

RESEARCH ARTICLE

Beyond the Framework: Assessing the Integration of Indigenous Views in Khyber Pakhtunkhwa's Climate Change Policy

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Abstract

This study assesses the climate change policy in Khyber Pakhtunkhwa, a province of Pakistan, from the perspective of indigenous communities. The Pakistan federal government directed provinces to develop a climate change policy. To control the worst effects of climate change, the Khyber Pakhtunkhwa (KP) a province of Pakistan developed a climate change policy in 2022. This study examines the perception of indigenous communities residing in merged districts and northern Khyber Pakhtunkhwa, Khyber Pakhtunkhwa, regarding the province's climate change policy. The qualitative research methodology was applied. The primary data were collected through in-depth interviews with the Pashtun, Kalasha, and Khatkhwa indigenous communities to understand their perceptions. It is revealed that the climate change policy does not give space to indigenous voices. It is also revealed that the current climate change policy has not been addressing the problems of indigenous communities that arise due to climate change. Climate change policy must be designed in a way that strengthens indigenous resilience and addresses the unique vulnerabilities of indigenous communities. Indigenous perspectives will provide a thorough understanding of the inclusiveness, efficacy, and pliable effects of these policies at the local level.

Keywords: Climate Change Policy; Indigenous Communities Perception; Unique Vulnerabilities; Inclusion of Indigenous Perspectives

Introduction

Climate change has significant effects on human health and, the economy at the global level. However, Pakistan, India, and Afghanistan are more susceptible to climate change. Global South countries are not equipped to mitigate the worst effects of climate change (Ngcamu, 2023). Pakistan is situated in a geographical location that is more vulnerable to climate-induced disasters. Climate-induced disasters adversely affected the indigenous communities of the Khyber Pakhtunkhwa mountainous regions in Pakistan. To counter the worst effect of climate change, the Khyber Pakhtunkhwa government also made a climate change policy in 2022. The main objective of this research is to examine the effectiveness of the Khyber Pakhtunkhwa climate change policy. However, the voices of indigenous communities are missing in the policy document of Khyber Pakhtunkhwa's climate change policy. The Indigenous communities of Khyber

Pakhtunkhwa Province depend on forests, agriculture, and domesticated animals (Khan, 2024). These natural resources are affected by Climate change (Ahmed, Tan, Shaikh Waqas, Kanasro, Ali, & Solangi, 2020). It is also argued that their resources were exploited by the colonial regime (Khan and Shah, 2021). Pakistan in the post-colonial era also exploited the natural resources of indigenous communities. Moreover, climate change further intersects with the already vulnerable position of Indigenous communities living in Districts Chitral and merged districts of Khyber Pakhtunkhwa. Forests, agriculture, biodiversity, and domesticated animals of the Indigenous communities in Khyber Pakhtunkhwa are affected by climate-induced disasters. These natural disasters displaced the local population from their home town. Each year, hundreds to thousands of homes are severely damaged, and large agricultural land is lost to floods. Some villages such as *Reshun and Brep*, in Chitral (a district of Khyber Pakhtunkhwa) are on the verge of disappearing entirely due to the frequency and scale of these natural disasters.

Northern Pakhtunkhwa has several glaciers and freshwater sources for agriculture (Javed, 2023). However, as temperatures rise, these glaciers continue to melt, quickening the loss of glacier bulk and posing a probable danger to future water accessibility. Additionally, the increase in extreme climate events, such as floods and droughts, intensifies the vulnerability of rural populations in the northern districts of Khyber Pakhtunkhwa. Therefore, the indigenous communities of this region are more exposed to climate-induced disasters. Moreover, Pashtun Indigenous populations living in the merged districts are also vulnerable to climate change. Historically, they faced the worst colonial policies and Pakistan also exploited their natural resources (Khan, 2024a). Recently in the war on terror, they were displaced from their home town (Khan, 2024b). Climate change further intersects their vulnerability. Therefore, Khyber Pakhtunkhwa is the first province of Pakistan to develop a climate change policy aligned with the national climate change policy, of 2021. However, in this climate change policy, the Indigenous voices are missing. This research focuses to what extend Khyber Pakhtunkhwa government, a province of Pakistan, considering the native Indigenous community's perspectives in formulating climate change policy? It also assess the perception of Indigenous communities about the climate change policy of the Khyber Pakhtunkhwa government, a province of Pakistan.

