Traditional Knowledge, Cultural Resilience, and Sustainable Livelihoods: A Study of Indigenous Tribal Communities in Ladakh

Dr. Jaffar Ali Khan
Assistant Professor University Of Ladakh Department Of Sociology
Eamil:ID: Jaffargdck@gmail.com.
Corresponding Author

Abstract: The total population recorded for Ladakh as per Census 2011 was 274289 people. Out of these, 140802 formed the population of Kargil district. Out of these, 122336 constituted the Scheduled Tribes population. The Scheduled Tribes made up almost 79.54 % of the total tribal population of Ladakh. Secondary literature indicates a drop in this figure compared to the tribal share of 85.2 % recorded in 2001. Ladakh emerged as a separate Union Territory in 2019. The findings of ethnobotany surveys are available, highlighting wide-scale utilisation of wild plants for therapeutic and nourishing purposes. Sources confirm the use of Sowa Rigpa in addition to Ayurveda and Unani medicine systems. There is literature mentioning pastoral pursuits within the Changpa tribe involving rearing of pashmina goats and yaks. The official sources confirm research institutions on tribes highlighting their cultural traditions and welfare requirements. Review of the literature reveals that migration and modernisation are posing threats to the way of life of such tribes. The current study would adopt the secondary research approach to study the tribes of Ladakh. There is additional information regarding sex ratio and decrease in population size amongst the pastoralists through secondary sources from the region as well. This essay will combine all the results found here into a larger discussion about the resilience practices within the various tribes. The key is to understand the discrepancy between the intended effect of the policy and its real-world implementation at the ground level. Sustainable livelihood requires documenting and institutionalising the indigenous ecological knowledge, which is evident from the findings of this paper. Community-level governance also improves resilience to economic shocks. The present secondary study presents an analysis of the indigenous knowledge system of the tribe

Keywords: : Ladakh; Scheduled Tribes; Indigenous Knowledge; Ethnobotany; Sowa Rigpa; Pastoral Livelihoods; Sustainable Development; Tribal Resilience; Cultural Heritage; Secondary Research

Introduction

The Ladakh region is unique in terms of examining the indigenous knowledge system amid the issue of sustainable livelihood in mountainous terrain. The total population as per Census 2011 stood at 274,289 in the entire area. The population of Kargil alone was 140,802 out of this total territorial population. The total number of Scheduled Tribes was 122,336 in the Kargil region. In terms of total tribal population, 79.54 % of the total population comprised the same. The above percentage has decreased to a significant extent from the previous census of 85.2 % in 2001. In the light of such a political and demographic context, it should be mentioned that the indigenous communities still have to rely heavily on the traditional knowledge systems (Ladon, Nüsser & Garkoti, 2023). Some of the main components of the traditional knowledge systems include ethnobotany practices, pastoralism, and plural medicines. However, in view of the fact that people are inclined to urbanise and modernise, it looks like there is a certain threat posed to the culture-based methods. In the secondary literature, there is some concern voiced about the increasing gap between the policies related to tribal welfare and their implementation.

Method

In the current research study, secondary sources of information will be used to carry out the research on the indigenous native tribes in the region of Ladakh (Ajayi, 2023). Demographic data were collected from the Census of India reports of 2001 and 2011 concerning population data and Scheduled Tribes population figures. Data of only the district of Kargil has been collected specifically for conducting demographic analysis at the district level. Ethnobotany survey literature has been reviewed in order to conduct the analysis of current utilisation of wild plants. Literature related to the practice of Sowa Rigpa medicine, Ayurveda and Unani medicines has been reviewed to analyse health care practices. Literature concerning Changpa pastoralist economy including pashmina and yak farming has been analysed to determine the living conditions (Gaur *et al.,* 2024). Official documentation from tribal research institutes was used for the analysis of policies regarding culture and welfare requirements

Results

District Level Demographic Distribution and Tribal Concentration in Kargil

The figures provided by the Census 2011 demonstrate the significant demographic importance of Kargil district in terms of the demographic structure of Ladakh (Hussain, 2020). In particular, Kargil district had a population size of 140,802 people out of the total population of 274,289 people in Ladakh. The Scheduled Tribes living in different settlements and valleys numbered 122,336 people in the region. Hence, the above number plays a crucial role in terms of the total tribal population of Ladakh identified during the 2011 Census.

