



TRACING ECOTOURISM DEVELOPMENT IN BIHAR: POLICY INITIATIVES AND SUSTAINABLE PATHWAYS

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Article History:

Received : 2026-02-28

Revised : 2026-04-01

Accepted : 2026-04-19

Published : 2026-04-27

Abstract:

Purpose: Ecotourism, a form of sustainable tourism, focuses on nature conservation, preservation, and responsible travel practices. Recently, the Indian Ministry of Tourism has undertaken several initiatives to promote sustainable tourism through thematic projects across different states, with ecotourism being a key focus area. While existing literature addresses both general practices and destination-specific perspectives, there remains considerable scope for further exploration. The present study aims to examine ecotourism development in India with a specific focus on Bihar.

Methodology: The study adopts a systematic review approach using the PRISMA framework. A total of 13,456 studies were initially identified from the SCOPUS database, which were filtered to 3,283 studies based on subject area and language, and further refined to 48 studies for detailed analysis. The study reviews government initiatives promoting sustainable tourism, maps ecotourism-related research across Indian destinations, and examines ecotourism development in Bihar.

Findings: The findings indicate that ecotourism development in India remains uneven across regions, with limited scholarly and institutional focus on emerging destinations such as Bihar.

Implications: The study provides practical insights for policymakers and tourism stakeholders by emphasizing the need for improved implementation, monitoring mechanisms, and destination-specific planning. The results also highlight a gap between policy formulation and on-ground implementation, particularly in emerging regions

Keywords: Tourism Development, Eco-Tourism, Tourism management, Performance evaluation, Ministry of Tourism

1. Introduction

Tourism has become a major contributor to the growth and development of the region, but due to the speed of its growth, it has caused environmental degradation, depletion of resources and socio-cultural challenges (Pan et al., 2018). These pressures have heightened the demand to have sustainable tourism practices that strike a balance between economic growth and environmental protection. Sustainable tourism has become relevant in this regard as a long term strategy to develop tourism. It is in this context that ecotourism is rapidly being perceived as a sustainable kind of tourism that helps in conservation of natural resources and enhances socio-economic welfare of local communities (Satrya et al., 2023).

Mass tourism, overtourism, and greenwashing are just some of the problems that have been caused by rapid tourism development (Ripoll González et al., 2022; Chernysh et al., 2023; Kumar and Yadav, 2024). Policymaking and management wise, sustainable tourism is crucial in improving the economic growth of the region, increasing resource efficiency, and the sustainability of tourism-reliant communities in the long term (WEF, 2017).

Recent literature review of sustainable tourism reveals that ecotourism is a popular destination-based tourism activity (Agarwal et al., 2024). Ecotourism has been considered an important element of sustainable tourism, with its emphasis on responsible tourism in relation to the natural environment, biodiversity protection, and enhancement of the livelihoods of the local community. It is also a valuable destination management tool as it enhances sustainable use of resources and development of communities.

Although greater scholarly interest and policy efforts are apparent, current studies of ecotourism in India are still disjointed. Community development and policy frameworks are the subject of most studies, whereas little has been paid to the tourist-centric perspective, the effectiveness of the implementation, and analysis specific to the region (Yadav & Bandyopadhyay, 2014). Specifically, such emerging destinations as Bihar are not well explored in literature. This knowledge gap hinders the development of an in-depth perspective of ecotourism development and aids in the formulation and implementation of effective policy, especially in developing areas like Bihar.

The objectives of the present study include:

- To analyse the efforts being made by the government institutions in the effort of ensuring sustainable tourism in India.
- To chart the existing academic literature on ecotourism in various destinations in India.
- To examine the present state of development of ecotourism in Bihar state.

The following research questions are used to fill the gaps in the study:

Q1. What are some of the efforts taken by government bodies to enhance sustainable tourism in India?

Q2. Which are the destinations or states that have been covered in scholarly researches in ecotourism?

Q3. What is the situation in the development of ecotourism in Bihar?

2. Theoretical foundation of ecotourism

Ecotourism is a developed niche of sustainable tourism which focuses on environmental protection, social welfare and sustainable tourism behavior. Ecotourism has its conceptual basis in the larger paradigm of sustainable development, specifically the triple bottom line model that incorporates environmental integrity, social equity and economic viability (PIB, 2021a; Weaver, 2012). In contrast to mass tourism, ecotourism encourages low impact tourism, environmental awareness and involvement of local people.

The academic literature emphasizes that ecotourism is not just tourism that is focused on nature but includes interpretation, conservation, and empowering communities (Satrya et al., 2023). Recent research also highlights the shift in passive sightseeing to experiential and responsible tourism where tourists are more driven by ecological consciousness and ethical consumption behaviors (Xiong et al., 2022).

