

RESEARCH ARTICLE

# Indigenous Knowledge and Community Institutions' Role in Pashtun Pastoral Community Resilience to Climate Change

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## Abstract

Indigenous knowledge and community institutions of pastoral communities play a pivotal role in resilience to climate change. This study aims to investigate the Pashtun pastoral community's culturally embedded indigenous knowledge, social structure, and social institutions' role in their resilience to climate change. It is revealed that climate change directly affects their natural resources, cultural traditions and livelihood, especially of the Pashtun pastoral community living in the mountainous region of Khyber Pakhtunkhwa, Pakistan. It is investigated that Pashtun pastoral community social structure (such as kinship bonds, brotherhood, and reciprocity) and cultural institutions strengthen their resilience to bounce back from the worst impact of climate change. It is revealed that the Pashtun pastoral communities' indigenous knowledge is embedded in their folk literature, metaphors, poetry, and traditions. Their indigenous knowledge, and socio-cultural institutions, strengthen the Pashtun pastoral community's resilience to climate change.

**Keywords:** Socio-cultural Institutions; Indigenous Knowledge; Indigenous Resilience; Pashtun Pastoral Community; Climate Change

## Introduction

Climate change has significant effects on indigenous communities across the globe, Shaffril, Ahmad, Samsuddin, Samah, & Hamdan (2020). Indigenous communities' dependency on natural resources makes them more vulnerable to climate change. Climate change directly affects their natural resources such as water, land, domesticated animals, crops, culture and traditions. Moreover, extreme weather, changes in the rain cycle and flooding displaced pastoral communities from their native towns, Figueroa, (2011). Indigenous communities lost their livelihood resources due to natural disasters that increased their vulnerability to climate-induced displacement in the different parts of the world Mullally, S., & Barry, K. (2024). However, changes in the rain cycle and ecosystems badly affected indigenous communities in different parts of the world including in the Hindu Kush region of northern Pakistan, Abate & Kronk (2013). Indigenous people historically faced the worst policies of the British colonial regime in this region, Ksenofontov, S. S., & Petrov, A. N. (2024). Along with other indigenous communities in this region, the Pashtun pastoral community (details are given below) in South Asia remained the colony of the British and faced their worst exploitative policies, Yousaf (2019). In the post-colonial times, Pakistan continued the policies of its predecessor and exploited its natural resources such as mines and minerals which further reinforced poverty in this region. The British in the colonial era adopted different administrative policies and presented them to the outside world as wild and uncivilized people.

Colonial history and Pakistan's exploitative policies in this region make these pastoral communities more vulnerable to climate change. Along with colonial history, the Soviet-Afghan war, and the war on terror in this region intersect their vulnerability to climate change. Hence, this research article explores the climate change impact on the Pashtun pastoral community. The article also explores the Pashtun pastoral community's traditionally entrenched indigenous knowledge, and community institutional role in strengthening their resilience to climate change. This study also focuses on how climate change intersects the Pashtun marginality to climate change.

### **Pashtun Pastoral Community and Their Way of Living**

Pashtun pastoral communities live in Afghanistan and also inside Pakistan, Kreutzmann, H., (2000). They live in Baluchistan, Khyber Pakhtunkhwa provinces, and in recently merged districts (previously called the Federal Administer Tribal Areas (FATA) inside Pakistan, Khan, & Ahmed (2013). In the northern Pakhtunkhwa province of Pakistan, Pashtun's indigenous pastoral community live in mountainous and difficult terrain, (Pelevin, (2021). Forest, domesticated animals and agriculture are the main sources of livelihood in this region. Pashtun pastoral community mainly earn their livelihood from domesticated animals or agriculture. Pashtun indigenous pastoral people are farmers or herdsmen, or combinations of both. Agriculture, primarily farming, and animal husbandry are the most important economic activities of Pashtun pastoral communities. The most common sources of livelihood in this region are agriculture, trade, minerals, and domesticated animals, Phillips, C. J. (2024). In addition to raising stock, the Pashtun pastoral community as well as some farmers engage in the trade of local indigenous products, Advocate & Sajid (2013). Pashtun pastoral community live in a geographical location which connects Central Asia with the East and West. Historically, and also in the recent past many foreigners such as Cyrus, Darius, Genghis Khan, and Kushan, and also the British invaded this region in different epochs to achieve their own political goals. They used this region for trade between China, Western Asia, and Europe. Gandhari (present-day Pakistan) used this region to connect the city of Taxila with Afghanistan. However, the Pashtun region was invaded by many foreigners but the British ruled this region for decades. The British imposed different policies in this region as compared to settled parts of the sub-continent. British in 1849 came into direct contact with the Pashtun tribal people. Initially, the British adopted the policy of non-interference policy to avoid Pashtun indigenous resistance. However, later on, viceroy Lansdowne and Elgin (between 1887 and 1898), replaced the policy of non-interference with the 'Forward Policy'. The forward policy of the colonial regime was resisted by the indigenous tribal Pashtun because of its exploitative nature. However, the British exploitative policies in this region significantly distorted their culture and exploited their natural resources in this region, Nichols 2010; Khan 2020; Tripodi (2016).

