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Towards an Inclusive Climate Governance System: Indigenous Knowledge and State Policy Synergies in Rural Zimbabwe

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ABSTRACT

Climate governance in rural Zimbabwe confronts multifaceted challenges as communities grapple with intensifying climate impacts, namely irregular rainfall and extended droughts, each of which undermines livelihood security, agricultural output, and food availability. This paper examines the synergies between IKS and state climate policies in the Mutoko District, illuminating the transfer of indigenous wisdom across agricultural planning, ceremonial observances, and adaptive practices. The paper employed an exploratory qualitative framework anchored in participatory inquiry and grounded theory. Data was gathered through in-depth interviews, focus group dialogues, and key informant interviews with a diverse sample of farmers, elders, traditional leaders, and extension officers. Thematic analysis was employed to analyze data, and the findings established that traditions such as rainmaking ceremonies and the veneration of ancestors cultivate social unity and validate the authority of indigenous governance, while youth-led collectives increasingly intertwine traditional ecological wisdom with mobile and digital media, generating hybrid frameworks that elevate adaptive capacity. The analysis therefore articulates that an authentically inclusive climate governance framework in Zimbabwe necessitates the formal legitimization of Indigenous Knowledge Systems, the establishment of deliberative platforms that facilitate co-learning, and sustained, directed investments in educational initiatives that ensure cultural and technical continuity across generations. The research concludes that addressing epistemic divisiveness and integrating participatory, culturally relevant governance procedures in semi-arid rural areas is essential for enhancing resilience and supporting the communities impacted.

INTRODUCTION

Indigenous Knowledge Systems (IKS) have long constituted indispensable resources for climate governance at the local level (Ijatuyi et al., 2025). The continuous sidelining of Indigenous Knowledge Systems (IKS) restricts the capacity of climate governance to deliver equitable and durable adaptations and simultaneously erodes local stakeholder participation and participation (Hari, 2020). Understood across multiple global and Southern African discourses, the demand now is for climate responses to be attuned to local contexts, embedded in social legitimacy, and open to plural knowledge traditions (Natarajan et al., 2022). Policy incorporation of IKS transcends the frame of heritage protection. It emerges as a tactical necessity for climate resilience that meaningfully connects to the lived landscapes of affected populations (Nyahunda, 2024; Dube et al., 2024). Such incorporation has the potential to cultivate legitimacy, accelerate adoption of adaptive measures, and align interventions with the aspirations and ethical frameworks of the communities they are meant to serve.

Within sub-Saharan Africa, where climatic shocks are magnified and financial instruments for adaptation remain scarce, it is essential that governance architectures mobilize the full range of actors and epistemic communities (Tamasiga et al., 2023; Bambi et al., 2024). Research has

demonstrated that centralized, directive models of climate governance routinely overlook the specificities of local conditions, thus eroding both operational success and public legitimacy (Evers & Schmid, 2025; Weinger, 2025; Lederer, 2025; Neij & Heiskanen, 2021). Such findings have stimulated advocacy for governance reconfigurations that are decentralised and dialogic, enabling communities to co-design and execute strategies that are congruent with both the local biophysical environment and prevailing socio-cultural frameworks.

Indigenous Knowledge Systems (IKS) represent an invaluable, albeit under-recognized, reservoir for shaping effective climate adaptation strategies (Gondo, 2025). IKS entails the culturally situated, place-based, and intergenerational bodies of knowledge that arise from sustained, intimate engagement with the local landscape and climate (Madzivhandila, 2024). Such systems catalogue early warning indicators, develop finely calibrated weather forecasts, promote diverse cropping strategies, and govern ecosystems in ways that have long served societal survival. In Zimbabwe, for instance, the constellation of rainmaking rituals, the protection of sacred groves, the articulation of seasonal calendars, and time-honored agronomic practices have cumulatively sustained community robustness over generations (Ndlovu et al., 2020). Nevertheless, official climate governance structures routinely overlook or undervalue IKS, reflecting epistemological hierarchies that elevate Western scientific paradigms above local forms of mastery. The rift separating scientific from Indigenous knowledge transcends methodological questions, exposing the enduring effects of colonial histories and uneven power relations (Murimbika, 2006).

