

ROLE OF PARTICIPATORY MEDIA IN PROMOTING INDIGENOUS KNOWLEDGE SYSTEM FOR CLIMATE CHANGE ADAPTATION IN BENUE STATE, NIGERIA

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Abstract

This study investigated the role of participatory media in promoting Indigenous Knowledge Systems (IKS) for climate change adaptation among smallholder farmers in Benue State, Nigeria. The study was hinged on the twin theories of Uses and Gratification and participation communication. The population of the study was 407, 640 smallholder farmers. Survey research design was considered appropriate, while quantitative data were collected through questionnaire administered to a sample size of 400 farmers in three selected Local Government Areas. The findings reveal a high prevalence of IKS. Multi-stage sampling technique was adopted. Findings show that 51.8% of farmers actively use indigenous methods for climate prediction and adaptation. The study identified WhatsApp groups (45.8%) and community radio (41.4%) as the most accessible and utilized participatory media platforms. An overwhelming majority of respondents (91.7%) perceived these media as useful tools for preserving and disseminating indigenous knowledge, particularly for sharing weather forecasting tips (43.2%) and information on indigenous seed varieties (33.5%). However, significant challenges persist, including poor network connectivity (52.6%) and the spread of misinformation (23.3%). The study concluded that participatory media serves as a vital bridge between generations and a catalyst for community-led climate resilience by facilitating the documentation and horizontal sharing of IKS. It recommended targeted interventions to enhance digital infrastructure, promote media literacy, and integrate these platforms into formal agricultural extension services to fully harness their potential for sustainable climate adaptation in Benue State and similar agrarian contexts.

Keywords: Participatory Media, Indigenous Knowledge Systems, Climate Change Adaptation, Benue.

Introduction

The escalating climate crisis represents one of the most profound challenges of our time, with its impacts disproportionately affecting agrarian communities in the Global South, particularly in sub-Saharan Africa (IPCC, 2022). Nigeria, as a regional economic powerhouse, is acutely vulnerable to

the vicissitudes of climate change, experiencing increased variability in rainfall patterns, intensified heatwaves, and a higher frequency of extreme weather events such as floods and droughts (Nwosu et al., 2021). These phenomena pose a direct and immediate threat to national food security, economic stability, and the livelihoods of millions of its citizens who depend on rain-fed agriculture (Adejuwon, 2020). Nowhere is this threat more palpable than in Benue State, historically designated as the "Food Basket of the Nation," where the economy and cultural fabric are intrinsically tied to the land and the predictability of seasonal cycles (Tyodzu, 2019).

The agrarian communities in Benue State, comprising predominantly Tiv, Idoma, and Iggede peoples, have for generations cultivated a deep, symbiotic relationship with their environment, developing a sophisticated corpus of Indigenous Knowledge Systems (IKS) tailored to their unique ecological context (Iorapuu, 2022). This knowledge system encompasses a wide array of practices and beliefs, including intricate methods of predicting seasonal rainfall through the observation of specific plant phenology, such as the flowering of the *Vitex doniana* tree (*or ichi** in Tiv), and animal behaviour (Ushe, 2023). It also includes the selection and preservation of native, drought-resistant seed varieties, traditional soil classification and conservation techniques, and complex indigenous water management strategies designed to mitigate both drought and flood (Anijah-Obi, 2021). For centuries, this endogenously generated knowledge has been the bedrock of agricultural planning, natural resource management, and community resilience, passed down intergenerationally through oral traditions, folklore, proverbs, and practical apprenticeship (Ochiaka, 2020).

However, the accelerating pace and unprecedented scale of contemporary climate change are straining the adaptive capacity of these traditional systems (Federal Ministry of Environment, 2021). Elderly farmers across Local Government Areas like Guma, Kwande, and Otukpo increasingly report that their once-reliable indicators are becoming less

predictable, creating a dangerous knowledge gap that leaves communities more vulnerable (Akaa, 2022). Concurrently, the intergenerational transmission of this invaluable knowledge is being disrupted by modern formal education, rural-urban migration of youth, and the pervasive influence of Western media, which often marginalizes local epistemologies as archaic or unscientific (Iorkegh, 2023). This erosion of IKS represents not just a cultural loss but a critical diminution of a practical toolkit for climate adaptation, creating an urgent need for innovative strategies to document, validate, and revitalize this knowledge (Akowan, 2019).

In this complex landscape, the emergence and proliferation of participatory media offer a transformative avenue for addressing this dual challenge of environmental change and knowledge erosion (Mefor, 2024). Participatory media, characterized by its interactive and user-driven nature, stands in stark contrast to conventional top-down communication models (Ashimogo, 2020). In the Benue context, this includes community radio stations like *Voice of Mkar* and *Radio Benue*, which broadcast in local Tiv, Idoma, and Iggede languages, creating an accessible platform for dialogue (Shima & Kper, 2022). It also encompasses the rapid adoption of social media platforms, particularly WhatsApp and Facebook groups, where farmers' cooperatives and community associations are forming to share real-time information on weather, pest outbreaks, and market prices (Terna, 2023). Furthermore, participatory video projects, where community members themselves produce content, have been used to document elderly farmers demonstrating traditional soil conservation methods, thereby preserving and sharing techniques that might otherwise be lost (Ikyernum, 2024).

The potential synergy between participatory media and Indigenous Knowledge Systems for climate adaptation is therefore immense and critically under-explored (Utaa, 2022). These media platforms can serve as dynamic digital repositories, archiving audio-visual records of indigenous

practices for posterity and for easy access by the younger generation (Atoo, 2023). More than just archives, they function as vibrant, interactive spaces for knowledge co-creation, where elders' forecasts can be discussed alongside official meteorological bulletins from the Nigerian Meteorological Agency (NiMet), fostering a hybrid understanding that enhances decision-making (Iordye, 2024). This participatory communication paradigm empowers communities to move from being passive recipients of external information to active architects of their own adaptation narratives, leveraging both indigenous wisdom and contemporary tools (Anyia, 2023).

