

Exploring the Role of Traditional Knowledge in Climate Change Adaptation Among Rural Communities in Kogi State: Implications for Climate Communication and Policy

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The environmental and economic difficulties arising from climate change affect developing world rural populations with increasing intensity. However, the traditional knowledge serves as a major means for understanding climate change adaptation processes in Kogi State's rural populace while contributing to policy frameworks and climate messaging strategies. Correspondingly, this study examines how traditional knowledge supports rural communities during climate change adaptation and it examines the performance of communication methods for weaving indigenous understanding into adaptation procedures. The study was anchored on the Indigenous Knowledge Systems (IKS) Theory according to which the knowledge of indigenous people is considered to be valid and culturally grounded and sustainable instrument of environmental adaptation. It employed surveys by obtaining data from 246 participants in nine (three each from the senatorial districts) rural communities of Kogi State. The analysis focused on 246 responses collected during this research. The finding showed that local weather predictions systems, agricultural traditions, as well as traditional soil preservation methods, are popular and applied by the rural population with high confidence rates to overcome changes in climate. These are community practices, and are still part of the local adaptation strategies. It is also revealed in the study that conventional forms of communication-storytelling, use of indigenous languages, and incorporation of traditional leaders are moderately useful in persuasion of climate adaptation, although there is little reparation of government when it comes to development of communication tactics. The respondents confirmed that it is important to combine the traditional knowledge with suitable formal policy. The study concludes that to become effective and culturally responsive, climate policies and related communication strategies should include participatory approaches of traditional knowledge systems. Its outcomes can be used significantly by policymakers, development practitioners, and climate communication professionals to establish resilient and inclusive adaptation channels in Nigeria and other related settings.

Keywords: traditional knowledge, climate adaptation, rural communities, indigenous practices, Kogi State

Introduction

Globally, most communities face climate change as a major environmental concern affecting vulnerable populations most severely especially in rural regions (IPCC, 2022). Smallholder farmers and indigenous populations who use natural resources for their survival are now at greater risk because weather patterns have

become more unpredictable temperatures which are on the rise while climate events produce more intense effects (Mertz et al., 2021). Communities are resulting in developing traditional knowledge systems as a response to climate-related risks according to Nyong, Adesina, and Elasha (2020). Traditional knowledge stands essential to formal climate adaptation but policymakers in most developing nations like Nigeria tend to disregard it in their strategic development work (Ford, Adesina, & Elasha, 2019).

The agricultural and natural resource-dependent rural population of Kogi State Nigeria experiences severe consequences due to climate change impacts (Ozor & Cynthia, 2021). These communities have evolved through several generations by developing sustainable adaptation practices which involve drought-tolerant crops alongside water preservation techniques and ecological prediction methods (Ajibade, Umeh, & Adeyemi, 2022). Sustainable livelihoods succeed through these inherited practices as they provide security against environmental uncertainties (Nwoko et al., 2023). Modern climate adaptation policies especially emphasize scientific technology instead of considering traditional knowledge systems which hold embedded insights about adaptation and resilience strategies (Umar & Abdul, 2020).

Traditional knowledge systems function as critical elements for climate change adaptation strategies which draw international recognition linking to sustainable development (UNDP, 2021). Integration of traditional knowledge systems with scientific information allows communities to recognize their potential to create more successful adaptation strategies (IPCC, 2022). Traditional cultural beliefs direct how agriculture functions and guide people in forecasting weather patterns as well as regulating natural resource utilization in Kogi State (Odeyemi & Salisu, 2022). The traditional knowledge systems are passed down through generations contain essential information that would better scientific efforts to combat climate-related challenges (Ifeanyi & Adeyemi, 2023). Traditional knowledge faces barriers in climate adaptation policies because there is an ongoing challenge to document methods scientifically (Agbaje & Ibekwe, 2020).

