

Discovery

To Cite:

Oseni AL. Communication for Development Approaches and Climate Change Adaptation Among Rural Farmers in North-Central Nigeria. *Discovery* 2026; 62: e20d3299
doi:

Author Affiliation:

¹Center for Development Communication, Abuja, Nigeria
Email: libertydgreat@gmail.com
ORCID: <https://orcid.org/0009-0003-6462-2386>

*Corresponding author:

Audu Liberty Oseni, PhD,
Center for Development Communication, Abuja, Nigeria,
Email: libertydgreat@gmail.com
ORCID: <https://orcid.org/0009-0003-6462-2386>

Peer-Review History

Received: 09 December 2025
Reviewed & Revised: 30/December/2025 to 29/June/2026
Accepted: 12 July 2026
Published: 25 July 2026

Peer-Review Model

External peer-review was done through double-blind method.

Discovery

pISSN 2278–5469; eISSN 2278–5450



© The Author(s) 2026. Open Access. This article is licensed under a [Creative Commons Attribution License 4.0 \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

Communication for Development Approaches and Climate Change Adaptation Among Rural Farmers in North-Central Nigeria

Audu Liberty Oseni^{1*}

ABSTRACT

A persistent challenge in mobilizing rural farmers for climate change mitigation and adaptation measures is the inability of the state and non-state actors to effectively design and implement communication strategies enabling them to understand climate change issues. This research was conducted to examine the role of Communication for Development (C4D) approaches for climate change mitigation and adaptation, focusing on rural farmers in North-Central Nigeria. Data were collected from 333 rural farmers selected from three farming communities studied through Focus Group Discussions and Questionnaires. The study findings revealed that C4D played a vital role in influencing mitigation and adaptation measures among rural farmers. It established that rural farmers in North-Central Nigeria relied on participatory communication facilitated through C4D to learn about climate change and adaptation measures. The study concluded that rural farmers better understood climate change adaptation measures through the C4D approaches facilitated by local NGOs and farmers. It recommends that governments at all levels, development partners such as Non-Governmental Organizations (NGOs), and the media deploy C4D approaches when targeting rural farmers for adaptation measures. C4D facilitates a participatory approach and the use of local languages for communication, resulting in farmers' better understanding of climate change issues and improved adaptation practices.

Keywords: Adaptation, Agriculture, Climate Change, Communication, Measures, Rural Farmers

1. INTRODUCTION

Climate change impacts are resulting in changes in rainfall patterns, heatwaves, droughts, and floods, leading to poor crop yields, displacement of farmers from their homes, and also affecting agriculture in many communities in Nigeria. Climate change is a threat to Nigeria and the world, with its impacts likely to be felt most in Africa. It will expose a huge number of people to food insecurity and intense competition over land and water (Abel, 2024).

As far back as 2011, the Climate Change Department in the Nigerian Ministry of Environment reported how climate change was affecting food production and livestock farming. The report warned that Nigeria is likely to lose about 11% of its

Gross Domestic Product (GDP) to climate change; this may rise to 30% by 2050. At the same time, the report predicted it would be between N15 trillion and N69 trillion if adequate mitigation and adaptation measures are not implemented (Dauda, 2024).

Both subsistence and commercial farmers in Nigeria are battling flood crises, pests, declining agricultural production, and displacement as consequences of climate change. For instance, between 1999 and 2000, over 200,000 farmers were displaced by floods in the Niger Delta, South-South Nigeria. Competition over shrinking water and grazing among herders and farmers is leading to conflicts in many communities in Nigeria. A pointer to this is the Internal Displacement Monitoring Center report, which revealed that between 2015 and 2018, 2,500 persons were killed and 62,000 displaced from their homes as a result of conflicts among herders and farmers over climate change-related issues. On the other hand, the International Crisis Group report reveals that in 2019, 1,300 persons were killed, and 300,000 persons were displaced from their homes over the herder-farmer crisis as a result of competition over water and grazing lands. Furthermore, a report by the Displacement Tracking Matrix in partnership with the Benue State Emergency Management Agency (BENSEMA) revealed that in 2024, 22 communities were hit by floods associated with climate change (Akpan, 2023).

