

Indian Knowledge Systems and Himalayan Conservation: Retracing Traditional Knowledge for Sustainable Himalaya

Dr. Toolika Rani



Assistant Professor, DSN Postgraduate College, Unnao, (Affiliated to CSJM University, Kanpur).

Abstract

The Himalaya encompasses beauty, spirituality, and biodiversity in its awe-inspiring image. The Indian communities in the lap of mighty Himalaya have, for ages, lived in harmony with their unique geographical environment, deriving their strength and wisdom from the age-old traditions, and conventional knowledge passed from one generation to another. However, the modern-day challenges to the sustainability of the fragile Himalayan ecosystem call for a relook at the present developmental strategies and the need to revive the fading traditional systems due to the onslaught of modernisation, as well as integrating the Indian Knowledge Systems into education, policy and community living. This paper endeavours to focus on presenting the examples of Indian Knowledge Systems in a sustainable lifestyle in the Himalaya, the need to spread further awareness of their effectiveness and significance in Himalayan conservation, the challenges thereto and the suggestions to preserve and implement the traditional knowledge for sustainable Himalaya.

Keywords: Indian Knowledge Systems, Himalaya, Conservation, Traditional, Sustainable.

Introduction

‘Bhadrayam Sumatau Yatem’

(Let us strive for the wisdom that leads to
the welfare of all) --- Rigveda¹

Since time immemorial, the Himalaya has held a special place in the Indian socio-religious, and cultural milieu. As abode of various gods and goddesses, such as lord Shiva, Vaishno Devi, and several other local deities such as Golu Devta, it commands reverence of Indian populace. As the originator of numerous rivers and home to several glaciers, it is rightly considered the lifeline for the communities living downstream. As one of the youngest mountain ranges, it inspires awe due to its magnificent, snow-capped towering peaks. Home to a teeming variety of wildlife, it helps sustain the ecosystem balance and also plays a vital role in the Monsoon rains- characteristic of the Indian landscape. In the lap of the Himalaya have originated captivating folklores and diverse cultures, based on strong

community bonds. Saints have meditated here, explorers have found the beauty and meaning of life along with new routes, and traders have moved across passes, bringing new cultural ideas along with a variety of articles of use. In short, the Himalaya has been an integral part of Indian psyche and socio-economic, and cultural-spiritual life.

The communities living in the lap of Himalaya have had a deep connection with nature and have, for centuries, lived in harmony with the natural elements. Their traditional knowledge of their harsh environment has been based on generations of observation, and practices developed out of experimentation and practical wisdom. While they have lived off the natural resources of the Himalaya, they have intuitively taken care of the carrying capacity of their ecosystem and its capacity to rejuvenate itself. Their daily life has integrated practices evolved out of centuries of accumulated wisdom. However,

with the increased pace of modern development based on infrastructure building and tourism, the recent times have witnessed a spate of natural disasters in the Himalaya. Glacial Lake Outbursts Floods (GLOF), torrential rains, cloud bursts, frequent landslides, and avalanches have become unusually rapidly-occurring phenomena and their magnitude has brought widespread damage to life and property. This warrants a relook at the modern developmental policies as well as tracing our steps back to the conventional knowledge which may hold answers to the present challenges facing the Himalaya and prevent more catastrophes. Herein becomes important the Indian Knowledge Systems which are rooted in the conventional wisdom described above. In this paper, we would discuss the role of IKS in Himalayan Conservation, its traditional implementation and its potential to stem the present challenges and show a path to a sustainable existence in the Himalaya.

Indian Knowledge Systems

In India, knowledge has always been perceived in a wider sense as practical wisdom which makes life easier, sustainable and beneficial for all. It is based on the foundation of harmonious co-existence, revolving around the concept of “*Vasudhaiv Kutumbakam*” i.e. ‘The world is one family’. In simple terms, it translates to, ‘what is good for all, is good for one and vice-versa’. Alternatively, it implies, ‘what is harmful for one, is harmful for all’. It emphasizes the understanding of the interlinkage of all life- human, flora and fauna.

The realization and acceptance of the right of all the creatures, big and small, on the resources of this planet and the understanding of the importance of the purity of living and the surrounding non-living environment gives birth to the practices which lead to a sustainable way of life for all. That is what makes the Indian Knowledge so unique. It is not merely a question of human development and progress that the IKS focuses upon, like some of the other modern knowledge systems that place human beings in the centre and consider the entire natural resources as means to be utilized for human welfare. The IKS, on the other hand, takes into consideration the ethical values while suggesting ways of human progress. Discussing IKS, one remembers one of the most prominent Indians that the world still reveres for his unique ideal of non-violence. However, IKS is not merely about ethics; it is also deeply scientific, based on observation and experimentation.