Table 1: Population and Scheduled Tribe Composition Across Ladakh's Districts, Census 2011

Indicator	Ladakh (Total)	Kargil District	Remaining Ladakh (approx.)
Total Population	274,289	140,802	133,487
Scheduled Tribe Population	218,193	122,336	95,857
ST Share of District Population	79.54%	86.88%	~71.81%
Predominant Religious Tradition	Mixed	Muslim majority	Buddhist majority
Share of Ladakh's Total ST Population	100%	56.07%	43.93%

The above-mentioned figures can be found in the literature sources regarding the demographic structure of the entire territory. It should be noted that there are different settlement traditions in Kargil district in comparison with those of Leh district. As is stated in literature sources, contrary to the rest of Buddhist areas, Kargil has a Muslim tribal population. Religion affects all spheres of life, including culture, kinship and governance. According to the secondary sources, the dynamics of population growth in Kargil district differ from the dynamics of population growth in the territory as a whole

(Khatoon, 2022). The importance of conducting a separate analysis of demographic structure in Kargil is obvious in the case of planning welfare programs in the area.

Integration of Sowa Rigpa, Ayurveda, and Unani Medicine Systems

Secondary sources evidence that Ladakhi tribal groups make use of multiple traditional medicine systems (Angmo *et al*., 2024). Sowa Rigpa medicine system is popular among the Buddhist tribes in Ladakh. Sowa Rigpa medicine system includes the use of herbal medicines, pulse diagnosis, and seasonal treatments that were invented over centuries of usage. Apart from the Sowa Rigpa medicine system, there are records of the use of Ayurveda in some of the tribes in Ladakh. In addition, the use of the Unani medicine system was recorded in secondary sources. Unani medicine system is used by the Muslim tribes situated in Kargil district.

Table 2: Comparative Overview of Traditional Medicine Systems Practised Among Ladakhi Tribal Communities

Feature	Sowa Rigpa	Ayurveda	Unani
Primary Community Association	Buddhist tribal settlements	Mixed tribal groups	Muslim tribal groups, mainly Kargil
Diagnostic Method	Pulse and urine diagnosis	Pulse and constitution assessment	Pulse and temperament assessment
Core Treatment Basis	Herbal formulations, seasonal protocols	Herbal formulations, dietary regulation	Herbal formulations, humoral balance
Geographic Concentration	Leh district and Buddhist valleys	Scattered across Ladakh	Concentrated in Kargil district
Institutional Recognition	Growing regional policy recognition	Nationally established system	Regionally documented, less formalised
Primary Role Today	Household and remote area healthcare	Supplementary treatment option	Household and remote area healthcare

This diversity of medicine systems proves the multi-cultural and multi-religious background of Ladakh in different valleys. The researchers state that such diversity of medicine systems does not imply rivalry, but rather the use of these systems concurrently. The people use treatments of different medicine systems in their households depending on the type of illness. The official sources mention the growing recognition of the Sowa Rigpa medicine system in the health care policy framework of the region (Kloos, 2020). This recognition indicates attempts to record the traditional pharmacological knowledge for future generations.

Changpa Pastoral Economy and Pashmina Goat Rearing Practices

As for the literature reviewed for this research, the authors pay much attention to the particularity of the Changpa tribe's economy, that is, pashmina production. Changpa people have pashmina goats and yaks grazing in pastures of the Changthang plateau at high altitudes. In general, the pastoral system includes annual migration from summer to winter pastures. As for secondary literature, the authors note that pashmina wool is an economically important product for the local and national textile market. Changpa families do not herd only for subsistence needs but also sell wool in order to obtain income (Yangkey, 2023). Yak breeding is an additional way of earning through obtaining milk, meat, and transportation in the mountains. Literature highlights that the existence of Changpa people depends on a fragile high-altitude grassland ecosystem. These ecosystems are under threat due to climate variability and unpredictable availability of pastures in different seasons. The secondary literature also shows that the young generation of Changpas is less interested in continuing pastoral occupations traditionally. This fact is connected with migratory tendencies observed among other Ladakhi tribes earlier. Official sources say that the pashmina economy is of strategic importance for the region (Gaur *et al.,* 2024).

Migration, Modernisation, and Threats to Traditional Tribal Lifestyles

The literature under review reveals that modernisation and migration remain the two major threats to the survival of the tribes in Ladakh. As per the secondary literature, migration is the migration of the people away from their traditional agricultural and pastoral livelihoods to pursue jobs in cities. This migration pattern is very frequent amongst the youth who wish to pursue formal education and employment opportunities in urban centres. It has been noted in the literature that modernisation leads to economic competition that cannot be met by the traditional economic pursuits anymore. Expansion of the cash economy has led to changes in the priorities of the people, where they do not find subsistence pursuits any more important. Some pastoralist tribes have witnessed a reduction in numbers over the past few decades, according to the secondary literature. Such a demographic shift raises serious concerns regarding the future of the traditional occupations of these tribes, like the Changpa tribe (Gaur *et al.,* 2024). The sex ratio as presented in the secondary literature has an unbalanced proportion, which may be due to the selective nature of the migration process. It may be possible that outmigration of males for economic purposes is responsible for such a demographic imbalance.