Theoretically, ecotourism is compatible with Sustainable Tourism Framework (PIB, 2017). Stakeholder Theory, with its emphasis on the multi-actor involvement Community-Based Tourism (CBT) models, with its emphasis on the local empowerment. These models all help to highlight that to be a successful ecotourism development, coordination between government, local communities, and the private operators is essential.

2.1 Ecotourism, Policy Frameworks, and Government Interventions

Ecotourism policies in government have been vital in determining the course of ecotourism especially in developing economies. Institutional mechanisms and policy frameworks play a very important role in controlling tourism activities, enhancing sustainability and facilitating destination competitiveness.

The national-level programs like the (PIB, 2024a, 2024b), PRASHAD Scheme and the (PIB, 2021b) have been instrumental in tourism development in the Indian context. These programs are designed to combine infrastructural development and sustainability principles as well as involve the local communities. Research indicates that these policy-based strategies can contribute to increased access to a destination, diversifying tourism experience, and regional development (Agarwal et al., 2024).

But literature also indicates shortcomings in the implementation of policies, such as:

- Fragmented governance structures
- Lack of monitoring mechanisms.
- Lack of adequate incorporation of sustainability indicators.

According to scholars, the intent to implement policies is typically high, but gaps in their implementation can restrict the success of ecotourism efforts. This brings about the necessity of having a systematic review of the policy results on a regional and state level.

2.2 Ecotourism Development in India: Evidence from Prior Studies

The topic of ecotourism in India has drawn the attention of numerous academics in various geographical locations, notably in biodiversity hotspots like the Himalayas, the Western Ghats, and the safe havens of wildlife (MoPR, 2021). Empirical research has investigated ecotourism in various aspects such as the environmental conservation, community involvement and tourist behavior.

The studies of such parks as Kaziranga National Park, Periyar Tiger Reserve, and Jim Corbett National Park have proven that ecotourism may bring a lot of money to the local population and protect the wildlife (Das & Hussain, 2016; Banerjee, 2012; Pandya et al., 2023). In a similar light, research in Kerala has shown that community-based ecotourism models have the potential to promote entrepreneurship and sustainable livelihoods (Sebastian & Rajagopalan, 2009; Meera & Vinodan, 2019). Simultaneously, some of the studies single out such challenges as:

Infrastructure limitations

Uncontrolled environmental degradation as a result of tourism.

Cultural differences amongst tourists.

The latest studies are also dedicated to the topic of tourist behavior and environmental responsibility that means the importance of awareness, satisfaction, and perceived value in eco-friendly behavior (Borthakur and Kondasani, 2024). Although the literature on ecotourism is increasing, there are still a number of gaps. To begin with, the literature on the subject has mostly addressed a single dimension of community involvement, environmental protection, or policy systems, but there has been little effort to combine these elements into a holistic approach to analysis. Second, the policies and initiatives related to tourism at the national level are unanimously discussed, but there is a lack of focus on how effective these policies are and how they impact the region. Third, the literature that exists is very focused on the well established ecotourism locations like Kerala, Uttarakhand and the North-East region and thus, has lacked focus on the emerging locations. Specifically, the state of Bihar is under-explored even though it has a great potential in terms of ecotourism. These loopholes

underscore the importance of a systematic review along with policy analysis to comprehend the development of ecotourism in developing areas.

3. Methodology

This paper embraces a systematic method to critically examine the ecotourism research situation in India. Based on the research questions, the scholarly literature as well as the institutional sources was examined to come up with a holistic view of the field. Since the approach of incorporating various data sources is complex, a systematic analytical framework was used to gather, evaluate, analyze and synthesize the information in question. The research methodology is adopted based on the previous research (Chand et al., 2015; Saha and Chakraborty, 2024) and was implemented in two phases.

To begin with, a literature search on the SCOPUS database was done using the search query ecotourism or, eco-tourism, to get the pertinent literature on ecotourism. As a result, 13456 studies were obtained. After the PRISMA process, these records were further narrowed down based on the subject (BMA) and language (English) requirements. The rationale behind the use of the BMA area filter is due to the fact that BMA filter assists researchers to filter out tourism studies with business orientation i.e. tourism is considered as a source of revenue and all arguments are put within business perspectives. Although the social sciences, including the tourism studies, also include discussions on the diversity of flora and fauna, conservation practices, environmental succession, and carbon emissions, which are not pertinent in this study. In this manner, the used BMA filter led to the 3283 studies. Then the search was used on the abstract column with the key word India and 80 studies were obtained. This further screening of relevance and context of the problem was carried out manually on these 80 studies. This led to a total of 48 studies and they were further explored. Figure 1 below gives a detailed view.

