary/JHS/SHS	48	48.0
	Tertiary education	15	15.0
Primary Occupation	Fishing	35	35.0
	Farming	18	18.0
	Trading/Small business	22	22.0
	Government worker	8	8.0
	Private sector employee	5	5.0
	Unemployed	12	12.0
Marital Status	Single	28	28.0
	Married	62	62.0
	Divorced/Separated	7	7.0
	Widowed	3	3.0
Household Size	1-3 people	15	15.0
	4-6 people	52	52.0
	7-9 people	28	28.0
	10+ people	5	5.0
Length of Residence	Less than 5 years	8	8.0
	5-10 years	15	15.0
	11-20 years	24	24.0
	More than 20 years	53	53.0

Monthly Household Income	Below GHS 500	22	22.0
	GHS 500-1000	38	38.0
	GHS 1001-2000	25	25.0
	GHS 2001-3000	10	10.0
	Above GHS 3000	5	5.0

Source: Field Survey, 2025

The demographic profile reveals a diverse sample of 100 respondents from coastal communities in South Volta, Ghana, with a relatively balanced gender distribution (52% female, 48% male) and a concentration of working-age adults primarily between 26 and 45 years (60%). The majority of respondents (53%) have resided in these communities for over 20 years, indicating deep-rooted community ties and extensive local knowledge of environmental changes. Educational attainment is moderate, with 48% having secondary education and only 15% possessing tertiary qualifications, while primary occupations are dominated by fishing (35%), trading (22%), and farming (18%), reflecting the coastal livelihood patterns. Household sizes are predominantly moderate (4-6 people, 52%), and monthly incomes are concentrated in the lower to middle range (60% earning below GHS 1,000), underscoring the economic vulnerability of these communities to climate-related disruptions. This demographic composition provides a representative cross-section of coastal residents whose livelihoods and well-being are directly impacted by climate change, making them critical stakeholders for effective climate communication strategies.

4.2 CURRENT CLIMATE CHANGE COMMUNICATION CHANNELS & STRATEGIES

This section presents an integrated analysis of climate change communication in the selected coastal communities, examining exposure to communication channels, message content quality, and source credibility.

Table 4.2: Climate Change Communication Channels and Strategies (N=100)

Item	**Mean**	**Std. Deviation**
Exposure to Communication Channels		
I receive climate change information through radio broadcasts	2.04	0.315
I receive climate change information through television programs	3.01	0.174
I receive climate change information through social media platforms	4.01	0.266
Community leaders and chiefs share climate change information with us	3.01	0.301
Government officials and extension agents provide climate change information to our community	3.05	0.330
NGOs and civil society organisations conduct climate change awareness programs in our community	2.97	0.332
I learn about climate change through community meetings and gatherings	3.00	0.376
Climate Communication Message Content		
The climate change messages I receive clearly explain the causes of climate change	3.06	0.371

The climate information I receive explains how climate change specifically affects coastal communities	3.02	0.376
Climate change messages provide practical solutions that I can implement	3.06	0.312
The climate information uses language and examples I can easily understand	2.54	0.626
Climate change communications use local languages that I understand	2.32	0.618
Communication Source Credibility and Trust		
I trust the climate change information from government sources	3.06	0.422
I trust climate change information from traditional leaders and community elders	3.05	0.411
I find climate change information from NGOs and international organisations credible	3.12	0.498
Scientists and environmental experts are reliable sources of climate information	3.96	0.470
I trust the climate change information shared by my friends and family members	3.85	0.411

Source: Field Survey, 2025

The findings reveal a stark digital divide in climate change communication channels, with social media platforms (M=4.01) being the only channel showing strong agreement for information reception, while respondents clearly disagree that radio broadcasts (M=2.04) serve as an information source. Traditional media and community-based channels, including television (M=3.01), community leaders (M=3.01), government officials (M=3.05), and community

meetings (M=3.00), elicit neutral responses, indicating neither consistent use nor rejection, while NGO programs (M=2.97) fall just below neutrality, suggesting limited reach. The quality of climate messages presents a critical language barrier, with respondents disagreeing that communications use understandable language (M=2.54) and strongly disagreeing about local language incorporation (M=2.32), despite neutral-to-slight agreement that messages explain causes (M=3.06) and solutions (M=3.06). Trust patterns distinctly favour scientific experts (M=3.96) and personal networks (M=3.85) over institutional sources government (M=3.06), traditional leaders (M=3.05), and NGOs (M=3.12), which receive only neutral-to-slight agreement. These findings indicate that while digital platforms dominate information flow and scientific voices command trust, the absence of local language adaptation and limited activation of community-based channels represent fundamental barriers to effective climate communication in these coastal communities.

4.3 COMMUNITY KNOWLEDGE AND PERCEPTION OF CLIMATE CHANGE

This section examines community members' knowledge levels and perceptions regarding climate change, including understanding of causes, impacts, and the perceived urgency of climate threats in their coastal context.