Nyahunda (2024) characterizes the relegation of IKS as an instance of epistemic injustice, wherein locally cultivated understanding is dismissed as either unquantifiable or merely anecdotal. Such marginalization undermines the participatory legitimacy of climate governance systems while simultaneously constraining their capacity for adaptive refinement. In contrast, recognition and deliberate incorporation of IKS can reinforce the credibility of adaptation policies, cultivate inter-communal trust, and nurture local stewardship over adaptive measures (Madzivhandila, 2024). This study seeks to establish the divergence between climate policies and the lived experiences of rural populations vis-à-vis IKS. The paper contends that linking IKS with formal policy architecture deepens local ownership and legitimacy, while simultaneously augmenting the effectiveness and durability of adaptive actions. While state policies acknowledge the significance of climate-related hazards, they often subscribe to externally derived scientific paradigms that do not resonate with local realities or decision-making horizons (Dorji et al., 2024). Consequently, adaptation strategies risk being perceived as prescriptive and distant, overlooking the adaptive capacities embedded within IKS.

The purpose of this study is to explore how Indigenous Knowledge Systems (IKS) and state climate policies can be synergistically integrated to foster inclusive climate governance in rural Zimbabwe. Focusing on the Mutoko District, the research seeks to understand how traditional ecological practices, cultural ceremonies, and local governance structures contribute to community resilience in the face of climate variability, including irregular rainfall and prolonged droughts. By examining the roles of farmers, elders, traditional leaders, and extension officers, the study aims to identify mechanisms through which indigenous wisdom and formal policy frameworks interact, highlighting pathways for co-learning, cultural continuity, and adaptive capacity enhancement. Ultimately, the study seeks to inform the development of governance models that formally recognize IKS, promote participatory decision-making, and strengthen climate adaptation strategies at the grassroots level.

METHODS

The research employed an exploratory qualitative design rooted in grounded theory and participatory inquiry, with the objective of investigating the productive interrelationships between IKS and official state climate policies at the community level. A qualitative methodology was selected to render visible the situated, textured experiences, values, and perceptions of rural populations, alongside the processes through which knowledge circulates and policies are reconfigured. Grounded theory oriented the inquiry toward findings that emerge autonomously from empirical data, avoiding prior theoretical constraints; conversely, participatory strategies foregrounded

local actors as both custodians of knowledge and active co-researchers, ensuring that their perspectives shaped the analytical trajectory. Fieldwork was undertaken in Mutoko District, Mashonaland East Province, with sites chosen for their semi-arid climate, susceptibility to climatic variability, and resilient cultural traditions coupled with well-established indigenous governance frameworks.

The study employed purposive sampling, which was initially used to select information-rich participants, including traditional leaders, smallholder farmers, government officials, and NGO personnel involved in climate governance and IKS. Purposive sampling was employed to ensure a broad spectrum of viewpoints, prioritizing individuals either implementing climate adaptation measures or engaged in policy formulation. Data collection comprised fifteen (15) in-depth interviews, two (2) focus group discussions, and five (5) key informant interviews. Respondents encompassed local authorities such as chiefs and headmen, community elders, smallholder farmers, local government representatives, and personnel from non-governmental organizations and agricultural extension units. Thematic Content Analysis (TCA) was used to analyze data. TCA is described by Braun and Clarke (2006) as a technique for finding, evaluating, and summarizing patterns in the data. In order to proceed, TCA divides the gathered data into themes. From the data, the researcher identified trends and patterns that developed from the data collected, then coded and classified them into different categories that were used to analyze climate governance and State policy synergies in the Mutoko district.

RESULTS AND DISCUSSION

Durability and Significance of Indigenous Climate Knowledge

Research indicates that IKS retain notable significance in daily decision-making among rural populations in the Mutoko district. Residents interpret natural phenomena, including avian migratory patterns, insect behaviors such as the trails of ants and the emergence of butterflies, and the budding cycles of particular tree species, as reliable indicators of impending seasonal transitions. These signs are woven into communal histories and ceremonial practices, which serve to solidify their credibility (Diko, 2025; Musoni et al., 2020; Zongho et al., 2022). While access to formal meteorological updates has expanded, many farmers habitually compare formal forecasts with these Indigenous signs before committing to planting schedules. This is what the participants had to say: "Even if the radio says the rains will come late, I always check the trees. When the musasa trees start to bud, it is a clear message to prepare the fields. I trust what I see in nature more than distant forecasts." (Smallholder Farmer, Nyamuzizi village).

