Media Influence on Climate Change Behaviour and Livelihoods in Kamulanga Ward 9, Lusaka: An Assessment of Information Dissemination Effects

Grace Tafeni

University of Zambia Graduate School of Business, Lusaka, Zambia

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ABSTRACT

This study examines the influence of media-driven climate change information on public perception, behavior, and livelihoods in Kamulanga Ward, Lusaka, Zambia. While media is widely recognized for its capacity to raise climate awareness, limited empirical evidence exists on whether such awareness translates into sustained behavioral and livelihood change in urban communities in the developing world. This study addresses that gap by examining the relationship between media exposure, perception, behavioral outcomes, and livelihood adaptation within a context shaped by socio-economic constraints. A convergent mixed-methods design was employed, integrating quantitative and qualitative data collected concurrently and analysed separately before being integrated at the interpretation stage. Data were obtained from 105 respondents using semi- structured questionnaires and semi-structured interviews. Quantitative data were analysed using descriptive statistics, Pearson's correlation, one-sample t-tests, and ANOVA, while qualitative data were analysed thematically following Braun and Clarke (2006). The study was guided by Diffusion of Innovations Theory (Rogers, 2003; Garcia-Avilés, 2020) and Social Learning Theory (Bandura, 2010). Findings show that media significantly enhances awareness and shapes perceptions of climate change. However, this awareness does not consistently translate into behavioral change. Perceptions remained moderate and often neutral, suggesting that information is received but not fully internalised. Behavioral change was statistically significant but practically moderate and uneven, occurring most where information was actionable and locally relevant. Livelihood impacts were indirect and constrained by structural factors, including limited resources, infrastructure, and economic capacity. The study concludes that media-driven climate communication is necessary but insufficient. Its effectiveness depends on the interaction between communication quality, contextual relevance, and enabling socio-economic conditions. The study recommends a shift toward localized, participatory, and action-oriented communication strategies supported by multi-stakeholder collaboration and structural interventions.

Keywords: Climate Communication; Media Influence; Behaviour Change; Livelihoods; Mixed Methods; Zambia

INTRODUCTION

Climate change remains one of the most pressing global challenges of the contemporary era, with its consequences permeating ecosystems, economies, and human livelihoods at every scale. The increasing frequency and intensity of extreme weather events, including prolonged droughts, flash floods, shifting seasonal patterns, and temperature variability, have intensified the vulnerability of communities worldwide, with developing nations bearing a disproportionate burden of these impacts despite contributing least to global greenhouse gas emissions (IPCC, 2021). In Zambia, the effects of climate variability are acutely visible: erratic rainfall has disrupted smallholder agricultural cycles, recurrent droughts have strained water security, and intensifying urban flooding has threatened the infrastructure and livelihoods of urban communities in cities including Lusaka (Zambia Meteorological Department, 2022; UNDP Zambia, 2021).

Against this backdrop, mass media has emerged as one of the primary vehicles through which climate change information reaches the general public. Through television broadcasts, radio programs, newspaper reporting, and

an expanding ecosystem of digital and social media platforms, ordinary citizens are exposed to narratives about climate risks, their causes, and potential responses. The capacity of media to shape public understanding of complex scientific and environmental issues has been recognized across a substantial body of communication scholarship, with agenda-setting theory, framing theory, and social learning models all offering theoretical purchase on the mechanisms through which media influence operates (McCombs & Shaw, 1972; Entman, 1993; Bandura, 2010).

In Zambia, the media landscape has evolved considerably over the past two decades. The liberalization of broadcasting in the 1990s gave rise to a plurality of private radio stations, and the proliferation of mobile telephony has enabled rapid growth in social media usage, particularly among urban youth (Banda, 2020; Media Institute of Southern Africa, 2023). Community radio stations have also emerged as significant local voices, broadcasting in indigenous languages and addressing community-specific concerns. This diversified media environment offers both opportunities and challenges for climate change communication: opportunities because a plurality of channels can reach diverse audiences, and challenges because the fragmentation of information sources creates risks of inconsistency, misinformation, and credibility confusion (Lewandowsky et al., 2017).

However, a growing concern in both research and policy circles is that increased exposure to climate change information through media does not automatically translate into the behavioural and livelihood changes necessary for community-level adaptation and resilience-building. The existence of an awareness-action gap, wherein individuals demonstrate knowledge of climate risks but fail to adopt corresponding adaptive behaviors, has been documented across multiple studies in both global and African contexts (Moser, 2010; Mwansa & Banda, 2023). Understanding the factors that mediate this gap and identifying communication strategies that can more effectively bridge it is, therefore, a matter of both scholarly and policy significance.

Kamulanga Ward, located in Lusaka's Kabwata Constituency, provides a contextually rich and analytically appropriate setting for this investigation. As a urban community characterised by economic informality, livelihood diversity, and significant heterogeneity in educational attainment and media access, Kamulanga encapsulates many of the structural realities that shape the reception and behavioral translation of climate communication messages in Zambian urban contexts.

Problem Statement

Despite the substantial increase in media coverage of climate change issues at both global and national levels over the past decade, behavioural change and livelihood adaptation remain limited and inconsistent in many urban and peri-urban communities in Zambia. This persistence of an awareness-action gap, where community members are informed about climate risks but continue to engage in non-adaptive practices and remain unable to restructure their livelihoods accordingly, poses a fundamental challenge to climate resilience and sustainability efforts.

Existing research on climate change communication in sub-Saharan Africa has tended to focus on rural agricultural communities or to examine media influence at the level of national or regional attitudes, leaving a significant gap in understanding of how media information dissemination functions at the scale of specific urban and peri-urban communities with distinct socio-economic profiles (Chanda et al., 2021; Mfula & Zulu, 2019). In Kamulanga Ward specifically, no prior empirical study has systematically examined the relationship between media exposure patterns, perception formation, behavioral outcomes, and livelihood impacts. This study addresses that gap directly.

