

Harnessing the Indian Knowledge System (IKS) for Biodiversity Conservation: A Secondary Data Analysis of the Hariyali Devi Sacred Landscape, Uttarakhand

Madhavi Anand

Research Scholar

A.P. Sen Memorial Girls' P.G. College,

University of Lucknow

Email: madhavi130100@gmail.com

Prof. Shweta Tiwari

Professor

A.P. Sen Memorial Girls' P.G. College,

University of Lucknow

Reference to this paper should
be made as follows:

Received: 01.03.26

Approved: 25.07.26

Madhavi Anand
Prof. Shweta Tiwari

*Harnessing the Indian
Knowledge System (IKS) for
Biodiversity Conservation: A
Secondary Data Analysis of the
Hariyali Devi Sacred
Landscape, Uttarakhand*

Vol. XVII, Sp. Issue Aug. 2026

Article No.08, Pg. 059-064

Similarity Check: 02%

Online available at
[https://anubooks.com/special-
issues?url=jgv-si-apsmgpc-lkn-
2026](https://anubooks.com/special-issues?url=jgv-si-apsmgpc-lkn-2026)

DOI: [https://doi.org/10.31995/
jgv.2026.v17iSI08.008](https://doi.org/10.31995/jgv.2026.v17iSI08.008)

Abstract

This study explores the intersection of the Indian Knowledge System (IKS) and community-led environmental stewardship within the Hariyali Devi Sacred Landscape (HSL) in Jasoli village, Rudraprayag district. Utilizing a secondary database methodology, the research synthesizes existing ethno-botanical surveys, mythological narratives, and historical land-use records to evaluate how traditional belief systems facilitate biodiversity conservation.

*The Hariyali Devi temple, recognized as one of the 58 Siddh Peeths, serves as the focal point for a Sacred Grove spanning approximately 5.5 square kilometers. Preliminary analysis of secondary data reveals that the local "Taboo System"—rooted in the myth of the Goddess Mahamaya—functions as an informal yet rigorous regulatory framework. This system strictly prohibits the felling of green wood and the harm to fauna within the sanctified zone, thereby preserving the climax forests of *Quercus semecarpifolia* (Brown Oak) and *Rhododendron arboreum*.*

The study identifies a significant correlation between IKS-driven rituals, such as the Hariyali Kantha Yatra, and the maintenance of high species richness (estimated at 98+ plant species). However, secondary records also indicate emerging threats from modern infrastructure and shifting socio-cultural values. The findings suggest that integrating these indigenous "sacred" management models into formal biodiversity policies can enhance the ecological resilience of the Garhwal Himalayas. The

**This article has been peer-reviewed by the Review Committee of JGV.*

research concludes that the Hariyali Devi model represents a successful historical precedent for sustainable resource management that remains relevant for contemporary climate adaptation strategies.

Keywords: *Indian Knowledge System (IKS), Hariyali Devi, Sacred Groves, Biodiversity Conservation, Jasoli Village, Traditional Ecological Knowledge (TEK).*

Introduction

In the field of Environmental Sociology, the “Sacred Grove” represents a unique intersection of faith, community, and ecology. Unlike state-managed national parks, these groves are managed by local communities through a system of religious sanctions and cultural norms (Agarwal, 2016). The Hariyali Devi Temple in Jasoli village is a pinnacle of this tradition. Located in the Rudraprayag district, the grove is protected by the belief that the forest is the physical manifestation of the Goddess Mahamaya.

From a sociological perspective, this is a “socially constructed environment” where the collective consciousness of the village is tied to the health of the forest. This paper aims to evaluate how the IKS—comprising myths, rituals, and ancestral wisdom—functions as a sophisticated management tool that often outperforms modern legal frameworks.

Literature Review

The following reviews provide the theoretical and empirical foundation for this study, focusing on the socio-cultural dynamics of sacred groves.

Madhav Gadgil and V.D. Vartak were the first to systematically document sacred groves in India. Their work argued that these forests are “treasure troves” of biodiversity maintained through “ecological prudence.” They suggested that ancient societies internalized conservation laws as religious rituals. This sociological insight shifted the view of groves from “primitive superstition” to a highly organized form of resource management that has allowed rare plant species to survive for centuries (Gadgil and Vartak, 1975).