National adaptation strategies in most developing nations reject traditional practices because policymakers consider them to be outdated scientific concepts (Okonkwo, 2021). Indigenous knowledge becomes more effective in adaptation strategies when united with contemporary climate science according to research (Ugwueze & Onuoha, 2022). The development of climate adaptation requires researchers through interdisciplinary collaboration to work with local communities and policymakers in joint knowledge creation for governance initiatives (Oladipo & Edeh, 2023). Policies that exclude traditional knowledge from agricultural systemic frameworks reduce the ability of such knowledge to develop community resilience (Berkes, 2021).

The majority of adaptation programmes in Nigeria pursue solutions implemented externally while they remain incompatible with rural socio-cultural norms (Okafor, 2022). Government-initiated climate interventions clash with local adaptation practices which results in decreased performance of implemented strategies and community non-compliance toward imposed strategies (Oluwole et al., 2023). However, it is worth noting that effective communication about climate change provides essential links between traditional adaptation practices and policymaking at the national level (Eze & Chukwuma, 2020).

Ideally, climate adaptation policies are expected to incorporate traditional knowledge as an essential foundation to create meaningful and suitable public policies (Ilo & Agbo, 2021). The resilience of rural areas receives substantial benefits from traditional coping strategies which include soil conservation techniques and mixed cropping along with seasonal migration according to Babatunde, Eze, and Olawale (2022). These practices

supported by policy and scientific validation demonstrate cost-effective sustainability for addressing climate adaptation problems (Akinyemi, 2023). Understanding cultural perspectives supports community involvement during the process of making decisions linked to climate adaptation (Eneh & Uchenna, 2021).

Also lamenting, Nyong et al. (2020) submit that the agricultural activities based on traditional farming and natural resources in rural areas face major difficulties due to climate change effects. Unstable climate events along with temperature growth and greater floods and drought patterns have negatively affected agricultural output and food security in Kogi State, Nigeria (Ozor & Cynthia, 2021). Policymakers and climate scientists promote modern adaptation strategies but traditional knowledge which has developed through the years passes unnoticed in official climate adaptation policies according to Ford et al. (2019). The failure to integrate these indigenous coping systems into climate adaptation programmes creates unsupportive zones for rural populations thereby increasing their chances of suffering climate-related catastrophes (Ajibade et al., 2022). Studies such as Ilo and Agbo (2021) as well as Babatunde et al. (2022) posit indigenous knowledge's importance for climate adaptation, yet Kogi State lacks empirical evidence showing its influence on shaping climate policy and communication. Rehabilitated traditional adaptation methods like ecological forecasting alongside mixed cropping and soil conservation practices demonstrate proven capability to boost resilience.

The implementation of traditional practices faces a major challenge because these practices lack comprehensive documentation within existing national and regional climate policies according to Akinyemi (2023). Rural areas show concern regarding the effectiveness of climate communication methods because formal communication techniques struggle to harmonize with their cultural and linguistic identities (Eneh & Uchenna, 2021). Traditional knowledge becomes excluded from climate adaptation discussion which reduces the effectiveness of interventions as well as generates resistance from local communities preventing policy implementation (Odeyemi & Salisu, 2022).

Knowledge integration between traditional systems and scientific adaptation strategies is proposed to yield important support which benefits policymakers together with rural development specialists and climate communication professionals (Ozor & Cynthia, 2021). Therefore, this study investigates how traditional knowledge affects climate change adaptation processes among rural communities of Kogi State, as guided by the following research questions:

- (1) What is the role of traditional knowledge in climate change adaptation among rural communities in Kogi State?
- (2) How effective are climate communication strategies in integrating traditional knowledge into adaptation policies of the state?
- (3) What are the implications of incorporating indigenous knowledge into formal climate adaptation policies for rural resilience and sustainable development?

Traditional Knowledge in Climate Change Adaptation

Traditional knowledge is a type of practice or skill that develops through the continuous environmental engagement of indigenous and local communities over generations to become the collective body of knowledge that includes agricultural methods and weather predictions along with resource management plus disaster prevention techniques (Nyong et al., 2020). Traditional knowledge provides a vital understanding of how residents living in rural areas experience environmental changes because climate change produces irregular rain

patterns water-related problems and dry conditions (Akinyemi, 2023). Traditional knowledge functions as a fundamental adaptation tool for climate change mainly in areas where residents maintain their survival by using natural resources.