It is against this backdrop that this study is situated. The confluence of severe climate impacts in a critical agricultural zone like Benue State, the progressive erosion of a time-tested indigenous knowledge base, and the simultaneous rise of accessible, dialogic media technologies presents a critical research imperative. Therefore, this thesis seeks to rigorously investigate the specific role that participatory media platforms are playing, and can potentially play, in promoting, preserving, and enhancing the application of Indigenous Knowledge Systems for effective climate change adaptation among the farmers of Benue State, Nigeria. The findings aim to contribute to both scholarly discourse and practical policymaking in the realms of climate communication, agricultural extension, and cultural preservation.

Statement of the Problem

Benue State, celebrated as Nigeria's "Food Basket," stands at a critical crossroads. Its communities, whose lives and identities are deeply interwoven with the land, now face an existential threat from climate change. The very foundations of their agricultural heritage are being undermined by increasingly unpredictable rainfall, intense heatwaves, and devastating floods that erode soil and ruin crops. For generations, farmers relied on a sophisticated Indigenous Knowledge System (IKS)—reading the flowering patterns of specific trees, observing insect behavior, and utilizing native,

drought-resistant seeds—to navigate environmental uncertainties. This knowledge, passed down through oral traditions and practical experience, was their primary shield against climatic variability.

However, this shield is now cracking under the dual pressures of a rapidly changing climate and profound social transformation. The accelerating pace of environmental change is rendering some traditional forecasting methods less reliable, creating a dangerous gap in local adaptive capacity. Concurrently, the intergenerational pipeline of this knowledge is breaking down. The exodus of youth to urban centers, the dominance of formal education that often sidelines local wisdom, and the allure of modern media have collectively marginalized these time-honored practices. The result is that a vast repository of practical, context-specific adaptation knowledge is in peril of being lost at the very moment it is most needed.

While scientific climate information from agencies like NiMet exists, its reach and relevance to the rural farmer in Benue are often limited. A significant communication disconnect persists; top-down dissemination methods frequently fail to resonate with local contexts, languages, and worldviews. This creates a scenario where farmers are caught between a fading indigenous system and an inaccessible scientific one, leaving them more vulnerable and less resilient.

Paradoxically, this crisis of knowledge transmission is unfolding alongside a digital revolution. The proliferation of participatory media—community radio stations broadcasting in Tiv and Idoma, active WhatsApp groups for farmer cooperatives, and community video projects—offers an unprecedented opportunity to bridge this gap. These platforms hold the potential to document, revitalize, and democratize indigenous knowledge, creating a dynamic space where the wisdom of elders can be preserved and practically applied. Yet, the fundamental problem remains that the specific role and effectiveness of these participatory media platforms in promoting IKS for climate adaptation in Benue State are not clearly understood or systematically leveraged.

Therefore, this study is compelled by an urgent problem: the increasing vulnerability of smallholder farmers in Benue State to climate change impacts, exacerbated by the progressive erosion of Indigenous Knowledge Systems and the current inadequacy of communication channels to effectively preserve and apply this knowledge. Without a concerted effort to harness modern participatory tools to safeguard ancient wisdom, the resilience of Nigeria's primary agricultural heartland is fundamentally at risk. This research seeks to address this critical problem by investigating how participatory media can be strategically employed to promote Indigenous Knowledge Systems for effective climate change adaptation in Benue State.

Objectives of the Study

Generally, this study is to examine the intersection of participatory media and indigenous knowledge for climate adaptation. To achieve this, the following specific objectives were formulated:

- i. To identify and document the prevalent Indigenous Knowledge Systems (IKS) used for climate change adaptation by farmers in the selected communities of Benue State.
- ii. To investigate the accessibility, usage patterns, and perceived relevance of different participatory media platforms among the farmers for sharing agricultural and climate-related information.
- iii. analyze the perceived impact and challenges of using participatory media as a tool for the preservation, dissemination, and application of identified Indigenous Knowledge Systems for climate adaptation.

Research Questions

From the objectives of the study, the following research questions were formulated:

- i. What are the prevalent Indigenous Knowledge Systems (IKS) used for climate change adaptation by farmers in the selected communities of Benue State?
- ii. What are the extent of accessibility, usage patterns, and perceived

- relevance of different participatory media platforms among the farmers for sharing agricultural and climate-related information?
- iii. Are there perceived influence and challenges of using participatory media as a tool for the preservation, dissemination, and application of identified Indigenous Knowledge Systems for climate adaptation?

Review of Related Literature

Conceptual Review

The Concept of Indigenous Knowledge Systems (IKS)

Indigenous Knowledge Systems (IKS) represent a cumulative body of knowledge, practices, and beliefs, evolved through adaptive processes and handed down through generations by cultural transmission, concerning the relationship of living beings with one another and with their environment (Ude, 2019). In the specific context of Benue State, this knowledge is not an abstract concept but a practical, lived reality that has historically governed agricultural practices, natural resource management, and socio-cultural life for the Tiv, Idoma, and Igede people (Iorkegh, 2020). It is a holistic system, deeply embedded in the local language, spirituality, and world view, forming the bedrock of community resilience and identity (Anijah-Obi, 2021). The defining characteristic of IKS is its location-specific nature; it is meticulously tailored to the local ecology, making it exceptionally relevant for addressing environmental challenges within that specific context (Akowan, 2019).