Besides academic sources, institutional development and promotion related literature, numerous government reports, official websites of respective tourism departments, Rajya Sabha Questions, press releases on tourism development and promotion in India by the government agencies were also studied. In the case of the state of Bihar, websites, social media profiles, reports and news articles of the state tourism department were examined with a strict emphasis on announced Eco circuits and other tourism circuits that were being developed in Bihar. This discussion brought out events throughout the state of Bihar in different thematic tours.

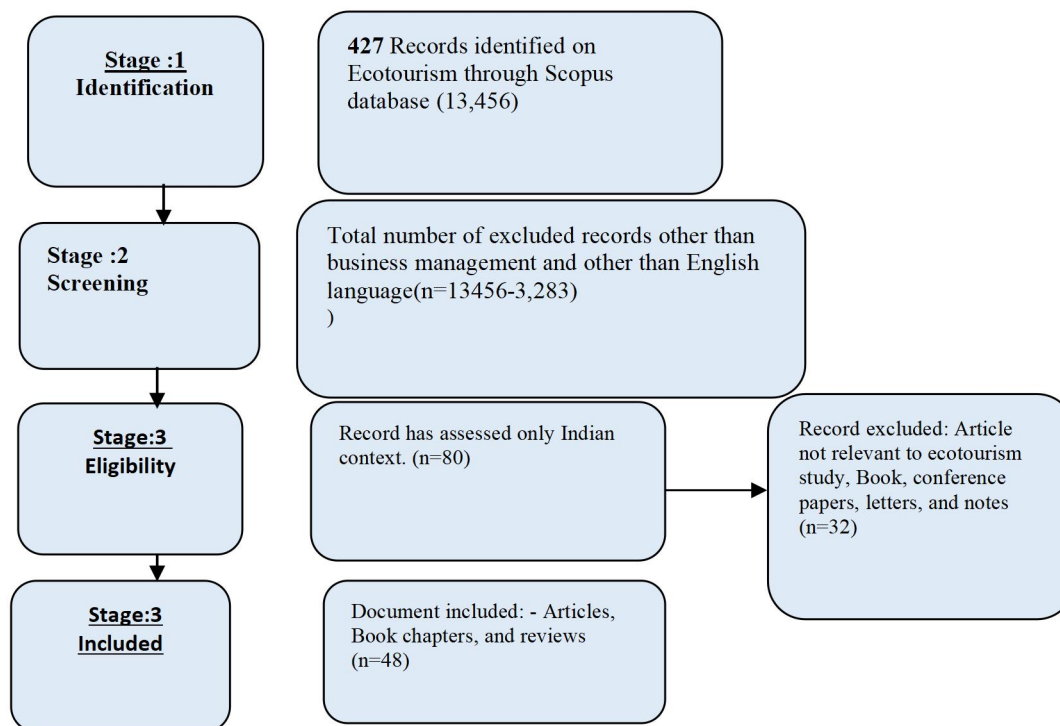


Figure 1. Search Strategy: Preferred Reporting Items for Systematic Reviews and meta-analysis (PRISMA)2020 flow diagram

4. Result

This part will give the findings according to the three research questions. The discussion combines state programs, academic and regional growth and development with a regional emphasis on Bihar.

Q1. Over the years since independence, what initiatives have been made by government institutions in promoting the Indian tourism landscape towards sustainable tourism (of or related to ecotourism) landscape?

Institutional-wise, the tourism industry has long been considered as one of the most important sectors of the economy that plays a significant role in helping to create jobs, preserve cultural heritage and conserve the environment. Over the recent years, the ministry of tourism has been involved in a number of programs to reinforce the infrastructure, enhance the ease of access and the global tourism positioning of India. Strategies to ensure faster visa procedures and online support have helped to boost tourist arrivals and enhanced service provision. These initiatives are however more growth-driven and their direct role in ensuring sustainability and development of ecotourism is minimal.

The government has also been keen on diversifying its tourism products with a variety of thematic products such as pilgrimage, wellness tourism, adventure tourism and ecotourism. Although this diversification can prevent seasonality and increase the market coverage, the incorporation of sustainability principles into all these segments is not equal. Ecotourism despite being acknowledged tends to be in parallel with other forms of tourism models and not imbued as a fundamental guiding paradigm.

Some of the major flagship plans like Swadesh Darshan and PRASHAD are indicative of a systematic approach to the development of tourism infrastructure. Such efforts have helped to develop thematic circuits and increase access to destinations. However, their success in ecotourism promotion hinges on the level at which environmental protection, community inclusion and conservation of resources are integrated to the implementation process, which differs among areas.