Various traditional adaptation methods have protected rural residents against climate variability throughout history. Local communities examine climatic patterns by interpreting how clouds appear in the sky together with how animals behave and which wind directions prevail (Babatunde et al., 2022). Traditional soil conservation techniques which combine mulching with mixed cropping practices allow farmers to protect their soil fertility while fighting against drought conditions (Ilo & Agbo, 2021). Climate change has strengthened so much that scientists fear indigenous techniques may fall short of handling rising regularity and severe magnitude of extreme events (Ozor & Cynthia, 2021).

According to Eneh and Uchenna (2021), formal communication methods face barriers when trying to support climate adaptation due to mismatching between local cultural practices and linguistic frameworks. Traditional knowledge operates effectively for climate communication because it grows from cultural traditions which also use native languages and community beliefs. Local knowledge integration within climate communication programmes encourages rural communities to accept and use adaptation approaches (Ajibade et al., 2022). The situation demonstrates how essential it is to use communication methods that use indigenous perspectives and maintain cultural respect in all approaches.

According to Adewole and Ibrahim (2023), the main constraint to indigenous adaptation practices recognition stems from their absence in organized documentation systems (Adewole & Ibrahim, 2023). Rural communities transmit their knowledge by spoken word which creates obstacles when incorporating such details into formal climate policies. The scepticism shown by policymakers together with scientists to accept traditional knowledge as scientifically valid leads to these approaches being removed from national adaptation plans (Nyong et al., 2020). However, a combination of indigenous knowledge and empirical scientific research methods should be used to solve these current obstacles.

Furthermore, in the view of Akinyemi (2023), administrative decisions or official climate action plans that integrate indigenous coping mechanisms improve community resilience through the combination of culturally suitable solutions which are also tailored to local conditions (Akinyemi, 2023). Local leaders along with knowledge holders need to participate in policy decisions to create partnerships between traditional knowledge systems and modern scientific institutions (Ford et al., 2019). Legal mechanisms need to be established because they will safeguard and enhance traditional knowledge utilization for environmental governance (Babatunde et al., 2022).

Traditional knowledge faces debate regarding its ability to adapt to the fast-evolving climate pattern. A group of researchers suggest that traditional knowledge systems result from historical occurrences which do not match contemporary climate change rates and continue to evolve with environmental changes (Ozor & Cynthia, 2021). According to Ugwueze and Onuoha (2022), traditional knowledge has proven itself as a vital asset for building climate resilience. Research involving community members should follow a participatory method to continually assess and update indigenous knowledge instead of treating it as obsolete.

Rural communities in Nigeria experience a top-down approach to climate adaptation policies because they receive rather than contribute actively to adaptation strategies (Ilo & Agbo, 2021). Such methods strip away indigenous peoples' power to make choices and subsequently diminish the performance of implemented

adaptation practices. By using traditional knowledge alongside scientific perspectives, a bottom-up approach will develop inclusive and efficient climate policy frameworks (Ajibade et al., 2022). The development of community-based adaptation frameworks must happen to give rural voices adequate representation during policy-making processes and implementation stages.

The sustainability of traditional knowledge for climate adaptation depends heavily on education programs that raise awareness (Eneh & Uchenna, 2021). Schools together with local institutions need to include indigenous environment-based knowledge in their education programs to maintain traditional adaptation methods for future students (Adewole & Ibrahim, 2023). The compatibility between universities, research institutions, and local communities produces enhanced credibility and application of indigenous knowledge in climate science (Babatunde et al., 2022).

The sharing of indigenous climate adaptation strategies can be done through mobile applications social media platforms and community radio services (Ford et al., 2019). Policymakers should use technology tools to consolidate traditional wisdom with modern science and provide benefits to rural communities (Ozor & Cynthia, 2021). The traditional knowledge system maintains its central role in Kogi State rural communities when adapting to climate change effects. The regional perspective provides supportive data that scientists can utilize as an addition to their established adaptation strategies. Traditional knowledge can reach its full effectiveness through the process of documentation while integration into climate communication and policy-making recognition. Scientific progress can reach its maximum sustainability through a combined method which merges native wisdom with innovative research.