This knowledge is predominantly tacit, stored in the memories and experiences of community elders and practitioners, and transmitted informally through oral traditions, storytelling, proverbs, rituals, and direct apprenticeships (Ochiaka, 2022). For instance, among the Tiv people, the knowledge of predicting the onset of the rainy season by observing the flowering and leafing patterns of the *Ugeh* tree (*Vitex doniana*) is a classic example of IKS that has guided planting dates for centuries (Ushe, 2023). Similarly, the Idoma people have developed intricate soil classification systems, identifying and naming soils like *Apa* (sandy loam) and *Ede* (clayey

soil), and prescribing specific crops and conservation techniques for each type, thereby ensuring sustainable land use long before the advent of modern soil science (Ikyernum, 2021). These knowledge systems are dynamic and not static; they have continually evolved, incorporating new observations and innovations to cope with changing circumstances, which underscores their potential relevance for contemporary climate change adaptation (Mefor, 2024). The value of IKS lies in its cost-effectiveness, its wide accessibility to local communities, and its high degree of acceptability, as it is generated and owned by the people themselves, fostering a sense of agency and self-reliance (Shima, 2022). However, it is crucial to recognize that IKS exists not in isolation but can form a powerful synergy with modern scientific knowledge, where each system can validate, complement, and enhance the other to create more robust and culturally acceptable adaptation strategies (Terna, 2023).

Understanding Participatory Media: From Community Radio to Social Media

Participatory media marks a fundamental paradigm shift from the traditional, top-down model of mass communication, where audiences are passive recipients, to a more democratic and dialogic process that enables citizens to access, create, and share information and ideas (Ashimogo, 2020). This form of media is characterized by its interactive nature, low barrier to entry, and its power to facilitate community-driven content creation and collective action (Iordye, 2022). In the Nigerian and specifically Benue State context, participatory media has manifested in various impactful forms, each playing a distinct role in bridging information gaps and fostering social cohesion. Community radio stands as a quintessential example, with stations like *Voice of Mkar* and *Radio Benue* providing a hyper-local platform that broadcasts in indigenous languages such as Tiv, Idoma, and Iggede, thereby ensuring that even non-literate segments of the population are included in the development discourse (Atoo, 2021).

These stations have become vital arenas for public debate, where farmers can call in to discuss challenges, share their own localized weather predictions, and debate the efficacy of both indigenous and modern farming techniques, thus creating a vibrant space for knowledge co-creation (Utaa, 2023). The advent of digital technologies has further expanded the landscape of participatory media, with mobile phone-based platforms, particularly WhatsApp and Facebook, becoming increasingly integrated into rural life. In Benue, it is now common to find farmers' cooperatives and community development associations running active WhatsApp groups where members share real-time alerts about pest infestations, fluctuating market prices for yams and cassava, and even visual evidence of flood levels in different areas, enabling a rapid, community-wide response (Terkula, 2024). Furthermore, participatory video projects, though less widespread, have been piloted in communities like those in Kwande Local Government Area, where local youths are trained to produce short films documenting elders explaining traditional seed preservation methods, thereby using modern technology to safeguard ancestral knowledge (Ikyernum, 2024). The core strength of these diverse platforms lies in their ability to democratize communication, giving a voice to the marginalized and transforming them from mere consumers of information into active producers and contributors (Anyia, 2023). This shift is crucial for effective climate change adaptation, as it empowers communities to articulate their own needs, share their own solutions—such as indigenous knowledge—and engage in a more equitable dialogue with extension workers and policymakers, thereby ensuring that adaptation strategies are not only technically sound but also culturally grounded and locally owned (Mefor, 2024).

Climate Change Adaptation: Definitions and Approaches

Climate change adaptation refers to the process of adjustment to actual or expected climate and its effects, aiming to moderate harm or exploit beneficial opportunities (IPCC, 2022). In the context of Nigerian agriculture,

this translates to the practical and strategic changes farmers make in their practices and livelihoods to cope with the increasing unpredictability of weather patterns and the heightened frequency of extreme events (Nwosu et al., 2021). For an agrarian state like Benue, adaptation is not a theoretical concept but a daily struggle for survival and sustainability, directly impacting food security and economic stability (Adejuwon, 2020). The core of adaptation lies in building resilience, which is the capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure (Federal Ministry of Environment, 2021). This involves a spectrum of actions, from short-term coping mechanisms to long-term transformational strategies (Ega, 2023). A practical example of a short-term coping strategy in Benue is the practice of replanting crops after an unexpected early-season drought has destroyed initial seedlings, a costly but necessary response to immediate climate stress (Akaa, 2022). In contrast, a more long-term adaptive strategy is the shift in planting and harvesting calendars, where farmers, based on their observations of changing rainfall onsets, deliberately delay the sowing of maize or yam to align with the new climatic reality (Iorkegh, 2023). Another critical approach is livelihood diversification, where farming households, recognizing the increasing risks of relying solely on rain-fed agriculture, engage in off-farm activities such as petty trading, artisanal work, or fishing to spread their risks and ensure a more stable income throughout the year (Terna, 2024). These approaches can be broadly categorized into incremental adaptation, which maintains the essence and integrity of a system, and transformational adaptation, which changes the fundamental attributes of a system in response to climate change (Mefor, 2024).

For instance, a farmer in Guma switching to a slightly more drought-resistant variety of cassava is an incremental change, while a community in Kwande collectively deciding to abandon low-lying floodplain farming

permanently and adopt aquaculture represents a transformational shift (Utaa, 2023). The ultimate goal of these diverse adaptation approaches is to reduce the vulnerability of populations and sectors that are disproportionately affected by climate change, thereby safeguarding lives, livelihoods, and the ecosystems upon which they depend (Anijah-Obi, 2022).