On the policy level, recent developments like the National Strategy of Sustainable Tourism and Travel for LiFE campaign suggest that there is a progressive move towards developing

tourism in a sustainable manner. These models focus on sustainable tourism practices, ecotourism, and participation of stakeholders. Nevertheless, in comparison to the previous efforts which were largely concerned with promotion and branding (e.g., Incredible India), the concept of sustainability is still a rather new and developing priority in the bigger tourism policy context (DOT, 2002).

On the state level, different campaigns and branding mechanisms have been effective in increasing the destination views and tourist interaction. Nevertheless, the majority of these projects are characterized by the promotion of cultural ideas and experience and little emphasis on the ecological sustainability. This implies that although states are actively involved in the development of tourism, the correspondence with the principles of ecotourism is not yet uniform and standardized (Kim and Lee, 2021).

On the whole, despite the many initiatives that have been developed over the years, one of the major weaknesses is the absence of built-in monitoring systems and evaluation of the impacts of sustainability based on outcomes. This is a question of how well these programs can meet long term ecotourism goals beyond infrastructure construction and successful publicity (MoT, 2024a).

Table 1. National Campaigns/Schemes/Initiatives

Phase	Year	Policy Orientation	Key Initiatives (Illustrative)	Citation
Institutional Foundation	1949-1990s	Establishment & regulation	Tourist Traffic Branch, National Tourism Policy (1982), Action Plan (1992)	(Mehta, 1956; MoT, 1982; MoCA-MoT, 1992)
Promotion & Branding	2000-2010	Global positioning & image building	Incredible India, Atithi Devo Bhava	(Geary, 2013; Chowdhary, 2015)
Infrastructure Expansion	2010-2018	Circuit development & connectivity	Swadesh Darshan, PRASHAD, UDAN Swadesh Darshan, PRASHAD, UDAN	(MoT, 2024c; MoT, 2024b; AAI, 2016)
Quality & Digital Enhancement	2015-2022	Service quality & digital access	e-Visa, CBSP, Dekho Apna Desh	(NEGP, 2024; MoT, 2018; PIB, 2023)
Sustainability Transition	2022-Present	Responsible & sustainable tourism	National Strategy for Sustainable Tourism, Travel for LiFE	(PIB, 2022; MoT, 2023b)

Likewise, tourism planning at a state level, as shown in Table 2, emphasizes destination branding and promotion campaigns.

Table 2. Statewise Campaign/Scheme/Initiative

Year	Campaign/Scheme/Initiative	Launching Department/Organization	Brief Description	Citation
1989	God's Own Country	Kerala Tourism Department	positions Kerala as a tourist destination highlighting its backwaters, cuisine, and culture	(DoT, 2024; Madhukar, 2013)
2005	Khushboo Gujarat Ki	Gujarat Tourism Department	Promotion of cultural heritage, landmarks, and festivities of Gujarat with an appeal of Bollywood star Amitabh Bachchan	(DDNews, 2024; Modi, 2011)
2006	Heart of Incredible India	Madhya Pradesh Tourism	highlighting Madhya Pradesh's wildlife, heritage sites by storytelling and visuals.	(Kour, 2023)
2010	Your Moment is Waiting	Kerala Tourism	Campaign focusing on state's nature's beauty, Ayurveda, and rich culture	(Kerala Tourism, 2010)
2016	Dil Hua Bache Sa	Madhya Pradesh Tourism Board	Attempts to evoke curiosity among tourists by highlighting culture, landscapes, wildlife etc	(Madhya Pradesh Tourism, 2016)
2017	Awesome Assam	Assam Tourism Development Corporation	Focuses on Assam's tea gardens and wildlife	(NENOW, 2019)
2018	The Sweetest Part of India	West Bengal Tourism Department	Promotes festivities and culinary delights of West Bengal	(Clioawards, 2017)
2021	Goa beyond beaches	Goa Tourism	To reposition Goa as a complete tourism destination	(Goan Reporter, 2024)
2023	Rangla Punjab	Punjab Tourism	Presents diverse, culture, culinary, monuments and other nature related attractions	(Punjab Tourism, 2023)
2024	a. Nakshatra Sabha & b. Kedar Badri Kartik (Murugan) KoilYathirai	Uttarakhand Tourism	a. Offering adventurous excursion about stargazing and b. covers launch of pilgrimage train from Madurai to Rishikesh	(TTW, 2024)
1993, 2019	PadharoMhar e Des	Rajasthan Tourism Board	highlights Rajasthan's beauty and culture by sparking curiosity and discovery in tourism.	(IANS, 2019)

The table indicates that the states like Kerala, Gujarat and Madhya Pradesh have embraced powerful branding strategies in order to attract tourists. Nevertheless, all these initiatives are

more promotion focused with minimal consideration of sustainability practices. This shows that there is a disconnection between tourism promotion and ecological management.