Pakistan continued the same colonial policy in this region in post post-colonial period. British and Pakistan ignored economic development, therefore, they migrated to different countries such as the United States, Europe, and the Middle East in search of livelihood. The migrated Pastoral Pashtun community earns livelihood for the remaining family members who live in native towns. They are also internally migrated to urban centres of Pakistan such as Karachi, Lahore, and Islamabad, and to other countries in search of livelihood. However, in the Middle East and also in Pakistan majority of migrated Pashtun are doing hard jobs because the ruling states British and Pakistan exploited their resources but they did not extend formal educational institutions to their homeland. In post post-colonial era, the Pashtun pastoral community has been facing security problems in this region. In the last four decades, this region has faced many conflicts which significantly affected their livelihood resources, Khan (2012). Along with violence, and wars in this region, climate change also affected

Pashtun indigenous pastoral communities. Climate change also fuels local disputes over natural resources but the state's least interest in their problems makes these pastoral communities self-reliant on their local resources. As mentioned above, Pashtun's land is full of natural resources but their resources were exploited by the British in colonial and also by Pakistan in the post-colonial era. The federal government of Pakistan also exploited the natural resources of the Pashtun pastoral community and continued the British exploitative policy in this region. Moreover, changing socio-cultural dynamics, globalization and climate change created numerous challenges to these communities. However, they try to face these hardships created by geo-political conflicts and climate change with the help of their indigenous knowledge and socio-cultural institutions.

### **Theoretical Framework**

This research article focuses on the impact of climate change on pastoral communities and how they respond to climate change. The indigenous standpoint theory allows researchers to adopt a subjective lens for conducting research, Nakata (2007). This theory emphasises the cultural knowledge and experiences of Indigenous scholars. Indigenous Standpoint Theory produces more in-depth, culturally inclusive knowledge, Nakata, (2007). The indigenous standpoint theory allows us to focus on the cultural interface, and indigenous agency for understanding the responses of indigenous people towards climate change. Hence, the indigenous standpoint theory provides theoretical insight into this study while this research article focuses on the traditions, indigenous knowledge, and resilience of the Pashtun Pastoral community to climate change.

### **Methodology**

This study follows the methodological rules and technicality required to ensure reliability and validity. Keeping in view the nature of this research and expected data, the qualitative paradigm was adopted for the completion of this study. The purposive sampling technique was used to collect data from the relevant people who are suffering due to climate change and face natural disasters in their native towns. The data was collected from both men and women of the pastoral community. I conducted 6 months of fieldwork and identified different pastoral communities in northern Khyber Pakhtunkhwa. The data was collected through in-depth interviews to draw a clear picture of the research problem. Themes are carefully derived from the primary data and juxtaposed with the broader literature.