The report identified 7,092 individuals in 1,089 households who were affected. On the other hand, numerous media reports show that conflicts arising from herders-farmers clashes over competition for water and grazing lands have resulted in the death and displacement of many homes in the North-Central States of Nigeria (Benue, Kogi, Nasarawa, Niger, Kwara, and Plateau). Findings from a study by MAWA-Foundation revealed that climate change is altering rainfall patterns in Plateau State, affecting agricultural productivity and threatening food security. This, in addition, reveals the reality of rural farmers in Kwara, who are confronted with numerous climate change impacts, such as drought, floods, and pests, that are affecting agricultural productivity (Ejima, 2024).

Narratives from rural farmers across Nigeria present them as the worst hit by climate change. At the same time, people who do not have a platform to tell stories of how climate change impacts them. On the other hand, their understanding of climate change issues and adaptation measures will largely depend on the effective deployment of proper messaging. State and non-state actors should go beyond mere awareness and deploy appropriate CD4 approaches that enable farmers to better understand climate change issues and improve their adaptive capacity (Hassan, 2021).

Even as climate change continues to affect agriculture and threaten food security, effective communication about adaptation measures is a challenge. This is due to poor communication approaches by the state and non-state actors, particularly the policymakers, governments at all levels, and NGOs. Hence, there is a need for strategic collaboration among governments at all levels, policymakers, NGOs, and farmers to design participatory communication using “Communication for Development” approaches that will enhance rural farmers' understanding of climate change issues and improve their adaptive capacity (Ejke, 2023).

This study sees the exclusion of (C4D) in climate change communication targeting rural farmers as a major gap that hinders their understanding of the issues that affect their adaptive capacity. It addresses a gap in climate change and environmental communication by showing the vital role C4D approaches play in climate change adaptation among rural farmers. Furthermore, although information on climate change is available in mass and social media, how to explore C4D approaches to broaden understanding of the issues when targeting rural farmers remains largely unexplored among policymakers in Nigeria. Therefore, the study objective is to examine the Communication for Development approaches used and their influence on climate change adaptation among rural farmers in North-Central Nigeria.

Theoretical Framework

This study is situated within the Communication for Development (C4D) paradigm, which provides the analytical framework for examining climate change adaptation among rural farmers in North-Central Nigeria. The framework argues for a shift from a practice of sending and receiving information to a participatory approach that enables greater involvement of people and representation of voices on issues affecting them. Although mass media raise awareness of issues, C4D facilitates a process that enables people and community members to fully participate in discussions and negotiations to find solutions to issues affecting them and achieve social change (Pettit, 2009).

The framework sees communication not only as making information available but also as a full understanding of people's indigenous systems and cultures that shape their lives and environments, achieved through dialogue and negotiation to ascertain their challenges and find solutions. It is about exchanging ideas through a participatory approach that empowers communities to participate in interventions that improve their lives (Ugonna, 2021).

It perceives communication as more than information sharing; it sees it as a process that facilitates community participation in the social change movement through dialogue. It argues that communication should facilitate community involvement in project formulation, implementation, and evaluation of outcomes. It says participatory communication builds trust among beneficiaries and

enhances community trust, ownership, and sustainability. It sees participation as a cardinal part of an effective communication strategy that guarantees an understanding of people and their active involvement in solutions to issues affecting them (Uda, 2024).