On the whole, the discussion indicates that despite the well-developed policy frameworks on sustainable tourism, their application is not integrated, monitored, and customized to regions, especially in the case of emerging destinations.

Q2. Which destinations / states have been discussed in all the scholarly discussions in the ecotourism perspective?

Though from the global perspective, ecotourism now, belong to the mainstream zone in tourism practices, in India, majority of the developments are still in initial phase. The next section provides all these developments on the scholarly and institutional levels.

SCOPUS says that the discussion around ecotourism began in the 1990s, under the banner of nature-oriented tourism. It has since gained a great deal of scholarly research attention. Consequently, literature reveals a lot of evidence of the issues and trends undertaken by different destination administrations and governments across the globe. Based on these developments thus far, it is possible to declare ecotourism as one of the mainstream in the sphere of sustainable tourism. Considering the narrowed lens of the ecotourism related discourses in Indian settings, table 1 below identifies different places and relevant contexts of the researches.

Table 3. Studies in Indian contexts

State	Place	Problem Context	Auhor
Arunachal Pradesh	Namdapha Rain Forest	study exploring rise and fall of tourism in Arunachal Pradesh	Shackley (1995)
Arunachal Pradesh	Eagle-nest Wildlife Sanctuary	study on initiatives to connect the local population with bird tourism and conservation.	Mohan and Athreya (2011)
Assam	Kaziranga National Park,	study about community economic welfare due to ecotourism practices	D. Das and Hussain (2016)
Assam	Kaziranga National Park	investigation and analysis of the factors affecting tourists' environmentally responsible behavior	Borthakur and Kondasani (2024)
Jammu and Kashmir	Gharana Wetland and Ramnagar Wildlife Sanctuary	study about sustainable tourism destinations in India's Jammu and Kashmir area and assessed how they affected locals' contentment.	Hussain, Ali, Ragavan, and Manhas (2015)
Jammu and Kashmir, Uttarakhand	Protected areas of Himalaya (Hemis National Park (HNP) in Jammu & Kashmir and Valley of Flowers National Park (VOF), Nanda Devi National Park (NDNP) and Corbett National Park (CNP) in	Role of institutional arrangements in four National Parks of the Indian Western Himalaya	Badola et al. (2018)

	Uttarakhand,)		
Jharkhand	Dalma wildlife sanctuary	study about government representatives' difficulties in growing and overseeing ecotourism at Dalma Wildlife Sanctuary.	Kapure, Singh, and Gupta (2020)
Karnataka	Protected Areas (Kali Tiger Reserve and Nagarahole Tiger Reserve)	study about ecotourism's contribution in improving rural livelihoods	Pujar and Mishra (2024a)
Kerala	Kumily and Kumarakom	a comparative study about sustainable tourism between Kumarakom and Kumily	Sebastian and Rajagopalan (2009)
Kerala	Thenmala, Periyar, Parambikulam and Wayanad	study about the effect of tourism-related community involvement on entrepreneurial mindset.	Meera and Vinodan (2019)
Kerala	Alappuzha district	to investigate the connections among Kerala's backwater tourism's attractions, visitors' knowledge of ecotourism and amenities, perceived service quality, opportunities, and issues, and visitor satisfaction.	Joseph, Soundararajan, and Parayitam (2022)
Kerala	Eravikulam National Park(ENP)	study helping the national park management understand the priority areas for better management and optimize visitor experiences in the future	Sivakami, Bindu, and George (2023)
Kerala	Periyar National Park	study examining the tourism practice in portion of popular tiger reserves in India from the lens of responsible ecotourism	Banerjee (2012)
Kerala	Wayanad	study about the involvement of Indigenous community through ecotourism	Thimm and Karlaganis (2020)
Kerala	Thenmala, Periyar, Parambikulam and Wayanad	study about determining the presence of different community intervention strategies (CIS) and their dimensional orientation in Indian community-based ecotourism (CBE) destinations	Vinodan, Manalel, and Meera (2017)
Kerala	Parambikulam tiger reserve	study about the reasons, why tourists choose to visit Parambikulam Tiger Reserve	Sivakami and Bindu (2020)
Ladakh (India & Bhutan)	Ladakh	interaction between Buddhism, tourism, and economic development in the trans-Himalayan Buddhist region	Suh (2023)
Lakshadweep	Lakshadweep	study about the examination of the growth of Lakshadweep Islands' tourism industry keeping the lens of sustainability	Kokkranikal, McLellan, and Baum (2003)