The Ministry of Education, Government of India, defines IKS as follows: “The Indian Knowledge Systems consist of Jnan, Vignan, and Jeevan Darshan that have evolved out of experience, observation, experimentation, and rigorous analysis. This tradition of validating and putting into practice has impacted our education, arts, administration, law, justice, health, manufacturing, and commerce. This has influenced classical and other languages of Bharat, that were transmitted through textual, oral, and artistic traditions. “Knowledge of India” in this sense includes knowledge from ancient India and, its successes and challenges, and a sense of India’s future aspirations

specific to education, health, environment and indeed all aspects of life.”² The Vedic literature, the Vedas, the Upvedas, the Upanishads form the foundation of the Indian Knowledge Systems. It is passed from one generation to another through texts, oral tradition, customs, arts etc., and it is an organized system and a method of knowledge transfer.

IKS and the Himalayan Conservation

Indian Knowledge Systems have been integral to ecological, cultural, and spiritual life in the Himalayan region, enabling unique models of coexistence with nature. It plays a crucial role in the conservation and sustainable management of Himalayan ecosystem, combining time-tested traditional wisdom with modern conservation approaches. It includes practices for resource management such as forestry, sustainable agriculture, water management, and biodiversity stewardship, particularly in local and tribal communities. Some of the key aspects of IKS in the Himalayan region can be seen in the following areas:

Sustainable Resource Management:

The local communities possess deep knowledge about the available natural resources, their utility and the climate patterns which foster rejuvenation of these resources. They use the locally available material for their daily life. Traditionally, the natural resources were used in the construction of houses such as bamboo in the north-eastern Himalayan region, stones in the northern Himalaya and dried grass in the lower and

middle Himalaya. Even the design of their houses reflected a harmony with natural environment. In the earthquake prone seismic zones, the vernacular “kath-kuni” architecture utilizes timber and stone without cementing agents. This helps to make the structures more flexible and resilient during earthquakes. However, the growing concrete construction has given way to an unsustainable trend, which is affecting the temperature and rain patterns as well as the way of life.

Agricultural Practices:

Since the hills scarcely have a long stretch of open land for farming, generally, contour strip cropping is done on the hills. Farmers grow different crops in alternating strips across a hillside. Often, a row crop, like corn, is alternated with a close-growing, erosion-resistant crop like hay, wheat, or cover crops. The close-growing crops help trap soil that might be washed away from the row crops during rainfall. They also slow down the flow of water, allowing more of it to seep into the soil. Sometimes, a mixture of grains and pulses is cultivated, which promotes ecological sustainability and food security. Sikkim has become world’s first fully organic farming state by adopting traditional methods of farming, which speaks of its commitment to protect the soil, the crops and, thus, human health from the adverse impact of chemical fertilisers and pesticides.

Water Management:

The Himalayan States such as Meghalaya use bamboo drip irrigation channelizing the spring and stream water to

irrigate the fields over long distances by reducing the speed of the flow and converting it into drips, ensuring efficient usage of water. This 200-year long practice has now been recognized by ICIMOD (International Centre for Integrated Mountain Development- a regional inter-governmental learning and knowledge sharing centre located in Nepal that serves the eight countries of the Hindu Kush Himalayan (HKH) region and has been modified and adapted to use rainwater harvesting ponds to drip-irrigate the field crops along with the plantation crops such as betel nut and black pepper. It is an appropriate example of combining traditional knowledge with the latest technology to fulfil modern day requirements.³ In many villages in Himachal Pradesh, baoris (stepwells) and kulhs (irrigation channels) are used as traditional methods for efficient water usage.