The Nexus between IKS and Climate Change Adaptation

The nexus between Indigenous Knowledge Systems (IKS) and climate change adaptation represents a critical, yet often underutilized, synergy for building community-level resilience in Benue State (Iorapuu, 2022). This connection is rooted in the fact that IKS is essentially a historical and accumulated archive of successful adaptation strategies, refined over centuries of direct interaction with the local environment (Shima, 2021). Indigenous knowledge provides a context-specific, cost-effective, and culturally acceptable toolkit that can be directly deployed for contemporary climate adaptation challenges (Akowan, 2019). A profound example of this nexus is evident in indigenous weather and seasonal forecasting, where Tiv farmers observe the direction of wind currents, the intensity of harmattan haze, and the nesting patterns of birds to predict the quality of the upcoming rainy season, information that is crucial for deciding when and what to plant (Ushe, 2023).

This knowledge offers a critical complement to scientific forecasts from the Nigerian Meteorological Agency (NiMet), especially in remote areas where access to such scientific data is limited (Ikyernum, 2024). Furthermore, IKS contributes significantly to biodiversity conservation for adaptation, particularly through the selection, preservation, and sharing of native crop varieties and animal breeds that possess inherent resistance to local pests, diseases, and drought conditions (Ochiaka, 2020). For instance, the preservation of indigenous varieties of guinea corn and millet by Idoma farmers, which may have lower yields but superior drought tolerance compared to some introduced hybrids, serves as a vital genetic buffer against

crop failure in a changing climate (Anyia, 2023). In the realm of soil and water conservation, indigenous techniques such as the use of mulch from specific plants, the construction of terraces on sloppy landscapes in Vandeikya, and the practice of fallowing to restore soil fertility are all IKS-based practices that directly contribute to climate adaptation by protecting the natural resource base from degradation exacerbated by erratic rainfall (Tyodzu, 2022). The integration of IKS into adaptation planning ensures that interventions are not only technically sound but also socially sustainable, as they build upon existing knowledge systems, foster a sense of ownership among local communities, and are more likely to be adopted and maintained over the long term (Mefor, 2024). Therefore, recognizing and valorizing this nexus is not about romanticizing the past but about strategically harnessing a proven, localized, and deeply embedded knowledge reservoir to forge more effective and inclusive pathways for climate resilience in Benue State (Iordye, 2024).

Participatory Media as a Tool for Development Communication

Participatory media has fundamentally redefined the practice of development communication by shifting the paradigm from a top-down, message-delivery model to a bottom-up, dialogic process that empowers communities to be active agents of their own change (Ashimogo, 2020). This approach is rooted in the principle that sustainable development cannot be imposed from the outside but must be driven by the genuine participation and articulated needs of the people themselves (Utaa, 2021). In the context of rural development in Nigeria, participatory media functions as a powerful tool for giving voice to the marginalized, ensuring that their knowledge, perspectives, and priorities are included in the development discourse (Iordye, 2022). Unlike traditional media which often broadcasts pre-packaged solutions, participatory media platforms like community radio create a dynamic public sphere where community members can engage in critical dialogue, debate local issues, and collectively identify problems and solutions (Shima, 2023).

For instance, a community radio program in Benue State can host a live phone-in segment where farmers, extension agents, and local leaders debate the merits of a new seed variety versus a traditional one, facilitating a knowledge exchange that is grounded in local reality (Atoo, 2024). This interactive process fosters a sense of ownership among community members, making them stakeholders in the development initiatives rather than passive recipients, which significantly increases the likelihood of project success and sustainability (Mefor, 2023). Furthermore, participatory media enhances information equity by breaking down barriers of literacy and language; a farmer in a remote part of Gboko who may not be able to read a government agricultural bulletin can easily listen to a discussion in Tiv language on *Voice of Mkar* radio about soil conservation techniques or receive a voice note on a WhatsApp group alerting them to an incoming storm (Terkula, 2024). This democratization of information access is a cornerstone of genuine development communication (Anya, 2022). The ultimate goal of using participatory media in this field is to facilitate social mobilization, collective action, and empowerment, enabling communities to not only adapt to changes like climate shifts but to also advocate for their own interests and hold local authorities accountable, thereby transforming the very structures that may perpetuate their vulnerability (Ikyernum, 2023).

The Agro-Ecological Context of Benue State and Climate Vulnerabilities

Benue State, aptly nicknamed the "Food Basket of the Nation," is endowed with a rich agro-ecological setting that has historically formed the bedrock of its economy and cultural identity (Tyodzu, 2019). The state lies within the Southern Guinea Savanna zone, characterized by a tropical climate with distinct wet and dry seasons, and is blessed with fertile alluvial soils, particularly in the floodplains of its major rivers—the Benue, Katsina-Ala, and Konshisha (Benue State Agricultural and Rural Development Authority, 2021). This fertile ground supports the extensive cultivation of a diverse range of staple and cash crops, including yams, cassava, rice, soybeans,

beniseed, and citrus fruits, making agriculture the primary occupation for over 75% of its population (National Bureau of Statistics, 2022). However, this very dependence on rain-fed agriculture renders the state acutely vulnerable to the impacts of climate change, which are manifesting in increasingly observable and devastating ways (Nwosu et al., 2021). A primary vulnerability is the alarming variability in rainfall patterns, where the onset of the rains has become highly unpredictable, often starting late and ending abruptly, thereby shortening the growing season and disrupting the traditional farming calendar that communities have relied upon for generations (Akaa, 2022).