Communication for Development Approaches to Climate Change Adaptation Among Rural Farmers

Past studies that contribute significantly to existing knowledge and practices in the role of C4D in climate change adaptation among farmers in African communities exist. They are in line with the findings of Nwafor and Ekene (2025), C4D approach using the “Oramedia Initiative” played a significance role in communicating climate change adaptation among rural farmers in Nigeria. The Oramedia Initiative is a local approach for understanding climate change through community gatherings, local languages, storytelling, and dance, with farmers actively involved in the communication process. Oramedia Initiative” increases farmers' climate change awareness and strengthens their adaptive resilience. The researchers noted that challenges such as communication gaps were addressed, and also, community participation and collaboration for climate resilience and adaptation were achieved through the C4D approach that was copied from “Oramedia Initiative”

Apia (2024) highlighted how the adoption of C4D has led rural farmers in Ghana to learn and develop improved climate change resilience and adaptive capacity. He noted that mainstreaming C4D in the Ghana Savanna Zone contributed significantly to active participation and better understanding of climate change adaptation practices among farmers. The author pointed out that the use of local language and farmers' active participation in the design and implementation of climate change communication strengthened collaborative adaptation measures. The locals access information about climate change mitigation and adaptation through community gatherings and local languages. According to the author, the Ghana example shows that C4D plays a central role in climate change communication when targeting rural farmers; it promotes effective participatory decision-making that promotes sustainable development. According to him, C4D approaches bridge the gap between mass media and rural communities, ensuring that marginalized farmers participate in the climate change discussion, and their adaptive capacity is strengthened.

According to Tran et al., (2024), C4D approaches are bridging a gap in effective communication for climate change adaptation among rural farmers. Their study showed how development agencies such as CARE International and the International Institute of Rural Reconstruction, through C4D, are educating smallholder farmers in Tanzania, Kenya, Uganda, and other East African countries on climate change adaptation measures using the East Africa Farmer-to-Farmer Exchange Program (EATFFE). The approach brings rural farmers together for participatory dialogue to share information and learn about adaptation measures. It bridges the gap between mass media and community farmers in accessing climate change information through collaborative learning among rural farmers. These results indicate that farmers' understanding of climate change adaptation and related issues is enhanced through participatory approaches, the use of native language, and storytelling.

In line Moris (2024), C4D played a huge role among rural farmers in Todee District of Liberia in understanding climate change and adaptation measures. Most of them did not understand climate change issues until they became actively involved in the design and implementation of communication strategies. The authorities and local organizations had relied on the mass media to communicate climate change challenges and mitigation measures to the farmers using English as the language of communication. The approach was largely ineffective until local farmers' associations, in collaboration with local organizations, introduced the C4D approach of inclusive climate change dialogue. It facilitated rural farmers' active involvement in the communication process using local languages for information dissemination, resulting in a better understanding of climate change issues and improved adaptation measures. The study recommended that policymakers and the government deploy C4D in climate change education and other agricultural sustainability interventions targeted at rural farmers in Liberia.

Fatimata (2024) found that rural farmers in the Kambia, Moyamba, and Western Rural Districts of Sierra Leone relied on community gatherings that promote the C4D approach of participatory communication to access information and learn about climate change and mitigation measures. The study established that rural farmers' active participation in climate change communication facilitated their understanding of climate change and made adaptation measures more effective. The study findings showed that community participatory dialogue led to knowledge of weather forecasts and effective adaptation measures. It is recommended that Sierra Leone authorities and policymakers integrate C4D approaches that enable rural farmers' active participation in the country's national climate change communication policy plan.

Abraham (2023), in a study that investigated the role of effective communication in climate change adaptation, found that rural communities in the Rift Valley of Ethiopia scaled up indigenous adaptation measures after the county authority worked with local NGOs to deploy a C4D approach using town hall and community participatory radio to educate the people on the impact of climate change and the importance of adaptation measures. The study established that the county authority and local NGOs' adoption of the

C4D approach of town hall and community radio resulted in rural farmers' understanding of climate change and its impact on agriculture, which motivated them to scale up their adaptation measures. The study recommended that NGOs, the government, and extension workers integrate C4D into climate change communication when targeting rural farmers.