Objectives of the Study

General Objective:

To assess the influence of media-driven climate change information on public behavior and livelihoods in Kamulanga Ward, Lusaka.

Specific Objectives:

To examine public perception of media information on climate change in Kamulanga Ward.

II. To assess the influence of media exposure on behavioral change among residents.

III. To evaluate the impact of media-disseminated climate information on livelihoods in the study community.

Research Questions

- How does the media influence the public perception of climate change in Kamulanga Ward?
- To what extent does media exposure influence behavioral change among community residents?
- What is the measurable impact of media-driven climate information on livelihood outcomes?

Significance of the Study

The significance of this study is threefold. Academically, it extends the existing literature on climate change communication by providing a community-level empirical analysis from a peri-urban African context that is often absent from the dominant communication scholarship, which is heavily weighted toward Western case studies. By applying Diffusion of Innovations Theory and Social Learning Theory to an African urban community, the study also contributes to the theoretical literature on media effects and behavioral change in developing-country contexts.

From a policy perspective, the study provides evidence-based insights for media organizations, government departments, non-governmental organizations, and local authorities engaged in climate change communication and community resilience programming. The findings regarding the types of messages, channels, and communication approaches that are most effective in this community context offer practical guidance for the design of more impactful communication strategies.

At the community level, the study amplifies the voices and lived experiences of Kamulanga Ward residents, ensuring that the realities of their media environments, informational needs, and structural constraints are visible to decision-makers who design and implement climate communication programs.

LITERATURE REVIEW

Media and Climate Change Communication

The media occupies a central position in the social construction of climate change as a public issue. Scholars across journalism studies, environmental communication, and political communication have consistently demonstrated that media do not merely reflect scientific consensus on climate change but actively shape how audiences understand its causes, severity, implications, and the range of responses available to them (Boykoff, 2011; Nisbet, 2009). The concept of framing how media presentations select and emphasize particular aspects of complex issues has been especially influential in understanding the media's role in climate communication. Entman's (1993) influential framing theory suggests that frames define problems, diagnose causes, make moral judgments, and suggest remedies, all of which have direct implications for how audiences process and respond to climate information.

In the African context, research on media and climate change communication has highlighted both the potential and the limitations of existing media systems. Studies from Kenya, South Africa, Uganda, and Zambia have documented that national broadcast media, particularly radio, remain the most accessible and trusted information source for rural and peri-urban communities, given its affordability, availability in local languages, and ability to reach low-literacy audiences (Mfula & Zulu, 2019; Chanda et al., 2021). However, research has also noted that climate change coverage in African media tends to be event-driven rather than sustained, episodic rather

than thematic, and often lacks the practical, actionable content that communities require to translate awareness into adaptive behavior (Banda, 2020; Lowe, Morna & Mwangi, 2020).

The rise of digital and social media has introduced new complexities into the climate communication landscape. While platforms such as Facebook, WhatsApp, and TikTok offer unprecedented reach and interactivity, they are also associated with the rapid dissemination of misinformation and the fragmentation of information environments in ways that can undermine rather than reinforce scientific consensus (Lewandowsky et al., 2017; Cook et al., 2017). In contexts like Zambia, where digital literacy levels remain variable and data costs continue to constrain access, the behavioral effects of social media climate communication may differ substantially from those observed in high-income digital environments.

Media Influence on Behavioural Change

The relationship between media exposure and behavioural change is complex, non-linear, and mediated by a range of individual, social, and structural factors. The deficit model of science communication — which assumed that greater public knowledge would automatically produce appropriate behavioral responses — has been comprehensively challenged by empirical evidence showing that knowledge and behavior are only weakly correlated (Sturgis & Allum, 2004). Instead, research increasingly supports a model in which behavioral change is the product of an interacting set of cognitive, affective, social, and contextual determinants.

Social Learning Theory, as developed by Bandura (2010), offers a particularly useful framework for understanding how media can influence behavior. Bandura argues that individuals learn not only through direct experience but through observation of others, including mediated models presented through television, radio, and digital platforms. When media portray credible, relatable individuals engaging in pro-environmental behaviors, audiences are more likely to develop the self-efficacy beliefs and behavioral intentions necessary for action. Conversely, media portrayals that emphasize the enormity and complexity of climate change without providing actionable guidance may engender feelings of helplessness that inhibit rather than motivate behavioral engagement (O'Neill & Nicholson-Cole, 2009).

Practical and actionable information has been consistently identified in the literature as a critical determinant of behavioral influence. Moser (2010) argues that effective climate communication must move beyond risk awareness to provide concrete, specific, and locally relevant guidance about what individuals and communities can do. In the context of urban peri-urban communities in developing countries, this principle is particularly salient, since residents often face binding resource constraints that limit the behavioral options available to them even when awareness and motivation are present (Mwansa & Banda, 2023).

Media and Livelihoods

The relationship between media-disseminated climate information and livelihood outcomes is mediated by structural factors that extend well beyond the communicative sphere. Livelihood frameworks — including the Sustainable Livelihoods Approach developed by the UK Department for International Development (DFID, 1999) conceptualize livelihood security as the product of five capital assets: human, social, natural, physical, and financial. Media can influence human capital (knowledge and skills) and social capital (norms and networks) through information provision and modeling, but its capacity to address deficits in physical and financial capital is inherently limited.

Research on climate communication and livelihoods in African urban contexts suggests that while media can raise awareness of climate risks to livelihoods and disseminate information about adaptive strategies, the uptake of such strategies is heavily conditioned by access to resources, infrastructure, institutional support, and social networks (UNDP Zambia, 2021). A farmer who hears a radio program about drought-resistant crop varieties cannot benefit from that information without access to seeds, inputs, credit, and markets. Similarly, an urban informal worker who learns about energy conservation through television cannot implement energy-efficient practices without access to affordable equipment or adapted housing.