Theoretical Framework

This study is anchored on the Indigenous Knowledge Systems (IKS) Theory as developed by Berkes and Warren (1991) which explains traditional knowledge contributions toward climate adaptation efforts. Berkes and Warren (1991) developed the theory to counter Western scientific dominance by proving that non-Western culture has equivalent validity alongside its versatility for local habitats. To them, traditional knowledge serves as a result of extensive human-witnessed observations extended over centuries leading to sustainable resource management and environmental adaptation practices. IKS Theory consists of essential tenets which include the passing down of knowledge across generations, the practice of resource management within communities, and the maintenance of ecological balance (Agrawal, 2002). The theory demonstrates that indigenous communities have deep understanding of their environments because they often develop better specific and practical models than official scientific approaches.

The theory is being criticized for having difficulties with standardization and its ability to apply universally since indigenous knowledge usually exists as context-bound information that resists generalization (Nadasdy, 2007). Some researchers maintain that indigenous knowledge lacks value in official policy documents because it lacks scientific evidence (Dove, 2006).

Despite these criticisms, IKS Theory provides a vital understanding of climate adaptation assessments when local people still depend on traditional practices to manage environmental changes. The study believes that traditional knowledge practices used by Kogi State rural communities when adapting to climate variability have the capacity for local forecasting and land-use practices combined with water conservation to build climate resilience.

Methodology

The research design of this study is the quantitative method using survey with structured questionnaire. Three communities were selected from each of the three Senatorial Zones in Kogi State, given a total of nine communities selected across the state which served as the sampled population for the study. Firstly, the researchers used purposive methods to choose local governments with climate-vulnerability, and then applied stratified sampling techniques to obtain representatives from diverse segments including gender age and professional roles. Two hundred and fifty-five participants formed the sample size for the study. The research data collection instruments consist of survey questionnaires administered through the following link <https://forms.gle/HJHyonpJDsU11kA69> and sent to individuals electronically to complete in order to get inputs for analysis. The questionnaire was structured based on the focus of the research questions, using closed-ended questions which they ticked best option on a four-point scale (Strongly Agree (4), Agree (3), Disagree (2), or Strongly Disagree (1)). The data were analysed using inferential statistics, including central tendency and mean analysis. All ethical standards for research involving indigenous communities were fulfilled through participant consent procedures confidential data handling protocols and research guidelines.

Data Presentation

Below is the presentation of data collection based on the research objectives; the table below provides a structured representation of the research findings in alignment with the study's objectives. Out of 255 questionnaires, 246 were considered valid for analysis.

Research Question 1: What is the role of traditional knowledge in climate change adaptation among rural communities in Kogi State?

Table 1

Role of Traditional Knowledge in Climate Change Adaptation Among Rural Communities in Kogi State, n = 246

S/N	Statements	SA (x4)	A (x3)	D (x2)	SD (x1)	Mean score	Decision
1.	Traditional knowledge has helped our community adapt to changing weather patterns.	122	72	34	18	3.21	Agreed
2.	Local agricultural practices based on indigenous knowledge improve crop resilience to climate change.	135	61	24	26	3.24	Strongly agreed
3.	Community elders and traditional leaders are reliable sources of climate-related knowledge.	88	82	42	34	2.91	Agreed
4.	Traditional forecasting methods (e.g., cloud reading, animal behavior) guide farming decisions in our community.	120	75	35	16	3.22	Strongly agreed
5.	Indigenous soil conservation techniques are still widely used and effective in preventing erosion and drought.	92	73	47	34	2.91	Agreed
6.	Traditional knowledge has been passed down through generations and remains relevant for today's climate challenges.	77	62	58	49	2.63	Agreed
7.	Our community relies on traditional methods rather than government information for climate adaptation.	48	59	76	63	2.37	Disagreed
8.	Traditional knowledge supports sustainable use of natural resources in our community.	106	71	39	30	3.03	Strongly agree
Sectional mean score = 2.94							

Source: Field Survey, 2025.