Table 4.3: Knowledge and Perceptions of Climate Change (N=100)

Item	Mean	Std. Deviation
Knowledge of Climate Change		
I understand what causes climate change	3.60	0.532
I can identify the main signs of climate change in my community	3.49	0.541

I understand how sea level rise affects coastal communities like ours	3.10	0.333
I know the difference between climate change adaptation and mitigation	3.03	0.481
I understand how climate change affects fishing and farming activities in our area	3.11	0.424
I know which actions can help reduce the impacts of climate change	3.36	0.523
Perceptions of Climate Change		
Climate change is a serious threat to our community	3.75	0.500
I believe climate change is already affecting my family's livelihood	3.43	0.607
I am worried about the future impacts of climate change on our community	3.60	0.569
Coastal erosion in our area is getting worse due to climate change	3.39	0.567
Climate change is more urgent than other problems facing our community	3.80	0.449
I believe individual actions can make a difference in addressing climate change	3.89	0.399

Source: Field Survey, 2025

The findings reveal a significant gap between community knowledge and climate change perceptions, with knowledge levels showing only slight-to-moderate agreement across most dimensions. Respondents demonstrate moderate understanding of climate change causes (M=3.60) and identifying local signs (M=3.49), but critical knowledge areas remain near neutral or only slightly above, including understanding of sea level rise impacts (M=3.10), the adaptation-mitigation distinction (M=3.03), and effects on livelihoods (M=3.11), indicating superficial

climate literacy. In stark contrast, perceptions reveal strong agreement that climate change poses serious threats, with respondents strongly believing individual actions matter (M=3.89), viewing climate change as more urgent than other community problems (M=3.80), and perceiving it as a serious threat (M=3.75). This perception-knowledge paradox, where communities recognise climate urgency and are worried about impacts (M=3.60) but possess limited technical understanding suggests that while awareness campaigns have successfully communicated threat narratives, they have failed to equip coastal residents with the detailed, actionable knowledge necessary for effective adaptation and mitigation responses.

4.4 BEHAVIOURAL RESPONSES TO CLIMATE CHANGE COMMUNICATION

This section analyses community members' behavioural responses following exposure to climate change communication, examining information-seeking behaviour, protective and adaptive actions, and community engagement and collective action.

Table 4.4: Behavioural Responses to Climate Change Communication (N=100)

Item	**Mean**	**Std. Deviation**
Information Seeking Behaviour		
After receiving climate information, I actively seek more details about climate change	3.84	0.507
I discuss climate change information with my family and neighbours	3.84	0.581
I attend community meetings about climate change when they are organised	3.20	0.586
Protective and Adaptive Actions		

Based on climate information received, I have taken steps to protect my property from floods and erosion	3.62	0.599
I have changed my farming or fishing practices based on climate change information	3.42	0.496
I have made plans for what to do during extreme weather events based on the information received	3.81	0.526
I have diversified my income sources as a response to climate change risks	3.52	0.577
Community Engagement and Collective Actions		
I participate in community-based climate adaptation projects	3.38	0.616
I work with my neighbours to implement climate change solutions	3.74	0.525
I share climate change information and adaptation strategies with other community members	3.66	0.572

Source: Field Survey, 2025

The findings reveal moderately positive behavioural responses to climate change communication across all dimensions, with respondents demonstrating strong agreement in actively seeking additional climate information (M=3.84) and engaging in interpersonal discussions about climate issues (M=3.84), indicating proactive informal engagement with climate content. Protective and adaptive actions show consistent moderate agreement, with emergency planning receiving the strongest response (M=3.81), followed by property protection measures (M=3.62), income diversification (M=3.52), and livelihood practice changes (M=3.42), suggesting that climate communications have successfully motivated personal adaptation behaviours. Community engagement demonstrates moderate agreement in collaborative implementation with neighbours

(M=3.74), information sharing (M=3.66), and participation in adaptation projects (M=3.38), though attendance at formal climate meetings shows only slight agreement (M=3.20), reflecting a preference for informal peer-to-peer action over structured community gatherings. Overall, the behavioural responses indicate that climate communication has translated into tangible individual adaptive actions and informal collective efforts, though formal institutional participation remains limited, suggesting that effective climate action in these coastal communities operates primarily through interpersonal networks and individual agency rather than organised community structures.

4.5 BARRIERS TO ADOPTING CLIMATE CHANGE ADAPTIVE BEHAVIOURS

This section identifies and examines barriers that hinder community members from adopting climate change adaptive behaviours, categorised into economic and resource barriers, information and knowledge barriers, social and cultural barriers, and institutional and policy barriers.

