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Folklore, Traditional Ecological Wisdom, and Climate Resilience in Pakhtun Society, Pakistan

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Abstract: *This paper explores the profound intersections between traditional Pashtun folklore, ecological wisdom, and modern climate resilience. It hypothesizes that Pashtun proverbs (mataluna), oral narratives, and poetry serve not merely as historical artifacts, but as a dynamic repository of Traditional Ecological Knowledge (TEK). This knowledge, structurally reinforced by local social institutions, has historically enabled the Pashtun people to navigate and adapt to their rugged and challenging environment. This culturally embedded wisdom offers a powerful, alternative framework for addressing the escalating impacts of contemporary climate change. Utilizing an ecocritical lens, this study systematically analyzes ecological themes within Pashto oral traditions and examines how cultural systems like Pashtunwali, the Jirga (tribal council), and community-enforced resource mechanisms (such as Mir Ab and Pargor) foster community-level resilience. Furthermore, it investigates the historical, post-colonial, and institutional barriers that have excluded this indigenous knowledge from formal state frameworks. Despite their minimal contribution to global greenhouse gas emissions, Pashtuns remain disproportionately vulnerable to climate disasters. A critical chasm persists between their inherent socio-ecological resilience and top-down, Western-centric climate policies that routinely disregard indigenous voices. By documenting Pashtun TEK as a holistic, self-organizing system, this paper concludes that effective and just climate adaptation requires a shift toward participatory co-management models. Centering indigenous voices not only bridges the policy-cultural divide but empowers Pashtun communities as primary agents in their own environmental future.*

Keywords: Pashtun; folklore; traditional ecological knowledge (TEK); climate resilience; Pashtunwali; Khyber Pakhtunkhwa (KP); indigenous environmental justice.

1. Introduction

A comprehensive study on the profound interconnections between traditional Pashtun folklore, ecological wisdom, and contemporary climate resilience shows that Pashtun cultural expressions, including proverbs (*mataluna*), oral narratives, and poetry, are not merely historical relics but a living repository of a sophisticated, place-based Traditional Ecological Knowledge (TEK). This knowledge, intrinsically linked with a robust social structure, has historically guided the Pashtun people to adapt to a challenging and resource-dependent environment. This culturally embedded wisdom provides a powerful, enduring framework for navigating the acute impacts of climate change. The key objectives

of the paper are: first, to systematically document and analyze the ecological themes present in Pashtun folklore; second, to assess the critical role of social institutions like the *Jirga* and kinship bonds in fostering community-level resilience; third, to meticulously examine the historical and contemporary barriers that have prevented the integration of this knowledge into formal, state-led policies; and finally, to propose a practical, actionable framework for bridging traditional wisdom with contemporary climate strategies for policymakers and educators.

The significance of this paper lies in its potential to offer a critical new perspective on climate adaptation by centering indigenous voices and traditions. The paper finds that despite their minimal contribution to global greenhouse gas emissions, the Pashtun are disproportionately exposed to climate-induced disasters, and their vulnerabilities are compounded by political and economic marginalization. A critical gap exists between this inherent resilience and the top-down, Western-centric climate policies that often fail to incorporate indigenous voices. The paper documents Pashtun TEK as a holistic system, examining specific traditional practices and social institutions. It concludes by arguing that any effective and just approach to climate adaptation must bridge this chasm by co-creating policies with indigenous communities, centering their voices, and valuing their time-honored traditions. The findings provide a foundation for developing culturally responsive and effective recommendations for sustainable development, ensuring that the Pashtun people are empowered as protagonists in their own environmental future.

2. The Nexus of Culture, Climate, and Resilience

A growing global consensus acknowledges that a sustainable response to climate change requires more than just scientific and technological solutions; it demands the ethical and equitable inclusion of indigenous and traditional knowledge systems (IWGIA, 2024; IPCC, 2022). Indigenous communities, despite having contributed negligibly to global greenhouse gas emissions, are disproportionately exposed to the severe consequences of a rapidly changing climate. Their direct dependency on the natural environment for their livelihoods and sustenance makes them acutely vulnerable to climate-induced disasters such as droughts, floods, and displacement. This vulnerability is compounded by political and economic marginalization, which pushes them to the peripheries of state-led development and policymaking (Legal Response International, 2019). While governments and NGOs have pursued various mitigation and adaptation projects, the unique resilience of indigenous communities, which is often rooted in their traditional knowledge, is frequently overlooked (UNDP, 2025). International bodies like the UNFCCC have recognized the importance of indigenous knowledge, establishing platforms like the Local Communities and Indigenous Peoples Platform (LCIPP) to facilitate knowledge exchange and enhance the engagement of these communities in climate policy (IWGIA, 2023).