"The birds do not lie. When the swallows return in great numbers, we know the season is changing. These signs are part of our ceremonies, and they remind us that God and the spirits show us through nature what is coming." (Community Leader, Nyamuzizi village)

Interviews with participants highlight the resilience and practical incorporation of IKS in standard agronomic decision-making processes. The examination of ant behavioral patterns, the phenology of musasa trees, and the migration trajectories of birds provides precisely localized climatic indicators that extend beyond simple measurement. This finding corresponds with Dube et al. (2024) & Mandiopera (2023), who found that households used IKS for seasonal climate forecasting and extreme weather forecasting combined with scientific forecasts. The observations in the present study carry intergenerational memory and are influenced by specific spiritual cosmologies. Farmers and respected elders engage in translation, weighing inherited signs against externally generated meteorological data.

This finding corresponds with Schuman (2018), who asserts that religious beliefs significantly influence a community's understanding and experience of climate change adaptation, indicating the need for an inclusion of such information in climate change adaptation education (Adekunle, 2021). The observable co-production of Indigenous and scientific data indicates that formal climate regulatory frameworks have considerable potential to support and coexist with such practices while maintaining their sociocultural integrity.

Ceremonial Practices and Cultural Institutions

Traditional knowledge is deeply embedded in the way of life of indigenous communities, covering areas such as agriculture, ecological management, traditional medicine, and spiritual beliefs. Ritual events, including the veneration of ancestors during rainmaking and the pacification of spirits, constitute indispensable components of community strategies to confront climatic adversity, especially in the face of protracted droughts or failed harvests (Agussani, 2021). Conducted by spirit mediums and guided by traditional leadership, these observances mobilize communal resources to foster resilience (Appiah et al., 2020; Arminen & Menegaki, 2019; Asongu & Odhiambo, 2020; Bekun et al., 2021). Across both districts, the ceremonies are regarded as both a sacred duty and a collective mandate for environmental guardianship. The sustained participation in these practices attests to the ongoing legitimacy of Indigenous governance structures in regulating resource use and reinforcing social unity.

Some participants had this to say: "When the rains delay, we gather at the sacred hill for the rainmaking ceremony. The spirit mediums lead us, and everyone brings offerings. It is our way of showing respect to the ancestors so that they may intercede for us." (Community Elder, Chibeta village).

"These rituals are not only about asking for rain; they are also symbolic acts that remind us of the deep connection between people and the environment. They emphasize the importance of living in harmony with the land, respecting its cycles, and acknowledging its limits. The chiefs and traditional leaders play a guiding role, not just in leading the ceremonies, but also in teaching the community values of unity, respect, and accountability. Through these rituals, people are reminded of the collective responsibility they share in caring for natural resources ..." (Traditional Leader, Chibeta village)

The narratives brought by participants reveal the persistent relevance of pachamama-centered ceremonials in climate governance (Inquilla-Mamani & Chambi, 2019). Rain-summoning ceremonies and the formal appeasement of celestial spirits represent a communal engagement with the uncertainties of hydrological balance, functioning within spiritual frameworks that designate deceased ancestors as vigilant overseers of rain and soil fertility.

Youth Innovation and Knowledge Blending

The study identified a conspicuous rise among youth in the strategic merging of traditional ecological knowledge and digital technologies. For example, in Matedza village, a cadre of young farmers now correlates indigenous seasonal calendars with mobile-dependent meteorological alerts. This synthesis represents an adaptive stance towards climate variability, wherein the community refrains from categorizing indigenous and scientific knowledge as oppositional and, instead, positions them as mutually beneficial (Bhattacharya et al., 2017; Iwinska et al., 2019; Kassouri & Altınta, 2020).