Major Indigenous Communities in Khyber Pakhtunkhwa

Kho Indigenous community lives in District Chitral. 'Khowar' is the spoken language of the Kho Indigenous community (Abdul Aziz, Ullah, & Pieroni, 2020; Sabbah, Abbasi, Aziz, Benhasher, Pieroni, A., Aldosari & Amin, 2024). Kalash community is the smallest minority group living in the district of Chitral, Pakistan. The estimated population of this community is 4000 (Khan, Khan and Kamal, 2024). Plenty of research has been done. However, there is no authentic evidence, to ascertain their origins. A Global Human Rights Defense paper titled, 'Tribe of Kalash: the last kafir' describes them as the last of the people of 'Kafiristan' – an area that once encompassed the entirety of northwest Pakistan and eastern Afghanistan before being divided by the Durand line – who retain elements of their ancestral cultural identity.

Pashtuns live in Afghanistan and also inside Pakistan. They also live in the province of Khyber Pakhtunkhwa and recently merged districts of Khyber Pakhtunkhwa. They have limited low land and live in mountainous terrain. Pashtun land is full of natural resources. However, their resources in colonial and post-colonial periods were exploited by the British and Pakistan (Khan, 2024).

Literature Review

The role of indigenous and local people is highly acknowledged in climate change, particularly in mitigation and adaptation (Chanza, Musakwa and Kelso 2024). Traditional ecological knowledge can guide and sustain climate adaptation efforts in climate change policies (Datta and Kairy, 2024). Traditional ecological knowledge in the climate change policy can easily protect marginalized Indigenous communities (Redvers, Aubrey, Celidwen & Hill, 2023). The well-being and response to climate change of Indigenous communities are embedded in prevailing socio-cultural capital (Rittelmeyer, Caretta, Dowler, Vora, Seigerman, Reddy & Mukherji, 2024). Many countries especially Australia and New Zealand engaged Indigenous communities in climate change initiatives (Suhaeb, Tamrin, Jumadi and Irwan, 2024). These countries design climate change policies to address the unique vulnerabilities of indigenous communities. In Pakistan, Khyber Pakhtunkhwa was the first province to make a climate change policy. This policy emphasises the need for adaptation and mitigation actions to address the worst effects of climate change. The prime objective of the Khyber Pakhtunkhwa climate change policy is to control the worst effects of climate change on the natural economic resources and people of this province. This policy was created in collaboration with various government departments, including forestry, wildlife, irrigation, agriculture, livestock, and food, as well as academic institutions, NGOs, civil society organizations, and other relevant stakeholders.

The policy comprises 22 objectives which revolve around the adaptation and mitigation approach. However, the voices of vulnerable and indigenous communities are important in climate-related strategies (Ahmed, Tan, Shaikh, Waqas, Kanasro, Ali, and Solangi, 2020). For an effective climate change policy, it is essential to protect the natural livelihood resources of the indigenous communities (Nwankwo, 2025). Indigenous communities are dependent on natural resources (Mishra, Sudarsan, Santos, Mishra, Kar, Baral, & Pattnaik, 2021). In Pakistan, indigenous communities live in an agro-based region. They have to rely on agriculture to sustain their living. Wheat, maize, potatoes and many other agricultural products are grown in the geographical location of these indigenous communities. Apples, pears and walnuts are also exported to different cities in Pakistan. The drastic climate changes have crippled the livelihood resources. The agricultural goods require a suitable climate to grow. However, changes in the rain cycle affected their agricultural products. Climate change-induced disasters such as GLOF and flash floods wash away agricultural land in Khyber Pakhtunkhwa (Khan, 2024). However, the climate change policy of Khyber Pakhtunkhwa cannot address the unique vulnerabilities of the indigenous communities (Shah, Khan, Gong, Ahmad, Naqvi, Ullah & Karmaoui, 2023).