Forest and Biodiversity Management:

The Himalayan communities hold a deep reverence for the forest and hills and believe that these are the abodes of gods and goddesses. Thus, the communities manage the forests and regulate the usage of resources found on the hills accordingly. The Sacred Groves in Uttarakhand, Himachal Pradesh and Western Himalaya act as restricted access spaces where biodiversity can thrive without much human intervention. S. Singh et al. in their field study on sacred groves in the Western Himalaya state, "SGs are not only the important repositories of ethno-medicinal plant species, but also act as corridors for animal migration in anthropogenic landscapes." They also flag issues such as land

use changes, population growth resulting in unplanned development and changing socio-cultural beliefs along with invasive species as the challenges threatening the existence of these sacred groves and disturbing the centuries' long traditional method of biodiversity conservation. Therefore, there is an urgent need for specific guidelines to protect such sacred groves and promote awareness about the significance of continuation of this traditional practice in ecosystem management.⁴ Tribes in North-eastern states such as Garo, Khasi and Jaintia promote in-situ biodiversity conservation through religious customs which needs to be continued.

The Adi tribe of Arunachal Pradesh considers mithuns (a semi-wild bovine species) as sacred linking their existence to the well-being of the Earth and protects them by building living fences.

Himalayan Festivals and Environmental Conservation:

Festivals in the Himalayan region are deeply rooted in environment conservation. Festivals like Sarhul, which marks the flowering of Sal trees, serve as cultural instruments for conservation by restricting access to resources. Harela festival in Uttarakhand and the Hornbill festival of Nagaland promote environmental awareness.

Seasonal Rhythm- Transhumance:

Himalayan communities adapt their yearly routine as per the weather seasons. The agricultural activities, movement of the livestock and community practices have all

been designed according to the changing environment around them due to the weather. It helps them survive the harsh winters at high altitudes. The communities have two living spaces generally, one for the summer and the other for the winter season. During winters, they move down to lower altitudes, while in summers, they move up along with their livestock in search of meadows and pastures. This practice is called transhumance, and it promotes sustainable life in harmony with the natural cycle.

Traditional Dietary Knowledge:

The Indian Knowledge Systems also include traditional knowledge of the diet in the hill communities. They are aware of the nutritional as well as medicinal value of the crops and vegetables grown in their region, and have been using traditional local remedies for various ailments. This knowledge has been passed through generations, even though they may not be aware of the scientific reason behind their function. S. Ojha and other scholars conducted a study on the hill community of Bageshwar in Uttarakhand and attested to this fact that the hill communities knew of the potency of certain food items as medicines and have been using them as the best affordable local cure to various ailments. About their usual diet, the researchers stated, “A literature survey on traditional crops clearly exhibited high medicinal value ranging from antifungal, anti-inflammatory, decreasing risks of cancer, reducing the risk of diabetics, etc. The usual dietary items were good sources of carbohydrate and fat. Some species also exhibited aphrodisiac,

antimicrobial (fungal and bacterial), antidiabetic, cardioprotective, anticancer, analgesic, anti-anemic, hepatoprotective, immunomodulatory, swelling & cholesterol-reducing, blood sugar lowering, etc. characteristics.” Their research concluded that the local food such as Mundua ki roti, kedi ka saag etc. was enough to meet the requirement of nutrition and energy and provided a good balance of vitamins and micronutrients, along with boosting their immunity, repairing cellular damage and healing the wounds, thus acting as protective shields against different ailments.⁵

Challenges in Himalayan Conservation

Even though the IKS have provided a sustainable way of life for centuries in the Himalaya, the modern developments have hindered the effectiveness and survival of IKS in the Himalayan conservation, which is manifesting in increased instances of natural disasters. Some of these challenges are as follows:

Rapid climate change and increasing temperatures due to global warming have given rise to glacial melts, which has rendered the traditional water management systems inadequate to meet the challenges of flash floods. It has affected the agriculture cycles adversely, affecting crop yields, and wastage of farm produce and horticultural produce such as apples, walnuts etc.

Unchecked construction, deforestation and inappropriate land use intensify ecological degradation and natural disasters such as landslides, soil erosion etc. Unregulated tourism has played a role in disastrous

construction on the river banks and hills sides, blocking the natural water flow routes, resulting in large scale destruction in case of flash floods, as recently witnessed in Dharali, Uttarakhand.

A surge in developmental projects has also contributed to destabilizing the volatile and fragile ecosystem in the Himalaya. The ecological zoning and the fragility of the Himalayan landscape must be taken into consideration before taking up construction of roads, tunnels and dams in this area. Sandmining, and mining of other natural minerals affect the region. The development of cracks in the houses in Joshimath a few months back or the ongoing subsistence of the hillside in Nainital are results of unplanned development to a large extent.