In their later work, these authors explored the “Taboo System” in greater detail. They found that the effectiveness of sacred groves lies in “internalized policing.” In places like Hariyali Devi, the fear of divine retribution is more effective than a forest ranger’s fine. This study highlights how social cohesion is maintained when all members of the community agree on the “purity” of a specific land area, thereby creating a self-regulating ecological zone (Gadgil and Vartak, 1981).

Malhotra provided the most comprehensive survey of Indian sacred groves, documenting over 10,000 sites. He argued that groves are not just biological entities but “Common Pool Resources” (CPRs). His sociological analysis showed that the management of these groves is often tied to the local caste and kinship structures. In the context of HHSL, this means the temple committee acts as a traditional governing body that resolves land disputes and regulates ritualistic entry (K. C. Malhotra et al., 2001).

Bhaskar Sinha and R.K. Maikhuri conducted groundbreaking research specifically on the Hariyali Devi landscape. They documented that the forest is a “totally prohibited area” where even picking up a dry twig is considered a sin. Their sociological finding was that the community views the forest as “Goddess’s Property.” This perception creates a psychological barrier that

prevents the “Tragedy of the Commons,” where individuals might otherwise over-exploit the wood for personal gain (Sinha and Maikhuri, 1998).

Sinha’s later research focused on the “Ecosystem Services” provided by the Hariyali grove. He used sociological surveys to show that local villagers value the “spiritual and regulatory services” (like rain and protection) higher than “provisioning services” (like timber). This proves that the Indian Knowledge System prioritizes long-term ecological stability over short-term economic gain, a core tenet of sustainable development that modern sociology advocates (Sinha, 20011).

This study explored the tension between traditional IKS and modern state forestry. Maikhuri noted that when the Forest Department took control of certain sacred areas, the community’s sense of “ownership” diminished, leading to forest degradation. This highlights a crucial sociological point: conservation is most effective when the local people feel a spiritual and cultural connection to the land, rather than seeing it as “government property” (Maikhuri et al., 2005).

Khan and colleagues noted that sacred groves often harbour “Rare, Endangered, and Threatened” (RET) species. They linked this biological fact to cultural rituals. In the Himalayas, specific rituals require the presence of certain ancient trees. Therefore, to keep their culture alive, the community is motivated by social norms to protect those specific tree species, showing how culture and biology are inextricably linked (M. L. Khan et al., 2008).

Agarwal’s research situated sacred groves within the broader framework of the Indian Knowledge System (IKS). She argues that IKS is a “living science” that utilizes traditional water harvesting and forest management techniques. For the Jasoli community, the Hariyali Devi grove isn’t just a place of worship; it is the source of their water and the regulator of their local climate, proving that IKS is a pragmatic survival strategy (Mala Agarwal, 2016).

Ramakrishnan argued that the concept of the “sacred” extends beyond the grove to the entire landscape. In the Hariyali region, the mountain peaks, the streams, and the forest are seen as one interconnected holy entity. This “holistic” worldview is a hallmark of IKS and contrasts sharply with the “reductionist” view of modern science, which often tries to manage trees and water as separate, disconnected resources (Ramakrishnan, 1996).

The historian **D.D. Kosambi** provided the historical sociology for these traditions. He suggested that sacred groves are remnants of pre-agrarian, hunter-gatherer societies that survived through the Vedic period. This makes the Hariyali Devi tradition an “antique social institution” that has successfully adapted to the 21st century, providing a model for how ancient social structures can solve modern environmental crises (Kosambi, 962).

Negi’s research in the Garhwal Himalaya, including Rudraprayag, highlights the role of women in maintaining sacred groves. While men often manage the “official” temple committees, women are the primary carriers of the oral traditions and myths that keep the “sacred” alive. Their daily interactions with the forest periphery are guided by the IKS principles of “taking only what is needed (Negi, 2010)”.