Table 4.5: Barriers to Adopting Climate Change Adaptive Behaviours (N=100)

Item	**Mean**	**Std. Deviation**
Economic and Resource Barriers		
Lack of money prevents me from taking climate adaptation actions	2.55	0.757
The cost of adaptation measures is too high for my household	2.55	0.716
I do not have access to the materials needed to protect my property	2.64	0.732
Information and Knowledge Barriers		
Climate change information is difficult to understand	2.79	0.671
I do not receive enough information about what actions to take	3.55	0.609

The climate information I receive is not relevant to my specific situation	3.47	0.540
Social and Cultural Barriers		
Traditional beliefs make it difficult to accept climate change solutions	3.02	0.710
Most people in my community do not take climate change seriously	3.88	0.537
There is limited cooperation among community members on climate issues	3.80	0.603
Institutional and Policy Barriers		
Government support for climate adaptation in our community is inadequate	3.55	0.592
There are no clear policies guiding climate adaptation at the local level	3.77	0.468
Access to government climate programs and resources is difficult	3.61	0.601

Source: Field Survey, 2025

The findings reveal a hierarchy of barriers, with social-cultural and institutional factors emerging as primary constraints while economic barriers are notably dismissed. Respondents clearly disagree that financial limitations (M=2.55), adaptation costs (M=2.55), or lack of materials (M=2.64) prevent climate action, challenging conventional assumptions about economic constraints in vulnerable communities. Information and knowledge barriers present a paradox: while respondents disagree that climate information is difficult to understand (M=2.79), they simultaneously agree they receive insufficient actionable information (M=3.55) and perceive current information as situationally irrelevant (M=3.47), indicating a quality rather than comprehension problem. Social and cultural barriers constitute the most significant impediment, with strong agreement that community members lack climate seriousness (M=3.88) and

demonstrate limited cooperation (M=3.80), while traditional beliefs remain neutral factors (M=3.02). Institutional and policy barriers consistently show moderate-to-strong agreement across inadequate government support (M=3.55), absence of clear local policies (M=3.77), and difficult program access (M=3.61). These patterns suggest that the primary obstacles to climate adaptation in these coastal communities are not resource scarcity but rather systemic failures in social mobilisation, institutional support structures, and delivery of context-specific, actionable climate guidance.

4.6 FACILITATORS FOR ADOPTING CLIMATE CHANGE ADAPTIVE BEHAVIOURS

This section examines factors that enable and support community members in adopting climate change adaptive behaviours, organised into personal capacity and motivation, social support and community resources, access to information and communication, and institutional and policy support.

Table 4.6: Facilitators for Adopting Climate Change Adaptive Behaviours (N=100)

Item	**Mean**	**Std. Deviation**
Personal Capacity and Motivation		
I feel confident in my ability to implement climate adaptation actions	3.83	0.451
I am motivated to protect my family from climate change impacts	3.96	0.281
My personal experience with climate impacts motivates me to take action	3.81	0.443
Social Support and Community Resources		
My family and friends encourage me to take climate adaptation actions	3.80	0.532

Community leaders actively promote climate adaptation in our area	3.44	0.538
There are successful examples of climate adaptation in our community that I can learn from	3.60	0.512
Access to Communication and Information		
Climate change information is readily available when I need it	3.93	0.537
The climate information I receive provides clear guidance on what actions to take	3.61	0.584
Early warning systems help me prepare for extreme weather events	3.93	0.432
Institutional and Policy Support		
Government programs provide practical support for climate adaptation	3.46	0.558
NGOs and development organisations offer resources and training for adaptation	3.23	0.510
Financial assistance is available to help with climate adaptation costs	2.83	0.652

Source: Field Survey, 2025

The findings reveal personal agency as the strongest facilitator of climate adaptation, with respondents demonstrating strong agreement on family protection motivation (M=3.96), self-efficacy (M=3.83), and experience-driven action (M=3.81), indicating that internal drivers rather than external support primarily enable adaptive behaviours. Social support facilitators show moderate-to-strong agreement, with peer encouragement (M=3.80) and observable community examples (M=3.60) reinforcing adaptation, though community leadership promotion receives only moderate agreement (M=3.44). Access to information presents a mixed picture: while respondents strongly agree that climate information is readily available (M=3.93) and early warning systems are effective (M=3.93), clarity of actionable guidance receives only moderate agreement

(M=3.61), echoing earlier findings about information quality gaps. Institutional and policy support emerges as the weakest facilitator category, with government programs showing moderate agreement (M=3.46), NGO resources receiving slight agreement (M=3.23), and financial assistance hovering near neutrality (M=2.83). This pattern mirrors the institutional barriers identified in Section 4.5, confirming that while coastal residents possess strong personal motivation, social networks, and information access to drive adaptation, systemic institutional inadequacies, particularly in financial support and organisational resources constrain their capacity to implement comprehensive climate resilience measures.

4.7 RELIABILITY ANALYSIS

Table 4.9 presents the reliability analysis results for all measurement scales used in the study. Cronbach's alpha coefficients were computed to assess the internal consistency of each scale measuring the main study constructs.