2. MATERIALS AND METHODS

This study adopted comparative case studies of three rural communities in North-Central Nigeria, including Adaka in Makurdi Local Government of Benue State, Miango in Bassa Local Government of Plateau State, and Kuchitagi in Edu Local Government of Kwara State. The study population comprised registered farmers obtained from cooperative registers, considered the most reliable records of farmers in the selected communities. The population consisted of 667 farmers in Adaka, 672 in Miango, and 665 in Kuchitagi, giving a total of 2,004 farmers. The study employed the Yamane formula to determine a sample size of 333 rural farmers. Both random and purposive approaches were used to achieve representation and insight into the issues being studied.

For the quantitative component, 300 respondents were selected through simple random sampling, with 100 farmers drawn from each community. For the qualitative component, 33 participants (11 per community, comprising 6 males and 5 females in each community) were purposively selected for Focus Group Discussions (FGDs). Data were collected using structured questionnaires and FGD guides aligned with the study objective. The questionnaire was designed to address both closed- and open-ended questions. Quantitative data from the questionnaire were analysed using descriptive and inferential statistics, while qualitative data from FGDs were analysed thematically through systematic coding and identification of recurring patterns and themes.

The study employed a people-centered and participatory Communication for Development approach; data were collected from rural farmers. The exclusion of institutional and other non-state actors was intentional, aimed at ensuring that rural farmers, community-level experiences, and locally embedded knowledge systems that shape climate change communication and adaptation practices were generated and analysed.

3. RESULTS

This section present data from both questionnaire and Focus Group Discussions (FGDs) across the three communities studied in the North-Central Zone respectively. The responses are analysed using descriptive statistics such as frequency and percentages and thematic analysis inn relation to the study objective.

Quantitative Findings from Questionnaire
Communication for Development Approaches Used Among Rural Farmers

Table 1. Communication for Development approaches used by the respondents

What Platform made you understand climate change issues better	Frequency	Percentage
Participatory and inclusive communication	289	96.33
Radio	8	2.67
Television	3	1
Social media	0	0
Total	100	100

Source: Survey Data, 2025

Results in Table 1 show that the majority (96.33%) of respondents relied on participatory and inclusive communication to learn about climate adaptation measures. Only (2.67%) of the respondents relied on radio. while (1%) relied on television to learn about climate change. These findings revealed that most rural farmers in the communities studied relied primarily on participatory and inclusive Communication for Development (C4D) approaches to learn about climate adaptation measures.

Qualitative Findings from Focus Group Discussions
Theme 1: Communication for Development Approaches Used by Rural Farmers

Results from the three communities studied revealed that rural farmers relied largely on Communication for Development (C4D) approaches to access and share information on climate change adaptation measures. Farmers across all the studied communities

identified community gatherings, town hall meetings, participatory dialogues, and knowledge-sharing forums as common communication approaches through which climate change information was disseminated and understood.

Participants in the Adaka community reported that local NGOs employ participatory communication approaches, such as community gatherings and town hall meetings, which enable farmers' active participation in climate change communication processes. According to the participants, these approaches involved using local languages during interactions, allowing farmers to ask questions and receive explanations from experienced farmers and extension workers. The participants stated that they learned about adaptation measures such as crop rotation, change in planting dates, planting drought-resistant crops, and soil conservation through these participatory communication activities.

In the same pattern, farmers in the Miango community reported that climate change communication is organized mainly by non-governmental organizations and local actors using participatory approaches that facilitate community dialogue. The farmers reported that native languages and participatory dialogue through community gatherings are common approaches for sharing information on adaptation measures. The participants reported that farmers with years of experience in indigenous mitigation and adaptation measures, such as crop rotation, soil conservation, and changes in planting, share their knowledge with other farmers during community dialogues.

In the Kuchitagi community, participants also reported that participatory communication approaches facilitated by local government authorities and NGOs played a major role in climate change communication. According to the participants, organizations such as HERVEST organized community-based interactions where farmers engaged directly with extension workers and experienced farmers. Participants stated that local languages were used to simplify climate change information and adaptation measures during these communication activities.