The Kalasha community also relies on natural resources and agriculture for livelihood. They are reliant on forests for various purposes such as wood for fuels and construction. Moreover, fruits and dry fruits are abundantly grown here and exported to local markets. The last few years climate changes have crippled livelihood resources as continuous flooding and GLOF have demolished large forest areas and agricultural lands (Ajani and van der Geest, 2021). Moreover, Pashtun indigenous communities living in merged districts rely on natural resources. Agriculture and domesticated land is the source of livelihood. The Pashtun Indigenous community has been badly affected by the war against terror. Security is the major challenge in this region (Khan, Israr, and Khan, 2019). Climate change further intersects their marginalities. Climate change causes a scarcity of resources. It fuels conflict over water and land in the Pashtun region, especially in the tribal belt. Therefore, without an understating of the problems of indigenous communities, the climate change policy will not be effective. Hence, this research study examines the perception of indigenous communities about climate change policy and their unique vulnerabilities to climate change.

Theoretical Framework

This research essay focuses on the climate change policies of the Khyber Pakhtunkhwa government and the missing voices of indigenous communities in the Khyber Pakhtunkhwa climate change policy. The customary terrestrial management approach provides theoretical insight to this study (Guerrero-Gatica, Mujica, Barceló, Vio-Garay, Gelcich, & Armesto, 2020). Indigenous people contribute to environmental governance. It is important to understand their concerns and perspectives while formulating climate change policies. The voices of Indigenous people in climate change policies must be included. Moreover, the Two-Eyed Seeing approach utilises Western and Indigenous knowledge to develop a climate change policy (Macfarlane, Charles-Norris, Warren, Mahendra, Butler, Hayes and Armstrong, 2022). This approach gives insight into understanding and utilising both indigenous and Western knowledge. Two-eyed seeing requires groups to weave between each respective way of knowing, as Indigenous knowledge may be more applicable than Western in certain situations and vice versa. It allows a diverse group of people to use all understandings to improve the world.

Methods and Materials

A qualitative approach is applied to gain firm insight into the climate change policies of the Khyber Pakhtunkhwa government a province of Pakistan. Various stakeholders like elderly community members of indigenous communities' policymakers, and civil society are being interviewed in detail which provides a firm understanding regarding the effectiveness of climate change. In-depth interviews enable us to understand the perception of Khyber Pakhtunkhwa indigenous communities. The purposive sampling technique was used to select respondents from indigenous communities such as Khu, Pashtun and Kalasha. Climate change affected their natural resources. They have no access to climate finance. The government has failed to protect their livelihood resources. The data was collected in six months. The primary data was collected from both males and females and from local civil society organizations to understand their perception of climate change. The primary data is thematically analyzed to understand the Indigenous communities' perspective on their unique vulnerabilities to climate change and Khyber Pakhtunkhwa's climate change policy.

Data Analysis and Discussion

Analyzing Khyber Pakhtunkhwa's Climate Change Policy through Indigenous Perspectives Perceptions of Policy Effectiveness

Globally, indigenous communities are more marginalized due to climate change. States and civil society organizations assert indigenous perspectives in forming climate change policy. The impacts of climate change have become increasingly evident in the geographical location of indigenous communities living in the northern Pakhtunkhwa province of Pakistan over the past several years (Ahmad, Asad and Irtaza, 2023). Indigenous people have suffered from natural disasters such as floods and glacial lake outburst floods (GLOFs) (Hussain and Khan, 2024). However, the Indigenous community perceived that without the inclusion of Indigenous voices climate change policy will not effectively protect the natural resources of indigenous communities. In this regard, one of the community members stated that

“In recent years, visible changes in the weather have highlighted the pressing nature of climate change. Traditionally predictable patterns have been replaced by unpredictable fluctuations, making it challenging for our communities to adapt. Last year, for instance,

there was an exceptional absence of snowfall in January, a phenomenon that was followed by an unexpected cold spell and heavy rains in April. These unexpected changes in weather badly affected our local communities” (Individual interview May 7, 2024).