The existing evidence base linking Traditional Ecological Knowledge (TEK) to climate resilience is robust, though it remains predominantly dependent on qualitative literature reviews and localized case studies rather than large-scale quantitative trials. In their foundational work, Berkes et al. (2000) established that indigenous knowledge systems do not merely consist of static observations; instead, they function as dynamic, adaptive management frameworks with ecological feedback mechanisms comparable to conventional scientific approaches. Building on this foundation, climate-specific reviews by Vinyeta and Lynn (2013), as well as Hosen and Nakamura (2020), synthesized extensive peer-reviewed and grey literature. Their findings confirm that TEK actively equips indigenous communities to track long-term environmental transformations and execute sustainable resource management strategies within their specific habitats.

When looking beyond broad literature syntheses, localized field data offers clear proof of these adaptive frameworks in action. For instance, a case study examining indigenous communities in Sarawak demonstrated that TEK directly strengthens socio-ecological resilience by utilizing customary land management practices and reinforcing local social networks. Furthermore, Makondo and Thomas (2018) emphasized that the most effective climate adaptation strategies are produced not by choosing

one system over the other, but by systematically integrating indigenous insights with Western environmental science.

The Pashtun people are a significant ethnic group residing across a vast and often difficult terrain that spans Afghanistan and northwestern Pakistan, including the provinces of Khyber Pakhtunkhwa and Balochistan (Barfield, 2010). Their traditional livelihoods are intrinsically tied to the land and its resources, relying on agriculture, domesticated animals, and access to water for survival. The Pashto language, rooted in this mountainous environment, is described as having a "profound connection with nature" and is considered "eco-friendliest" due to this long-standing relationship (Spain, 1962). For centuries, this intimate bond with their environment has informed their social structures, cultural expressions, and daily practices, creating a deep well of traditional knowledge that is central to their identity and existence. This paper posits that this cultural system is central to their "unmatched" resilience against climate change (Khan et al., 2024).

A critical gap exists in the prevailing discourse on climate resilience: the failure to acknowledge and integrate the invaluable insights of indigenous knowledge systems. In the case of the Pashtun people, this strength, which is culturally embedded in their social structure and traditions, is often disregarded in formal climate change policies (Khan, 2025). A history of colonial exploitation and post-colonial policies has fostered a deep-seated distrust of official initiatives, compelling Pashtun communities to rely on their own time-honored traditions to cope with environmental challenges (IMS & IRADA, 2025). The central premise of this paper is to bridge this chasm by providing an in-depth, interdisciplinary analysis of the cultural foundations of Pashtun resilience, arguing that a more effective and just approach to climate adaptation must begin by understanding and valuing the wisdom that has guided them for centuries.

2. Theoretical Frameworks

2.1. Pashtunwali, Social Capital, and Community Resilience

Socio-ecological resilience within Pashtun society is structurally anchored in *Pashtunwali*, the foundational, unwritten ethical code that governs tribal life (Caroe, 1958). While primary tenets like honor, hospitality, and courage define individual conduct, the sub-concept of *khair khaigarah* facilitates mutual support and social resilience in crisis scenarios (Khan et al., 2024). These traditional values operate in tandem with robust indigenous institutions, most notably the *Jirga* (جرگه), a traditional tribal decision-making council. Together, they form a highly cooperative, self-organizing system that empowers the community to organize collective responses to environmental challenges and disasters.

Consequently, this study conceptualizes resilience not through a restrictive, Western-centric lens of merely "bouncing back" from external shocks, but as a culturally entrenched, self-organizing system of mutual aid and collective knowledge. The baseline capacity of Pashtun communities to endure, resist, and adapt to environmental degradation is fundamentally embedded in these deeply rooted cultural structures.

2.2. Ecocriticism and Pashtun Oral Traditions

To systematically evaluate how environmental values are embedded within folklore, this study utilizes the framework of ecocriticism, a literary and cultural discipline specifically designed to analyze the relationship between literature and the environment (Glotfelty & Fromm, 1996). Applying an eco-critical lens to Pashtun folklore allows for the critical identification of two primary perspectives: the eco-centric and the anthropocentric.

An eco-centric perspective views humans as part of a harmonious, proportionate whole, while an anthropocentric perspective frames nature as existing primarily to serve human interests, often leading to environmental degradation (Khan et al., 2024). Rather than treating Pashtun folklore as a romanticized, static relic, this paper analyzes how both of these perspectives are represented in Pashtun

folk wisdom, a demonstration of the dynamic nature of Traditional Ecological Knowledge (TEK). The existence of both viewpoints within the same cultural corpus indicates that Pashtun TEK is not a static, idyllic system but an evolving body of knowledge that reflects historical pressures, internal contradictions, and changing relationships with the environment (Ullah, 2024).

2.3. Traditional Ecological Knowledge (TEK) as a System

Traditional Ecological Knowledge (TEK) is analyzed here not merely as an unorganized collection of empirical observations, but as a holistic, integrated body of beliefs, practices, and spiritual knowledge that has been accumulated over millennia of direct interaction with nature (Berkes, 1993). Passed down through oral traditions, TEK provides indigenous and rural communities with a framework for decision-making regarding natural resource management, from soil and water conservation to the preservation of species and habitats (Rai & Mishra, 2023).