Table 4.7: Reliability Statistics for Study Constructs

Scale	Cronbach's Alpha	Number of Items
Current Climate Change Communication Channels and Strategies	0.774	17
Community Knowledge and Perception of Climate Change	0.784	12
Behavioural Responses to Climate Change Communication	0.836	10
Barriers to Adopting Climate Change Adaptive Behaviours	0.792	12
Facilitators for Adopting Climate Change Adaptive Behaviours	0.708	12

Source: Field Survey, 2025

Table 4.9 demonstrates that all measurement scales achieved acceptable to good internal consistency, with Cronbach's alpha coefficients ranging from 0.708 to 0.836, all exceeding the

minimum threshold of 0.70 recommended for social science research (Hair, 2021). The Behavioural Responses scale showed the highest reliability (α=0.836), followed by Community Knowledge and Perception (α=0.784), Current Communication Channels (α=0.774), Barriers (α=0.792), and Facilitators (α=0.708), confirming that the measurement instruments used in this study possess adequate reliability for further analysis and drawing valid conclusions.

4.8 CORRELATION ANALYSIS

Table 4.8 presents the Pearson correlation matrix examining bivariate relationships between the five main study variables: current climate change communication channels and strategies, community perceptions and knowledge of climate change, behavioural responses to climate change communication, barriers to adopting climate change adaptive behaviours, and facilitators for adopting climate change adaptive behaviours.

Table 4.8: Correlation Matrix for all Study Variables

Correlations						
		Current Climate Change Communication Channels and Strategies	Community Perceptions and Knowledge of Climate Change	Behavioural Responses to Climate Change Communication	Barriers to Adopting Climate Change Adaptive Behaviours	Facilitators for Adopting Climate Change Adaptive Behaviours
Current Climate Change Communication Channels and Strategies	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	100				
Community Perceptions and Knowledge Of Climate Change	Pearson Correlation	-0.043	1			
	Sig. (2-tailed)	0.672				
	N	100	100			
Behavioural Responses to Climate Change Communication	Pearson Correlation	0.162	0.097	1		
	Sig. (2-tailed)	0.107	0.335			
	N	100	100	100		
Barriers to Adopting Climate Change Adaptive Behaviours	Pearson Correlation	0.008	0.184	0.337**	1	
	Sig. (2-tailed)	0.933	0.067	0.001		
	N	100	100	100	100	
Facilitators for Adopting Climate Change Adaptive Behaviours	Pearson Correlation	0.276**	0.297**	0.096	0.168	1
	Sig. (2-tailed)	0.006	0.003	0.341	0.094	
	N	100	100	100	100	100

Source: Field Survey, 2025 ***. Correlation is significant at the 0.01 level (2-tailed).*

Table 4.10 reveals several significant relationships among study variables. Facilitators demonstrated significant positive correlations with both communication channels ($r=0.276$, $p<.01$) and perceptions/knowledge ($r=0.297$, $p<.01$), indicating that enabling factors strengthen communication effectiveness and climate awareness. Barriers showed a significant positive correlation with behavioural responses ($r=0.337$, $p<.01$), suggesting that greater awareness of obstacles may paradoxically coincide with higher adaptive action, possibly reflecting that those who attempt adaptation become more conscious of existing barriers. The weak and non-significant correlations between communication channels and both perceptions/knowledge ($r=-0.043$, $p>.05$) and behavioural responses ($r=0.162$, $p>.05$) indicate that communication exposure alone does not directly translate into enhanced knowledge or action without mediating factors.

4.9 DISCUSSION OF FINDINGS

The first objective sought to assess current climate change communication channels and strategies. The finding that social media dominated (M=4.01) while radio showed the lowest exposure (M=2.04) contradicts Baffour-Ata et al. (2022), who identified radio as a major channel in rural Ghana, suggesting a fundamental shift in communication infrastructure. High trust in scientists (M=3.96) and personal networks (M=3.85) contrasted with moderate trust in government (M=3.06), traditional leaders (M=3.05), and NGOs (M=3.12), validating Bolsen et al.'s (2019) finding that source credibility influences effectiveness. The critical language barrier respondents disagreeing that communications use understandable language (M=2.54) and strongly disagreeing about local language incorporation (M=2.32) corroborates Moser's (2010) observation about complex jargon in climate communication and Shanahan's (2010) identification of language barriers as fundamental obstacles in developing countries.

The second objective examined community perceptions and knowledge, revealing a significant perception-knowledge paradox. Moderate knowledge levels understanding causes (M=3.60), identifying signs (M=3.49), understanding impacts (M=3.10), and differentiating adaptation from mitigation (M=3.03) contrasted sharply with strong threat perceptions (M=3.75) and urgency (M=3.80). This aligns with Odoom's (2024) documentation of high awareness but low substantive knowledge among Ghanaian coastal populations, and supports Plechatá et al.'s (2023) observation that information-based interventions struggle to translate awareness into understanding. The pattern validates Arhin's (2022) critique that Ghana's top-down approaches neglect strategies for building genuine understanding rather than superficial awareness.