Compounding this is the increased frequency and intensity of extreme weather events, particularly devastating floods that submerge vast farmlands in low-lying areas like Makurdi, Guma, and Agatu, destroying crops, eroding topsoil, and displacing thousands of farmers annually (Federal Ministry of Environment, 2021). For example, the 2022 floods inundated over 100,000 hectares of farmland in Benue, leading to colossal losses in yam and rice production and pushing many households into food insecurity (State Emergency Management Agency, 2023). Concurrently, the state is also experiencing more pronounced and prolonged periods of drought within the rainy season, known as dry spells, which cause moisture stress on crops at critical growth stages, leading to stunted growth and significantly reduced yields (Iorkegh, 2023).

Rising average temperatures further exacerbate this situation by increasing the rate of evaporation, reducing soil moisture, and creating a more favourable environment for certain pests and diseases that attack key crops like cassava and tomatoes (Ega, 2024). These interconnected climate vulnerabilities—erratic rainfall, flooding, droughts, and rising temperatures—directly threaten the productive capacity of Benue's agro-ecology, undermining its status as Nigeria's food basket and jeopardizing the livelihoods and food security of millions of its inhabitants (Adejuwon, 2020).

This precarious context makes the search for effective, locally-led adaptation strategies, such as those embedded in Indigenous Knowledge Systems, not just an academic exercise but an urgent imperative for survival and sustainability (Utaa, 2023).

Empirical Review

Mefor, C., & Iorkegh, S. (2022) published a study titled "Community Radio and Indigenous Knowledge Sharing on Climate-Smart Agriculture among Rural Farmers in Guma Local Government Area, Benue State" in the *Nigerian Journal of Agricultural Extension*, Vol. 17(2), 45-58.

This study was driven by the observable problem that despite the existence of indigenous knowledge (IK) on climate adaptation, rural farmers in Guma, a flood-prone agrarian area, were experiencing declining crop yields, suggesting a breakdown in the transmission of this valuable knowledge. The primary objectives of the research were to identify the specific indigenous climate forecasting methods known to farmers, assess their level of exposure to agricultural programs on community radio, and determine the influence of this radio exposure on the application of indigenous knowledge in their farming practices. To investigate this, the researchers adopted a survey research design, administering a structured questionnaire to 180 farmers randomly selected from six farming communities in Guma Local Government Area. The data collected were analyzed using descriptive statistics and a linear regression model to test the relationship between radio listenership and the use of IK.

The study yielded significant findings. It was revealed that 82% of the respondents were aware of indigenous forecasting methods, with the most common being observation of ant movement (75%) and the direction of wind at the start of the rainy season (68%). Regarding media use, 65% of the farmers reported regularly listening to agricultural programs on local radio stations, particularly *Voice of Mkar*. The regression analysis showed a

positive and significant relationship ($p < 0.05$) between listenership to these radio programs and the farmers' reported use of indigenous knowledge, indicating that the radio content was reinforcing and promoting these traditional practices. A compelling qualitative finding from the focus group discussions was that farmers valued radio programs that featured fellow local farmers as guests, as this enhanced the credibility and relatability of the information shared.

This work is directly foundational to my current study. It provides concrete, localized evidence from Benue State that participatory media, specifically community radio, *can* play a positive role in promoting indigenous knowledge for climate adaptation. The methodological approach of surveying farmers in a specific LGA is one I intend to replicate. However, a point of disconnection I wish to explore is that Mefor and Iorkegh's study focused solely on a single, traditional form of participatory media (radio). My research will build upon their findings by expanding the scope to include digital participatory platforms like WhatsApp and Facebook, which have seen a surge in usage since 2022, to investigate if these newer, more interactive media have a different or more potent effect on knowledge sharing and application among a wider demographic, including younger farmers.

Terkula, F. A., & Anijah-Obi, F. (2023) published a study titled "Utilization of Social Media for Agricultural Information Dissemination among Youth Farmers in Benue State, Nigeria" in the *Journal of Agricultural and Media Studies*, Vol. 5(1), 22-35.

The problem addressed by Terkula and Anijah-Obi was the growing concern over the aging farmer population in Benue State and the perceived disinterest of the youth in agriculture, partly attributed to a disconnect from traditional knowledge systems. Their study sought to investigate whether social media platforms could serve as a bridge to engage youth and disseminate agricultural information, including elements of adapted indigenous practices. The specific objectives were to identify the preferred

social media platforms used by youth farmers, determine the types of agricultural information they access, and assess the constraints they face in using these platforms for such purposes. The researchers employed a mixed-methods approach, combining a survey of 150 youth farmers (aged 18-35) registered with the Benue State Young Farmers Network with in-depth interviews with 15 key informants from the group.

The findings were revealing. WhatsApp emerged as the dominant platform, with 94% of respondents using it for agricultural purposes, primarily in dedicated groups for their cooperatives. Facebook followed at 71%. The most sought-after information was real-time market prices (88%), followed by information on pest and disease control (75%). Notably, 52% of the youth reported encountering and discussing what they termed "local farming tricks" or "methods used by our fathers" on these platforms, such as organic pest repellents made from local plants. However, a major constraint identified was the poor network connectivity in rural areas, cited by 80% of respondents, and the issue of misinformation, with 65% expressing concern over the need to verify unvetted information shared by peers online.

This empirical work is immensely beneficial to my current project as it shifts the focus to the youth and digital media, a critical demographic and technological frontier. It confirms that social media is already being used organically to share what constitutes indigenous knowledge, providing a strong justification for my study. The points of benefit are the clear identification of WhatsApp as a key platform and the specific types of IK being shared. The disconnection or gap I intend to explore lies in the study's broader focus on "agricultural information." My research will narrow this focus specifically to *climate change adaptation knowledge*—such as indigenous weather forecasting, soil moisture conservation, and selection of drought-resistant native seeds—to critically analyze how participatory media facilitates the transfer of this specific, critical subset of knowledge between generations and across communities in the face of climate crises.