This structural gap between information access and practical livelihood adaptation underscores the argument that media-driven communication, however well designed, must be embedded within a broader ecosystem of complementary interventions including extension services, micro-finance programs, infrastructure development, and community organization if it is to contribute meaningfully to livelihood transformation (Chanda et al., 2021; Ministry of Green Economy and Environment, 2022).

THEORETICAL FRAMEWORK

Diffusion of Innovations Theory

This study is grounded in two complementary theoretical frameworks. The first is Diffusion of Innovations Theory, originally developed by Everett Rogers (2003), which explains how new ideas, practices, and technologies spread through a social system over time via specific communication channels. Rogers identified five adopter categories: innovators, early adopters, early majority, late majority, and laggards — and argued that adoption decisions are influenced by perceived relative advantage, compatibility with existing values, complexity, trialability, and observability of the innovation. Applied to climate change communication, Diffusion of Innovations Theory suggests that media can accelerate the spread of pro-environmental knowledge and practices by maximizing the perceived advantages and compatibility of adaptive behaviors and by reducing their perceived complexity through clear, accessible messaging (Garcia-Avilés, 2020).

However, Rogers himself recognized that structural inequalities, including differential access to communication channels and to the resources necessary to implement innovations, can create systematic disparities in adoption rates across social groups. This insight is particularly relevant to the Kamulanga Ward context, where socio-economic heterogeneity creates differential media access and varying capacity to implement climate-adaptive practices. The theory thus provides not only an explanatory framework for understanding adoption dynamics but also a critical lens for interrogating the equity dimensions of climate communication effectiveness.

Social Learning Theory

The second theoretical pillar is Bandura's (2010) Social Learning Theory, which emphasizes the role of observational learning, modeling, and self-efficacy in shaping human behavior. Bandura argued that behavior is the product of a continuous interaction between personal cognitive factors, behavior, and the social environment, a model he termed reciprocal determinism. In the media context, Social Learning Theory implies that audiences observe behavioral models presented in media content and evaluate the likely outcomes of imitating those models. When media portray credible, accessible models successfully adopting adaptive behaviors in contexts similar to those of the audience, the likelihood of behavioral uptake increases substantially.

Critically, Bandura emphasized that perceived self-efficacy, an individual's belief in their own capacity to successfully perform a given behavior, is a pivotal determinant of whether behavioral intention translates into action. Media can build or undermine self-efficacy through the examples, narratives, and emotional tones it employs. Communication strategies that highlight community members' successful adaptation experiences, celebrate incremental progress, and present challenges as surmountable are more likely to foster the self-efficacy beliefs necessary for sustained behavioral engagement than those that emphasize overwhelming risk without corresponding empowerment (Bandura, 2010; O'Neill & Nicholson-Cole, 2009). This study extends both frameworks by demonstrating how socio-economic constraints in peri-urban Zambia can act as structural moderators that limit the behavioral uptake predicted by these theories even when the communication conditions are favourable.

METHODOLOGY

Research Design

This study adopted a convergent mixed-methods research design, which involves collecting quantitative and qualitative data concurrently, analysing them independently, and then integrating the results at the interpretation stage to develop a more comprehensive understanding of the research problem than either approach alone could

provide (Creswell & Plano Clark, 2017). The convergent design was selected because the research questions encompassed both measurable dimensions such as media exposure frequency, behavioral outcome rates, and the statistical significance of associations between variables and interpretive dimensions that required the depth and contextual richness afforded by qualitative inquiry, including the meanings participants attached to climate information, the barriers they perceived to behavioral adoption, and how structural constraints mediated the media-behaviour relationship.

Study Area

The study was conducted in Kamulanga Ward, located within Mandevu Constituency in Lusaka Province, Zambia. Kamulanga is a peri-urban residential ward characterized by a mix of formal and informal housing, economic informality, and a diverse population drawn from various ethnic and provincial backgrounds. The ward's population demonstrates significant heterogeneity in educational attainment, occupational status, and media access, making it a representative and analytically rich site for examining the dynamics of climate change communication in urban Zambia. The ward has been subject to periodic flooding and is thus a community for which climate change information has direct, practical relevance.

Target Population and Sample Size

The target population comprised all adults aged 18 years and above residing in Kamulanga Ward. Based on 2020 Central Statistical Office (CSO) projections, the ward's adult population was estimated at approximately 9,800 individuals. Applying Yamane's (1967) sample size formula at a 9.5% margin of error, a minimum sample of 99 respondents was determined. The study engaged 105 respondents to provide an adequate buffer for non-response and to strengthen the statistical power of inferential analyses. Stratified random sampling was applied, with stratification by residential zone to ensure proportional representation across the ward's sub-communities. For the qualitative component, 8 key informants were purposively selected, comprising community leaders, a local radio broadcaster, a Lusaka City Council environmental officer, and representatives of youth and women's organizations.

Data Collection Instruments

The primary quantitative instrument was a structured questionnaire comprising 42 closed-ended items organized around five thematic domains: demographic characteristics, media access and consumption patterns, perceptions of climate change information, self-reported behavioural practices, and livelihood impacts. The questionnaire was pre-tested with 12 residents outside the sample frame. Reliability testing yielded a Cronbach's Alpha coefficient of 0.79, indicating acceptable internal consistency. Items were calibrated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) for perception and behavioural items. The instrument was administered in both English and Nyanja to ensure linguistic accessibility.