Innovations emanating from youth, such as the formation of WhatsApp collectives for disseminating both ancestral and scientific meteorological data, reveal an active, fluid knowledge economy responsive to cultural and technological evolution. Some participants had this to say: "I always check the forecasts on my phone, but before I act, I compare them with what my grandmother says about the behavior of trees and insects. For me, the scientific forecast offers useful guidance, but the traditional knowledge handed down through my grandmother gives it deeper meaning and local relevance. When both sources point in the same direction, I feel reassured and confident to proceed with planting. It is as if the wisdom of modern science and the insights of our ancestors converge, strengthening my trust in the decision I am about to make. This blending of perspectives not only guides my farming practices but also reminds me that adaptation in the face of uncertainty is most effective when knowledge systems work together." (Young Farmer, Matedza village).

"We created a WhatsApp group where we share the elders' signs together with updates from the weather app. It helps us make decisions faster, and everyone feels involved, from the old to the young." (Youth Collective Member, Nyamuzizi village).

Young principal participants underscore the advent of an integrated knowledge economy wherein Indigenous Climate Knowledge and digital infrastructures operate as co-producers of understanding, rather than as competing modalities

of knowing as purported by Ebhuoma (2024). Informal networks, particularly WhatsApp clusters, emerge as distributed repositories of sense-making, affording simultaneous horizontal dispersal among peers and vertical transmission from grandparents to grandchildren. Through this mutual elaboration, cultural resilience is accelerated by mediative artefacts rather than surrendered to them, showing that rural Zimbabwean climate governance is in perpetual pilot, mutually constructing past and forthcoming temporal registers.

Marginalization in Policy Processes

Notwithstanding the acknowledged significance of indigenous knowledge systems, a pronounced divergence persists between formal climate policymaking and the realities experienced at the community periphery. Participants stated that climate policy formulation and execution routinely proceed without sustained dialogue with resident populations. Nationally coordinated climate adaptation programs, including those promoting conservation agriculture and subsidised inputs are, in practice, administered via hierarchical modalities that overlook specific value contexts. One participant who is a farmer in Matedza village attested that "We only hear about government programs when they are already being implemented. No one comes to sit with us first to understand what we know or what we need." Insights from indigenous participants underscore a systematic exclusion of traditional jurisdictions from formal climate-policy arenas, highlighting a chronic divide between centralized state agendas and the lived environmental practices of indigenous communities. The consequential forfeiture of localized jurisdiction over resource allocation and monitoring obstructs pathways to communal agency, thereby weakening operational compliance in the climate change adaptation process. Remedying this exclusionary circuit mandates re-orienting climate governance into a co-design salon, where indigenous statutory meetings and epistemic developments are convened as necessary, not supplementary.

Further, participants indicated that agricultural extension workers and district officials commonly prioritize scientific knowledge, frequently marginalizing indigenous methodologies. Participants recounted instances in which seed conservation, polyculture, and spiritual regulations governing land use were labelled old-fashioned or superstitious. This persistent elevation of formal science generates a sense of exclusion, deterring households from engaging substantively with government initiatives (Kousar et al., 2020; Ssekibaala et al., 2021; Teo et al., 2019). The resultant perception of indigenous knowledge systems as inferior solidifies a stratified epistemic landscape that impairs joint learning processes and erodes the perceived legitimacy of climate governance at the local level.

"I once shared how our community plants different crops together to protect the soil, but the officials laughed and said it is unscientific. Yet we know it has sustained us for years." (Community Elder, Nyamuzizi Village).

"Some of the rules we follow, like not ploughing certain sacred areas, are called superstitions by officials. But to us, these rules are about respecting the land and ensuring balance." (Traditional Leader, Chibeta Village).

The accounts by participants indicate that the systematic elevation of conventional scientific models within agricultural extension services sustains epistemic hierarchies that systematically invalidate indigenous epistemic communities. The exclusions embodied within these narratives exert tangible consequences on agricultural practice and governance. They render farmers reluctant to circulate their experiential knowledge, compromise confidence in officially sanctioned programmes, and dilute the capacity for co-operative knowledge generation in the face of agrarian challenges. The knowledge space that emerges from these exclusions, girded by stratified legitimacy, consequently weakens the overall credibility of both climate policy and the joint design of adaptation instruments that might otherwise integrate and exploit the productive synergies implicit in both scientific and indigenous knowledge (Ayaa & Waswa, 2016; Chanza & Musakwa, 2022; Donkor et al., 2019). As such, the deliberate acknowledgment and development of indigenous epistemic practices in broader curricula is not only a corrective measure but a crucial prerequisite for sustainable climate governance based on reciprocity and co-educational exchange.