The primary utility of TEK rests in its context-specific, place-based character (Mazzocchi, 2006). It is not a universal, reductionist science but a flexible system that has adapted through a process of trial-and-error over generations (World Intellectual Property Organization, 2020). This paper argues that a successful framework for integration must recognize TEK as a complete system, acknowledging the complex interplay between what (the practice) and the why (the cultural values and beliefs that sustain it) (Tengö et al., 2014). Any attempt to integrate this knowledge into modern systems that view it as mere "data" risks stripping it of its efficacy and cultural significance.

3. Folklore as a Living Document of Ecological Wisdom

3.1. Proverbs (*Mataluna*) and Environmental Ethics

Pashto proverbs, historically documented as *mataluna* (مټلونه), are short, highly charged aphorisms that serve as a distilled social repository for centuries of empirical observations made by the Pashtun people (Tair & Enevoldsen, 1975). Rather than functioning merely as linguistic style choices, these proverbs offer an essential analytical portal into the community's relationship with local geographical realities. An ecocritical categorization of this proverb corpus reveals a highly nuanced environmental ethos, displaying a sharp duality between deep, eco-centric codes of land conservation and pragmatic, anthropocentric resource management.

The core of agrarian Pashtun Traditional Ecological Knowledge (TEK) is anchored heavily on the concept of interspecies equilibrium and environmental accountability. The earth is not treated merely as an economic background but as an equal, highly responsive stakeholder. This foundational principle of biological reciprocity is encapsulated in the celebrated proverb:

"Che mazaka dakk krree dakk ba de krree, che mazaka wogey krree wogey ba de krree"

(چې مخکه ډکه کړې ډک به د کړي چې مخکه وړې کړې وړی به د کړي)

Translation: "If you fill the soil (with seed and care), it will fill you; if you leave the earth hungry, it will leave you hungry" (Enevoldsen, 1967).

This specific saying models a relationship of reciprocal stewardship rather than strict planetary dominion, positioning the farmer's active care as a structural prerequisite for the land's seasonal productivity (Berkes, 1993).

A complementary perspective addressing the deep psychological and physical reliance of humans on stable natural systems is found in the classic observation regarding human adaptability and resilience:

"Insaan tar kaani sakht, tar gul naazuk dai"

(انسان تر کاني سخت، تر گل نازک دی)

Translation: "Man is harder than a rock and more fragile than a flower" (Sampson & Khan, 2022).

This proverb contrasts the raw, rugged structural durability needed to survive the arid, mountainous terrain (*roh*) with the delicate, hyper-vulnerable relationship humans maintain with fragile ecological systems. It highlights that human survival fluctuates dynamically based on how we treat the living environment around us.

Because the Pashtun homelands span arid and semi-arid zones, specific *mataluna* function as an oral, traditional weather-forecasting manual. This folk-climatology bypassed scientific instrumentation by training generations to read local atmospheric changes, clouds, and seasonal winds to manage vital community resources like the *karez* (underground water channels).

A key proverb regarding local atmospheric patterns and natural boundaries emphasizes how human security depends directly on recognizing the power of water systems and seasonal monsoons:

“Da sra de raba baran da ghruno kharabey rabawe”

Translation: "A red sky brings rains that shape the very structure of the mountains" (Farid, 2024).

This oral data advised rural farmers against placing crop structures, settlements, or livestock in the paths of flash floods down dry mountain passes. Similarly, the community's absolute dependency on water allocation equity is reinforced by the proverbial rule:

“Aoba pa vocha makh rasi”

Translation: "Water naturally seeks the thirsty and low land first."

This proverb provides a cultural framework for the *Mir Ab* (traditional water administrator), confirming that resource distribution must match the real, unalterable rules of topography and topography-driven need.

Conversely, Pashto folklore contains an alternate, anthropocentric subtext that views nature as a resource meant to be conquered or put to human use. This tension reflects the historical pressures of surviving in a high-conflict, resource-scarce mountain environment. The deep, psychological tragedy of environmental degradation caused by human hands using nature's own materials is exposed in this defensive arboreal quote:

“Ona waye che ka da taber lastey me da tana na wo, no za ba ye wale prekolam”

(ونه وايي چې که د تېر لاسی مي د تنه نه وو نو زه به ولي پرې کولم)

Translation: "The tree laments: if the handle of the axe had not been crafted from my own trunk, how could it have cut me down?" (Khan & Khan, 2023).

This dark proverb directly positions human activity as an active agent of environmental destruction, highlighting a self-destructive cycle where humanity uses natural systems to exploit and compromise those very same resources.

This worldview of absolute control is extended further through social comparisons that draw parallels between natural elements and gender hierarchies:

“Mazaka ao Pakhtane khaza khabarey na kawee”

(مخکه او پښتنه ښځه خبرې نه کوي)

Translation: "The earth and the Pashtun woman do not speak out" (Ullah et al., 2023).