The government has failed to address the effects of climate change on the indigenous communities. These indigenous communities have unique relationships with their land and resources. They need a different climate change policy. Climate change has distinct effects on the Indigenous communities living in mountainous regions. The people especially the Indigenous communities of Khyber Pakhtunkhwa are dependent on the local natural resources (Khan and Shah, 2021). They have different types of challenges as compared to other communities. It is essential to design a climate change policy for the Indigenous people and their Indigenous knowledge and resilience should be strengthened for an effective climate change policy. For example, Australia and New Zealand governments design for their indigenous communities. In this regard, one community member stated that ;

“The current Khyber Pakhtunkhwa climate change policy does address the climate change-related challenges of indigenous communities. The government does not provide any help to these indigenous communities. Our Indigenous people mainly utilized their socio-cultural capital to respond to climate-induced disasters. We have a unique experience of climate change as compared to mainstream society. The current climate change policy does not preserve our cultural heritage (Individual interview, 05 July 2024)”

Growing temperature affects the domesticated animals and grazing land (Khan, 2024). Pakistan is warming faster than the global average due to geographical location Data from the Pakistan Meteorological Department shows that temperatures have been gradually rising over recent decades, with average winter temperatures increasing by approximately 0.06 degrees Celsius per decade. High temperatures also affected the local domesticated animals. However, the climate change policy of the Khyber Pakhtunkhwa government does not have a clear climate action plan to protect the livelihood resources of the indigenous population. One of the respondents stated that;

High temperatures and variations in the rain cycle badly affected the grazing land. Many pastoral communities have changed their profession because their animals do not survive due to climate change. The climate change policy does not address the unique vulnerabilities of the Pastoral communities (Individual interview, 25 Jun 2024).

The indigenous communities of Khyber Pakhtunkhwa are more susceptible to climate change due to droughts, and land sliding. The indigenous communities have specific land rights and governance systems. It needs to be recognized in the climate change policy in Khyber Pakhtunkhwa. The current climate change policy does not address the issues of instant warming, melting of glaciers, and an increase in natural disasters like floods and glacial lake outburst floods (GLOFs). The climate change further intersects their socio-economic disparities (Łukaniszyn-Domaszewska, Mazur-Włodarczyk & Łukaniszyn, 2025). Natural water resources are severely threatened by climate-related concerns (Ahmed, Zounemat-Kermani & Scholz, (2020). One of the respondents stated that

“We are facing severe problems due to climate change. Our people face distinct challenges related to climate change” (individual 13 August 2024).

Climate change policy needs a framework to recognize indigenous knowledge and socio-cultural capital for effective climate change policy.

Resilience and Adaptation Strategies

The KP policy has not taken the local Indigenous communities' perspectives about mitigation and adaptation strategies. It is considered the major weakness of KP's climate change policy. To address causes of susceptibility experienced by indigenous folks, research shows that operative climate adaptation in mountainous areas demands addressing socioeconomic variables and assimilating customary understanding (Gråd, Lindhjem, Jacobsen, Eriksson, Åström, Karttinen, and Fromberg, 2024). Indigenous communities have deep spiritual and cultural ties with their land and environment. However, the current climate change policy is blind to the indigenous knowledge and resilience to climate change. It also does not address the local sociocultural capital to counter the worst effects of climate change. One of the respondents stated that ;

“We, the indigenous people are closely attached to our traditions and land. Our ancestors have inherited many beautiful traditions and useful ways to such mountainous regions. So it is important to consider our local understanding while formulating environmental policies” (individual interview, 07 July 2024)”

Disregarding customs could result in the community's resistance and unsuccessful policy execution (Khan, Cheng, Shah & Ullah, 2020). Indigenous communities have unique indigenous strategies for adaptation that align with their culture. To support sustainable environmental management, policies should be crafted to use indigenous ingrained ecological knowledge. The effective accomplishment of environmental policy especially in indigenous communities is hindered by several problems. Limiting the use of forest resources is a key problem that has an instant influence on the Indigenous community's standard of living. These restrictions cause shortages of vital assets like firewood and lumber, which makes gathering them more labour-intensive. They do not have any alternative sources of income, and the local individuals, therefore, face a financial crisis. The carbon crediting policy should be introduced. It will provide an alternative source of income to indigenous communities. It will create revenue for the people protecting the forests in this region. In this regard, one of the community members stated that ;

“The forest is our source of livelihood. We rely on the forest and we use it as firewood. However, the current climate change policy of the Khyber Pakhtunkhwa government does not offer any alternative resources to Indigenous communities that rely on the forest (individual interview 17 September 2024).