Toward Inclusive Climate Governance

The present study affirms the persistent vitality of IKS and its plausible integration into state-level

policy. Notwithstanding significant epistemic divisions in Zimbabwe's climate governance, developing synergies in Mutoko suggest that participatory and inclusive governance methods are both pragmatic and effective. Fulfilling this potential requires governmental reforms that officially recognize IKS, the establishment of institutional frameworks for collaborative knowledge creation, and focused capacity building in rural areas. An effective governance framework that respects diverse epistemologies and elevates the perspectives of rural communities is essential for achieving sustainable climate resilience.

Promoting inclusive governance requires the formal acknowledgment of Indigenous authority as valid participants in the formulation and implementation of climate policy (Sanchez-Soriano et al., 2024). Chiefs, headmen, and spirit mediums play crucial roles of trust and authority in rural communities, and their involvement would increase cultural legitimacy and strengthen the contextual relevance of state-led adaptation projects (Matsiliza, 2024). Incorporating their perspectives into formal policy frameworks helps temper existing top-down paradigms, fostering a feeling of local agency that enhances the sustainability and effectiveness of state-sponsored adaptation initiatives.

Simultaneously, there is a necessity to institutionalize hybrid knowledge systems that facilitate ongoing, reciprocal communication between scientific experts and Indigenous guardians (Blaser-Mapitsa, 2022). These platforms may function as venues for epistemic cooperation, enabling the collaborative creation of climate knowledge that harmonizes empirical rigor with cultural stewardship. By integrating these disparate epistemic traditions, Zimbabwe can formulate adaptation strategies that are both methodologically rigorous and socially relevant, ensuring that climate governance is grounded not only in technical precision but also in the ethical obligations recognized by the communities most familiar with the local climate.

The enduring robustness of inclusive climate governance depends on the continuous transmission of generational memory, necessitating deliberate investment in educational and cultural frameworks to impart IKS to future generations (Hari, 2020). The incorporation of Indigenous knowledge into the curriculum, the promotion of intergenerational mentorship, and the utilization of digital archival and distribution technologies establish safeguards against the loss of knowledge (Meighan, 2021). By preserving the vitality and adaptability of IKS amidst rapid social change, these methods equip youngsters to integrate traditional wisdom with modern technological opportunities. They collectively provide Zimbabwe with a governance framework that reflects involvement, adaptive resilience, and meaningful inclusivity.

CONCLUSION

This study highlights the ongoing significance of IKS in guiding climate-sensitive decision-making in rural Zimbabwe. Continuous observation of natural indicators such as ant behavior, tree phenology, and migratory bird patterns remains central to agricultural planning, challenging the perception of IKS as outdated. Ceremonial and institutional frameworks concurrently enhance climate resilience by mobilizing community assets, sustaining indigenous governance, and reinforcing social connections. Rainmaking rituals and spirit appeasement, though situated in the sacred realm, also foster practical environmental management by integrating stewardship principles within moral and cosmological frameworks. The involvement of multiple generations in these rites ensures the ongoing transmission of ecological and cultural memory, thereby maintaining communal identity and a defined ethic of resource stewardship. These enduring practices demonstrate a reciprocal relationship between cultural integrity and climate resilience, which is significant in rural Zimbabwe.

The marginalization of IKS in formal climate governance arises from design grain storage that sustains historical exclusion, epistemic misalignment in climate modeling, and bureaucratic neglect of local expertise. At the policy nexus, schemas that prioritize universal validation protocols fail to account for the epistemic and cultural diversity inherent in IKS.

Integrating local and scientific knowledge into adaptive governance structures enhances adaptive capacity, strengthens local legitimacy, and fosters substantive community stewardship of climate initiatives. The formal recognition of IKS, along with sustained investment in hybrid participatory knowledge platforms and the transmission of educational, cultural, and inter-generational

continuity, establishes that these epistemologies are fundamental rather than supplementary. Initiating climate governance in Zimbabwe through diverse epistemologies and prioritizing rural constituencies mitigates path-dependent biases and creates frameworks that are culturally relevant, empirically sound, and socially equitable, providing a unique strategy for resilient, fair, and sustainable adaptation to increasing climate disruptions.

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