Table 1 indicates that traditional knowledge is essential to the communities to adapt to the changes in the environment. Rectifying indigenous farming to make crops more resistant (mean score = 3.24) and using ways to predict accurately such as cloud distribution and animal behaviour to make farming choices (mean score = 3.22) emerged in strong agreement with the respondents. Nonetheless, they differed with the statement that communities do not use anything but traditional methods against government information (mean score = 2.37), meaning that they prefer an interdependent strategy. The sectional mean score of 2.94 suggests that traditional knowledge plays a crucial role as an adaptation element to the rural inhabitants.

Research Question 2: How effective are climate communication strategies in integrating traditional knowledge into adaptation policies?

Table 2

Effectiveness of Climate Communication Strategies in Integrating Traditional Knowledge Into Adaptation Policies, n = 246

S/N	Statements	SA (x4)	A (x3)	D (x2)	SD (x1)	X	Decision
1.	Communication methods used by the government align well with our local cultural practices.	111	82	34	19	3.16	Agreed
2.	Community meetings and storytelling are effective channels for sharing climate adaptation strategies.	99	71	52	24	3.00	Agreed
3.	Traditional leaders are actively involved in climate-related communication and awareness campaigns.	96	68	48	34	2.92	Agreed
4.	Radio and other local media effectively communicate climate change information in indigenous languages.	87	69	61	29	2.87	Agreed
5.	There is a strong link between traditional communication methods and formal climate adaptation efforts.	60	70	65	51	2.63	Agreed
6.	Government agencies consult community members when designing climate communication strategies.	73	57	63	53	2.61	Agreed
7.	Lack of culturally appropriate communication is a barrier to effective climate adaptation.	61	56	68	61	2.48	Disagreed
8.	Integrating indigenous knowledge into communication materials increases community participation in climate action.	81	72	49	44	2.77	Agreed
Sectional mean score = 2.81							

Source: Field Survey, 2025.

Table 2 gives a magnitude of the effectiveness of climate communication strategy in having the traditional knowledge integrated: There is moderate effectiveness. Those who responded concurred with the position that government communication techniques match local cultural systems (mean score = 3.16), as well as the other idea that storytelling and community meetings form good channels through which climate messages can be conveyed (mean score = 3.00). They also appreciated the importance of using indigenous languages in media as well as the participation of traditional leaders in the awareness programs. However, there were low scores in sections like consultation of the community members in the planning of communication (mean = 2.61) and there was a significant disagreement on the statement on the barrier of culturally inappropriate communication (2.48). Sectional mean portrays the positive satisfaction in the incorporation of traditional communication practices into formal strategies with the figure standing at 2.81.

Research Question 3: What are the implications of incorporating indigenous knowledge into formal climate adaptation policies for rural resilience and sustainable development?

Table 3 evaluated the implications of introducing indigenous knowledge in formal climate adaptation policies. The respondents believed that policy integration would enhance food and environmental security (mean score = 3.04), make rural people more resilient (3.06), and reinforce trust in climate efforts. They also thought that there was going to be an integration between the traditional and scientific approaches therefore leading to better policies. Nevertheless, the idea that the current policies have already acknowledged the importance of Indigenous knowledge (mean score = 2.22) as well as the necessity to doubt the cost-effective nature of the approaches (mean score = 2.55) did not go unopposed. The sectional mean of 2.76 proves that there is a common feeling that incorporation of indigenous knowledge within the policy frameworks is good but the application is not enough at the moment.

