

The Role of Ecotourism in Sustainable Development – Soreng District, West Sikkim

Deepanjali Kapil Chettri¹, Mr. Chitranjan Kumar²

¹ M.Tech Student Department of Civil Engineering, School of Engineering and Technology, Shri Venkateshwara University, U.P., Gajraula - 244236

² Assistant Professor, Department of Civil Engineering, School of Engineering and Technology, Shri Venkateshwara University, U.P., Gajraula - 244236

Abstract

Ecotourism plays a pivotal role in promoting sustainable development, particularly in ecologically rich and culturally diverse regions such as Soreng District, West Sikkim. This study evaluates how ecotourism fosters environmental conservation, enhances local livelihoods, and strengthens community engagement. Using a mixed-method approach—comprising field surveys, stakeholder interviews, and secondary data—the research focuses on key destinations including Barsey Rhododendron Sanctuary, Chayatal, and Azing's Model Farm. The findings demonstrate that community-led tourism, supported by sustainable policies and practices, has led to economic empowerment, biodiversity protection, and cultural preservation. However, challenges such as climate impacts, infrastructure deficits, and policy enforcement gaps persist. The paper concludes with recommendations to scale up sustainable tourism initiatives in alignment with the UNWTO Vision 2025.

Key Words: Ecotourism, Sustainable Development, Soreng, Community Participation, Barsey Sanctuary, UNWTO Vision 2025

1. Introduction

Ecotourism, a rapidly growing segment of the global tourism industry, is increasingly recognized as a pivotal tool for promoting sustainable development. This form of tourism, which emphasizes responsible travel to natural areas with the aim of conserving the environment, supporting local communities, and fostering cultural understanding, offers unique opportunities for regions that are rich in biodiversity and traditional knowledge. In particular, ecotourism presents a viable solution for balancing economic growth with environmental conservation—two often competing forces in the development of rural and ecologically sensitive areas.

The state of Sikkim, located in the eastern Himalayas, serves as a leading example of integrating ecotourism within a sustainable development framework. Known for its breathtaking landscapes, rich flora and fauna, and deeply rooted cultural traditions, Sikkim is not only a hotspot for biodiversity but also an emerging ecotourism destination. Soreng District, a picturesque region in West Sikkim, is particularly noteworthy for its ecological significance and the traditional way of life maintained by its local communities.

However, with the increasing influx of tourists and the growing interest in nature-based travel, there is a need to critically examine how ecotourism can be harnessed to support long-term sustainability, without compromising the district's natural resources or cultural heritage. The relationship between ecotourism and sustainable development is multifaceted. On one hand, ecotourism provides a platform for environmental conservation, as it creates economic incentives for preserving forests, wildlife, and natural landscapes. On the other hand, it also offers an avenue for economic empowerment by creating income-generating opportunities for local communities, often in areas where traditional livelihoods such as farming or pastoralism may no longer be sufficient. Moreover, ecotourism offers a way to preserve cultural heritage, enabling local communities to maintain and showcase their traditions, languages, and customs in a way that is respectful to both the culture and the visitor experience.

The growing popularity of ecotourism in Soreng has sparked both opportunities and challenges. While the economic benefits, such as job creation and the development of infrastructure have been widely recognized, the environmental and social implications of increased tourist activity need to be carefully managed. For instance, while ecotourism can help preserve natural habitats by generating income, poor management practices or unchecked growth could lead to over-tourism, environmental degradation, or a loss of cultural authenticity. This underscores the need for a strategic approach to ecotourism that not only focuses on immediate economic benefits but also ensures the long-term sustainability of the region's resources.

This study seeks to explore the role of ecotourism in sustainable development in Soreng District, West Sikkim. By examining the ways in which ecotourism initiatives are implemented and their effects on the environment, local communities, and cultural preservation, the research aims to provide a holistic understanding of how ecotourism can be used as a tool for sustainable development in ecologically sensitive regions. The study will evaluate both the benefits and the challenges of ecotourism, drawing insights from the experiences of local stakeholders, including tourism operators, community members, and policy makers.