Madhya Pradesh	Kanha tiger reserve	study examining Indian tourism industry' contribution in to conservation	Sinha, Qureshi, Uniyal, and Sen (2012)
Meghalaya	Mawlynnong village	study gauging behavioral intention and consumer/customer satisfaction in the context of ecotourism	N. Sharma and Sarmah (2019)
Mumbai	Elephanta Island	study about the benefit to island's natural ecosystems from conservation efforts	Walters (2004)
New Delhi	Nizamuddin	study about long-term partnership building and development within the frames of heuristic sustainable tourism development, collaborative planning and the SDGs agenda	Adie, Amore, and Hall (2020)
North East India	North East India	study about hinderances to ecotourism and its market expansion from Inadequate infrastructure	N. N. Sharma (2000)
Odisha	Chilika Lagoon	study about analyzing the dolphin-watching industry and wildlife tourism management in rural, developing nations.	D'Lima et al. (2018)
Odisha	Bhitarkanika Wildlife Sanctuary	study about the empowerment of locals on a social, cultural, and psychological level because of ecotourism	M. Das and Chatterjee (2020)
Odisha	Mangalajodi	study about the importance of behavioral change and empowerment of communities	V. D. Roy (2022)
Odisha	Bhitarkanika Wildlife Sanctuary	study about impact of Ecotourism on sustainability and the local population	M. Das and Chatterjee (2023)
Odisha	Bhitarkanika wildlife sanctuary	Examines community-based ecotourism (CBET) in the vicinity of Bhitarkanika Wildlife Sanctuary in Odisha, with a focus on its function in promoting tourism and conservation.	Mohanty, Patra, Kunjuraman, and Pathak (2024)
Odisha	Not mentioned	study about consequences of integrating ecotourism into indigenous lifestyles.	Pujar and Mishra (2024b)
Odisha	Bhitarkanika Wildlife Sanctuary	study showcasing effect of local participation on Bhitarkanika Wildlife Sanctuary's natural resource conservation	M. Das and Chatterjee (2024)
Odisha	Chilika wetland	study about understand visitors' satisfaction with the attributes of the tourist region.	Samal and Dash (2024)
Rajasthan	Protected areas (Western Rajasthan)	study about community perceptions towards conservation of biodiversity	Bhattacharjee (2018)
Sikkim	Indian Himalayan	study about the state of sustainable	He, Huang,

	region	community-based tourism in the Indian Himalayan region	Mishra, and Alrasheedi (2021)
Sikkim	Khangchendzong a Biosphere Reserve (KBR)	study about the sustainability assessment of ecotourism at an operational level	Ashok, Tewari, Behera, and Majumdar (2017)
Tamil Nadu	Yercaud	study determining the intrinsic and extrinsic effect of tourism on the environment (conservation and preservation perspective)	Thomas and Prasantha Kumar (2020)
Uttarakhand	Binsar Wildlife Sanctuary	study about guest satisfaction of sanctuary's ecotourism experiences (by consuming facilities and amenities both in and around)	(Bhalla and Bhattacharya (2019); Bhalla, Coghlan, and Bhattacharya (2016))
Uttarakhand	Garhwal Himalaya	study investigating the potential for adventure tour guides and whitewater rafting to contribute in lessening the adverse environmental impacts of tourists	Serenari, Leung, Attarian, and Franck (2012)
Uttarakhand	Tehri Dam	study examining changes happened in physical, social and economic landscapes due to dam construction and rehabilitation	Naithani and Saha (2019)
Uttarakhand	Jim Corbett National park	study examining the pro-environmental behavior (PEB) of visitors to India's protected regions	R. Sharma and Gupta (2020)
Uttarakhand	Corbett Tiger Reserve,	study exploring the socio-economic and land use impacts of ecotourism in the Corbett Tiger Reserve	Pandya, Dev, Rai, and Fletcher (2023)
Uttarakhand	Jim Corbett Tiger Reserve	study exploring the extent of women's participation, benefits, and challenges in ecotourism endeavors	Singhania, Hasana, and Swain (2024)
Uttarakhand	Jim Corbett Tiger Reserve	study examining the role of community-based ecotourism in developing support for wildlife conservation among local communities	Alam and Nayak (2024)
Uttarakhand and Jammu & Kashmir.	Mix tourism product Adventure tourism nature visits, and pilgrimages	study investigating the environmental orientation and ecotourism awareness by comparing orientations of pilgrims, adventurers and leisure tourists	Bagri, Gupta, and George (2009)
Uttarakhand	Binsar Wildlife Sanctuary	study about how homestay program's involvement by locals can affect their	Bhalla et al. (2016)