Table 3

Implications of Incorporating Indigenous Knowledge Into Formal Climate Adaptation Policies for Rural Resilience and Sustainable Development, n = 246

S/N	Statements	SA (x4)	A (x3)	D (x2)	SD (x1)	X	Decision
1.	Strengthening traditional knowledge through policy integration will improve food and environmental security.	102	78	41	25	3.04	Agreed
2.	Incorporating traditional knowledge into national climate policies will improve rural resilience.	105	75	40	26	3.06	Agreed
3.	Policy makers should formally recognize indigenous practices in climate adaptation programs.	92	77	46	31	2.93	Agreed
4.	Government neglect of traditional knowledge undermines sustainable development efforts.	71	67	69	39	2.69	Agreed
5.	Indigenous adaptation techniques are cost-effective and suitable for rural development needs.	55	60	65	66	2.55	Disagreed
6.	Formal inclusion of traditional knowledge in policies will increase local trust in climate initiatives.	81	62	44	49	2.75	Agreed
7.	Combining traditional knowledge with scientific methods leads to more effective climate policies.	88	72	52	34	2.87	Agreed
8.	National policies currently ignore the value of local Indigenous Knowledge Systems.	45	41	83	77	2.22	Disagreed
Sectional mean score = 2.76							

Source: Field Survey, 2025.

Discussion of Findings

In line with the first research objective which seeks to ascertain the role of traditional knowledge in climate change adaptation among rural communities in Kogi State, the study revealed that traditional knowledge is core in climate change adaptation within rural communities of Kogi State. The data revealed that the majority of the respondents are highly appreciative of the usefulness of indigenous practices in the aspect of dealing with the negative effects of fluctuating weather conditions. To illustrate, the participants were strongly in agreement that local farming practices within the traditional knowledge have enhanced resistance to crops (mean = 3.24), and they also follow traditional ways of forecasting like observing habits as well as traits of the climatic conditions like the movement of the clouds and habits of animals to determine ways in farming practices (mean = 3.22). This finding aligns with the submission by Nyong et al. (2020) that indigenous groups in Africa have designed various climate observation and adaptation mechanisms that proved to be effective over time.

Further findings show that community elders and traditional leaders were perceived as the custodians of climate-related knowledge by the respondents (mean = 2.91) in line with the perception by Akinyemi (2023) that the responsibility of passing Indigenous Knowledge Systems lies on community leaders. It is also seen that they used and employed traditional methods of soil conservation successfully, and this position is in line with Babatunde et al. (2022) who wrote about the work of mixed cropping and soil conservation methods for the rural population of Nigeria. Such age-old measures as mulching and terracing are important to uphold soil fertility as a way of alleviating the impact of drought conditions, which would ensure agricultural productivity amidst unstable climatic conditions.

Interestingly, although most of the respondents tended to agree with the idea that traditional knowledge is relevant, there was a negative agreement (mean = 2.37) with the notion that their community uses only the traditional approach, and not the information provided by a government. It is an indication that rural dwellers know they have to mix the modern scientific information, and the indigenous method. This is consistent with what has been argued by Ugwueze and Onuoha (2022) where a hybrid model that includes the two, traditional knowledge and contemporary science should be used as a way of increasing community resilience. It also refers to the flexibility of the traditional knowledge systems, which is not meant to stand in one place since it grows depending on emerging issues and incoming information, as mentioned by Ozor and Cynthia (2021).

The finding aligns with the postulations of the theory of Indigenous Knowledge Systems (IKS) which submits that indigenous knowledge is a legitimate and valuable system that leads to the sustainability of resources management and adaptation towards the environment. The substantial average score related to the use and success of the traditional practices in climate change adaptation (e.g. weather forecasting, soil management, and crop diversity) demonstrates that these communities have extensive knowledge with collective experience spanning centuries confirming the theoretical position of the IKS that not only is such knowledge that needs to be maintained but it should become part of official environmental policies and decision. Such perceptions indicate that Indigenous Knowledge Systems are able to cope with the existing climatic variations negating the claims that the knowledge is obsolete or have no relevance in the contemporary environments of adaptation.

In response to the second research question which was on how effective climate communication strategies are in integrating traditional knowledge into adaptation policies, there was common understanding that communication strategies were fairly effective in regards to integrating the traditional knowledge into implementation of adaptation policies. The most rated item (mean = 3.16) in Table 2 states that the communication style of government agencies is consistent with local cultures which implies that in certain societies, initiatives have been geared towards making sure that climate messages connect with local orthodoxies and conventions. This observation is resonated with the prospect of Eneh and Uchenna (2021), who stated that climate communication in rural Nigeria needs adapting messages to the audience based on their cultural and linguistic conditions.