In all the communities studied, farmers consistently maintained that community gatherings and participatory dialogue approaches were more dominant and accessible than television, radio, and social media channels. Participants reported that many rural farmers lack access to television and social media and have little or no English literacy, making participatory community-based communication approaches more useful, acceptable, and effective within rural farming communities.

Theme 2: Influence of Communication for Development Approaches on Climate Change Adaptation Measures

Results across all three communities revealed that (C4D) approaches play a significance role in shaping rural farmers' understanding and adoption of climate change adaptation measures.

Participants in the Adaka community stated that they had limited knowledge of climate change adaptation measures before local NGOs introduced participatory communication activities within the community. According to the participants, their involvement in community dialogues and town hall meetings improved their understanding of climate change issues and adaptation practices such as crop rotation, planting drought-resistant crops, soil conservation, and changes in planting dates. Participants further stated that their participation in climate change programmes organized by the Women Environmental Programme (WEP) contributed to their understanding of adaptation measures and motivated them to adopt some of the practices discussed during the interactions.

Participants in the Miango community, in a similar narrative, noted that farmers' understanding of climate change issues and adaptation measures has significantly improved through participatory communication approaches. The farmers disclosed that community gatherings facilitated by local NGOs, such as Green Plant Conservation Initiative, played a central role in improving their adaptive capacity. They reported that these participatory approaches helped farmers learn and understand indigenous adaptation measures from older farmers and agricultural extension workers who operate in the community.

Participants in the Kuchitagi community noted that farmers gained a better understanding of climate change adaptation measures through participatory communication approaches organized by the Community-Based Organization and local government officials. They pointed out that indigenous languages and participatory dialogues are central in their understanding of climate change issues.

Across the three communities, participants consistently reported that communication approaches involving active participation and the use of local languages contributed more to farmers' understanding of climate change adaptation measures than radio, television, or social media. Participants stated that radio and television mainly create awareness of climate change issues but do not provide sufficient understanding of adaptation measures. Some participants also noted that climate change messages disseminated through mass media were often perceived as less engaging and less relatable to rural farmers.

Findings across the communities further showed that participatory communication approaches facilitated the sharing of indigenous adaptation knowledge among farmers. Participants stated that farmers exchanged experiences and practical knowledge relating to crop rotation, soil conservation, planting periods, and drought-resistant crops during community interactions. The results also revealed that

farmers considered participatory communication approaches more useful because they allowed direct engagement, dialogue, and clarification of climate change issues within familiar cultural and linguistic contexts.

4. DISCUSSION

This section enabled the study to highlight patterns and divergences in the data, interpret them by showing their relevance and implications for the findings, and identify how they addressed the research objectives. It further provides an understanding of the study interpretation, situating it within existing literature and theoretical frameworks in line with the communities studied.

By critically engaging with both the voices of participants and relevant scholarly perspectives, the discussion serves to validate the study's contributions. In the present study, the discussion is guided by Communication for Development framework, which provides a lens for interpreting the experiences and knowledge of rural farmers regarding climate change adaptation measures.

There are different Communication for Development approaches used by farmers in the communities studied. The farmers recognized community gatherings, town hall meetings, participatory dialogues, and knowledge-sharing forums as the major Communication for Development approaches through which climate change information was disseminated and understood. Over the decades, farmers have relied on community gatherings as a major means for information sharing and the understanding of farming practices.

Across the three communities studied, rural farmers relied largely on Communication for Development approaches to receive and share information on climate change adaptation measures. Participants across Adaka, Miango, and Kuchitagi communities identified community gatherings, town hall meetings, participatory dialogues, and knowledge-sharing forums as the major Communication for Development approaches through which climate change information was disseminated and understood. These approaches have positively impacted climate change adaptation measures, with farmers learning measures of crop rotation, planting cover crops, soil preservation etc.