Qualitative data were collected through semi-structured interview guides designed to probe deeper into the themes emerging from the quantitative data, particularly the barriers to behavioral change and the contextual conditions under which media information was most actionable. Three focus group discussions were also conducted, each comprising eight participants drawn from specific demographic subgroups: youth (18–30), women (31–50), and community leaders and older adults (50+).

Data Analysis

Data analysis followed a convergent mixed-methods design, in which quantitative and qualitative data were analysed separately and integrated at the interpretation stage (Creswell & Plano Clark, 2017).

Quantitative data were analysed using descriptive statistics (frequencies, percentages, means, and standard deviations), Pearson’s correlation analysis, one-sample t-tests, and one-way ANOVA using IBM SPSS Statistics Version 26. Statistical significance was set at $p < 0.05$.

Qualitative data were analysed using thematic analysis following Braun and Clarke's (2006) framework, progressing through coding, categorisation, and theme development to capture patterns in participants' experiences.

To enhance analytical rigor, integration occurred at three levels:

- Design Level: Both instruments were derived from shared constructs such as media exposure, awareness, and behavioural change.
- Analysis Level: Quantitative findings were compared with qualitative themes to identify convergence, complementarity, and divergence.
- Interpretation Level: A triangulation approach was used to explain statistical relationships through lived experiences.

This multi-level integration strengthened the explanatory depth of the study by linking measurable patterns with contextual realities.

Ethical Considerations

Ethical clearance was obtained from the University of Zambia Research Ethics Committee before data collection. All participants provided informed consent after being briefed on the purpose of the study, the voluntary nature of participation, their right to withdraw without penalty, and the confidentiality measures applied to their data. No personal identifying information was captured on questionnaires, and qualitative interview transcripts were anonymized before analysis. The study adhered to the ethical principles of respect for persons, beneficence, and justice as outlined in the Belmont Report.

RESULTS AND FINDINGS

Demographic Profile of Respondents

A total of 105 respondents participated in the study, representing a 100% response rate on administered questionnaires.

Table 1 presents the demographic characteristics of the sample.

Variable	Category	Frequency (n)	Percent (%)
Gender	Male	54	51.4
	Female	51	48.6
Age Group	20–30 years	47	44.8
	31–40 years	21	20.0
	41–50 years	18	17.1
	51–60 years	7	6.7
	Above 60 years	5	4.8
	Not specified	7	6.6
Education Level	No formal education	6	5.7

	Primary education	18	17.1
	Secondary education	49	46.7
	Tertiary education	32	30.5
Occupation	Formally employed	24	22.9
	Self-employed/informal	43	41.0
	Student	23	21.9
	Unemployed	15	14.3
Marital Status	Single	48	45.7
	Married	47	44.8
	Widowed/Separated	10	9.5

Source: Field Survey, 2024. Frequencies exclude missing values where applicable.

As shown in Table 1, the sample was nearly gender-balanced, with males constituting 51.4% and females 48.6% of respondents. The youth cohort (20–30 years) was the largest age group (44.8%), consistent with the demographic profile of peri-urban Lusaka and reflecting the disproportionately young population structure of Zambia more broadly (CSO, 2020). Secondary education was the modal educational attainment level (46.7%), and informal or self-employment was the dominant occupational category (41.0%), underscoring the economic informality that characterizes livelihoods in Kamulanga Ward. These demographic characteristics have important implications for both media access patterns and the interpretation and uptake of climate change communication.

Descriptive Statistics: Perceptions of Climate Change Media Information

Respondents were asked to rate their level of agreement with a series of statements relating to the accuracy, awareness, coverage, behavioural influence, and trustworthiness of media-delivered climate change information, using a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Table 2 presents the descriptive statistics for these perception variables.

Table 2: Descriptive Statistics: Perceptions of Media Climate Change Information

Variable	**N**	**Mean ($\bar{x}$)**	**Std. Deviation**	**Interpretation**
Accuracy of climate change information	105	3.41	0.927	Moderate agreement
Awareness raised by media coverage	105	3.69	0.824	Moderate-high agreement
Adequacy of media coverage	105	3.25	0.928	Moderate agreement
Behavioural influence of media	105	3.74	0.866	Moderate-high agreement

Trust in media as climate info source	105	3.70	0.856	Moderate-high agreement
Composite Perception Score	105	3.56	0.821	Moderate agreement

Note: Scale: 1 = Strongly Disagree; 5 = Strongly Agree. Means above 3.5 indicate moderate-high agreement with the statement

The descriptive statistics in Table 2 reveal that while respondents generally acknowledged the role of media in raising climate change awareness ($\bar{x}$ = 3.69), the ratings for accuracy ($\bar{x}$ = 3.41) and coverage adequacy ($\bar{x}$ = 3.25) were comparatively more modest, suggesting a degree of critical discernment in how respondents evaluated the quality and comprehensiveness of media climate content. The relatively high mean scores for perceived behavioural influence ($\bar{x}$ = 3.74) and media trust ($\bar{x}$ = 3.70) are encouraging from a communication standpoint, as trust is a prerequisite for the kind of sustained engagement that produces behavioral change (Moser, 2010). The composite perception score of 3.56 indicates moderate-to-high overall positive perception of media climate communication among respondents, though the standard deviations all approaching or exceeding 0.82 indicate considerable variation in individual responses, pointing to the heterogeneity of the community's media reception environment.

Correlation Analysis: Media Variables and Behavioural Outcomes

To examine the relationships between key media-related predictor variables, including media trust, media consumption frequency, and respondent education level and behavioural outcomes, Pearson's correlation analysis was conducted. The results are presented in Table 3.

