IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Traditional Ecological Knowledge And Green Initiatives For Environmental Conservation In Sikkim Himalaya

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Abstract:

Traditional Ecological Knowledge (TEK), popularly known as indigenous knowledge, regained its significance and political recognition of indigenous rights with the adoption of Agenda 21 during the UN Conference on Environment and Development held in Rio de Janeiro in 1992. For the first time, the Convention on Biological Diversity (CBD) established international protocols for protecting and sharing national biological resources, specifically addressing issues of traditional indigenous knowledge. Additionally, the Nagoya Protocol (2010) provides a legal framework for the effective implementation of the relevant objectives of the CBD. Traditional Ecological Knowledge (TEK) plays a crucial role in environmental conservation, particularly in the Sikkim Himalaya, by providing valuable insights into local ecosystems and resource management practices. This knowledge, passed down through generations, often incorporates a deep understanding of local flora, fauna, and ecological interactions, influencing resource use, soil and water management, and diversification strategies. The "Sacred" aspect of the environment, revered in local cultures, further reinforces conservation efforts by promoting respect for natural resources.

Key Words: Traditional Ecological Knowledge (TEK), Resource Management, Environmental Conservation, Sikkim Himalaya

Introduction:

Traditional Ecological Knowledge (TEK), held by Indigenous and local communities, is increasingly recognized for its valuable approaches to environmental interaction and resource management (IPBES, 2019; IPCC, 2022). TEK is a cumulative body of knowledge, practice, and belief that evolves through adaptive processes and is passed down through generations via cultural transmission, focusing on the relationship among living beings, including humans, and their environment (Berkes et al., 2000). Indigenous peoples often view TEK as a 'way of life', encompassing spiritual experiences and relationships with the land (McGregor, 2004).

Sikkim, the tiny Himalayan state of India with an area of 7096 square kilometers, is located in the Eastern Himalaya. The state extends between $27^0\,4'\,46''$ to $28^0\,7'\,48''$ N and $88^0\,58'$ to $88^0\,55'\,25''$ E. It is bounded on the west by Nepal, the north by Tibet, on the east by Bhutan and Tibet, and with the Darjeeling district of West Bengal stretching along its southern boundary. The state is situated in the most magnificent range of Snowclad Mountains with the World's third-highest mountain peak, i.e., Khanchendzonga (8598m). Sikkim is widely acknowledged as India's most significant biodiversity "Hot Spot" (Kumar 1993 and Shenga 1994) and one of the most critical centres of biodiversity and endemism (Myers 1990 and WCMC 1992)

In the Sikkim Himalaya, the entire landscape is considered sacred, and environmental conservation and biodiversity protection are ingrained in the culture. All the natural and environmental elements and species are culturally sacred to the local community, and they are revered in prayers and hymns by all the ethnic communities. The Sikkim Himalaya region is a land of great socio-cultural and ethnic diversity. TEK, based on centuries-long natural experiments, helped local communities in adapting and mitigating the impact of natural disasters and the sustainable management of natural resources. The TEK is rich in indigenous technologies such as socio-ecological landscape management, forest ecosystem management, and agricultural operations, TEK on protection of sacred landscape (Deorali, Devithan, Cliffs, rivers etc.), sacred species and their habitats, TEK on handicrafts and handlooms, on seed selection, production and storage and management of human-wildlife conflicts are some of the pertinent examples of prevailing TEK in the region. Over the years, the merging of a local subsistence economy with a mainstream market economy, globalization, loss of local dialect, food habits, culture and tradition, loss of agrobiodiversity elements, lifestyle change, and out migration of young people along with changes in policies, institutions, technology, etc. are accentuating biophysical and social vulnerabilities in the region.

Traditional Ecological Knowledge (TEK) in the Sikkim Himalaya plays a vital role in environmental conservation by providing insights into sustainable resource management, natural disaster adaptation, and the protection of biodiversity. TEK, accumulated through generations of local experience, offers practical solutions for resource utilization, forest ecosystem management, and agriculture, while also emphasizing the importance of sacred landscapes and species.