In his more recent work, Sinha discusses how sacred groves like Hariyali Devi act as “climate buffers.” As the surrounding areas suffer from deforestation and rising temperatures,

these groves remain cool and moist. The sociological result is that the community perceives the Goddess as “protecting” them from the heat, which further strengthens their resolve to maintain the IKS-based protection of the forest (Baskar Sinha, 2015)

Objectives

1. To document the socio-cultural taboos and rituals that define the management of the Hariyali Devi Sacred Landscape.
2. To analyze the role of the Indian Knowledge System (IKS) in promoting biodiversity conservation in Jasoli Village.
3. To compare the efficacy of traditional community-led conservation against modern state-driven environmental policies.

Methodology

This research utilizes **Secondary Data Analysis**.

- **Data Sources:** A systematic review of 12 primary research papers, government forestry records of Rudraprayag, and ethnographic accounts of the *Hariyali Kantha Yatra*.
- **Analytical Framework:** The study applies the **Durkheimian Theory of the Sacred vs. Profane**. The forest is treated as the “Sacred” (taboo/protected) and the surrounding agricultural land as the “Profane” (utilitarian/extracted).

Analysis and Results

The analysis of the **Hariyali Devi Sacred Landscape (HSL)** through the lens of secondary data reveals a sophisticated socio-ecological system in which the “Sacred” is not merely a religious sentiment but also a functional administrative tool. This section synthesizes the empirical findings of Himalayan researchers with classical sociological theory to demonstrate how the **Indian Knowledge System (IKS)** operates in Jasoli village.

The Durkheimian Dichotomy: Sacred vs. Profane

Applying **Durkheim’s (1912/1995)** framework, the HSL is structured around a rigid spatial dichotomy. The core forest area (*Hariyali Kantha*) is designated as the “Sacred”—a space set apart and forbidden from everyday utilitarian use. In contrast, the village commons and agricultural terraces represent the “Profane” domain, where resource extraction is permitted.

As documented by **Sinha and Maikhuri (1998)**, this boundary is maintained by a complex **Taboo System**. The belief that Goddess Mahamaya (Hariyali Devi) resides within the climax of Oak Forest creates a “Psychological Fence.” Unlike state-managed forests that rely on physical fences and guards, the HSL is protected by **Collective Conscience**. The results show that this internal social control is significantly more effective; secondary data indicates that the HSL maintains a climax forest density far exceeding the neighboring government-controlled patches (Sinha, 2011).

Ritualized Ecology and Social Solidarity

The analysis of rituals, specifically the *Hariyali Kantha Yatra* and *Rakshabandhan*, reveals their role in reinforcing **Social Solidarity**. During these events, the community engages in what Durkheim termed “Collective Effervescence”—a heightened state of social unity. This ritualized behavior serves two sociological purposes:

1. **Identity Affirmation:** It reaffirms the Jasoli community's identity as "Guardians of the Goddess."
2. **Knowledge Transmission:** It acts as a mechanism for the intergenerational transfer of the IKS. Younger generations learn the boundaries of the grove and the importance of specific species (like *Quercus semecarpifolia*) through participation rather than formal education (Negi, 2010).

Results: IKS as a Functional Alternative to State Management

The results of the secondary data synthesis highlight three major outcomes of harnessing IKS in Jasoli:

- **Biodiversity Resilience:** Empirical surveys by Sinha (2011) and Khan et al. (2008) confirm that the grove acts as a "Micro-Climate Hub." The IKS-driven prohibition of felling green wood has preserved a gene pool of medicinal plants and rare fauna that are extinct in the surrounding "Profane" landscapes.
- **Conflict Resolution:** The temple committee acts as a traditional governing body. By anchoring forest management in the "Sacred," the community avoids the "Tragedy of the Commons." Maikhuri et al. (2005) found that local trust in this IKS-based system is higher than in the Legal-Rational authority of the Forest Department.
- **Hydrological Security:** The IKS recognizes the forest as the "Source of Life." Villagers associate the Goddess's favor with the health of local perennial springs. Sociologically, this links spiritual purity with environmental health, ensuring the long-term sustainability of the Jasoli watershed (Agarwal, 2016)

The Crisis of Modernity

However, the analysis also reveals a "Degradation of the Sacred." Secondary data suggests that increasing tourism and the "Profanization" of the landscape by external market forces are challenging the IKS. As Gadgil (1998) warned, when the community's spiritual link to the land is commodified, the informal social sanctions begin to weaken.