		views and actions about ecotourism	
Uttarakhand	Nanda Devi National Park	study about how ecotourism reconcile the people and nature	Ip-Soo-Ching, Massingham, and Pomeroy (2022)
West Bengal	Northern part of west Bengal(north bengal)	study investigating the present state of ecotourism in North Bengal	Karmakar (2011)
West Bengal	Darjeeling Himalaya	study examining suitable sites for ecotourism using the GIS-based Criteria Importance Through Inter Criteria Correlation (CRITIC) technique	D. Roy, Kundu, Paul, and Sarkar (2024)
West Bengal (India & Bangladesh)	Sunderbans	study about ecotourism development in Bangladesh and India,	Tisdell (1997)

As can be seen in the table above, the academic studies regarding ecotourism in India are evident to have a geographical focus in some of the states, especially Kerala, Uttarakhand, Odisha, and the North-East region. These areas have received a lot of scholarly focus based on their well-developed ecotourism, biodiversity abundance and the presence of local community-based tourism standards. Most of the research is based on the following subjects: community involvement, conservation, tourism behavior and sustainability measurement in the protected territories and wildlife reserves.

On the contrary, some areas with potential ecotourism that is either emerging or underdeveloped are still relatively unexplored in the literature. It is important to note that although the state of Bihar has a wide range of ecological, cultural and nature-based tourism resources, the state has got a very limited scholarly attention in terms of ecotourism. This skewed distribution of literature underscores a gaping absence in the body of literature with well-established destination areas being well-researched and emerging areas lacking empirical and conceptual effort.

Thus, this paper tries to fill this gap by considering Bihar as an example, and is therefore adding to the literature on ecotourism development in a region of relatively little but potential development.

Q3. So what is the development of ecotourism in the state of Bihar?

In a nutshell, Ecotourism is everything to do with the appreciation of local culture, environment etc (Scheyvens, 1999). The ecotourism is the types of tourism that encompass all the nature based forms of tourism, includes educational and interpretation aspects, is usually (but not always) arranged by specialized tourism operators, has minimal negative effects on the natural and socio-cultural environment and offers awareness (to locals and outsiders) about the preservation of natural and cultural resources (UN Tourism, 2024).

Assuming that we look at the development of the Indian sustainable tourism, the government has financed various projects as a subtheme of the Swadesh Darshan scheme, named as the Eco Circuit. In FY 2014-15, till 05.12.2024, in total 06 projects of approx. 415.44 crore have been sanctioned(PIB, 2024c, 2024d). These are spread over the states of Jharkhand, Kerala, Madhya Pradesh, Telangana, Uttarakhand and Mizoram. Table 4 below can be viewed in detail.

Table 4. Projects under Eco circuit sub theme, Source: (PIB, 2024c)

Sub Theme	State	Year	Area under development
Eco Circuit	Jharkhand	2018-19	Development of Eco Tourism circuit: Dalma- Betla National park- Mirchaiya Netarhat
Eco Circuit	Kerala	2015-16	Development of Pathanamthitta- Gavi Vagamon- Thekkady
Eco Circuit	Madhya Pradesh	2017-18	Development of Gandhi sagar Dam Mandleshwar Dam- Omkareshwar Dam Indira Sagar Dam- Tawa Dam- Bargi Dam- Bheda Ghat- Bansagar Dam- Ken River
Eco Circuit	Telangana	2015-16	Development of Eco Tourism Circuit in Mahaboobnagar district
Eco Circuit	Uttarakhand	2015-16	Development of Tehri-Chamba- Sarain around Tehri Lake.
Eco Circuit	Mizoram	2016-17	Development of Eco-Adventure Circuit Aizawl - Rawpuichhip – Khawhphawp – Lengpui – Chatlang- Sakawrhmutuaitlang - Muthee – Beratlawng -Tuirial Airfield – Hmuifang

Ecotourism (given the research interest of the article) and other sub themes have been gradually developing in most of the states that even did not get funds in previous schemes. Tourist destination has been recognized to have attractions in terms of Buddhist, Rural and Spiritual and Tirthankar circuits in Bihar (see table 5 and 6). Plans are underway to enhance these places to be more oriented to various tourist interest.