The following are few of the important parameters for TEK:

- **Traditional Resource Conservation:** TEK in the Sikkim Himalaya emphasizes conservative management of natural resources, especially in agricultural systems. This includes restrictions on resource use, like limiting deforestation or overgrazing, and implementing techniques for soil and water conservation.
- **Crop Diversification:** Traditional farming practices in the region often involve diverse crop and farming systems, ensuring food security and mitigating risks associated with crop failures. This diversification also promotes on-farm biodiversity.
- **Ecosystem Resilience:** TEK contributes to ecosystem resilience by managing complex dynamics at a landscape scale. This includes adapting to potential shocks and uncertainties, such as changes in climate or resource availability.
- **Cultural Significance:** The Sikkim Himalaya is known for its reverence for nature, where mountains, rivers, and other natural elements are considered sacred. This cultural aspect plays a significant role in promoting environmental protection and biodiversity conservation.
- **Community-Based Management:** TEK is often integrated into community-based natural resource management, with local knowledge being crucial for developing and implementing sustainable practices.
- **Protection of Eco-Cultural Landscapes:** The Demazong eco-cultural landscape in the Sikkim Himalaya exemplifies the use of TEK in sustainable natural resource management. This system, with its Buddhist traditions and cultural practices, demonstrates how traditional knowledge can be applied to manage resources effectively in a spiritual way.]
- **Integration with Modern Science:** TEK can also provide valuable insights for modern science and conservation efforts. It can help identify species or habitats that are important for conservation or provide early warnings of environmental change.

Challenges and Opportunities: While TEK offers valuable solutions for environmental conservation, it also faces challenges like the potential for cultural shifts and the need to integrate it with modern scientific knowledge and management practices.

Green Initiatives

The Sikkim government has launched several green initiatives, including the "State Green Mission" to beautify vacant lands and promote avenue plantation, and the "Mero Rukh Mero Santati (My Tree My Legacy)" program to plant trees for every newborn. Additionally, Sikkim has implemented various measures to reduce pollution, such as bans on plastic waste burning and single-use plastics, and has become the first open defecation-free state in India.

Following are few of the Green Initiatives:

1. State Green Mission: This program aims to create green belts and avenues for aesthetic and recreational purposes, beautify vacant lands, and promote biodiversity by planting indigenous species

2. Mero Rukh Mero Santati (My Tree, My Legacy): This initiative encourages parents to plant 108 trees for every newborn, symbolizing the child's arrival and promoting a connection with nature. It aims to strengthen the relationship between people and the environment, with the tree serving as a living monument for the child's life.

3. Environmental Regulations: Sikkim has implemented various regulations to reduce pollution, including bans on:

- Burning plastic waste and tires
- Burning firecrackers
- Importing, using, and selling single-use plastic
- Using mineral water bottles of 2 litters and below
- Plastic carry bags
- Towns are declared litter-free and spit-free zones, and no-honking policies are implemented in urban areas, hospitals, and schools.

4. Other Initiatives:

- **State Green Mission:**

Acknowledged as a model Green State, this mission emphasizes environmental-friendly development, with the Forest and Environment Department acting as the nodal department.

- **Green Skill Development Programme:**

This program aims to promote environmental awareness and skill development in areas like composting and mushroom cultivation.

- **Sustainable Development Goals:**

Sikkim is working towards achieving Sustainable Development Goals, including the Zero-Waste Policy, emphasizing waste segregation and composting.

- **Renewable Energy:**

Sikkim Renewal Energy Development Agency (SREDA) is working towards promoting rooftop solar power generation.

- **Climate Change Action Plan:**

Sikkim has a State Action Plan for Climate Change and Human Health (SAPCCHH) to address climate change and its impacts on human health.

- **Conservation Efforts:**

Sikkim's Protected Area network covers 30.77% of the state's total geographical area, demonstrating a strong commitment to biodiversity conservation.

These initiatives showcase Sikkim's commitment to environmental sustainability and its efforts to create a greener and more sustainable future for its citizens.

Conclusion:

TEK of the indigenous communities need to be preserved and revived for environmental Conservation. It is imperative to popularize TEK among the Young Generation. The Strong link between environmental conservation and spiritual beliefs should be documented for judicious resource management and planning.

Traditional knowledge plays a crucial role in biodiversity conservation by guiding sustainable use and management of natural resources.
Traditional knowledge, often passed down through generations, is a valuable tool in biodiversity conservation. It encompasses the wisdom, knowledge, and practices of indigenous communities, developed from centuries of direct interaction with the environment. This knowledge is often specific to a location and includes understanding of local ecosystems, species and their behaviours, and the relationships between different elements of the environment.

One of the key ways traditional knowledge areas contribute to biodiversity conservation is through its emphasis on sustainable use of resources. Many indigenous cultures have developed practices that ensure resources are used in a way that does not deplete them, but rather maintains or even enhances their abundance.

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