The results demonstrate that the HSL is a successful model of **Community-Based Natural Resource Management (CBNRM)**. The IKS provides a low-cost, high-efficiency framework for conservation that modern sociology suggests should be integrated into formal policy to prevent the alienation of local Himalayan communities from their ancestral lands.

Conclusion

The study of Hariyali Devi temple and Jasoli village proves that the Indian Knowledge System is not a relic of the past but a functional tool for the future. The "sacredness" of the landscape serves as a powerful sociological mechanism that protects biodiversity more effectively than fences or guards. However, as tourism increases and the younger generation moves away from traditional beliefs, there is a risk that this IKS might fade. Therefore, it is recommended that the government recognize these "Sacred Groves" as Community Reserves, giving legal power back to the traditional guardians of the land.

References

1. Agarwal, M. (2016). Conserving water & biodiversity: Traditions of sacred groves in India. *European Journal of Sustainable Development*, 5(4), Pg. 129–140. <https://doi.org/10.14207/ejsd.2016.v5n4p129>
2. Durkheim, É. (1995). *The elementary forms of religious life* (K. E. Fields, Trans.). Free Press. (Original work published 1912).
3. Khan, M. L., Khumbongmayum, A. D., & Tripathi, R. S. (2008). The sacred groves and their significance in conserving biodiversity: An overview. *International Journal of Ecology and Environmental Sciences*, 34(3), Pg. 277–291.
4. Kosambi, D. D. (1962). *Myth and Reality: Studies in the Formation of Indian Culture*. Popular Prakashan.
5. Malhotra, K. C., Gokhale, Y., Chatterjee, S., & Srivastava, S. (2001). *Cultural and Ecological Dimensions of Sacred Groves in India*. Indian National Science Academy.
6. Maikhuri, R. K., Rao, K. S., & Saxena, K. G. (2005). *Knowledge systems and natural resource management of the sacred groves of Uttarakhand, Central Himalaya*. In P. S. Ramakrishnan, K. G. Saxena, & U. M. Chandrashekara (Eds.), *Conserving the Sacred for Biodiversity Management* (Pg. 125–134). Oxford & IBH Publishing Co.
7. Nair, P. (2015). QnAs with Madhav Gadgil. *Proceedings of the National Academy of Sciences*, 112(24), 7341–7342. <https://doi.org/10.1073/pnas.1508817112>
8. Negi, C. S. (2010). Traditional knowledge and biodiversity conservation: A case study from Central Himalaya, India. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 6(1-2), Pg. 68–77. <https://doi.org/10.1080/21513732.2010.521199>
9. Ramakrishnan, P. S. (1996). Conserving the sacred: From genes to landscape. *Nature & Resources*, 32(1), Pg. 11–19.
10. Sinha, B. (2015). Ecosystem services valuation for enhancing conservation and livelihoods in a sacred landscape of the Indian Himalayas. *Environment, Development and Sustainability*, 17(5). <https://doi.org/10.1080/21513732.2015.1030693>
11. Sinha, B. (2011). *The Hariyali Sacred Landscape: Ecology and Culture of a Sacred Mountain in the Garhwal Himalaya*
12. Sinha, B., & Maikhuri, R. K. (1998). Conservation through ‘sacred’: A case study from the Garhwal Himalaya. *Journal of Hill Research*, 11(1).
13. Gadgil, M., & Vartak, V. D. (1975). *Sacred Groves of India: A Plea for Continued Conservation*. Journal of the Bombay Natural History Society, 72(2), Pg. 314–320.
14. Gadgil, M. (1998). *Conservation: Where are the people?* In The Hindu Survey of the Environment.
15. Vartak, V. D., & Gadgil, M. (1981). Studies on sacred groves of Maharashtra. In S. K. Jain (Ed.), *Glimpses of Indian Ethnobotany* (Pg. 272–278). Oxford & IBH Publishing Co.