### **Indigenous Knowledge Role in Pashtun Pastoral Community Resilience to Climate Change**

Climate change poses critical implications for indigenous cultures and livelihoods, including the transfer and use of Traditional Knowledge (TK), also known as Indigenous Knowledge (IK) Rehman, Ahmad, & Khan, (2021). Certain elements of Traditional Knowledge that are threatened by climate change may include, but are not limited to: weather and climate indicators (ability to predict weather or seasonal forecasts) and ways of learning. Climate change affects plants, herbs, biodiversity, and grazing land of animals in this region, Khurshid, M., Mohammad, N. and Somuncu, M., (2017). Intergenerational knowledge transfers can be disrupted by climate change in the event of an extreme or emergency, such as floods, fires, droughts, etc. that result in relocation, evacuation, or death of community members. The unpredictable change in weather change causes damage to the socio-cultural fabrics and it displaces the local community from their native town in this region, Rahman, Ullah, Ali, Aziz, Alam, Sher, & Ali, (2022).

Moreover, indigenous knowledge is embedded in the local culture and history of indigenous communities, Přívara, & Přívarová (2019). Pashtun indigenous knowledge is entrenched in their culture, social structure, and traditions. Indigenous knowledge evolves in light of their experiences with the local environment

and climate, Ullah, Nafees, Khurshid, & Nihei, (2019). They depend on indigenous knowledge in times of climate change-induced disaster. Indigenous knowledge enables them to face the worst impact of climate change (Khan, & Shah, (2021). In this regard, one of the elder community members stated that

“We collectively come together before the beginning of monsoon season and clean the pathways of water. It is based on our indigenous knowledge to evacuate the pathways and prepare and alert our community members about the monsoon season” Gul (Individual interview, 23 Sep 2023).

Indigenous communities support each other and give collective responses to natural disasters based on their indigenous knowledge. The Pashtun indigenous community preserves their indigenous knowledge they take protective measures in the light of their indigenous knowledge (Ullah, Nihei, Nafees, Zaman, & Ali 2018). They store food for their animal before extreme winter and they predict the extreme weather based on indigenous knowledge.

Pashtun pastoral communities have limited financial resources and are also ill-equipped to deal with emergencies (such as flooding or forest fires), Bayer, (2017). Pashtun pastoral communities live in the mountainous region and they are at an even greater risk because external emergency responders may be too far to mitigate the impacts of dangerous situations. Winter season or monsoon rains damage their routes and grazing land. It also impacts the delivery of supplies like fruits to markets, timbers for buildings, and gasoline for vehicles. They made their roads with the help of their communities. However, they take protective measures in the light of their indigenous knowledge to protect themselves in extreme weather. Women of the Pashtun pastoral community store grass for domesticated animals especially for the winter season. In this regard, one of the elder female community members stated that

“We made these roads with the help of our pastoral community and women also take part in community work to protect our animals and houses from flooding and heavy rain. We collectively came to build a route for our animals and try to avoid those routes which have a risk of land sliding”. Gul Bibi (Individual Interview, 29 August 2023).

This indigenous knowledge is transmitted to the young generation from their ancestors, Rahman, S.U., Ullah, Z., Ali, A., Ahmad, M., Sher, H., Shinwari, Z.K. and Nazir, A., (2022). Through indigenous knowledge, they protect themselves and animals from landslides and extreme weather. Pashtun pastoral people have enough knowledge about the land sliding vanues and other environmental hazards Almedom, Brensinger, & Adam, (2016). They have enough experience to protect themselves from local environmental hazards. Moreover, they cultivate crops which are resilient to the local environment because climate change has also badly affected the local crops. In this regard, one of the community members stated that

“Our people know about the local weather conditions and cultivate those plants and crops which are resilient. They learn it from their ancestors. We know about the flood season and we try to avoid routes of land sliding” Gul (individual interview, 25 July, 2023).

Their culturally embedded indigenous knowledge guides them in agriculture activities and also in domesticated animals. They used their indigenous plants for the treatment of animals and also used these medicines for human treatment as well, Gioli, Khan & Scheffran, (2013). These plants are also affected due to climate change and they use their indigenous knowledge to protect these culturally and spiritually valuable plants (Islam, Tamanna, Noman, Siemens, Islam, & Islam, (2022). Moreover, climate change affects the natural resources. The scarcity of resources due to climate change fuels conflicts among the local populations especially over grazing land and scarcity of water, Lieven. (2020). They used their indigenous knowledge to protect

grazing land and store water for themselves. Their indigenous knowledge evolves in the light of their local experiences.