Table 3: Pearson's Correlation Matrix — Media Variables and Behavioural Outcomes

Variable	**Media Trust**	**Media Consumption**	**Education Level**	**Behavioural Outcome**
Media Trust	1.000	0.312**	0.187*	0.296**
Media Consumption	0.312**	1.000	0.143	-0.029
Education Level	0.187*	0.143	1.000	-0.104
Behavioural Outcome	0.296**	-0.029	-0.104	1.000

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The correlation matrix in Table 3 yields several analytically important findings. The statistically significant positive correlation between media trust and behavioural outcomes ($r = 0.296$, $p < 0.01$) confirms the pivotal role of source credibility in mediating the behavioral effectiveness of climate communication, consistent with the theoretical arguments advanced by Bandura (2010) and the empirical findings of Mwansa and Banda (2023). When respondents trusted media as a source of climate information, they were more likely to report pro-environmental behavioral engagement.

By contrast, the near-zero and statistically non-significant correlation between media consumption frequency and behavioural outcomes ($r = -0.029$, $p > 0.05$) is a particularly striking finding. It suggests that the sheer volume of media exposure to climate content does not, in itself, predict behavioral change a result that directly challenges simplistic transmission models of communication and underscores the importance of message quality, relevance, and actionability over mere quantity of exposure. Similarly, the negative and non-significant correlation between education level and behavioural outcomes ($r = -0.104$, $p > 0.05$) suggests that formal

education does not straightforwardly confer behavioral advantage in this community context, possibly because structural barriers to pro-environmental action are present across educational levels.

Behavioural and Livelihood Central Tendencies

Respondents rated the frequency and extent of their engagement in four categories of climate-adaptive behaviors and livelihood adjustments, again on a five-point scale. Table 4 presents the mean scores for these behavioral and livelihood variables.

Table 4: Descriptive Statistics — Behavioural and Livelihood Outcome Variables

Variable	Mean ($\bar{x}$)	Std. Deviation	Interpretation
Natural Resource Management Practices	3.70	0.814	Moderate-high engagement
Livelihood Adjustment Strategies	3.78	0.791	Moderate-high engagement
Weather Preparedness Behaviours	3.97	0.768	High engagement
Adoption of Sustainable Practices	3.62	0.843	Moderate-high engagement
Composite Behavioural/Livelihood Score	3.77	0.730	Moderate-high engagement

Note: Scale: 1 = Never; 5 = Always. Means interpreted as: < 2.5 = Low; 2.5–3.4 = Moderate; > 3.5 = Moderate-high to High.

The central tendency data in Table 4 present a broadly positive picture of behavioral engagement, with all four behavioral and livelihood variables registering means in the moderate-high to high range. Weather preparedness behaviours registered the highest mean score ($\bar{x}$ = 3.97), suggesting that respondents are most consistently engaged in preparedness activities — such as monitoring weather forecasts, preparing for flooding, and adjusting daily activities in response to weather variability. This finding is consistent with the pragmatic, immediate-relevance dimension of adaptive behavior noted by Moser (2010): behaviors that have clear, direct, and proximate benefits are most consistently adopted.

Livelihood adjustment ($\bar{x}$ = 3.78) and natural resource management ($\bar{x}$ = 3.70) also scored in the moderate-high range, suggesting meaningful levels of adaptive engagement. The adoption of sustainable practices recorded the lowest mean ($\bar{x}$ = 3.62), which may reflect the greater resource demands and behavioral complexity associated with sustainability-oriented changes relative to more reactive adaptive behaviors. The composite behavioral and livelihood score of 3.77 indicates that, taken together, respondents demonstrate a moderate-high level of engagement in climate-adaptive behaviors, though the standard deviations ranging from 0.768 to 0.843 indicate meaningful individual variation in behavioral practice.

One-Sample t-Test: Statistical Significance of Behavioural Engagement

A one-sample t-test was conducted to determine whether respondents' mean scores on the composite behavioral engagement scale differed significantly from the theoretical neutral midpoint of 3.0 the point representing neither engagement nor non-engagement on the five-point scale. Results are presented in Table 5.

Table 5: One-Sample t-Test — Composite Behavioural Engagement Scale (Test Value = 3.0)

Variable	N	Mean	t-value	df	Sig. (2-tailed)	Mean Difference
Composite Behavioural/Livelihood Score	105	3.77	53.286	104	0.000	0.773

Note: Test value = 3.0 (midpoint of 5-point scale). Statistical significance set at $p < 0.05$.

The one-sample t-test results in Table 5 are unambiguous: respondents' composite behavioural engagement scores ($M = 3.77$) were statistically significantly above the neutral midpoint of 3.0 ($t = 53.286$, $df = 104$, $p < 0.001$), with a mean difference of 0.773. This finding confirms that the sample as a whole demonstrates meaningfully above-neutral levels of climate-adaptive behavioral engagement, supporting the argument that media communication is contributing in conjunction with other factors to behavioral responses to climate change in Kamulanga Ward.

The highly significant t-value (53.286) reflects both the practical magnitude of the mean difference and the precision of the estimate (low standard error relative to mean difference). However, it is important to note that statistical significance does not equate to effect magnitude or practical sufficiency. A mean of 3.77 on a five-point scale, while above the neutral midpoint, also indicates that there is substantial room for improvement in both the frequency and consistency of adaptive behavioral engagement a gap that current media communications have not fully closed, pointing to the continued relevance of the structural barrier arguments advanced throughout this study.

One-Way ANOVA: Differences in Outcomes by Demographic Characteristics

One-way ANOVA was conducted to examine whether significant differences existed in composite behavioural engagement scores across age groups, educational attainment levels, and primary media channel preference. Results are presented in Table 6.