Likewise, the respondents concurred that storytelling and community meetings are effective methods of communicating on climate. This confirms the study of Ajibade et al. (2022), and the authors noted that conventional communication manifests, whereby folktales and community-based discussions still remain an important tool in conveying climate sending to rural residents. The fact that these methods received a high rating is an indication that the communities prefer participatory engagement that is familiar and one based on cultural traditions that facilitate the creation of a better understanding and support of the practice of adaptation. It also

refers to the vast penetration of the conventions of traditional communications into the phenomena of indigenous knowledge depicted by Nyong et al. (2020).

Respondents also concurred that traditional leaders actively participate in the climate change related communication and awareness campaigns (mean = 2.92), as has been demonstrated by Akinyemi (2023) when he unearthed that in most rural societies of Nigeria, the traditional institutions are credible platforms involved in environmental education. This supports the importance of the elders as mere guardians of knowledge in addition to being perceptual messengers of adaptation measures. Local media like community radio were also recognised on its value (mean = 2.87) especially in the delivery of messages in the indigenous languages. These results can correlate with the works of Hassan and Yusuf (2023), who stressed that the indigenous language media could assist in closing the divide between concrete environmental data and individuals in the countryside.

Although these positive responses were emerged, certain concerns also came out in the study such as the claim about targeting communication strategies by governmental agencies consult with the community members to design the communication strategies which gave a mean score of 2.61; this indicates a low engagement rate. This substantiates the criticism of Agbaje and Ibekwe (2020) about climate policies and programs mostly being top-down and infringe on grassroots involvement. In addition, the statement that says that “absence of culturally appropriate communication is a hindrance to climate adaptation” had an average score of 2.48 meaning that was disagreed upon. This could mean that there could be challenges but as far as respondents were concerned, there had been some attempts to ensure that there could be alignment of communication with the values of the culture.

The findings are aligned with the argument of Indigenous Knowledge Systems (IKS) Theory recommending the respect and integration of local forms of knowledge, and ways of communicating into the formal adaptation strategies. Berkes and Warren (1991) state that knowledge is best communicated according to the cultural aspect that is found within a society that the community shares understanding and confidence. The fact that the mean scores of the traditional leaders, storytelling, and the use of indigenous languages are very high indicates that people who made such high scores support the IKS perception that effective adaptation needs participatory and culturally based communication strategies. They are some of the mechanisms that can be relied upon to maintain Indigenous Knowledge Systems besides enhancing acceptability of the scientific messages.

The findings of third research question which is measuring the implications of using indigenous knowledge in formal climate adaptation policies on resilience and sustainable development show that there is a high rate of agreement among the respondents regarding the importance of the application of traditional knowledge in advising the policy and bringing better outcomes to the community. The items that have the highest ratings entail the belief that the incorporation of indigenous knowledge into national climate policies would help in building rural resilience (mean = 3.06), and that building up the traditional knowledge using policy frameworks can help in enhancing food and environmental security (mean = 3.04). These results are in line with those of Akinyemi (2023) and Babatunde et al. (2022), who asserted that conservative practices of adaptation are economical, locally anchored, and can lead to long-run viability under the proper institutional backing of formal institutions. It also shows that policymakers ought to formalize the indigenous practices in adaptation programs. This corresponds to the stance of the research by Ford et al. (2019), who highlighted that when indigenous knowledge is not included in the national policies, the result is an ineffective policymaking process, insufficient implementation, and opposition to the policy by the local population. Equally, integrating traditional knowledge and scientific methods in the betterment of the policy effectiveness also had an average of high rating of 2.87. It upholds the

argument made by Ugwueze and Onuoha (2022) in favor of hybrid adaptation frameworks because they empower local cultural understanding and merger with empirical research as they are resilient and capable of response. Such answers indicate willingness of communities to adopt in-built adaptation practice that is integrative and scientific-based.