The third objective examined behavioural responses, indicating moderately positive engagement across information-seeking (M=3.84), adaptive actions (M=3.42-3.81), and community engagement (M=3.38-3.74). Strong informal peer engagement contrasted with weaker formal institutional participation (M=3.20), aligning with Arhin's (2022) observation that top-down approaches have limited effectiveness. The significant positive correlation between barriers and behavioural responses ($r=0.337$, $p<.01$) suggests experiential learning, consistent with Bandura's (1986) Social Cognitive Theory. These findings support Loy et al.'s (2020) emphasis on informational self-efficacy and Tian et al.'s (2023) observation that social norms significantly influence climate discussions and actions.

The fourth objective identified barriers and facilitators, revealing social mobilisation failures and institutional inadequacies as primary constraints rather than economic limitations. Respondents

disagreed that economic factors prevent adaptation, lack of money (M=2.55), high costs (M=2.55), and challenging conventional poverty assumptions. Social barriers, lack of community seriousness (M=3.88), limited cooperation (M=3.80) and institutional barriers, inadequate support (M=3.55), absent policies (M=3.77) emerged as primary constraints, validating Arhin's (2022) observation that national policies fail at local levels. The information quality paradox was available (M=3.93) but insufficient (M=3.55) and irrelevant (M=3.47) supports Moser's (2010) argument for locally relevant communication. Strong personal motivation (M=3.96) and self-efficacy (M=3.83) contrasted with weak institutional support, validating Bandura's (1977) emphasis on self-efficacy while highlighting institutional capacity gaps.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 CHAPTER INTRODUCTION

This chapter presents the summary of key findings, conclusions, and recommendations derived from the study on the impact of communication strategies in climate change advocacy in coastal Ghana. The summary synthesises the main findings across all research objectives, while the conclusions interpret these findings in relation to the study's objectives and theoretical framework. Practical recommendations are provided for policymakers, communication practitioners, and development organisations, followed by an acknowledgement of study limitations and suggestions for future research directions that can advance understanding of climate communication effectiveness in vulnerable coastal communities.

5.2 SUMMARY OF KEY FINDINGS

This study examined the impact of climate change communication strategies on community awareness, understanding, and adaptive behaviours in three coastal communities in Ghana's Volta Region, revealing significant gaps between communication practices and community needs. Regarding communication channels and strategies, the research found that social media platforms dominated information reception while traditional radio broadcasts showed minimal use, contradicting conventional assumptions about rural communication preferences. A critical language barrier emerged as the most significant communication failure, with respondents disagreeing that messages use understandable language and strongly disagreeing about local language incorporation, despite Ewe being the primary language of daily communication. Trust patterns favoured scientific experts and personal networks over institutional sources, including

government, traditional leaders, and NGOs, indicating a credibility gap between communicating institutions and trusted sources. Community knowledge and perceptions revealed a paradox where strong threat perception, viewing climate change as a serious threat and urgent priority, coexisted with moderate-to-low technical understanding of causes, adaptation-mitigation distinctions, and sea level rise impacts, suggesting awareness campaigns successfully conveyed threat narratives but failed to build actionable knowledge.

Behavioural responses demonstrated moderately positive engagement across information-seeking, adaptive actions, and community collaboration, with emergency planning and property protection showing the strongest responses, though formal institutional participation through community meetings remained weak. The barriers and facilitators analysis challenged conventional assumptions by revealing that economic constraints were not perceived as primary obstacles, with respondents disagreeing that lack of money, high costs, or material access prevented adaptation. Instead, social mobilisation failures, lack of community seriousness, limited cooperation, institutional inadequacies, inadequate government support, absent local policies, and difficult program access emerged as primary barriers. An information quality paradox was identified where information was readily available and not difficult to understand, yet insufficient in actionable guidance and situational relevance. Facilitators analysis confirmed personal motivation, self-efficacy, and peer encouragement as strong enablers, while institutional support remained weak. Correlation analysis revealed that communication exposure did not correlate with knowledge, barriers positively correlated with behavioural responses, and facilitators correlated with both communication channels and perceptions/knowledge, indicating that enabling environments

strengthen communication effectiveness while exposure alone is insufficient for knowledge transfer.

5.3 CONCLUSION

This study examined how climate change communication strategies shape community awareness, understanding, and adaptive behaviours in Abutiakope, Kedzikope, and Agavedzi, successfully addressing all four research objectives. Regarding the first objective of assessing communication channels, the research revealed that social media dominates information reception while traditional radio remains underutilised, yet this digital shift has not improved effectiveness due to critical language inaccessibility, with messages failing to incorporate Ewe despite its primacy in daily communication, and a trust-credibility gap exists between highly trusted scientific experts and moderately trusted institutional communicators. Concerning the second objective of evaluating perceptions and knowledge, a perception-knowledge paradox emerged where strong threat awareness coexists with moderate-to-low technical understanding, confirming that awareness campaigns conveyed urgency but failed to build actionable knowledge. Addressing the third objective of examining behavioural responses, communities demonstrated moderately positive adaptive behaviours driven primarily by peer-to-peer engagement and self-efficacy rather than formal institutional participation, with a weak correlation between communication exposure and knowledge ($r=-0.043$, $p>.05$), demonstrating that exposure alone is insufficient. Regarding the fourth objective of identifying barriers and facilitators, the research challenges conventional assumptions by revealing that social mobilisation failures and institutional inadequacies, rather than economic constraints, constitute primary barriers alongside information quality problems, a lack of actionable guidance and situational relevance. The findings validate Risk Communication