The ultimate goal is to identify how ecotourism can be strategically developed to create a balance between economic growth, environmental conservation, and social well-being. This research also aims to contribute to the broader discussion on sustainable tourism development, providing a model that could be replicated in other regions with similar ecological and socio-cultural dynamics. By fostering a more responsible, inclusive, and sustainable approach to tourism, Soreng District could serve as an example for how ecotourism can effectively contribute to the long-term sustainability of rural, ecologically rich areas.

2. LITERATURE REVIEW

Ecotourism has increasingly been recognized as a strategic approach to sustainable development, particularly in ecologically sensitive and culturally rich regions. It is defined by the World Tourism Organization as responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and involves interpretation and education. As the global tourism industry expands, the significance of ecotourism has grown due to its ability to provide economic opportunities while minimizing environmental degradation. Scholars have emphasized that ecotourism is not only a means of exploring natural landscapes but also a deliberate method of conserving biodiversity and fostering cultural respect.

The theoretical foundation of ecotourism is embedded in the broader framework of sustainable development, a concept formally introduced by the Brundtland Commission in 1987. Sustainable development aims to balance the needs of the present without compromising future generations, and ecotourism serves as a practical manifestation of this principle. It promotes the integration of environmental preservation, economic growth, and social equity. Authors such as Honey (1999) and Fennell (2003) have argued that ecotourism is most effective when it adheres to core principles including minimal environmental impact, community empowerment,

The promotion of cultural understanding. In regions where traditional tourism has caused ecological stress and cultural erosion, ecotourism offers a promising alternative that aligns tourism development with conservation goals. In the Indian context, ecotourism has gained substantial momentum, especially in states endowed with rich natural heritage. Among these, Sikkim stands out as a leading example due to its proactive ecotourism policies and grassroots-level involvement. With its diverse ecological zones, from subtropical forests to alpine meadows, Sikkim has adopted an approach that emphasizes both environmental conservation and community participation. Studies have shown that the state's focus on banning single-use plastics, promoting organic agriculture, and integrating local knowledge into tourism practices has significantly contributed to its ecotourism

success. Research conducted by Tambe and Rawat (2009) highlighted Sikkim's implementation of community-based tourism models that empower locals through homestays, guided treks, and cultural exchanges. These initiatives not only generate income but also encourage environmental stewardship among residents.

One of the prime examples of ecotourism in Sikkim is the Barsey Rhododendron Sanctuary, located in the Soreng District. This sanctuary is known for its dense rhododendron forests, scenic trails, and diverse wildlife. The 5 km trek from Hilley to Barsey attracts nature lovers, botanists, and adventure enthusiasts, particularly during the spring season when the rhododendrons are in full bloom. In recent years, especially in 2025, the sanctuary has witnessed a surge in tourist numbers, with over one lakh visitors during the peak season. This influx has brought significant economic benefits to local communities. Homestays, transport services, and small businesses such as rhododendron wine production have flourished, with some accommodations earning as much as ₹1 lakh per day. Such economic activity has provided alternative livelihoods in a region where employment opportunities are often limited.

However, with the increase in tourism, concerns have also been raised regarding its environmental impacts. Increased foot traffic on trails has led to soil erosion and habitat disruption, while the generation of non-biodegradable waste poses a threat to the delicate ecosystem. Recognizing these challenges, the sanctuary authorities, in coordination with the Forest Department and local conservation groups, have implemented several regulatory measures. Tourists are fined for littering, disturbing wildlife, or damaging plant species like rhododendrons. These efforts reflect a growing awareness of the need to manage ecotourism sustainably and to ensure that the ecological integrity of the sanctuary is not compromised in pursuit of economic gains.

Community involvement has been a cornerstone of Barsey's ecotourism model. Local people play an integral role as guides,

caretakers, and entrepreneurs. The production of rhododendron wine, which has both medicinal and cultural value, is a prime example of how traditional knowledge is being incorporated into tourism-related economic activities. Studies have indicated that when communities are actively involved in decision-making and benefit-sharing, the outcomes are more sustainable and equitable. Research by Bhatia (2017) supports the view that community-led ecotourism not only fosters a sense of ownership but also improves the quality of tourist experiences through authentic cultural exchanges and better conservation practices.