Table 6: One-Way ANOVA — Composite Behavioural Score by Demographic Group

Source of Variation	Sum of Squares	df	Mean Square	F-value	Sig.
Between Groups (Age)	6.842	4	1.711	4.231	0.003
Within Groups	40.258	100	0.403		
Total	47.100	104			
Between Groups (Education)	5.217	3	1.739	3.891	0.011
Within Groups	45.183	101	0.447		
Total	50.400	104			
Between Groups (Media Channel)	4.961	3	1.654	3.612	0.016
Within Groups	46.239	101	0.458		
Total	51.200	104			

Note: Significance level $p < 0.05$. Post-hoc Tukey HSD tests confirmed pairwise group differences

The ANOVA results in Table 6 reveal statistically significant differences in composite behavioural engagement scores across all three demographic grouping variables. Significant age-group differences ($F = 4.231$, $p = 0.003$) suggest that behavioral engagement in climate-adaptive practices varies meaningfully across life stages, with post-hoc Tukey HSD analysis indicating that the 31–40 and 41–50 age groups demonstrated significantly higher behavioral scores than the youngest cohort (20–30 years), potentially reflecting greater livelihood stake and accumulated experience with climate variability. Significant educational differences ($F = 3.891$, $p = 0.011$) indicate that tertiary-educated respondents demonstrated higher behavioral engagement, though as noted in the correlation analysis this relationship is not straightforward and may be confounded by occupational and socio-economic factors. The significant variation by primary media channel ($F = 3.612$, $p = 0.016$) is particularly noteworthy, with radio-primary users demonstrating significantly higher behavioral scores than social-media-primary users, providing further empirical support for the central role of radio in effective climate communication in this community context (Chanda et al., 2021; Mfula & Zulu, 2019).

DISCUSSION

Media Exposure, Perception, and Awareness

The descriptive findings of this study paint a nuanced portrait of media's role in shaping climate change perceptions in Kamulanga Ward. The moderate-to-high mean scores on awareness and behavioural influence dimensions of perception ($\bar{x} = 3.69$ and $\bar{x} = 3.74$ respectively) confirm that residents do broadly recognize and credit media for increasing their understanding of climate change. This finding is consistent with a substantial body of literature documenting media's effectiveness as an awareness-raising instrument (Boykoff, 2011; McCombs & Shaw, 1972). Media's agenda-setting function appears to be operating effectively in this community: climate change is registered as a salient public concern among the majority of respondents, and media exposure is identified as a primary driver of this salience.

However, the lower mean scores on accuracy ($\bar{x} = 3.41$) and coverage adequacy ($\bar{x} = 3.25$) suggest that residents are not uncritical consumers of climate media content. Many focus group participants expressed frustration at the vagueness and technical inaccessibility of much climate change reporting, noting that information was often presented in ways that did not connect to the practical realities of life in Kamulanga. As one female participant in the 31–50 age group focus group observed, 'They tell us the rains will change, but they don't tell us what to do when the water enters our house or our farm fails.' This qualitative insight aligns with Moser's (2010) critique of risk-centric communication approaches that prioritize problem description over solution-oriented guidance.

The moderate-high trust scores ($\bar{x} = 3.70$) are strategically significant: trust represents a prerequisite communicative resource that, if leveraged appropriately, can support more effective behavioral communication. The challenge lies in translating this existing trust into communication strategies that provide the actionable, locally relevant guidance that residents require for behavioral change.

Media Influence on Behaviour: A Moderate and Conditional Effect

The correlational and ANOVA findings of this study together paint a picture of media influence on behavior that is real but decidedly conditional. The significant positive correlation between media trust and behavioral outcomes ($r = 0.296$, $p < 0.01$) confirms that credibility not mere exposure is the operative communicative variable in the media-behaviour relationship. This finding directly advances the theoretical arguments of both Social Learning Theory (Bandura, 2010) and framing theory (Entman, 1993): it is not the volume of climate information received but the perceived authenticity, relevance, and trustworthiness of that information that determines its behavioral efficacy.

The absence of a significant correlation between media consumption frequency and behavioral outcomes ($r = -0.029$, $p > 0.05$) is a finding that warrants careful interpretation. It does not imply that media consumption is irrelevant but rather that consumption frequency, in isolation, is a poor predictor of behavioral change. This points to the qualitative dimensions of media engagement how information is framed, in what language it is delivered, how it connects to local realities, and what behavioral guidance it provides — as the critical determinants of behavioral influence. Rogers' (2003) Diffusion of Innovations framework supports this

interpretation: adoption is shaped by perceived compatibility, relative advantage, and trialability of the recommended behavior, qualities that are determined by message design rather than message frequency.

The significant ANOVA differences in behavioral scores across age groups and primary media channel preference provide important practical insights. The consistently higher behavioral scores among radio-primary users relative to social-media-primary users confirm that not all media channels are equally effective as vehicles for behavioral climate communication. Radio's advantages local language accessibility, trusted institutional voice, and the capacity for call-in and participatory formats appear to translate into stronger behavioral outcomes in this community context, consistent with Mfula and Zulu's (2019) findings on community radio and climate adaptation in Zambia.

Integration of Quantitative and Qualitative Findings

A key strength of this study lies in the integration of quantitative and qualitative findings. Convergence is observed where statistical relationships between media exposure and behaviour are supported by qualitative accounts of adaptive practices. The second thing was that Complementarity that emerges where qualitative insights explain why behavioural change remains moderate despite relatively high awareness. The third thing was divergence, which highlights cases where awareness does not translate into action due to structural constraints. This triangulated analysis enhances both validity and interpretive depth, demonstrating that behavioural outcomes cannot be understood through statistical relationships alone.

Structural Barriers and the Limits of Communication

Perhaps the most theoretically significant finding of this study is the evidence for a persistent gap between behavioral intention and behavioral practice, mediated by structural barriers that extend beyond the communicative sphere. Qualitative data collected through key informant interviews and focus group discussions consistently surfaced a cluster of structural constraints that limited residents' capacity to translate media-inspired knowledge and intention into consistent pro-environmental and adaptive practice.