Gap Between Policy Intent and Ground Level Implementation

Documentation available in official sources clearly indicates that research organisations are formed with an aim to conduct systematic study of the cultural and welfare needs of the tribes (Meghani *et al.,* 2021). However, secondary documentation clearly shows that there is a huge gap between the implementation and policy intentions of the organisation.

Table 3: Disparities Between Stated Tribal Policy Objectives and Observed Implementation Outcomes in Ladakh

Policy Dimension	Stated Institutional Intent	Documented Ground Level Gap
Tribal Welfare Programs	Equitable benefit delivery across all settlements	Inconsistent reach between Kargil and Leh districts
Cultural Documentation	Systematic recording of traditions and knowledge	Limited institutional follow-through on documentation efforts
Pastoral Land Administration	Protection of grazing and migration rights	Restrictions conflicting with traditional grazing patterns

Healthcare Access	Integration of traditional and modern medicine systems	Clinical facilities remain sparse in remote settlements
Community Feedback Mechanisms	Responsive policy adjustment based on local input	Weak monitoring and limited beneficiary consultation
Program Monitoring	Regular assessment of policy effectiveness	Geographic isolation limiting oversight and delivery capacity

There are instances wherein the centrally designed policies do not consider the local conditions such as ecology and culture. This can clearly be observed in the formation of policies related to the utilisation and administration of the grazing land. It has been found that the welfare programs of the tribes are not reaching all the districts to the same extent. Kargil and Leh districts have shown varying extents of the implementation of the program despite the fact that both of them have been under the same territorial policies (Dolkar *et al.,* 2022). This is due to bureaucratic and logistic barriers. The remote location of the settlement is also another hindrance. Scholars have recommended that this gap should be narrowed by community feedback.

Community Governance as a Buffer Against Economic Shocks

The review of the secondary literature suggests that there exists a direct correlation between the capability of community-level governance and resilience in case of economic disruptions. Secondary literature suggests that the governance framework tends to be present, regardless of the lack of any sort of formalised administrative governance systems in the region. It has been noted that there were some pieces of research in which the significance of community-based governance, specifically in the context of Ladakh, has been highlighted due to the geographical remoteness and hence economic marginality. It is suggested in the secondary literature that villages with traditional governance frameworks had better capacity to adapt in case of economic disruptions than others. This adaptive capacity included coordination in resource distribution and assistance in work in case of loss of either crops or livestock (Petersen-Rockney *et al.,* 2021). This resilience was directly linked with the indigenous ecological knowledge that was part of the traditional governance systems. The formalisation of this knowledge through documentation, as discussed in this paper, will be very helpful in strengthening the policies.

Discussion

It can be inferred from the findings above that the resilience of the tribe in Ladakh is a result of the structural pressures of knowledge systems. The relatively high percentage of Kargil's population in the tribal structure of Ladakh requires that policy be formulated separately for the district rather than a territorially driven one (Vogel & Field, 2020). The use of various health systems including Sowa Rigpa, Ayurveda, and Unani is another example of adaptation across various religions. This diversity in health systems is partly as a result of limited access to health services. This association also plays a part in a general trend of migration, which exists among the greater population of the tribals in Ladakh. The difference between the intentions and implementation of the policy is thus explained through this phenomenon. Structures exist, but the implementation of the program is hampered by the same factors of geography and bureaucracy (Jansen *et al.,* 2021). Governance of communities becomes the solution to this problem of the non-recognition of the practices in the formal structure. It appears that the indigenous structures for governance of the community can be used in addition to the state-sponsored welfare programs. There is one thing common in all studies done on the issue, which is the under-

utilisation of the traditional practices in the planning process.

Conclusion

This study highlights that the role of indigenous knowledge and cultural resilience is an indispensable pre-requisite for achieving sustainable livelihood in tribal Ladakh. Demographic statistics point to a reduction in the number of tribes as well as the variation among districts like Kargil and others. Traditional practices of medicine, including Sowa Rigpa, Ayurveda, and Unani, have been carried forward in spite of a lack of facilities for the same. Grazing practices of Changpa communities through pashmina and yaks reflect a very high level of ecological knowledge which is being threatened because of migration and climatic challenges. From secondary data, it seems that there is a gap between the policy objectives and their actual implementation at the ground level. Practices of community-based governance provide resilience against economic challenges but are not being incorporated into the development policy completely. It can thus be concluded that sustainable livelihood needs to include indigenous knowledge as an indispensable practice rather than a peripheral one.