Pastoral communities are vulnerable across the world to the impacts of climate change because of their close dependency on and connection with the natural environment for their culture, health, indigenous knowledge and livelihoods, Matthew, Halle, & Switzer, (Eds.). (2002). Pashtun pastoral community has an emotional attachment to their land and their indigenous knowledge is connected with their natural environment. However, ignoring their indigenous knowledge of climate policy intersects with the Pashtun pastoral community's marginality to climate change, Ashraf, (2018). Their voices are missing in the policy of mitigating climate change's worst impact on their natural resources. The community member stated that

“Historically and also in the present time state policies ignore the vices of local people and demeaned indigenous knowledge. They presented us as an uncivilized people and do not make policy to utilize our indigenous knowledge for mitigating climate change” Hina (Individual interview, 25 Sep 2023).

The government of Pakistan has failed to initiate effective policies based on indigenous knowledge to counter the worst impact of climate change on the Pashtun pastoral community. The state policies do not properly address their problems and they seek solutions through their cultural institutions by utilizing indigenous knowledge, Rahman, S.U., Ullah, Z., Ali, A., Aziz, M.A., Alam, N., Sher, H. and Ali, I., (2022). These institutions have the potential to make them resilient to climate change.

### **Socio-cultural Institutions Role in Pashtun Pastoral Community Resilience to Climate Change**

As mentioned above, climate change impacts indigenous communities across the world. Rains have decreased by 40% in the country, and the World Food Programme classifies both rainfall-related drought and snowmelt-related drought (owing to the same warming conditions in the Hindu Kush Mountains affecting Pakistan to the same effect) as current threats, Caney, (2015). Pashtun indigenous pastoral communities are more likely to experience the adverse effects of climate change in several ways: having their diets altered as a result of changing ecosystems and demographic changes; affecting the pathways of transportation; their cultural ways of life; and, their abilities to access essential resources and services such as clean drinking water, grazing land for domesticated animals, Norton-Smith, Lynn, Chief, Cozzetto, Donatuto, Redsteer, & Whyte, (2016). However, they face these challenges alone and the state does not provide any financial support to the Pashtun indigenous pastoral communities to face the adverse effects of climate change, Glatzer, B., (2021). They rely on their socio-cultural institutions in the absence of effective state institutions. In this regard, one of the pastoral community members of Pashtun society states that

“Changes in the rain cycle affect grazing land; we face problems in finding pasturage or our domesticated animals. Some of our pastoral people who are dependent on domesticated animals left this profession. However, we culturally support those who cannot economically survive due to climate change” Kochay, (individual interview 9 Sep 2023).

Pashtun pastoral communities live in joint or extended families, and they must help each other, Kreutzmann, H. and Schütte, S., (2011). They collectively provide psychosocial support to each other in troublesome times, Tainter, & MacGregor, (2011). Pashtun tribal values reinforce this collectivist structure and discourage individual liberty. It is the responsibility of everyone in the family to economically support all members of the joint or extended family. They also support people outside the family or close kin, especially in times of need, Alam (2021). Expectations of reciprocity go beyond psycho-social and financial support. They also support

each other during disasters based on tribal loyalties. It causes social humiliation for them when they do not support members of their tribe. One of the young adult community members stated that

“My home was destroyed in the recent monsoon flood and I do not receive any financial support from the government and my all relatives supported me and I built one room for my children” Gul (individual interview, 11 Sep 2023).

Reciprocity, a major cultural value sustains them in times of socio-economic crisis. For this reason, despite being abandoned by the state, they are relying on their social structure. Mutual aid is essential after natural disasters to make bridges or supply lines. Individuals do not have sufficient resources to bear the financial burden that arises after climate change so they pool their resources. They give food, money, or cattle to each other to face the worst impact of climate change, Bustamante, Ramos, Jacoba, La Penia, & Gabriel, (2022). Reciprocity buffers economic vulnerabilities. It also helps them psychologically because they can face difficult situations with the collective support of their community. At the time of disasters such as floods due to climate change, they support each other. It is the responsibility of the elder women and men in every household to reciprocate when they receive gifts or money in difficult times from other families. They are socially bound by reciprocity and elder women try to remember the families from whom they got help. It is not necessary to return what they received, but they incur an obligation. They may support each other in any form, but they are bound to offer support in times of crisis.