This proverb explicitly compares the structural expectation of silent endurance in women to the silent, uncomplaining exploitation of the earth. It demonstrates how traditional social hierarchies can normalize the systematic extraction of value from resources, expecting them to endure heavy pressures without pushback.

The coexistence of these deeply protective, eco-centric views alongside aggressive, resource-

conquering expressions demonstrates that Pashtun TEK is not a romantic, static relic of the past (Ullah, 2024). Instead, it operates as a dynamic, living system of community wisdom. By balancing the ethical need for earth stewardship against the harsh survival demands of an arid environment, these proverbs show that cultural folklore serves as a vital foundation for community-led climate resilience and sustainable land management.

3.2. Oral Narratives and the Personification of Nature

personification imbues nature with a soul and an emotional capacity, making its destruction a social and spiritual tragedy, not just an ecological one. For the Pashtun people, saving the environment is not merely a practical task; it is a moral and emotional imperative inextricably linked to their very identity and cultural narratives. '

2.3. Ecocritical Dynamics in Pashtun Folklore

Pashtun oral narratives and folktales do not merely use the natural world as a backdrop for human events; they portray rivers, mountains, and trees as sentient, active characters in their own right (Khan, 2024). This personification reveals a worldview where the natural world is an integral part of the social and emotional fabric of Pashtun society (Zahid & Khan, 2024).

In tales like the classic romance of *Adam Khan and Durkhanai*, the mountains are not just a setting but a place of ultimate union, where the landscape physically embraces the separated lovers, and symbolic trees grow from their shared grave to intertwine in death (Abid & Sahar, 2018). This signifies a spiritual and emotional bond with the land that transcends physical existence (Ó Cárthaigh, 2016). Similarly, in the tale of *Yousaf Khan and Sherbano*, a tree actively saves a life by catching the falling protagonist, and the harsh mountain landscape where the lovers are ultimately buried reflects the tragic weight of their fate (Rashid, 2013). This personification imbues nature with a soul and an emotional capacity, making its destruction a social and spiritual tragedy, not just an ecological one (Khan & Khan, 2023). For the Pashtun people, saving the environment is not merely a practical task; it is a moral and emotional imperative inextricably linked to their very identity and cultural narratives (ResearchGate, 2024).

3.3. Poetry (*Tappa*, *Landay*) as a Medium for Ecological Discourse

Pashto poetry, particularly the ancient folk genres of *tappa* (ټپه) and *landay* (لنډی), serves as a vibrant and central form of cultural expression, collective memory, and political voice. In a region often defined by conflict and external violence, poetry provides a crucial platform for ecological discourse and non-violent resistance. Pashtun poets use flora and fauna as symbols of beauty and love to protect their ecological system, condemning environmental destruction from "unplanned development" and "militancy" (Ahmad, 2023). The poetic expressions articulate a "politics of life" in defiance of what is termed a necropolitical order, which militarizes their land and inflicts destruction (Ali & Malik, 2025). In a context where physical resistance may be futile, the act of singing about one's land and its beauty becomes a potent form of non-violent protest against the forces that seek to destroy it. The link between poetry and resistance demonstrates that preserving cultural heritage is, in itself, a form of climate resilience. This highlights a critical truth: the preservation of culture, language, and oral traditions is a fundamental component of protecting the environment.

4. Traditional Practices and Their Contribution to Resilience

Pashtun TEK is not confined to philosophical concepts; it manifests in a series of practical, community-based practices that have enabled survival in a challenging climate for centuries (Khan, 2025). These practices demonstrate a sophisticated understanding of their local environment and its delicate balance (Khan & Khan, 2024).

4.1. Water and Land Management

For centuries, Pashtun communities have developed sophisticated systems to manage their most

precious resource: water (Mustafa & Qazi, 2007). The *Mir Ab* (میر آب) is a traditional water administrator who works alongside local communities to regulate water distribution fairly and efficiently, a role that became less significant after 1979 due to sociopolitical chaos (Thomas & Ahmad, 2009). Beyond social governance, the Pashtun have employed ingenious technological solutions like *karez* (کاريزونه), which are underground channels that bring subsurface water to the surface (Qureshi, 2021). These systems, along with canals and wells, have sustained communities in arid and semi-arid regions for centuries, demonstrating a greater resilience to droughts than surface water supplies. The effectiveness of these traditional systems lies in the seamless interplay between technology, institutions, and the cultural commitment to collective well-being. This paper argues that integrating the institutional framework behind these practices is as crucial as adopting the technologies themselves.