As two participants in Adaka community noted: "Local NGOs deployed Communication for Development approaches such as community gatherings and town hall meetings that enabled farmers' active participation in climate change communication processes. These approaches enabled farmers to ask questions and receive explanations from experienced farmers and extension workers. We learned about adaptation measures such as crop rotation, change in planting dates, planting drought-resistant crops, and soil conservation through these participatory approaches".

Similarly, participants in Miango community noted that climate change communication in the community was facilitated mainly through Communication for Development approaches organized by local NGOs and community groups. Community gatherings and town hall meetings were frequently used to educate farmers on climate change and adaptation measures using local languages. Experienced farmers shared indigenous knowledge and adaptation practices such as crop rotation, soil conservation, and changes in planting periods during these interactions.

Through participatory communication that facilitated community dialogue, organized by organizations such as HERVEST and local government officials, farmers gained a deeper understanding of climate change adaptation measures. That happened because the approach enabled us to interact directly with farmers who have indigenous knowledge experiences and agricultural extension workers. The understanding was much easier because interactions were conducted in local languages that simplified all the information received," a participant from the Kuchitagi community said.

Such experimental knowledge across the three communities demonstrates the understanding of climate change measures within the lived experience of farmers relying on community gatherings and knowledge sharing as communication for development approaches to understand climate change adaptation measures. The understanding of farmers' adaptation measures has also disrupted some beliefs that climate change impact on crops is spiritual, forcing especially younger farmers to abandon their long-standing beliefs and embrace adaptation measures.

The awareness and understanding of climate change adaptation measures among rural farmers are best understood through the lens of communication for development framework, which emphasises the active role of community members in interpreting, sharing, and responding to development challenges. The framework does not support top-down communication approaches; it favors a dialogue process where the local experiences and knowledge shape both the understanding of the problem and the pathway to solutions. It is within this context that this study sees rural farmers not just as passive recipient of climate change information, but as active observers and communicators who rely on interpersonal network, community dialogue to learn and respond to climate change challenges.

The consistency of these findings with the study by Nwafor and Ekene (2025), who observed that rural farmers in Nigeria understood climate change adaptation measure through communication for development approaches such as community gatherings, further underscore the fundamental role communication for development plays in farmers' understanding of climate adaptation measures. This study affirms that rural farmers, through community gatherings and participatory dialogue, have a better understanding of climate change adaptation measures.

The understanding of climate change and adaptation measures among rural farmers in the communities studied is a product of communication for development that facilitated participatory communication and community dialogue among the farmers. The communication for development framework provides a powerful lens for understanding how rural farmers receive, interpret, and respond to climate change adaptation measures. It also offers a vital insight for designing culturally relevant and community communication systems when targeting adaptation measures.

The findings showed that community gatherings is a form of communication among rural farmers, and it is also culturally embedded in established norms and practices. This is not only a trusted means of information but also a means of participation in climate change-related decision-making on issues affecting communities.

In the communities studied, farmers were significantly influenced to adopt adaptation measures of crop rotation, planting drought-resistant crops through knowledge gotten from Communication for Development, such as community gatherings and townhall. For instance, in the Adaka community, farmers had limited knowledge of climate change adaptation measures, but got improved when local NGOs introduced Communication for Development practices within the community.

The applicability of adaptation measures, such as crop rotation, planting drought-resistant crops, soil conservation, and changes in planting dates by the rural farmers, is a product of understanding from their participation in community dialogue. This approach is especially relevant for rural farmers who rely on community gatherings and dialogue to receive and share climate change-related information. Additionally, some farmers have adjusted their planting calendars in response to the knowledge gotten from communication for development approaches such as community gatherings and town hall meetings facilitated by the Women Environmental Programme (WEP).

A key insight from these findings is participatory approach of community gatherings is the most effective way to receive and share information among rural communities, hence any development intervention targeting rural communities must design a culturally community communication system that will result in acceptability and impact. As expressed by participants in the Miango community, communication for development practice of community gatherings and knowledge sharing improved farmers' understanding of climate change adaptation measures. They acquired knowledge about adaptation practices through community gatherings and events organized by local NGOs such as the Green Plant Conservation Initiative. These approaches enabled farmers to learn indigenous adaptation measures from experienced farmers and extension workers within the community.