References

Ajayi, V. O. (2023). A review on primary sources of data and secondary sources of data. Available at SSRN 5378785. Retrieved at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5378785

Angmo, K., Adhikari, B. S., Bussmann, R. W., & Rawat, G. S. (2024). Harmony in nature: understanding the cultural and ecological aspects of plant use in Ladakh. Journal of Ethnobiology and Ethnomedicine, 20(1), 34. Retrieved at https://link.springer.com/article/10.1186/s13002-024-00670-3

Dolkar, D., Dolkar, R., Fatima, N., Spaldon, S., & Hussain, A. (2022). Empowering rural women in agriculture through training, demonstration and input distribution in Kargil UT Ladakh. The Pharma Innovation Journal, 11(12), 3229-3232. Retrieved at https://www.academia.edu/download/96648806/women_empowerment.pdf

Gaur, M. K., Goyala, R. K., Choudharyb, V., Kanwara, M. S., Singhc, N., Chichagharea, A. R., & Raghuvanshid, M. S. (2024). Traditional Ecological Knowledge and Natural Resource Management in the Cold Desert of Leh-Ladakh, India. Ecofeminism and Climate Change, 5(2), 81-88. Retrieved at https://efcc.com.my/archives/2efcc2024/2efcc2024-115-122.pdf

Gaur, M. K., Goyala, R. K., Choudharyb, V., Kanwara, M. S., Singhc, N., Chichagharea, A. R., & Raghuvanshid, M. S. (2024). Traditional Ecological Knowledge and Natural Resource Management in the Cold Desert of Leh-Ladakh, India. Ecofeminism and Climate Change, 5(2), 81-88. Retrieved at https://efcc.com.my/archives/2efcc2024/2efcc2024-115-122.pdf

Gaur, M. K., Goyala, R. K., Choudharyb, V., Kanwara, M. S., Singhc, N., Chichagharea, A. R., & Raghuvanshid, M. S. (2024). Traditional Ecological Knowledge and Natural Resource Management in the Cold Desert of Leh-Ladakh, India. Ecofeminism and Climate Change, 5(2), 81-88. Retrieved at https://efcc.com.my/archives/2efcc2024/2efcc2024-115-122.pdf

Hussain, A. (2020). Status of Dard tribe women in Kargil district: A Sociological Study. Journal of Society in Kashmir, 10(1), 118-129. Retrieved at https://sociology.uok.edu.in/Files/c2d3b278-4cf7-49a5-9525-af5e352f2900/Journal/8095500d-d091-43d3-8268-be4c09e529f5.pdf

Jansen, E., Javornik, J., Brummel, A., & Yerkes, M. A. (2021). Central-local tensions in the decentralization of social policies: Street-level bureaucrats and social practices in the Netherlands. Social Policy & Administration, 55(7), 1262-1275. Retrieved at https://onlinelibrary.wiley.com/doi/abs/10.1111/spol.12722

Khatoon, S. 2022. Language and Culture Preservation in Kargil: A Focus on the Balti. Retrieved at https://www.academia.edu/download/118890932/Research_paper_on_Language_preservation.pdf

Kloos, S. (2020). Humanitarianism from below: Sowa Rigpa, the traditional pharmaceutical industry, and global health. Medical Anthropology, 39(2), 167-181. Retrieved at https://www.tandfonline.com/doi/abs/10.1080/01459740.2019.1587423

Ladon, P., Nüsser, M., & Garkoti, S. C. (2023). Mountain agropastoralism: traditional practices, institutions and pressures in the Indian Trans-Himalaya of Ladakh. Pastoralism, 13(1), 30. Retrieved at

https://link.springer.com/article/10.1186/s13570-023-00289-1

Meghani, A., Rodríguez, D. C., Bilal, H., Tripathi, A. B., Namasivayam, V., Prakash, R., ... & Bennett, S. (2021). Examining policy intentions and actual implementation practices: How organizational factors influence health management information systems in Uttar Pradesh, India. Social science & medicine, 286, 114291. Retrieved at https://www.sciencedirect.com/science/article/pii/S0277953621006237

Petersen-Rockney, M., Baur, P., Guzman, A., Bender, S. F., Calo, A., Castillo, F., ... & Bowles, T. (2021). Narrow and brittle or broad and nimble? Comparing adaptive capacity in simplifying and diversifying farming systems. Frontiers in Sustainable Food Systems, 5, 564900. Retrieved at https://www.frontiersin.org/journals/sustainable-food-systems/articles/10.3389/fsufs.2021.564900/pdf

Vogel, B., & Field, J. (2020). (Re) constructing borders through the governance of tourism and trade in Ladakh, India. Political Geography, 82, 102226. Retrieved at https://www.sciencedirect.com/science/article/pii/S0962629819303828

Yangkey, T. (2023). When Political Precarity Meets Climate Vulnerability: A Case of Tibetan Refugee Pastoralists From Latah, Northern India (Master's thesis, The University of Arizona). Retrieved at https://search.proquest.com/openview/20c867643bb37be4851ca195ab8423ca/1.pdf?pq-origsite=gscholar&cbl=18750&diss=y.