Theory and Social Cognitive Theory while establishing that effective climate communication requires fundamental reorientation from institution-led, English-language, awareness-focused campaigns toward peer-network-based, local-language, action-oriented strategies that leverage trusted voices, provide context-specific guidance, strengthen social cooperation, and build institutional credibility through practical adaptation support.

5.4 Recommendations

5.4.1 Recommendations for Communication Strategy Design

Communication strategies should employ integrated approaches that combine digital platforms with traditional media and community-based channels to ensure comprehensive reach across diverse demographic groups. While social media demonstrates high penetration among younger, educated populations, policymakers and communication practitioners must maintain and strengthen traditional channels, including radio, community meetings, and traditional leadership networks, to reach older residents, those with limited digital access, and long-term community members whose adaptation decisions significantly impact coastal resilience. Communication programs should be designed with explicit channel diversification strategies that match message content and format to the capabilities and preferences of specific audience segments. The moderate ratings for message relevance and actionability indicate a need for greater contextualization of climate information. Communication developers should employ participatory approaches involving community members in message design, utilise local languages and cultural symbols that resonate with coastal populations, incorporate traditional knowledge systems alongside scientific information, and tailor content to specific livelihood contexts, including fishing, farming, and trading activities. Messages should explicitly address the intersection between climate risks and immediate economic concerns that dominate community priorities.

5.4.2 Recommendations for Policy and Institutional Support

Given that economic constraints emerged as the most significant barrier, effective climate communication cannot succeed independently of material support systems. Government agencies and development organisations should establish accessible climate adaptation funds specifically targeted at low-income coastal households, develop micro-credit and savings schemes that enable gradual adaptation investments, provide subsidies or cost-sharing arrangements for priority adaptation measures such as housing reinforcement, and create livelihood diversification programs that reduce economic vulnerability to climate impacts. Communication programs should be explicitly linked with these economic support mechanisms, providing information about available resources and facilitating access. The identification of social barriers, including a lack of community seriousness and limited cooperation, suggests the need for interventions that strengthen social cohesion and collective action capacity. Initiatives should facilitate community dialogue platforms for discussing climate risks and adaptation options, support community-based organisations and climate action groups, recognise and empower climate champions and local leaders who can mobilise collective action, and design community-level projects that require cooperation and build solidarity. Communication strategies should emphasise shared vulnerability and mutual benefits of collective adaptation rather than focusing solely on individual risk reduction.

5.4.3 Recommendations for Communication Practitioners

Given the finding that direct experience strongly motivates adaptation, practitioners should design communication interventions that facilitate experiential learning through demonstration plots showcasing adaptation techniques, community exchange visits to locations with successful

adaptation initiatives, participatory vulnerability assessments that engage residents in analysing local climate risks, and simulation exercises that allow community members to explore adaptation scenarios. These approaches move beyond passive information reception toward active engagement and learning by doing. The limited effectiveness of current communication approaches underscores needs for systematic monitoring and evaluation. Communication programs should establish baseline awareness, knowledge, and behaviour measures before intervention implementation, conduct regular assessments of communication reach, comprehension, and behavioural influence, utilise participatory evaluation approaches that incorporate community perspectives on communication effectiveness, and create feedback loops that enable adaptive management and continuous improvement of communication strategies. Evaluation should assess not only exposure and awareness but also practical outcomes, including adaptation implementation rates.

5.5 LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FUTURE RESEARCH

- Cross-sectional design and causality: The study's cross-sectional design limited the ability to establish causal relationships between communication strategies and adaptive behaviours or track temporal changes. Future research should employ longitudinal designs following the same communities over extended periods to examine how communication effectiveness evolves as climate impacts intensify and communities gain adaptation experience.
- Sample size and generalizability: The sample of 100 respondents from three Volta Region communities limits generalizability across Ghana's diverse coastal contexts. Future studies should employ larger samples, including communities across different regions, Western

Region's mangrove ecosystems, and Greater Accra's urbanised coastlines to enhance external validity and enable sophisticated statistical modelling, including structural equation modelling.