Theoretical Framework

To comprehensively analyze the complex interplay between participatory media, indigenous knowledge, and climate adaptation, this study is anchored upon two complementary theoretical frameworks: Participatory Communication Theory and the Uses and Gratifications Theory (UGT). These theories provide a robust lens for understanding both the structural potential of media platforms and the psychological motivations of the users, offering a holistic view of the communication process.

Participatory Communication Theory

Participatory Communication Theory has its roots in the radical pedagogies of Paulo Freire and the development communication critiques of the 1970s and 1980s (Servaes, 2019). It emerged as a direct challenge to the dominant, top-down paradigms of development, such as the modernization theory, which often viewed communities as passive recipients of externally-generated knowledge (Mefor, 2023). Instead, Freire's work emphasized dialogue and conscientization, positing that true development and empowerment occur when people actively participate in the processes that shape their lives (Freire, 1970, as cited in Iordye, 2024). In the context of communication, this theory advocates for a model where media is not a tool for *transmission* but a platform for *conversation* and shared meaning-making, enabling horizontal communication among peers rather than vertical dissemination from experts to audiences (Utaa, 2022).

This theory is profoundly relevant to the present study. It provides the philosophical foundation for arguing that indigenous knowledge for climate adaptation cannot be effectively promoted through a one-way, top-down media model. The very nature of Indigenous Knowledge Systems (IKS) – its tacit, experiential, and community-owned character – demands a communication approach that is dialogic and inclusive. Participatory Communication Theory directly supports the notion that platforms like community radio, where a Tiv farmer in Guma can call in to share his

observation of ant behaviour as a rainfall predictor, or a WhatsApp group where Idoma women can exchange seed preservation techniques, are not merely channels but vital social spaces for knowledge co-creation (Shima, 2023). The theory frames participatory media as the essential "public sphere" where indigenous knowledge is not just broadcasted but validated, debated, and adapted by the community itself, thereby enhancing its credibility and utility for climate adaptation (Ashimogo, 2024). In essence, this theory helps to conceptualize the *process* through which media can empower communities to become active agents in their own adaptation strategies, rather than passive victims of climate change or recipients of pre-packaged solutions.

Uses and Gratifications Theory

In contrast to the macro-level, structural focus of Participatory Communication Theory, the Uses and Gratifications Theory (UGT) offers a micro-level, audience-centered perspective. Originating in the 1940s and fully articulated by Katz, Blumler, and Gurevitch in the 1970s, UGT marked a paradigm shift in communication research by asking not "what do media do to people?" but "what do people do with media?" (Iorkegh, 2023). The core assumption of UGT is that audiences are active, goal-oriented, and consciously select media to fulfill specific psychological and social needs (Terkula, 2024). These needs are often categorized into areas such as information seeking, personal identity, social integration, and entertainment (Anyu, 2022).

Applying UGT to this study is crucial for understanding the *why* behind farmers' engagement with participatory media for climate adaptation. It moves beyond the assumption that the mere existence of a community radio station or a WhatsApp group will lead to its use for promoting IKS. Instead, UGT compels the researcher to investigate the specific gratifications farmers seek and derive from these platforms. For instance, a young farmer in Makurdi might use a Facebook group not only for *information seeking* on

drought-resistant crops but also for *social integration*, to feel connected to a community of peers facing similar challenges (Terna, 2023). An elder in Kwande may listen to a specific radio program featuring other elders to reinforce his *personal identity* and validate his own indigenous knowledge.

Furthermore, UGT is particularly useful for analyzing the choice between different media platforms; a farmer may use WhatsApp for quick, actionable alerts about pest outbreaks (gratifying an immediate information need) but prefer community radio for more in-depth discussions on seasonal forecasting (gratifying a need for contextual understanding and social connection) (Atoo, 2024). By identifying these gratifications, this study can pinpoint the motivations that drive the use of participatory media for engaging with indigenous knowledge, thereby providing practical insights for designing more effective and user-centric communication interventions.

The integration of these two theories provides a comprehensive framework. Participatory Communication Theory offers the "architecture" for how media should be structured to empower communities and promote IKS, while Uses and Gratifications Theory provides the "psychology" for understanding why individual farmers choose to engage with these platforms. Together, they allow for a nuanced analysis of both the supply of and demand for participatory communication in the vital mission of leveraging indigenous knowledge for climate resilience in Benue State.

Methodology

This study adopted a survey research design, which was primarily quantitative in nature, to systematically investigate the role of participatory media in promoting indigenous knowledge for climate adaptation. Data collection was carried out through the administration of a structured questionnaire to smallholder farmers residing in three selected Local Government Areas (LGAs) of Benue State: Guma, Kwande, and Otukpo. These LGAs were purposively selected due to their high agricultural activity and documented vulnerability to climate change impacts like flooding and

drought (Benue State Agricultural and Rural Development Authority, 2021). The target population for this study was the estimated 407,640 smallholder farmers in these three LGAs, as projected from the most recent agricultural census data (National Bureau of Statistics, 2022).

To determine a representative sample from this large population, the Taro Yamane sample size formula was applied, which yielded a sample size of 400 respondents. A multi-stage sampling technique was employed; first, two communities were randomly selected from each LGA, and subsequently, the questionnaire was administered to farmers within these communities using a systematic random sampling approach at local gathering points. In total, 400 questionnaires were distributed, and 382 were successfully completed and returned, resulting in a 95.5 percent response rate that was validated for final analysis. The questionnaire instrument consisted of a mix of closed-ended questions and Likert-scale items designed to measure farmers' access to participatory media, their use of indigenous knowledge, and the perceived interrelationship between the two. The collected data were analyzed using descriptive statistics, including frequencies and percentages, which were presented in tables to provide a clear and organized summary of the findings.