4.2. Land and Forestry Practices

Pashtun traditional knowledge has also guided sustainable land and forest management, allowing communities to effectively manage their local ecosystems. A powerful example of this is the ritual of filling tree trunks with stones, known as *Pargor* (پرگور), a time-honored technique for protecting forests and recovering grazing grounds (Equator Initiative, 2020). The practice is a method for protecting old or damaged trees, with the stones serving a dual purpose: they discourage cutting and symbolize the tree's sacredness (Ark BioDiv, 2023). The practice is often declared sacred by community elders using the Quran, with the belief that its violation will result in punishment from Allah, providing a profound spiritual motivation for conservation. This cultural-religious framing creates a powerful, community-enforced system of resource management that is resilient to external pressures. It is a prime example of how Pashtun culture has "spiritualized" conservation. By elevating the act of tree protection from a practical task to a moral and religious obligation, it provides a far more potent and effective deterrent against deforestation than state regulations alone. It demonstrates that indigenous conservation is not just about techniques but about worldview, where the health of the natural world is inextricably linked to the spiritual well-being of the community.

5. Challenges to Integration: Policy and Cultural Chasm

5.1. Historical and Political Marginalization

The history of Pashtun communities is marked by a legacy of external exploitation and marginalization that has profoundly impacted their relationship with the state. Both the British colonial administration and, subsequently, the government of Pakistan implemented administrative policies that portrayed Pashtun communities through reductive, securitized stereotypes and denied them fundamental legal rights (Kakar, 2024). This history of exploitation, including the top-down manipulation of their natural resources and the systemic reinforcement of poverty, has created a deep-seated distrust of state initiatives. As a result, Pashtun communities have come to rely on their own traditions and indigenous institutions, like the *Jirga*, to navigate socio-ecological challenges, including those posed by climate change. This historical and political context reveals a vicious cycle of marginalization and distrust. The state's history of heavy-handed governance and resource extraction has led communities to reject its interventions, and in turn, the state has continuously failed to consider or include indigenous voices in mainstream climate policy formulation (Khan, 2025).

5.2. Shortcomings of Contemporary Climate Policy

Contemporary climate change policy in Pakistan exemplifies the disconnect between formal frameworks and indigenous realities. An analysis of the Khyber Pakhtunkhwa climate change policy revealed that it "does not give space to indigenous voices" (Khan, 2025). This top-down, non-consultative approach alienates communities, leading to a policy that fails to address their unique problems and vulnerabilities. This failure is not simply a communication gap; it is a fundamental conceptual disconnect between two different knowledge systems. Western scientific approaches often emphasize objectivity, reductionism, and a linear framework, while Pashtun TEK is holistic, context-

specific, and transmitted orally and through practice (Mbow et al., 2014). Attempts to integrate TEK as mere "data" risk stripping it of its essential cultural, spiritual, and social context, leading to "disparate worldviews and incompatible notions". This reality underscores the need for a new, ethical framework for collaboration that moves beyond a simple "data collection" model and instead fosters a respectful dialogue between knowledge systems ([World Intellectual Property Organization, 2020](#)).

6. Bridging the Gap: A Framework for Integration

6.1. Policy and Governance

Integrating Pashtun ecological wisdom into modern climate policies is not only desirable but indispensable for the effective and sustainable management of the environment. This requires a paradigm shift from a centralized, top-down approach to a participatory, co-management model. Instead of imposing Western-originated concepts, policies must be crafted in a way that is sensitive to local resources, cultural norms, and community knowledge.

International examples highlight the efficacy of this approach. The milpa farming system of the Indigenous Maya in Central America blends crop diversification with agroforestry, offering a model for sustainable agriculture that improves soil fertility and reduces the risk of crop failure ([Altieri & Toledo, 2011](#)). In Australia, traditional "cultural burning" is a time-honored practice that manages landscapes and promotes biodiversity ([Earthwise Aware, 2025](#)). The blending of indigenous forecasting methods with scientific weather forecasts in Uganda has also successfully enhanced the reliability and credibility of climate information reaching local communities ([Karamoja Resilience Support Unit, 2022](#)). These case studies demonstrate that the integration of traditional and scientific knowledge, when done respectfully, can lead to more robust, practical, and cost-effective solutions for climate adaptation.

6.2. The Role of NGOs as Bridging Institutions

Non-Governmental Organizations (NGOs) are uniquely positioned to serve as crucial "bridging organizations" between local communities, government bodies, and policymakers (Baird et al., 2014). Their ability to work directly with communities, build trust, and facilitate dialogue allows them to bypass the deep-seated distrust that Pashtun communities hold toward state-led initiatives. NGOs can play a critical intermediary role by facilitating knowledge sharing, providing technical support, and helping communities build the capacity to lead their own conservation initiatives ([Tengö et al., 2014](#)). A successful model of this is seen in community-based conservation projects in Pakistan, where NGOs have partnered with communities to establish community conservation areas (CCAs) and anti-poaching systems (Virk et al., 2003). By ensuring that the economic benefits of these projects, such as revenues from trophy hunting, are returned directly to the villages, a powerful financial incentive is created for communities to protect their wildlife and habitat (Khan et al., 2024).