Nevertheless, there was a negative difference of opinion (mean = 2.22) about whether national policies have currently identified or appreciated the value of traditional knowledge, implying that there is no compatibility between community expectations and the reality of the policy. This difference validates the claims by Agbaje and Ibekwe (2020) as they pointed out that the significant neglect of indigenous adaptation techniques is prevalent because they are not documented and scientifically justified. The failure to pay due attention to such practices as it is maintained in the study hinders the chances of establishing trust and participation among communities and climate governance institutions. What this points out is the urgent necessity of institutional changes where not only indigenous knowledge must be recognized, but legal and operational systems of implementing it must be developed.

Also, the next point of disagreement (mean = 2.55) was in the perception that indigenous adaptation techniques are already cost-effective in the eyes of policymakers. This implies that though communities appreciate the utility of traditional practice, there is doubt as to whether formal climate structures also appreciate the same. The same view is shared by the results of a study conducted by Okonkwo and Ibrahim (2024) who criticized climate policy in Nigeria due to its favouring top-down and externally-driven interventions that often do not care much about the local priorities. To achieve the desired results, when it comes to integration, policymakers should not only engage in token acts of inclusion, but rather, make an active effort to fund documentation, evaluation, and scaling of the indigenous innovations whose impacts have proven effective on land.

These results are firmly in alignment with the postulations of Indigenous Knowledge Systems (IKS) Theory that considers the traditional knowledge as a context-sensitive, adaptive, and community-based kind of knowledge about the changes in the environment. Berkes and Warren (1991) highlight the importance of adhering to Indigenous Knowledge Systems which lays emphasis on the aspect of ecological balance, the aspect of knowledge transfer across generations and also to the aspect of participatory decision making which is supported by the actions of the respondents to demand the need to have their knowledge formalized as well as have them integrated in policy making. The precedence demands of items that deal with resilience, sustainability through trust building, as well as sustainability confirm theories that indigenous knowledge is never an addition to scientific policy, but a center of sustainable governance of the environment, particularly in culturally attentioned rural environments. Thus, to make adaptation policies work and be inclusive, national and regional policymakers should integrate local communities in institutionalization of traditional knowledge in national and regional climate policies.

Conclusion

This study analyzed how rural communities integrate traditional knowledge in their efforts to adapt to the changing climatic conditions using information through the integration of the same in the communication strategies and policies of the Kogi State. The research results showed that rural climate resilience relies heavily on the traditional knowledge, because local practices involving local weather forecasts, soil conservation as well as crop diversification are actively used and relied on. The methods are traditional and may be advanced with

time and are yet applicable in the current climate issues. The research also discovered that the methods of communication of the past are rather significant with the views on raising the level of awareness about climate change and the practice of adaptation, such as storytelling, communal meetings, and the incorporation of the traditional leaders. Nevertheless, these methods of communication are moderately effective even though the way in which governmental bodies embrace local communities in communicating on climate still has limitations. The study indicated that the people desired more inclusive and culturally adept messaging that involves incorporation of both indigenous and scientific systems of knowledge. In addition, it reveals that little has been done in incorporating traditional knowledge into formal policies of climate adaptation and most respondents have adopted a view of a gap between formal strategies adopted by national plans and local issues. Based on the Indigenous Knowledge Systems (IKS), it indicates the necessity of participatory policy-making models that acknowledge the indigenous wisdom as the key to sustainable climate governance.

Recommendations

1. National climate policy frameworks need to officially include traditional knowledge by developing systemized record keeping and native practices for policy integration.
2. Local governments need to build community adaptation programs which equip leadership roles held by elderly people and farmers to make direct contributions toward climate policy.
3. Rural communities with educational establishments must team up to prove scientifically how traditional climate adaptation strategies work and improve these solutions for wider deployment.
4. The promotion of indigenous climate adaptation techniques should utilize digital and media outlets which will protect these methods from disappearance while making them available for use in future periods.
5. Ethical climate management practices will be more effective for rural communities by implementing a united method that marries conventional wisdom with current scientific breakthroughs.

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