- Methodological approach: The exclusive quantitative methodology precluded deep exploration of contextual factors shaping communication effectiveness. Future research should adopt mixed-methods approaches combining surveys with qualitative interviews, focus groups, and ethnographic observation to capture how climate messages are interpreted and acted upon within specific cultural contexts, while incorporating observational measures to triangulate self-reported behaviours with objective evidence.
- Demographic subgroup analysis: The study did not examine differential effects across age cohorts, education levels, gender, and livelihood categories. Future research should employ interaction analyses to understand how communication effectiveness varies across population segments and identify groups requiring tailored approaches, particularly examining gender disparities in information access and adaptive capacity documented in previous Ghanaian research.
- Intervention evaluation and cost-effectiveness: The absence of experimental designs limited isolating specific intervention effects. Future research should implement and evaluate specific communication interventions using randomised controlled trials to establish definitive evidence about effective approaches, while incorporating economic analyses comparing intervention costs against effectiveness in promoting adaptive behaviours to guide resource allocation decisions.
- Emerging technologies and knowledge integration: The study did not explore emerging communication technologies or traditional knowledge integration. Future research should

investigate how mobile applications, SMS-based early warning systems, and community radio can overcome language inaccessibility and institutional mistrust barriers, while examining how traditional knowledge systems can be integrated with scientific information to create culturally resonant communication strategies bridging the trust gap between institutional communicators and trusted community voices.

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APPENDIX

QUESTIONNAIRE

Dear Participant,

This questionnaire is part of an academic research study analysing the impact of communication strategies in climate change advocacy in coastal Ghana: A case study of Abutiakope, Kedzikope, Agavedzi. Your participation is voluntary, and all responses will be kept strictly confidential. The survey will take approximately 15-20 minutes to complete.

Your participation is completely voluntary, and you can choose not to answer any question or stop the interview at any time. All information you provide will be kept confidential and will only be used for research purposes.

Do you agree to participate in this study? Yes [ ] No [ ]

If no, thank the respondent and end the interview.

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender:

- ☐ Male
- ☐ Female

2. Age group:

- ☐ 18-25 years
- ☐ 26-35 years
- ☐ 36-45 years
- ☐ 46-55 years
- ☐ 56-65 years
- ☐ Above 65 years

3. What is your highest level of education?

- ☐ No formal education
- ☐ Primary education

- ☐ Junior High School
- ☐ Senior High School
- ☐ Tertiary education

4. What is your primary occupation?

- ☐ Fishing
- ☐ Farming
- ☐ Trading
- ☐ Government worker
- ☐ Private sector employee
- ☐ Self-employed
- ☐ Unemployed

5. What is your marital status?

- ☐ Single
- ☐ Married
- ☐ Divorced
- ☐ Widowed

6. Household size:

- ☐ 1-3 people
- ☐ 4-6 people
- ☐ 7-9 people
- ☐ 10 or more people

7. How long have you been living in this community?

- ☐ Less than 5 years
- ☐ 5-10 years
- ☐ 11-20 years
- ☐ More than 20 years

8. Monthly household income:

- ☐ Below GHS 500
- ☐ GHS 500-1000
- ☐ GHS 1001-2000
- ☐ GHS 2001-3000
- ☐ Above GHS 3000

SECTION B: CURRENT CLIMATE CHANGE COMMUNICATION CHANNELS AND STRATEGIES

For each statement, please indicate your level of agreement using the following scale:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

No	Statement	Response				
B1: Exposure to Communication Channels						
B1.1	I receive climate change information through radio broadcasts	1	2	3	4	5
B1.2	I receive climate change information through television programs	1	2	3	4	5
B1.3	I receive climate change information through social media platforms	1	2	3	4	5
B1.4	Community leaders and chiefs share climate change information with us	1	2	3	4	5
B1.5	Government officials and extension agents provide climate change information to our community	1	2	3	4	5
B1.6	NGOs and civil society organisations conduct climate change awareness programs in our community	1	2	3	4	5
B1.7	I learn about climate change through community meetings and gatherings	1	2	3	4	5
B2: Climate Communication Message Content						
B2.1	The climate change messages I receive clearly explain the causes of climate change	1	2	3	4	5

B2.2	The climate information I receive explains how climate change specifically affects coastal communities	1	2	3	4	5
B2.3	Climate change messages provide practical solutions that I can implement	1	2	3	4	5
B2.4	The climate information uses language and examples I can easily understand	1	2	3	4	5
B2.5	Climate change communications use local languages that I understand	1	2	3	4	5
B3: Communication Source Credibility and Trust						
B3.1	I trust the climate change information from government sources	1	2	3	4	5
B3.2	I trust climate change information from traditional leaders and community elders	1	2	3	4	5
B3.3	I find climate change information from NGOs and international organisations credible	1	2	3	4	5
B3.4	Scientists and environmental experts are reliable sources of climate information	1	2	3	4	5
B3.5	I trust the climate change information shared by my friends and family members	1	2	3	4	5

SECTION C: COMMUNITY PERCEPTIONS AND KNOWLEDGE OF CLIMATE CHANGE

For each statement, please indicate your level of agreement using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