Modernization and market forces have led to the erosion of IKS, as younger generations migrate towards urban areas, resulting in a loss of traditional knowledge transfer. The traditional knowledge is, thus, fast disappearing from the lifestyle of the younger generation which must be taken care of.

Invasive species, pollution, and resource extraction activities (like mining and overgrazing) outpace community-based management capacities.

Insufficient documentation and lack of formal recognition of IKS in national conservation policies continue to limit their broader application. Government has made efforts in this direction, by Indian Knowledge Systems Division under the Ministry of Education in October 2020. Its vision is to promote interdisciplinary and

transdisciplinary research on all aspects of IKS, preserve and disseminate a deeper understanding and appreciation of IKS for further research, and societal applications. It endeavours not only to acknowledge the existence of the IKS but also to integrate them with the current educational system, to rejuvenate them and encourage their application to find the solutions to the present-day challenges, by bridging the gap between the traditional and contemporary knowledge systems.⁶

The IKS have been made an integral part of the NEP-2020. The NEP-2020 recognizes India's rich and eternal knowledge history, which includes Jnan, Vignan, and Jeevan Darshan as its guiding principles, with evolution based on experience and experiments. The Indian Knowledge Systems (IKS) are recommended to be scientifically integrated, including tribal knowledge and indigenous and traditional modes of learning.⁷

Suggestions and Way Forward

For IKS to be effectively implemented in responding to the present-day heightened climate challenges and the anthropological disturbances in the Himalayan ecosystem, more awareness regarding its significance needs to be spread at multiple levels. It requires the integration of IKS within policy, education and community practices. For this to be achieved, the following steps may be undertaken:

Community-Academia Integration:

More collaborative research by the scientific institutions by involving the local

communities, taking their inputs and knowledge into consideration, resulting in documentation of the hidden and hitherto unacknowledged traditional knowledge and its sharing on a wider scale would enable evidence-based policy and revitalization of IKS.

Linking Biodiversity Conservation with Livelihood:

Ecotourism may be promoted by involving the local communities in biodiversity conservation, hence providing them an incentive to protect the biodiversity in their region. It will not only check outward migration but also help in assisting the protection of wildlife and forests. These local communities have been living with the wildlife for ages and know the ways for a harmonious existence. The need is to tap this knowledge and integrate it with forest and wildlife management and collaborate with rural and tribal ministries to integrate this into employment generation strategies.

Empower Local Communities:

Incorporate IKS into formal education curricula, sensitizing future generations to their value in sustainable development. Besides, provide them modern tools to build capacity for biodiversity monitoring, sustainable agriculture, and disaster management. Implement effective forest management, water governance, and land-use planning combining both traditional and modern science would be helpful, such as through the National Mission on Himalayan Studies and the National Mission for

Sustaining the Himalayan Ecosystem (NMSHE).

Legal Policies:

Local communities have traditionally held community rights over forest produce, and the need is to strengthen the laws and incentives that recognize community resource rights, facilitating legal frameworks for co-management and equitable benefit-sharing. The Forest Rights Act 2006 was a right step in this direction.

Green Projects:

Infrastructure development is the basic requirement for the progress of the local communities. However, their traditional lifestyle, practices as well as ecological routes must be taken into consideration before sanctioning projects in the sensitive Himalayan region. Promoting ecotourism and green infrastructure projects that minimize environmental footprint while sustaining local economies should be the middle way forward.

Conclusion

The Himalayas are a fragile ecosystem vulnerable to human-induced disturbances and climate change. Integrating IKS can provide more sustainable and culturally relevant solutions to these challenges. Preserving IKS not only enhances biodiversity but also secures the cultural and ecological fabric of the Himalayas for future generations. The most pragmatic way of Himalayan conservation is to gain synergy between Indian Knowledge Systems and scientific innovation. Therefore, there is a critical need to balance modern scientific methods with local and traditional

knowledge to create effective environmental management and resource conservation schemes. Local communities must be actively involved in conservation policies and decision-making, as their rights, interests, and values are crucial for successfully implementing these policies. Documenting and preserving traditional ecological knowledge are essential, especially as its role in society faces dilution. This can inspire new approaches to conservation and enhancement of biodiversity management. By integrating the deep, place-based knowledge of local communities with scientific action plans, India can foster a holistic approach to conservation that respects both the unique ecological and cultural heritage of the Himalaya. Sustainable future lies in keeping the roots strong while generating further branches that derive their strength from the ancient and weave within their fabric the modern with ease, grace and a progressive attitude.

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