Additionally, farmers in the Kuchitagi community highlighted that C4D approaches facilitated by Non-governmental Organizations, and local actors played an active role in helping farmers have a better understanding of climate change adaptation measures. According to them, they significantly improved farmers' knowledge of climate change and mitigation measures. They reported that using native language and active participation in community meetings enhanced farmers' adaptation practices. Rural farmers understand climate change issues better when they participate in dialogue using their native language.

This study's findings align with the assumption of the communication for development framework, which posits that communication should go beyond information sharing to serve as a process that facilitates people's participation in the social change movement. The framework sees communication as a tool that facilitates a process enabling community members to be fully involved in project formulation, implementation, and evaluation of outcomes.

Rural farmers in the communities studied demonstrated the significance of communication for development, such as community gatherings and knowledge sharing in understanding climate adaptation measures. These platforms are beyond just informal social events; they are space for grassroot deliberation where farmers collectively access environmental information and determine appropriate response using shared knowledge. As one participant explained. We sit together; experienced farmers and extension workers share superior knowledge of indigenous adaptation measures.

This practice validates the importance of Communication for Development approaches such as participatory communication. It involves active engagement, mutual learning, and shared decision-making. The reliance of community gatherings and participatory dialogue rather than top-down information from the government or media underscores the farmers' preference for a community communication system that honours the local practice of accessing and dissemination information.

The improved climate adaptation measures practiced by rural farmers in the communities studied are rooted in the knowledge transmitted through the communication for development process. These measures are relevant, demonstrating the value of communication for the development framework. This framework illuminates how climate adaptation is not just a technical exercise, but a communicative process. Therefore, affirming and integrating this framework into policy and extension service, will result in the effectiveness and sustainability of climate change adaptation interventions in rural communities.

Findings across the communities studied, demonstrate that communication in rural communities goes beyond mere information dissemination, it is about co-creating meaning, a core tenet of communication for development framework. It supports the debates that communication is most effective when it is participatory rather than imposed by external top-down approaches.

The understanding of climate change and the adoption of adaptation measures by rural farmers through communication for development approaches of community gatherings demonstrate deep cultural and communication issues that interfere with local knowledge systems and participatory forms of communication. These findings validate the application of the communication for development framework as contextually appropriate for analyzing how rural farmers understand, communicate, and respond to climate change adaptation measures.

5. CONCLUSION

This study explored the role of Communication for Development approaches and their influence on climate change adaptation among rural farmers in North-Central Nigeria. The findings clearly revealed that farmers overwhelmingly understood and improved on climate adaptation measures through communication for development approaches of community gatherings and participatory dialogue. In terms of improved practical adaptation, rural farmers reported predominant use of indigenous adaptation measures such as crop rotation, soil conservation, planting drought resistant crops. These practices were learned through communication for development approaches of community gatherings and knowledge sharing.

These communication for development approaches are not only culturally embedded, but also participatory and dialogic in nature. They facilitate the transmission of knowledge and foster community led dialogue, reflection and collective decision making on issues regarding climate change. Farmers in the three communities studied, perceive this communication for development approaches as more credible, accessible and contextually relevant than mass media. The reliance of these traditional channels is a function of both necessity and trust, rooted in long-standing cultural norms in the way knowledge is shared and used. These findings affirm the relevance of Communication for Development framework which posits that development communication should be dialogic, inclusive, and culturally grounded rather than top down and externally imposed.

The study findings further revealed a mismatch between government and donor led climate communication approaches, primarily reliance on mass media and, the actual communication preference of local farmers. Given farmers limited access to, and trust in mass media top-down approach by the government fail to achieve their intended impacts. Instead, rural farmers, prioritise knowledge shared within community gatherings by experienced farmers and extension workers whom they perceive as more credible and reliable.