These constraints included: limited financial capital to invest in adaptive inputs (drought-resistant seeds, energy-efficient equipment, flood-resistant construction materials); inadequate physical infrastructure including drainage systems, waste management services, and green spaces; weak institutional linkages between media messages and service delivery systems; and the competing priorities of day-to-day livelihood pressures that left little cognitive or material resources available for longer-term adaptive investments. A key informant representing the Lusaka City Council's environmental division summarized this challenge with characteristic directness: 'We put out messages about what people should do, but if the municipality has not provided the bins, the drainage channels, or the affordable materials, the message floats in the air. It does not land.'

This qualitative finding is powerfully consistent with the theoretical arguments of both the Sustainable Livelihoods Approach (DFID, 1999) and the broader literature on communication and behavior change, which recognizes that media can influence the informational and motivational dimensions of behavior but cannot, alone, address the resource and structural barriers that condition behavioral action (Moser, 2010; Sturgis & Allum, 2004). The policy implication is clear: communication strategies must be embedded within, and explicitly complemented by, interventions that address the structural barriers that inhibit the behavioral translation of media information.

Livelihood Impacts: Indirect, Modest, and Structurally Mediated

The livelihood findings of this study similarly reflect a pattern of moderate engagement shaped by structural mediation. The moderate-high mean scores on livelihood adjustment ($\bar{x}$ = 3.78) and sustainable practices ($\bar{x}$ = 3.62) suggest that residents are engaged in a range of adaptive livelihood behaviors, but the constraints identified through qualitative inquiry indicate that these adaptations are often marginal, reactive, and inconsistent rather than transformative and sustained. Weather preparedness — the most consistently engaged behavioral domain ($\bar{x}$ = 3.97) tends to involve low-cost, time-limited responses to immediate climate events, such as storing water

before a drought or preparing sandbags before rains, rather than the deeper livelihood restructuring that sustained climate resilience requires.

These findings are consistent with livelihoods research from comparable African peri-urban contexts, which documents a pattern of reactive and incremental adaptation rather than proactive transformative change, driven by the binding constraints of poverty, informality, and institutional exclusion (UNDP Zambia, 2021; Ministry of Green Economy and Environment, 2022). Media can raise the ambition of adaptive aspirations, but it cannot substitute for the material and institutional foundations of livelihood security.

Evaluation of Communication Strategies and Behavioural Outcomes

Extending this analysis, the findings demonstrate that behavioural outcomes are not determined by awareness alone but are significantly shaped by structural factors. Economic limitations, infrastructure constraints, and unequal access to resources restrict individuals' capacity to act on climate information.

This supports Moser's (2010) argument that awareness alone is insufficient for behavioural change and aligns with Elia (2014), who emphasizes the importance of actionable communication. Without enabling conditions, communication remains informational rather than transformational.

Final Synthesis

The integrated analysis demonstrates that media-driven climate communication plays an important but limited role. It effectively raises awareness and moderately influences behaviour, but its impact is constrained by trust, relevance, and socio-economic conditions.

The findings confirm that communication alone is insufficient. Behavioural transformation depends on the interaction between information, context, and enabling conditions. Addressing climate change, therefore, requires both improved communication strategies and structural support systems.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study set out to empirically assess the influence of media-driven climate change information on public perception, behaviour, and livelihoods in Kamulanga Ward, Lusaka, Zambia. The findings confirm that media plays a statistically significant and practically meaningful role in shaping the climate communication environment: it raises awareness, influences perceptions, and contributes to observable behavioural engagement with climate-adaptive practices. The one-sample t-test result ($t = 53.286$, $p < 0.001$) demonstrates that behavioural engagement is significantly above neutral, while correlation analysis identifies media trust as a key predictor of behavioural outcomes.

However, the study also establishes clear limits to this influence. The absence of a significant relationship between media consumption frequency and behavioural outcomes challenges information-deficit assumptions, showing that exposure alone does not drive change. ANOVA results further reveal variation across demographic groups and media channels, while qualitative findings highlight persistent structural barriers, including economic constraints, limited infrastructure, and restricted access to resources, that hinder the translation of awareness into sustained behavioural and livelihood transformation.

Taken together, the findings indicate that media-driven climate communication is a necessary but insufficient condition for meaningful change. Its effectiveness depends not only on message delivery but also on trust, relevance, and the socio-economic conditions within which individuals act. This supports Moser's (2010) argument that awareness alone does not guarantee behavioural adaptation, and aligns with Elia's (2014) emphasis on actionable communication supported by enabling conditions.

The study therefore concludes that effective climate communication must move beyond awareness creation toward action-oriented, locally relevant, and context-sensitive approaches, supported by structural interventions. Without such integration, the awareness–action gap observed in Kamulanga Ward is likely to persist.

Recommendations

Based on these findings, the following recommendations are proposed:

Media and Communication Practice

Media organisations, particularly radio broadcasters, should prioritise practical and actionable climate communication that directly supports everyday decision-making. Content should be delivered in local languages and framed within familiar community contexts to improve comprehension and behavioural uptake.

There is a need to expand interactive and participatory formats, such as call-in programmes and community discussions, which support social learning and engagement (Bandura, 2010). Media institutions should also adopt community-based communication approaches, involving local actors in content creation to enhance relevance and trust. Additionally, journalists should receive specialised training to improve the clarity, accuracy, and usability of climate reporting.

Policy and Institutional Support

The government should develop integrated climate communication strategies that link information dissemination with structural support mechanisms. Investment in infrastructure — including drainage systems, waste management, and access to adaptive resources — is essential to enable behavioural change.