The Indigenous community has separate and distinct climate-related problems. They need a dedicated climate-related fund to provide alternative livelihood resources. The existing climate-related funds are not enough to address the unique vulnerabilities of indigenous communities.

Bridging the Communication Gap between Legislators and Local Communities

Apart from the policy-development phase, neglecting the Indigenous wisdom (due to communication gaps or lack of consultation) creates opposition and the local people deliberately do not protect the forests which discourages community forestry. Thus, such complications further led to misunderstandings about the goals and advantages of policies making it more challenging to implement the strategies. However, through community involvement, we can improve the effectiveness of climate change policies to counter the worst effects of climate change (Ullah, Bavorova, Shah and Kandel, 2024). Ensuring the inclusion of Indigenous knowledge and socio-cultural capital can increase the chance of acceptability of policies. Further, the community should be given a fair and unbiased chance to share their concerns while formulating policies. In this regard, one of the community members stated that ;

The government takes into confidence the local people and also offers alternative livelihood resources to decrease their dependency on natural resources. The government should initiate the development project and ensure their access to climate financing for the effective climate change policy (Individual interview, 25 August 2025).

However, advanced countries like Canada, New Zealand and the United States of America made separate climate change policies for indigenous communities with consultation. However, Indigenous issues are not addressed in the climate change policy. The local community should be involved in climate action plans.

Unique Vulnerabilities of Indigenous Communities

Moreover, reducing socioeconomic inequalities and increasing public support for ecological measures can be attained by assuring that the advantages of ecotourism and other business activities are distributed fairly. Indigenous communities have unique vulnerabilities. They are dependent on natural resources. These natural resources are badly affected by climate change-induced disasters. Therefore, they need special treatment to address their socio-economic issues. For this purpose a policy need to be revisited. Legislators can improve more inclusive, viable, and successful environmental policies that increase the well-being of Indigenous populations while simultaneously preserving the environment by tackling these prospects and problems.

Conclusion

This research reveals that climate change has a significant effect on the indigenous population at the global level. They have unique vulnerabilities. They rely on natural resources. Conservation of natural resources should be a priority of the climate change policy. Different countries at the global level recognized the indigenous perspectives on the climate change policy. The government should work to ensure the Indigenous community's inclusion in the climate action plan. The new Zeland and Australian government incorporate traditional knowledge and ensure equitable participation in climate action. In this study, The theoretical framework two-eyed seeing approach mentioned above emphasizes Indigenous and Western knowledge for the effective climate change policy. The Khyber Pakhtunkhwa climate change policy is not based on scientific research. Neither takes into account Indigenous knowledge and resilience. It is included that there is a considerable communication gap between the legislators and the local community. The unequal distribution

of advantages gained from ecotourism has worsened the socioeconomic disparities that highlight the need for fairer and unbiased policies. It is essential to improve the efficiency of policy through the integration of indigenous knowledge and customs. It is also important to highlight the Indigenous women's problems due to climate change. It is a grey area for research to investigate climate change's effects on indigenous women.

Policy Recommendations

Community-Based Approaches

- Indigenous knowledge is culturally embedded. This approach can strengthen climate policies by ensuring they are inclusive, equitable, and culturally appropriate. We need to support Indigenous rights, and commitment to bridge the gap between traditional knowledge and modern science.
- Engaging Indigenous communities in climate-related problems to address their unique vulnerabilities.
- Restructuring the Climate Change Policy to address the unique vulnerabilities of the indigenous communities.

Ethical Considerations

This research is conducted responsibly while keeping in view research ethics. The participants' rights are properly protected and the finding of this research is not harmful for anyone. This research contributes to the positive impact on society and communities especially for indigenous people in the different parts of the world.

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