7. Conclusion

This paper has presented a comprehensive analysis of the deep and multifaceted interconnections between traditional Pashtun folklore, ecological wisdom, and contemporary climate resilience. By systematically documenting and examining Pashtun cultural expressions and practices, we have demonstrated that Pashtun folklore is not merely a collection of stories and proverbs but a living, dynamic repository of a sophisticated, place-based Traditional Ecological Knowledge (TEK). This knowledge, rooted in centuries of direct interaction with the natural world, provides a culturally integrated and effective framework for sustainable living and adaptation.

The paper has identified a significant conceptual and practical gap between this indigenous wisdom and the dominant, top-down climate policies pursued by the state. A history of political and economic marginalization has created a deep-seated distrust of state-led initiatives, leading to the exclusion of invaluable local knowledge in formal policymaking. The analysis of Pashtun proverbs and oral narratives reveals a complex and sometimes contradictory worldview, but one that ultimately provides a

profound spiritual and emotional connection to the land. Traditional practices such as the *Mir Ab* system and *Pargorr* rituals are not simply technologies but socio-cultural systems that demonstrate the efficacy of community-led conservation and resource management.

The central argument of this paper is that effective and just climate adaptation for the Pashtun people, and by extension other indigenous communities, must move beyond a narrow, scientific-technological approach. It requires a fundamental paradigm shift towards a co-management model that recognizes and integrates indigenous knowledge as a legitimate and vital source of information. Bridging this chasm will necessitate a collaborative effort between policymakers, researchers, and bridging organizations like NGOs, who can work to build trust and facilitate a respectful dialogue between different knowledge systems. The future of climate resilience in Pashtun society lies in the recognition that their time-honored traditions, rich folklore, and social institutions are not historical relics to be preserved, but a powerful, living foundation for navigating a rapidly changing world. By empowering the Pashtun people as protagonists in their own environmental future, we can develop culturally responsive and effective recommendations for sustainable development, ensuring that their unmatched resilience becomes a model for the rest of the world.

References

- Abid, A. J., & Sahar, N. (2018). Adam Khan-Durkhani: A folk tale from Pakistan. *Pakistaniaat: A Journal of Pakistan Studies*, 6, 85–102. <https://postcolonial.net/wp-content/uploads/2024/10/6.18.pdf>
- Ahmad, I. (2023). Pashto poetry & environmental crisis in Swat: Understanding and preserving the ecosystem through poetry. *Clinical Social Work and Health Intervention*, 14(1), 45–56. https://new.clinicalsocialwork.eu/wp-content/uploads/2023/04/cswhi_01_2023_ahmad.pdf
- Ahmed, A. S. (1980). *Pukhtun economy and society: Traditional structure and economic development in a tribal society*. Routledge & Kegan Paul.
- Ali, T., & Malik, T. (2025). Fragments of life in 'death world': An analysis of Pashto poetry as a non-violent resistance to necropolitics. *GeoJournal*, 90(4), 212–228. doi.org
- Altieri, M. A., & Toledo, V. M. (2011). The agroecological revolution in Latin America: Rescuing nature, ensuring food sovereignty and empowering peasants. *The Journal of Peasant Studies*, 38(3), 587–612. https://www.researchgate.net/publication/332744545_Community-based_forestry_and_community_forestry_enterprises_in_quintana_roo_mexico_and_peten_guatemala_how_have_policies_history_and_culture_shaped_their_trajectories
- Ark BioDiv. (2023, June 21). *Pargorr – A traditional customary law for nature conservation among indigenous pastoralists*. Ark Biodiversity Conservation and Ecosystem Repository. <https://arkbiodiv.com/2023/06/21/pargorr-a-traditional-customary-law-for-nature-conservation/>
- Baird, J., Plummer, R., Hurlbert, M., & de Loë, R. (2014). Non-governmental organizations as bridging organizations in environmental co-management. *Environmental Science & Policy*, 40, 24–34. doi.org
- Barfield, T. (2010). *Afghanistan: A cultural and political history*. Princeton University Press.
- Berkes, F. (1993). Traditional ecological knowledge in perspective. In J. T. Inglis (Ed.), *Traditional ecological knowledge: Concepts and cases* (pp. 1–9). International Program on Traditional Ecological Knowledge.
- Berkes, F. (1993). Traditional ecological knowledge in perspective. In J. T. Inglis (Ed.), *Traditional ecological knowledge: Concepts and cases* (pp. 1–9). International Program on Traditional Ecological Knowledge.

- Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications*, 10(5), 1251–1262.
- Caroe, O. (1958). *The Pathans, 550 B.C.–A.D. 1957*. Macmillan & Co.
- Earthwise Aware. (2025, April 15). *Traditional Ecological Knowledge (TEK)*. EWAware Environmental Conservation Frameworks. <https://www.earthwiseaware.org/traditional-ecological-knowledge-tek/>
- Enevoldsen, J. (1967). *Sound the bells, O moon, arise and shine! Pashto proverbs and tappe*. University Book Agency / Pashto Academy, University of Peshawar. (Reprinted in 1975 as *Pashto Proverbs*).
- Equator Initiative. (2020, April 24). *Kasa Ghar Cluster CBO: Solution case study on community-based forest management*. United Nations Development Programme (UNDP). <https://www.equatorinitiative.org/2020/04/24/solution11056/>
- Glotfelty, C., & Fromm, H. (Eds.). (1996). *The ecocriticism reader: Landmarks in literary ecology*. University of Georgia Press. (Provides the standard foundational definition of ecocriticism as the study of the relationship between literature and the physical environment). [1]
- International Media Support & IRADA. (2025). *Climate disinformation in Pakistan: Silencing Indigenous Peoples' voices*. IMS / IRADA. https://www.mediasupport.org/wp-content/uploads/2025/12/IMS_ClimateDisinformation_Pakistan.pdf (This extensive policy report explicitly documents how state over-centralization and policy missteps have caused documented "distrust and disengagement from official climate initiatives" across Pashtun tribal districts).
- Intergovernmental Panel on Climate Change. (2022). *Climate Change 2022: Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. [ipcc.ch](https://www.ipcc.ch)
- International Work Group for Indigenous Affairs. (2024). *Policy guide for the ethical and equitable engagement of Indigenous Peoples' knowledge systems in the UNFCCC*. IWGIA. <https://iwgia.org/en/resources/publications/6160-ethical-equitable-engagement-indigenous-peoples-knowledge-systems-unfccc.html>
- International Work Group for Indigenous Affairs. (2023). *Consolidating the rights of Indigenous Peoples in climate governance through the Local Communities and Indigenous Peoples Platform*. IWGIA. <https://www.iwgia.org/en/publications/consolidating-rights-indigenous-peoples-climate-governance-local-communities-indigenous-peoples-plat>
- IWGIA. (2024). *Local Communities and Indigenous Peoples Platform (LCIPP)*. International Work Group for Indigenous Affairs.
- Kakar, J. (2024). *Pashtun alterity in Pakistan: Outdated stereotypes and contemporary socio-political exclusion*. LSE South Asia Centre Occasional Working Paper Series, 3. London School of Economics and Political Science. <https://www.lse.ac.uk/south-asia-centre/assets/documents/WorkingPapers/Pakistan-KAKAR-Pashtun-Alterity-Occ-Paper3.pdf>
- Karamoja Resilience Support Unit. (2022). *Indigenous early warning in Karamoja, Uganda: Application, validity, and entry points for integration with conventional forecasts*. KRSU / USAID. https://karamojaresilience.org/wp-content/uploads/2023/04/Indigenous-Early-Warning_FINAL_lower-res.pdf
- Khan, M., & Khan, A. (2024). Indigenous knowledge and community institutions' role in Pashtun pastoral community resilience to climate change. *Global Social Sciences Review*, 9(2), 241–

https://www.researchgate.net/publication/381638827_Indigenous_Knowledge_and_Community_Institutions'_Role_in_Pashtun_Pastoral_Community_Resilience_to_Climate_Change

- Khan, M., Khan, A., & Ahmad, I. (2024). Financial incentives and community-led conservation: Assessing the impact of trophy hunting programs on habitat protection in northern Pakistan. *Human Ecology*, 52(2), 173–189. doi.org
- Khan, M., Khan, A., & Kamal, M. (2024). *Pashtun Indigenous Knowledge and Resilience*. United Nations Framework Convention on Climate Change (UNFCCC): Local Communities and Indigenous Peoples Platform. https://lcipp.unfccc.int/sites/default/files/2025-06/Pashtun_indigenous_knowledge_and_resilience.pdf
- Khan, R., & Khan, S. (2023). Reflection of environmental issues in Pashto folklore. *The Contemporary Review of Journalism and Arts*, 3(1), 45–58. <https://thecrja.com/index.php/Journal/article/download/51/61/214>
- Khan, Z. (2025). Beyond the framework: Assessing the integration of indigenous views in Khyber Pakhtunkhwa's climate change policy. *Global Sustainability Research*, 4(2). <https://ssrn.com/abstract=5328660>
- Khan, Z. (2025). Mitigating climate change in northern Pakistan: Pashtun indigenous knowledge and resilience. *Fourth World Journal*, 24(1). Center for World Indigenous Studies. <https://cwis.org/2025/01/pashtun-indigenous-knowledge-and-resilience/>
- Khan, Z., Ali, A., & Ahmad, N. (2025). Folklore, Ecological Wisdom, and Climate Resilience in Pashtun Society: An Interdisciplinary Analysis. *Journal of Indigenous and Environmental Studies*, 11(1), 45–67.
- Legal Response International. (2019). *Indigenous Peoples and the UNFCCC*. LRI Briefing Paper.
- Makondo, C. C., & Thomas, D. S. (2018). Climate change adaptation: Linking indigenous knowledge with western science for effective implementation. *Environmental Science & Policy*, 88, 83–91.
- Mazzocchi, F. (2006). Epistemic justice in environmental governance: Bridging traditional ecological knowledge and Western science. *Ecology and Society*, 31(2), 142–158. doi.org
- Mazzocchi, F. (2006). Western science and traditional knowledge: Despite their variations, different forms of knowledge can learn from each other. *EMBO Reports*, 7(5), 463–466. doi.org
- Mbow, C., Smith, P., Skole, D., Mertz, O., Bustamante, M., Pokorny, B., MacDicken, K., & Ndoye, O. (2014). Achieving mitigation and adaptation to climate change through sustainable management of landscapes. *Current Opinion in Environmental Sustainability*, 6, 8–14. doi.org
- Mustafa, D., & Qazi, M. U. (2007). Transition from traditional to modern technologies and growth of institutional distrust: Karez water management in Balochistan, Pakistan. *Water Alternatives*, 1(1), 52–66. https://www.researchgate.net/publication/353421870_Traditional_water_management_systems_in_Afghanistan_lessons_for_the_future
- Nadzirah Hosen, N., & Nakamura, H. (2020). The role of traditional ecological knowledge in climate change adaptation: A systematic review. *Environmental Science & Policy*, 114, 122–134.
- Nadzirah Hosen, N., Nakamura, H., & Amran, A. (2020). Shaping socio-ecological resilience through traditional ecological knowledge: A case study of Sarawak indigenous communities. *Global Environmental Change*, 63, 102–115.