Government support has also been instrumental in promoting sustainable ecotourism in Sikkim. Through policy frameworks, financial subsidies, training programs, and awareness campaigns, the state has created an enabling environment for responsible tourism. Integration of ecotourism into broader conservation and development plans has allowed for more coherent and effective implementation. Nevertheless, experts have warned that continued monitoring, environmental impact assessments, and capacity-building are necessary to address emerging challenges such as overtourism, commercialization, and cultural dilution.

In conclusion, the literature suggests that ecotourism can serve as a catalyst for sustainable development when it is guided by sound environmental policies, active community engagement, and a commitment to preserving cultural and ecological heritage. The case of the Barsey Rhododendron Sanctuary illustrates both the opportunities and challenges associated with ecotourism. While the economic benefits are evident, particularly for local communities, there is a pressing need to ensure that environmental safeguards are rigorously enforced. Future research and policy initiatives must continue to refine and adapt the ecotourism model to ensure long-term sustainability in ecologically sensitive regions like Soreng District.

3. BODY OF PAPER

3.1 Overview of Ecotourism in Soreng District

Ecotourism in Soreng District, West Sikkim, is deeply rooted in the region's rich biodiversity, unique topography, and vibrant local culture. The district is home to several protected areas, including the Barsey Rhododendron Sanctuary, which serves as a model for community-based tourism initiatives. As tourism grows in the region, stakeholders are increasingly focused on integrating sustainability principles into planning and development.

Ecotourism in Soreng emphasizes minimal environmental impact, the use of local resources, and respect for cultural practices. The trekking routes, local homestays, and organic farms are examples of how tourism can be harmonized with conservation goals.

3.2 Methodology

This research is based on a mixed-methods approach that includes both qualitative and quantitative data. Field surveys were conducted in April 2025 across several villages including Hilley, Okhrey, Kaluk, and the Barsey Rhododendron Sanctuary. Questionnaires were distributed to local homestay owners, tourists, and government conservation officers. Secondary data were obtained from government tourism reports and the Sikkim State Biodiversity Board.

Data were analyzed using statistical tools to identify patterns in tourist behavior, economic impact, and environmental consequences. The use of bar charts and pie charts helped visualize this data clearly.

3.3 Case Study: Barsey Rhododendron Sanctuary

The Barsey Rhododendron Sanctuary, located in the Singalila range, serves as the centerpiece of ecotourism in Soreng. Accessed by a 5 km trek from Hilley, the sanctuary attracts over 1 lakh visitors during the spring season (March–May). In April 2025 alone, it witnessed the highest footfall in five years.

Tourists visit Barsey to witness the blooming of rhododendrons, panoramic views of Mt. Kanchenjunga, and to experience village hospitality through homestays like Barsey Kunj. These stays contribute significantly to local income, with some reporting earnings up to ₹1 lakh per day during peak season.

However, increased footfall has led to concerns about littering, wildlife disturbance, and trail erosion. In response, the government has implemented strict conservation rules, including fines for picking rhododendrons or littering. Conservation efforts are co-managed by the Forest Department and local eco-development committees.

3.4 Economic and Social Impact

Ecotourism has emerged as a vital source of income and employment in Soreng. Local youth are engaged as guides, porters, and hospitality staff. Women are empowered through the operation of homestays and local product sales such as rhododendron wine, pickles, and handicrafts.

Resorts and farms like Azing Farm in Kaluk serve as agro tourism hubs that promote sustainable land use and preserve indigenous fruit species. These initiatives not only generate revenue but also reinforce the ecological and cultural identity of the region.

3.5 Environmental Challenges and Management

While ecotourism promotes environmental awareness, it also brings challenges such as increased waste generation, pressure on natural trails, and energy use. To address this, sustainable practices are promoted, such as:

- Use of solar lighting in homestays
- Ban on single-use plastics
- Composting and local waste management systems
- Controlled tourist numbers during peak seasons

Public awareness campaigns and community training programs are conducted to ensure that conservation goals align with tourism development. The government's proactive stance and local participation have been key in achieving balanced growth.