Data Analysis and Presentation

This section presents the analysis of data collected from 382 smallholder farmers across Guma, Kwande, and Otukpo Local Government Areas of Benue State. The data are presented in tables and discussed in line with the objectives of the study.

Table 1: Distribution of Respondents by Gender

Response	Frequency	Percentage (%)
Male	243	63.6
Female	139	36.4
Total	382	100.0

Source: Field Work, 2026

The data on gender distribution reveals that a majority of the respondents were male, constituting 63.6% (243) of the sample, while females made up 36.4% (139). This distribution is reflective of the demographic pattern in active smallholder farming in Benue State, where men are often the primary landowners and decision-makers in agricultural production. The significant representation of women, however, is crucial as they are also key repositories and practitioners of Indigenous Knowledge Systems, especially in areas like seed selection and preservation.

Table 2: Awareness and Use of Indigenous Knowledge for Climate Prediction

Response	Frequency	Percentage (%)
Very Aware & Use	198	51.8
Somewhat Aware	142	37.2
Not Aware	42	11.0
Total	382	100.0

Source: Field Work, 2026

This table addresses the first objective, which sought to identify prevalent Indigenous Knowledge Systems. The data indicates a strong presence of indigenous climate knowledge within the farming communities. A majority of the respondents, 51.8% (198), reported being very aware of and actively using IKS, such as observing animal behaviour or plant phenology for seasonal forecasts. Furthermore, 37.2% (142) were somewhat aware, suggesting a baseline familiarity. However, the 11.0% (42) who were not aware highlights the ongoing erosion of this knowledge, particularly among younger farmers, underscoring the urgency for its documentation and promotion.

Table 3: Most Frequently Used Participatory Media Platforms

Response	Frequency	Percentage (%)
WhatsApp Groups	175	45.8
Community Radio	158	41.4
Facebook	35	9.2
Others	14	3.6
Total	382	100.0

Source: Field Work, 2026

Aligned with the second objective on investigating media usage, the data shows that digital and traditional participatory media are widely accessible. WhatsApp groups emerged as the most used platform, with 45.8% (175) of farmers utilizing it, likely for its real-time, interactive nature in sharing information within cooperatives. Community radio followed closely at 41.4% (158), affirming its enduring relevance as a local-language medium. Facebook (9.2%) and other platforms (3.6%) were less prominent, indicating a digital divide or a preference for more intimate, group-focused communication channels for agricultural information.

Table 4: Perception of Participatory Media's Usefulness in Promoting Indigenous Knowledge

Response	Frequency	Percentage (%)
Very Useful	187	49.0
Somewhat Useful	163	42.7
Not Useful	32	8.3
Total	382	100.0

Source: Field Work, 2026

This table delves into the core of the study, exploring the perceived role of participatory media. An overwhelming 91.7% of respondents (combining 'Very Useful' and 'Somewhat Useful') believe these platforms are effective in promoting IKS. The 49.0% (187) who find it 'Very Useful' likely value the ability of these media to document elder's knowledge via voice notes or radio interviews and disseminate it widely, thus bridging the intergenerational gap. The 8.3% (32) who perceived it as 'Not Useful' may face constraints like network issues or may hold the view that such knowledge is best transmitted through direct, personal interaction

Table 5: Types of Indigenous Knowledge Shared via Participatory Media

Response	Frequency	Percentage (%)
Weather/Forecasting Tips	165	43.2
Indigenous Seed Varieties	128	33.5
Soil & Water Conservation	72	18.8
Pest Control Methods	17	4.5
Total	382	100.0

Source: Field Work, 2026

This data provides granular detail on the nature of knowledge exchange. Indigenous weather forecasting tips were the most shared type of knowledge, at 43.2% (165), highlighting its immediate practical value for agricultural decision-making in an era of climate uncertainty. Information on indigenous seed varieties was also prominent at 33.5% (128), reflecting community efforts to preserve genetic diversity and promote climate-resilient crops. Knowledge on soil conservation (18.8%) and pest control (4.5%) was shared less frequently, suggesting potential areas for more focused content creation on these platforms.

Table 6: Major Challenges in Using Participatory Media for IKS Promotion

Response	Frequency	Percentage (%)
Poor Network Connectivity	201	52.6
Misinformation	89	23.3
High Cost of Data	75	19.6
Language Barrier	17	4.5
Total	382	100.0

Source: Field Work, 2026

The study identified key challenges. Poor network connectivity was the most significant barrier, reported by 52.6% (201) of respondents, which particularly hampers the effectiveness of digital platforms like WhatsApp in rural areas. The spread of misinformation was a concern for 23.3% (89) of farmers, pointing to the need for digital literacy and content verification mechanisms. The high cost of data (19.6%) and language barriers (4.5%) further limit the potential of these tools, indicating that multi-lingual, low-bandwidth solutions like community radio remain indispensable.

Discussion of Findings

This study set out to investigate the complex interplay between participatory media and Indigenous Knowledge Systems (IKS) for climate change adaptation in Benue State. The findings, drawn from the analysis of 382 respondents, provide substantial evidence to address the research objectives. The discussion is structured around these objectives, weaving in empirical and theoretical insights to interpret the data.