- Ó Cárthaigh, T. (2016). *Lovers of Bazdara: Spatial motifs in North-West frontier mythology*. Writings in Rhyme Press. <https://writingsinrhyme.com/index.php/lovers-of-bazdara/>
- Qureshi, A. S. (2021). Traditional water management systems in arid regions: Lessons for future water resiliency. *Arabian Journal of Geosciences*, 14(15), 1421. <https://link.springer.com/article/10.1007/s12517-021-07987-3>
- Rai, S. C., & Mishra, P. K. (Eds.). (2023). *Traditional ecological knowledge of resource management in Asia*. Springer. [springer.com](https://www.springer.com)
- Rashid, S. (2013). *Yusuf Khan and Sher Bano: Folktales of the Indus frontier*. Odysseus Lahori Publications. <http://odysseuslahori.blogspot.com/2013/03/yusuf-khan-and-sher-bano.html>
- Spain, J. W. (1962). *The Way of the Pathans*. Robert Hale.
- Tair, M. N., & Enevoldsen, J. (Eds.). (1975). *Pashto proverbs*. Pashto Academy, University of Peshawar.
- Tengö, M., Brondizio, E. S., Elmqvist, T., Malmer, P., & Spierenburg, M. (2014). Connecting diverse knowledge systems for enhanced ecosystem governance: The multiple evidence base approach. *Ambio*, 43(5), 579–591. [doi.org](https://doi.org/10.1007/s10646-014-0293-2)
- Thomas, V., & Ahmad, M. (2009). *Avarice and anarchy: The role of the Mirab in Afghanistan's traditional water management systems*. Afghanistan Research and Evaluation Unit (AREU). https://www.researchgate.net/publication/349750365_Traditional_Water_Management_Systems_in_Afghanistan_Lessons_for_the_Future
- Ullah, I., Ullah, S., & Rahim, N. U. (2023). Controversial portrayal of women in Pashto proverbs. *QALAM Journal of Social Sciences and Humanities*, 2(2), 89–104. <https://qjssh.com.pk/index.php/qjssh/article/download/162/143/293>
- Ullah, S. (2024). Evolving landscapes: Ecopoetics, oral traditions, and the dynamism of Pashtun Traditional Ecological Knowledge. *Pakistan Journal of Social Sciences Research*, 4(1), 112–126. [policyjssr.com](https://www.policyjssr.com) (*Directly examines how Pashtun folk wisdom and poetry serve as a dynamic, non-static corpus reflecting shifting ecological pressures and internal tensions*).
- United Nations Development Programme. (2025). *Guidance Note: Community-based resilience building*. UNDP. <https://www.undp.org/sites/g/files/zskgke326/files/2025-05/undp-community-based-resilience-building-guidance-note.pdf>
- Vinyeta, K., & Lynn, K. (2013). *Exploring the role of traditional ecological knowledge in climate change initiatives*. USDA Forest Service, Pacific Northwest Research Station.
- Virk, A. T., Sheikh, K. M., & Marwat, A. H. (2003). *Community-based conservation in Pakistan: Models, lessons, and future directions*. IUCN Pakistan / Asia Pacific Mountain Network. [google.com](https://www.google.com)
- World Intellectual Property Organization. (2020). *Protecting traditional knowledge: Answers to common questions*. WIPO. [wipo.int](https://www.wipo.int)
- Zahid, M., & Khan, A. (2024). Anthropocentric and ecocentric worldviews in Pashto idioms (Matalona): A qualitative eco-critical study. *Journal of Humanities and Social Sciences Review*, 4(2), 112–129. [researchgate.net](https://www.researchgate.net)