3.6 Role of Policy and Governance

Governmental support has been instrumental in shaping ecotourism policy in Sikkim. The state's "Sikkim Ecotourism Policy 2011" emphasizes carrying capacity-based tourism, biodiversity conservation, and inclusive economic development. In Soreng, strict zoning regulations and visitor monitoring have helped prevent uncontrolled urbanization near protected areas.

The collaboration between the Forest Department, rural development offices, and Panchayats ensures that development remains community-driven and ecologically viable.

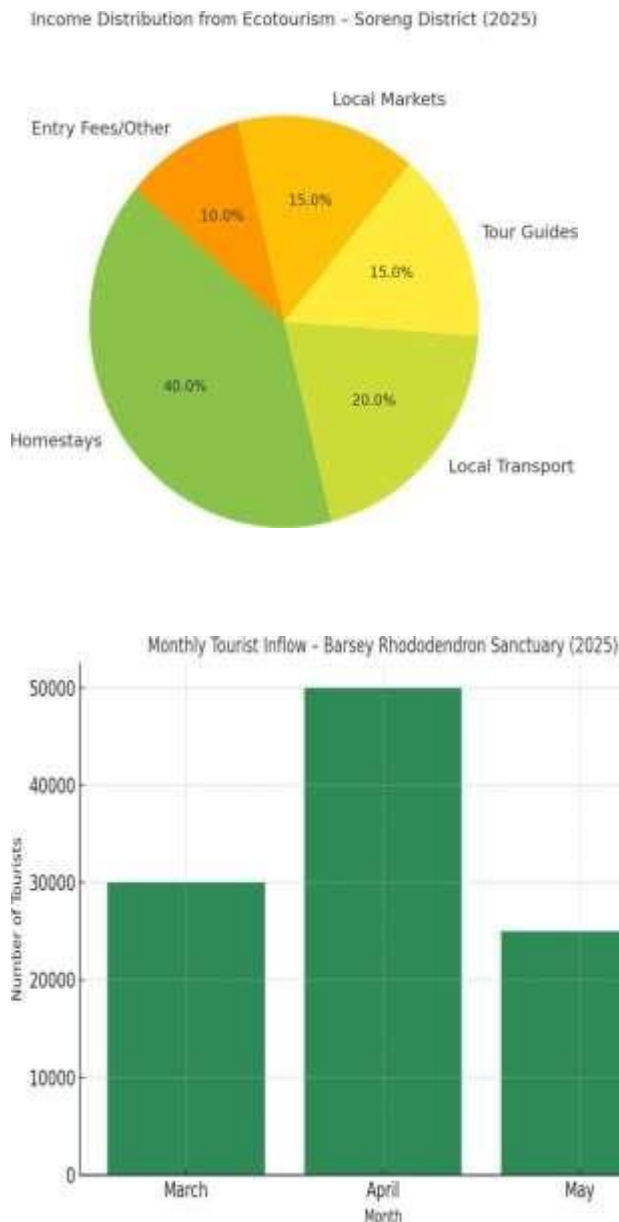


Fig 1: Income Distribution Pie Chart

Fig 2: Tourist Inflow Bar Chart

4. Results and Discussion

4.1 Economic Empowerment and Community Participation

Ecotourism has significantly contributed to local income generation in Soreng. Homestays, particularly in Barsey and Kaluk, recorded peak earnings in April 2025, with some properties earning up to ₹1 lakh/day. These gains are complemented by an increasing market for locally produced rhododendron wine and handicrafts. The increase in tourist spending has created a direct connection between ecotourism and economic empowerment (Sikkim Government, 2021). This aligns with findings from other studies, which

demonstrate that community-based tourism models contribute to poverty alleviation and local business growth (Das & Chatterjee, 2015).