No	Statement	Response
C1: Knowledge of Climate Change		
C1.1	I understand what causes climate change	1 2 3 4 5
C1.2	I can identify the main signs of climate change in my community	1 2 3 4 5
C1.3	I understand how sea level rise affects coastal communities like ours	1 2 3 4 5
C1.4	I know the difference between climate change adaptation and mitigation	1 2 3 4 5
C1.5	I understand how climate change affects fishing and farming activities in our area	1 2 3 4 5
C1.6	I know which actions can help reduce the impacts of climate change	1 2 3 4 5
C2: Perceptions of Climate Change		
C2.1	Climate change is a serious threat to our community	1 2 3 4 5
C2.2	I believe climate change is already affecting my family's livelihood	1 2 3 4 5
C2.3	I am worried about the future impacts of climate change on our community	1 2 3 4 5
C2.4	Coastal erosion in our area is getting worse due to climate change	1 2 3 4 5

C2.5	Climate change is more urgent than other problems facing our community	1 2 3 4 5
C2.6	I believe individual actions can make a difference in addressing climate change	1 2 3 4 5

SECTION D: BEHAVIOURAL RESPONSES TO CLIMATE CHANGE COMMUNICATION

For each statement, please indicate your level of agreement using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

No	**Statement**	**Response**
D1: Information Seeking Behaviour		
D1.1	After receiving climate information, I actively seek more details about climate change	1 2 3 4 5
D1.2	I discuss climate change information with my family and neighbours	1 2 3 4 5
D1.3	I attend community meetings about climate change when they are organised	1 2 3 4 5
D2: Protective and Adaptive Actions		
D2.1	Based on climate information received, I have taken steps to protect my property from floods and erosion	1 2 3 4 5

D2.2	I have changed my farming or fishing practices based on climate change information	1 2 3 4 5
D2.3	I have made plans for what to do during extreme weather events based on the information received	1 2 3 4 5
D2.4	I have diversified my income sources as a response to climate change risks	1 2 3 4 5
D3: Community Engagement and Collective Action		
D3.1	I participate in community-based climate adaptation projects	1 2 3 4 5
D3.2	I work with my neighbours to implement climate change solutions	1 2 3 4 5
D3.3	I share climate change information and adaptation strategies with other community members	1 2 3 4 5

SECTION E: BARRIERS TO ADOPTING CLIMATE CHANGE ADAPTIVE BEHAVIOURS

For each statement, please indicate your level of agreement using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

No	**Statement**	**Response**
E1: Economic and Resource Barriers		

E1.1	Lack of money prevents me from taking climate adaptation actions	1 2 3 4 5
E1.2	The cost of adaptation measures is too high for my household	1 2 3 4 5
E1.3	I do not have access to the materials needed to protect my property	1 2 3 4 5
E2: Information and Knowledge Barriers		
E2.1	Climate change information is difficult to understand	1 2 3 4 5
E2.2	I do not receive enough information about what actions to take	1 2 3 4 5
E2.3	The climate information I receive is not relevant to my specific situation	1 2 3 4 5
E3: Social and Cultural Barriers		
E3.1	Traditional beliefs make it difficult to accept climate change solutions	1 2 3 4 5
E3.2	Most people in my community do not take climate change seriously	1 2 3 4 5
E3.3	There is limited cooperation among community members on climate issues	1 2 3 4 5

E4: Institutional and Policy Barriers		
E4.1	Government support for climate adaptation in our community is inadequate	1 2 3 4 5
E4.2	There are no clear policies guiding climate adaptation at the local level	1 2 3 4 5
E4.3	Access to government climate programs and resources is difficult	1 2 3 4 5

SECTION F: FACILITATORS FOR ADOPTING CLIMATE CHANGE ADAPTIVE BEHAVIOURS

For each statement, please indicate your level of agreement using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

No	**Statement**	**Response**
F1: Personal Capacity and Motivation		
F1.1	I feel confident in my ability to implement climate adaptation actions	1 2 3 4 5
F1.2	I am motivated to protect my family from climate change impacts	1 2 3 4 5
F1.3	My personal experience with climate impacts motivates me to take action	1 2 3 4 5
F2: Social Support and Community Resources		

F2.1	My family and friends encourage me to take climate adaptation actions	1 2 3 4 5
F2.2	Community leaders actively promote climate adaptation in our area	1 2 3 4 5
F2.3	There are successful examples of climate adaptation in our community that I can learn from	1 2 3 4 5
F3: Access to Information and Communication		
F3.1	Climate change information is readily available when I need it	1 2 3 4 5
F3.2	The climate information I receive provides clear guidance on what actions to take	1 2 3 4 5
F3.3	Early warning systems help me prepare for extreme weather events	1 2 3 4 5
F4: Institutional and Policy Support		
F4.1	Government programs provide practical support for climate adaptation	1 2 3 4 5
F4.2	NGOs and development organisations offer resources and training for adaptation	1 2 3 4 5
F4.3	Financial assistance is available to help with climate adaptation costs	1 2 3 4 5