Climate change and temperature increases directly affect the livestock of the pastoral community, Kimaro, E.G., Mor, S.M. and Toribio, J.A.L., (2018). Harsh weather causes diseases in goats and sheep. These pastoral communities are dependent on agriculture or domesticated animals. Some of them are seasonally migrated from the northern mountainous region to the lowlands in the winter seasons. Climate change affects the migration pattern, especially of the pastoral Pashtun community who are dependent on the domesticated animal. The farmers do not have advanced farming technology to face the adverse effects of climate change. They work collectively in fields to assist each other in farming (Steele 2020). In Pashtun culture, the concept of *Ashar* (collective work) emphasizes mutuality, especially in the time of harvesting, building houses, and collective community work, Mohyuddin, & Khan, (2015). The entire community spares one person from each family to help another community member harvest crops or build a house. Climate change affects their houses and roads and they collectively work to build those pathways for local transportation. The community member stated that;

“The recent flood affected our roads and we all community collectively work on building it again without state help” Arshad (individual interview, 25 Sep 2023).

They also come together to work collectively in times of natural or man-made disasters. *Ashar* gives them the strength to survive in difficult situations and is also a coping mechanism to deal with all kinds of adverse situations that occur due to climate change, Raziq, A., Tareen, A.M. and Verdier, K.D., (2011). For example, the Pashtun pastoral community works together to solve water shortages that often occur because of global warming or a shortage of rainfall. They work collectively to build bridges after the flood. The seasonally migrated Pashtun or other indigenous groups come together and start a journey towards low land and they come together to face hard situations on the way to low land. Climate change affects the grazing land and they face problems in getting pasture for their animals, Abdullah, Khan, Pieroni, Haq, Haq, Ahmad, & Abd\_Allah 2021; Hartung, (2017). The scarcity of water and grazing land more often than not causes conflicts among the Pashtun pastoral community, Muhammad, K., Mohammad, N., Abdullah, K., Mehmet, S., Ashfaq, A.K. and Wajid, R., (2019). The Pashtun cultural institutions *Jirga* often resolve their conflicts and make them resilient to face the worst impact of climate change.

## **Climate Change Interface Pashtun Pastoral Community Marginality**

Pastoral communities' vulnerability varies and is affected by interacting and complex historical, political, and social factors, such as differential access to resources, poverty, and different ways of accessing, Ali, (2022). The existing historical context of colonial trauma, discrimination, neglect, and Pakistan's exploitative policies collectively intersect with Pashtun's marginality to climate change, Ingalls, & Mansfield, (2017): (Lieven 2023). Pashtun Pastoral communities have experienced the impact of climate change and it has directly affected their socio-cultural values. Proverbs, literature, and social movements all reflect and reinforce Pashtun's resilience in culturally grounded ways. Their sociocultural values, social organization, and indigenous knowledge collectively help them to face the worst impact of climate change in the absence of welfare policies of the state.

### **Conclusion**

This research essay focuses on the Pashtun pastoral community's resilience to climate change. It is revealed that Pashtun socio-cultural capital strengthens the Indigenous resilience of Pashtun pastoral people to face the adverse effects of climate change. Strong social bonds and kinship ties unite them to face difficult situations that arise due to climate change. This research uses examples grounded in a masculine worldview of the Pashtun pastoral community. However, their women face significant adversity and have the additional challenge of depending on their male family members due to climate change. It is also important that a focus on resilience not downplay significant, ongoing challenges. Indeed, the dependence of Pashtun people on their societal institutions could make them reluctant to develop more advanced, formal institutions to counter climate change. Activities that work to restore relations with the land, waters, and living world are necessary to restore balance in social systems (Adaptation planning is one type of actionable science that is improved through the use of locally relevant information derived from traditional knowledge. Hence, indigenous knowledge and local socio-cultural institutions play a vital role in strengthening pastoral community resilience to climate change.

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