Based on these findings the study concludes that any effective and sustainable climate change adaptation measures targeting rural farmers, must be rooted in communication for development approaches embedded in community communication systems. The approaches must incorporate local languages and participatory methods that empower farmers to co-create and disseminate knowledge. State and non-state actors, must recognise communication for development as not just add-on but a legitimate and vital pillar of climate adaptation.

Recommendations

Based on the findings and in line with the research objective, the following recommendations are made.

- (1) Government at all levels, policymakers, and development partners such as NGOs, should deploy C4D approaches for climate change adaptation intervention when targeting rural farmers. This will make them understand and improve on adaptation measures.
- (2) Government at all levels, should recognise and institutionalise inclusive communication for climate change adaptation measures that targets rural farmers.
- (3) Rural farmers should actively participate in the design and implementation of climate adaptation measures that target them. That way, they will contribute to enhancing effectiveness and sustainability of the interventions.

Limitations of the Study

Funding challenges forced the study scope to three communities in North-Central Nigeria. Depending on only three communities may not provide enough results for analogy, making it difficult to determine trends applied in the whole of North-Central Nigeria. At the same time, the funding challenge compelled the researcher to conduct only three FGDs, which limited the study from achieving a huge representative sample. This may limit the applicability of the findings to the entire Nigeria and other societies, which can reduce the study's impact on practice and policy.

Acknowledgement

There are no acknowledgments to disclose.

Author Contributions

This manuscript has been read and approved by the author. The author believes that this manuscript represents honest work done by him.

Informed consent

Oral informed consent was obtained from individual participants included in the study.

Conflicts of interests

The author declare that they have no conflicts of interest, competing financial interests or personal relationships that could have influenced the work reported in this paper.

Ethical approval & declaration

Participants were informed about the study's objective, risks, and benefits. They consented to participate and were assured that they could without any consequences. The researcher reassured participants that the data collected would be kept confidential and anonymous and that their identity would not be revealed in any publication or presentation of the research findings.

Funding

This research did not receive any external funding like specific grant from funding agencies in the public, commercial, or nonprofit sectors.

Data and materials availability

All data associated with this study will be available based on the reasonable request to corresponding author.

REFERENCES

1. Abel A. Climate change insight. Ojons Publication; 2024.
2. Abraham A. Analysis of effective communication for climate change adaptation in rural Ethiopia. Ibiam Journal of Environmental Communication. 2023;8(9):70–76.
3. Akpan E. Nigeria climate change narratives. Ola Publishers; 2023.
4. Apia K. The role of communication for development among rural farmers in the Savannah Zone of Ghana. Kogi Journal of Environment. 2024;2(3):23–29.
5. Dauda D. The cost of climate change. Ola Publishers; 2024.
6. Ejima A. Understanding climate change impact. Enejo Publishers; 2024.
7. Ejke N. Climate change and agricultural production in Nigeria. Immaculate Publishers; 2023.
8. Fatimata A. Examination of indigenous communication for climate change adaptation. Environmental Journal of Scientific & Social Research. 2024;11(13):76–83.
9. Hassan A. Communication approaches for understanding climate change. Dubem Printing; 2021.
10. Moris D. Effective communication practice and climate change adaptation among rural farmers in Todee District of Liberia. Ida Journal of Rural Development. 2024;3(4):17–20.
11. Nwafor G, Ekene S. Communicating climate change adaptation and resilience strategies through Oramedia forms for sustainable development in Nigeria. Journal of Environment, Climate, and Ecology. 2025;2(2):12–17.
12. Pettit S, Dagron G. Media and communication. Development in Practice. 2009;19(4):4–6.

13. Tran M, Duong H, Trinh Le T. Bridging the gap: Effective communication strategies for climate change adaptation in rural communities. *Pakistan Journal of Life and Social Sciences*. 2024;22(2); 1039-1060.
14. Uda F. Communication for community development. Sony Printers; 2024.
15. Ugonna I. Understanding development communication theories. Rabi Printing Press; 2021.