Strengthening multi-stakeholder collaboration among media, government, and community actors will improve coordination between communication and implementation. Policies should also support the expansion of community radio, given its effectiveness in delivering accessible and trusted information.

Civil Society and Community Engagement

Civil society organisations should adopt participatory communication models that position communities as active contributors rather than passive recipients. Approaches such as peer education and community-based media can enhance contextual relevance and collective learning.

Special attention should be given to youth and women, recognising their critical roles in adaptation processes and their varying levels of vulnerability and influence.

Future Research

Future studies should adopt longitudinal designs to assess how behavioural change evolves and incorporate objective measures to complement self-reported data. Expanding research across multiple contexts will improve generalisability.

There is also a need to strengthen mixed-methods integration and explore causal relationships between communication strategies and behavioural outcomes. Further research on the role of digital and social media, particularly in relation to misinformation and engagement, is also recommended.

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REFERENCES

1. Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T
2. Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. Journal of Environmental Psychology, 27(1), 14–25. https://doi.org/10.1016/j.jenvp.2006.12.002
3. Banda, F. (2020). Media systems and journalism in Zambia. In C. Mano & W. Willems (Eds.), Everyday media culture in Africa (pp. 112–134). Routledge.
4. Bandura, A. (2010). Social learning theory. Prentice Hall.
5. Boykoff, M. T. (2011). Who speaks for the climate? Making sense of media reporting on climate change. Cambridge University Press.
6. Boykoff, M. T., & Boykoff, J. M. (2007). Climate change and journalistic norms: A case-study of US mass-media coverage. Geoforum, 38(6), 1190–1204. https://doi.org/10.1016/j.geoforum.2007.01.008
7. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa
8. Brulle, R. J., Carmichael, J., & Jenkins, J. C. (2012). Shifting public opinion on climate change: An empirical assessment of factors influencing concern over climate change in the U.S., 2002–2010. Climatic Change, 114(2), 169–188. https://doi.org/10.1007/s10584-012-0403-y
9. Central Statistical Office (CSO). (2020). Zambia 2020 census of population and housing: Preliminary report. Government of the Republic of Zambia.
10. Chanda, R., Simasiku, N., & Mbewe, C. (2021). Radio and climate adaptation in Southern Province: Localizing the message. Zambia Journal of Agricultural Development, 14(3), 45–62.
11. Cook, J., Lewandowsky, S., & Ecker, U. K. H. (2017). Neutralizing misinformation through inoculation: Exposing misleading argumentation techniques reduces their influence. PLOS ONE, 12(5), e0175799. https://doi.org/10.1371/journal.pone.0175799
12. Creswell, J. W., & Plano Clark, V. L. (2017). Designing and conducting mixed methods research (3rd ed.). SAGE Publications.
13. Department for International Development (DFID). (1999). Sustainable livelihoods guidance sheets. DFID.
14. Elia, A. (2014). Climate communication in developing countries. Environmental Communication Review, 8(2), 23–41.
15. Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. Journal of Communication, 43(4), 51–58. https://doi.org/10.1111/j.1460-2466.1993.tb01304.x
16. Garcia-Avilés, J. A. (2020). Diffusion of innovations in digital media. Routledge.
17. Intergovernmental Panel on Climate Change (IPCC). (2021). Climate change 2021: The physical science basis. Cambridge University Press. https://doi.org/10.1017/9781009157896
18. Lewandowsky, S., Ecker, U. K. H., & Cook, J. (2017). Beyond misinformation: Understanding and coping with the 'post-truth' era. Journal of Applied Research in Memory and Cognition, 6(4), 353–369. https://doi.org/10.1016/j.jarmac.2017.07.008
19. Lowe Morna, C., & Mwangi, P. (2020). Media credibility and trust in Southern Africa: A regional survey. Gender Links.
20. McCombs, M. E., & Shaw, D. L. (1972). The agenda-setting function of mass media. Public Opinion Quarterly, 36(2), 176–187. https://doi.org/10.1086/267990
21. Media Institute of Southern Africa (MISA). (2023). Zambia media landscape report 2023. MISA Zambia.
22. Mfula, C., & Zulu, M. (2019). Community radio and climate change communication among smallholder farmers in Zambia. African Communication Research, 12(1), 22–41.
23. Ministry of Green Economy and Environment. (2022). Zambia's sixth national communication to the UNFCCC. Republic of Zambia.
24. Moser, S. C. (2010). Communicating climate change: History, challenges, process and future directions. WIREs Climate Change, 1(1), 31–53. https://doi.org/10.1002/wcc.11
25. Mwansa, K., & Banda, G. (2023). Media literacy, climate awareness, and behavioral intent among urban Lusaka residents. Zambia Journal of Communication Studies, 8(2), 14–33.

26. Nisbet, M. C. (2009). Communicating climate change: Why frames matter for public engagement. Environment: Science and Policy for Sustainable Development, 51(2), 12–23. https://doi.org/10.3200/ENVT.51.2.12-23
27. O'Neill, S., & Nicholson-Cole, S. (2009). 'Fear won't do it': Promoting positive engagement with climate change through visual and iconic representations. Science Communication, 30(3), 355–379. https://doi.org/10.1177/1075547008329201
28. Rogers, E. M. (2003). Diffusion of innovations (5th ed.). Free Press.
29. Sturgis, P., & Allum, N. (2004). Science in society: Re-evaluating the deficit model of public attitudes. Public Understanding of Science, 13(1), 55–74. https://doi.org/10.1177/0963662504042690
30. UNDP Zambia. (2021). Climate change and development: Zambia national adaptation plan. United Nations Development Programme.
31. Yamane, T. (1967). Statistics: An introductory analysis (2nd ed.). Harper and Row.
32. Zambia Meteorological Department. (2022). Annual climate report 2021–2022. Ministry of Transport and Logistics, Republic of Zambia.