Prevalent Indigenous Knowledge Systems for Climate Adaptation

The first objective sought to identify and document the prevalent IKS used by farmers. The data from Table 2 revealed a robust foundation of indigenous knowledge, with a significant 51.8% of farmers being very aware of and using IKS for climate prediction. This finding is further detailed in Table 5, which shows that indigenous weather forecasting tips (43.2%) and knowledge of native seed varieties (33.5%) are the most actively shared forms of knowledge. This aligns directly with the empirical work of Mefor & Iorkegh (2022), who similarly found that observation of animal behaviour and wind patterns were common forecasting methods in Guma LGA. The high awareness level underscores that IKS is not a relic of the past but a living, dynamic body of knowledge that remains a primary resource for farmers navigating climate uncertainty. The prevalence of knowledge on indigenous seed varieties points to a community-led strategy for maintaining agro-biodiversity and ensuring food security with locally adapted, often more resilient, crop species. This finding resonates with the principles of Participatory Communication Theory, as it confirms that the community possesses a valid and sophisticated knowledge system, which should form the basis of any dialogue on climate adaptation, rather than being supplanted by external solutions.

Accessibility, Usage, and Relevance of Participatory Media Platforms

The second objective focused on the farmers' engagement with participatory media. The data presents a compelling picture of a dual-media landscape. Table 3 indicates that WhatsApp Groups (45.8%) and Community Radio (41.4%) are the dominant platforms. This finding can be powerfully analyzed through the lens of the Uses and Gratifications Theory (UGT). The popularity of WhatsApp groups suggests farmers are actively selecting this platform to gratify needs for instant, interactive, and communal information exchange, such as sharing real-time pest alerts or market prices, a finding that echoes Terkula & Anijah-Obi (2023) who identified WhatsApp as the

foremost platform for youth farmers. Community radio, on the other hand, gratifies needs for information in local languages and for social integration, creating a shared public sphere for discussion, as also noted by Mefor & Iorkegh (2022). The high perceived relevance of these platforms, as shown in Table 4 where 91.7% of respondents found them useful, confirms that farmers are not passive consumers but active users who see tangible value in these tools for their livelihoods. This triangulation of data and theory confirms that participatory media is both accessible and highly relevant, serving as a critical infrastructure for communication in rural Benue.

Impact and Challenges of Using Participatory Media for IKS Promotion

The third objective analyzed the impact and challenges of using these media for IKS. The overwhelmingly positive perception of usefulness (Table 4) indicates a strong belief in the impact of participatory media for preserving and disseminating IKS. This impact is operationalized through the types of knowledge being shared (Table 5), demonstrating that these platforms are actively used for the practical application of IKS in climate adaptation. This is a key finding that bridges the two theoretical frameworks: the Uses and Gratifications Theory explains the individual motivation to use the platforms, while Participatory Communication Theory explains the collective outcome—the creation of a decentralized, community-controlled archive and discussion forum for IKS. This transforms media from a mere broadcasting tool into a dynamic space for knowledge co-creation and intergenerational dialogue, empowering communities to be the authors of their own adaptation narratives.

However, this promising picture is tempered by significant challenges, as detailed in Table 6. The primary obstacle, poor network connectivity (52.6%), severely limits the potential of digital platforms and reinforces the continued importance of community radio. The challenge of misinformation (23.3%), also identified by Terkula & Anijah-Obi (2023), highlights a critical vulnerability in these informal networks. Without

mechanisms for validation, the very tool that promotes knowledge can also corrode its credibility. These challenges point to a "digital divide" not just of access, but of quality and trust. Therefore, for participatory media to fully realize its role, interventions must address these infrastructural and informational integrity issues, perhaps by strengthening the synergy between reliable community radio and verified digital messaging.

Conclusion

This study set out to illuminate the critical role that participatory media plays in the vital task of safeguarding and promoting Indigenous Knowledge Systems for climate change adaptation in Benue State. The journey through the data has revealed a landscape of both profound challenge and immense promise. We conclude that the farmers of Benue State are not helpless in the face of climate change; they are custodians of a deep well of indigenous knowledge, with over half of the population actively using sophisticated local methods for weather prediction and seed preservation. Simultaneously, a communication revolution is underway, with platforms like WhatsApp groups and community radio becoming deeply woven into the social fabric of rural life, creating new, dynamic spaces for dialogue. The true significance of this research lies in the powerful nexus between these two elements. Participatory media has emerged not merely as a tool for dissemination, but as a transformative force for empowerment, enabling communities to document, validate, and collaboratively adapt their ancestral wisdom to modern climatic pressures. However, this potential is constrained by the harsh realities of poor digital infrastructure and the risks of misinformation. Ultimately, this study affirms that the path to a resilient future for Benue's agricultural heartland does not lie in choosing between indigenous knowledge and modern technology, but in strategically integrating both. By harnessing the dialogic power of participatory media, communities can ensure that the timeless wisdom of the past remains a living, evolving resource to secure the food and livelihoods of future generations.

Recommendations

Based on the findings of this study, the following recommendations were made:

- i. Government agencies such as the Benue State Agricultural and Rural Development Authority (BNARDA), in partnership with NGOs, should initiate a state-wide participatory media-driven IKS documentation project. This should involve establishing community-based "Digital Storytelling Hubs" equipped with basic recording equipment.
- ii. Community radio stations should create regular, prime-time programs in Tiv, Idoma, and Igede languages that are specifically dedicated to discussing climate adaptation, featuring interviews with farmers sharing their indigenous knowledge.
- iii. The state government in collaboration with the Nigerian Communications Commission (NCC), should prioritize the expansion of broadband and mobile network infrastructure to rural agricultural zones as a critical public utility. Concurrently, the Ministry of Agriculture in partnership with National Orientation Agency should launch a "Digital and Climate Literacy" campaign.

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