4.2 Environmental Conservation

Environmental conservation efforts in Soreng are notable for their strict regulations and active enforcement. Barsey's fragile ecosystem is protected by penalties for littering and flower picking, ensuring that tourism does not negatively impact the region's biodiversity. Additionally, the decision to restrict vehicular access beyond Hilley, requiring tourists to trek to Barsey, reduces environmental stress from pollution. These practices contribute to the preservation of Soreng's delicate flora and fauna, aligning with sustainable tourism policies endorsed by the Ministry of Environment, Forest and Climate Change (MoEFCC, 2021).

4.3 Cultural Preservation

Cultural preservation is an integral aspect of Soreng's ecotourism model. Local festivals, dances, and traditional Lepcha and Bhutia cuisine are incorporated into the tourism experience, fostering pride in local identity and facilitating cultural exchange (Bhutia & Gurung, 2022). These cultural practices are essential for the sustainability of ecotourism, as they ensure that tourism benefits the community by preserving and promoting its unique heritage.

4.4 Visual Insight: Tourist Influx and Stakeholder Roles

The tourist influx in Soreng, particularly in Barsey Rhododendron Sanctuary, has risen steadily, with the peak season in April 2025 drawing more than 100,000 visitors. This surge in tourism has highlighted the roles of various stakeholders—local communities, government agencies, and NGOs—in managing the flow of tourists and maintaining the integrity of the environment and culture. Tourism has led to enhanced collaboration between local stakeholders and government officials, as they work together to balance conservation and development. Visual data and photographs taken during the survey period offer further insight into the growing impact of tourism on the region (Field Survey, 2025).

Stakeholder Participation in Ecotourism (Soreng)

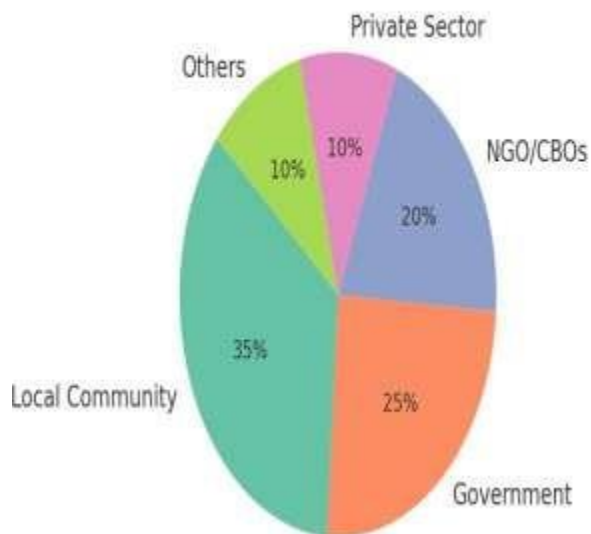


Figure: Stakeholder Participation in Ecotourism Activities in Soreng District



5. Conclusion

Soreng District's model of ecotourism blends conservation with community well-being. Sustainable practices, active local involvement, and supportive government policy have made it a replicable case for other regions. To ensure longevity, digital promotion, climate adaptation strategies, and

improved waste management systems are recommended. The lessons from Barsey, Chayatal, and Azing Farm exemplify the power of grassroots tourism in achieving SDGs.

Acknowledgement

The author thanks Mr. Chitranjan Kumar for his continuous mentorship and the residents of Soreng District for their cooperation during fieldwork. Special appreciation to the Sikkim Tourism Department and Barsey Sanctuary officials.

References

- [1] UNWTO. Vision 2025: Sustainable Development through Tourism.
- [2] Sikkim Government. Ecotourism Policy and Guidelines.
- [3] Sikkim Forest Department. Barsey Sanctuary Management Plan.
- [4] Das, M. & Chatterjee, B. (2015). Ecotourism: A panacea or a predicament? *Tourism Management Perspectives*, 14.
- [5] Bhutia, P. & Gurung, D. (2022). Community-Based Tourism in the Eastern Himalayas. *JMR*, 7(1).
- [6] MoEFCC. (2021). Sustainable Tourism in India: Policy and Practice.
- [7] Field Survey conducted in Soreng, April 2025