Table 5. Different Tourism Circuits of Bihar (under Swadesh Darshan scheme of MoT)

State	Sub themes in Swadesh Darshan	Year	Area under development
Bihar	Buddhist Circuit	2016-17	Development of Buddhist circuit, Construction of Convention Centre at Bodhgaya
Bihar	Rural Circuit	2017-18	Development of Bhitiharwa- Chandrahia- Turkaulia
Bihar	Spiritual Circuit	2016-17	Development of Kanwaria Route: Sultanganj – Dharmshala- Deoghar
Bihar	Spiritual Circuit	2017-18	Development of Mandar Hill & Ang Pradesh
Bihar	Tirthankar Circuit	2016-17	Development of Vaishali- Arrah- MasadPatna- Rajgir- Pawapuri- Champapuri

Table 6. Tourism Circuits of Bihar (under PRASHAD Scheme of MoT)

Circuit / Scheme	Place belong to	Destinations to visit
Jain (Tirthankar)	Nalanda (Pawapuri)	Jal Mandir, Veerayatan, Samwasarn

Circuit		
	Vaishali	Basokund Jain Mandir
	Patna	Kamaladah Jain Temple
	Rajgir	Maniyar Math, Jain Temple (Kundalpur), Son-bhandar Caves, Naulakha Mandir
	Banka	Mandar Hill
	Arrah	Jain Temple (Chandra Prabhu)
	Jamui	Lachhuar Jain Temple
	Bhojpur	Masadh Jain Temple
	Nawada	Gonavajee
	Bhagalpur	Shri Champapur Digamber Jain Siddha Kshetra, Vasupujya Jinalaya (Nathnagar)
Buddhist Circuit	Gaya	Rock Cut Sculptures of Kauvadol Hills, Dugeswari Hill Cave, Gaya Museum, Brahmayoni Hills
	Bodhgaya	Mahabodhi Temple, Mahabodhi Tree, 80 ft Buddha Statue, Animesh Lochan Stupa, Chankraman Asthal, Ratnagar, Muchalind Tank, Shree Mahabodhi Mahavihar, Rajayatan, Sujata Garh, Royal Bhutan Monastery, Burmese Vihara, Thai Monastery, Japan Monastery, Tibetan Monastery,
	Nalanda	Nalanda University Ruins, Archaeological Museum, Zuafardih (Ancient Stupa), Sarilchak (birthplace of Sariputra, a disciple of Lord Buddha), Mustafapur (Majestic Buddha in mediating posture), Ruins of Telhara (Teladhaka), Mahamaya Place (Jagdishpur, Buddha in bhoomisparsh posture, also known as Rukmani Sthan), The Xuanzang Memorial Hall (Statue of Xuanzang, Buddha's feet on stone, painting of his guru Sheelbhadra)
	Rajgir (Rajagriha or Vasumati)	Vishwa Shanti Stupa, Amra Van, Saptparni Hills, Maniyar Math, Gridhakuta Hill Top, Pippala Cave, Cyclopean Wall, Bimbisara Jail, Venu Van, Chariot Wheel Mark & Stone Inscriptions, Fort of Ajatsatru, Giriya Hill Stupa,
	Patna	Patna Museum, Buddha Smriti Park (Karuna Stupa), Kumhrar (Emperor Ashoka's Palace pillar ruins),
	Jehanabad	Barabar Caves, Sudama Cave, Lomash Rishi Cave, Vishwamitra Cave (Vishva Zopari Cave), Nagarjuna Cave (Gopika, Vapi and Vedathika)
	West Champaran	Rampurva
	East Champaran	Kesaria Stupa
	Bhagalpur	Ruins of Vikramshila University,
	Vaishali	Budha Stupa I, Budha Stupa II, Vishwa Shanti Stupa, Ashokan Pillar & Kolhua Stupa, Abhishek Pushkarni (Coronation Tank)

Other than this, the state has been funded in 2014-15 and 2015-16 under PRASHAD scheme of developing the Vishnupad Temple and Patna Sahib respectively. Also, the government has also been allocating to drive the development of Matsyagandha Lake, Saharsa and Karamchat Eco-Tourism and Adventure Hub, both in the year 2024-25. The latter is the first project to be in line with the state drive on Ecotourism.

Another initiative undertaken by the state government is in the development of Sikh and Sufi and Ramayana circuit. From table 7, it can be looked at in detail.

Table 7. Additional Tourism circuits of Bihar maintained by Bihar Tourism, Source: (Bihar Tourism, 2024)

Circuit / Scheme	Place belong to	Destinations to visit
Sikh Circuit	Patna	Takhat Sri Harimandir Ji Patna Sahib, Gurudwara Bal Leela Maini Sangat, Gurudwara Guru Ka Bagh, Gurudwara Handi Sahib, Kangan Ghat, Gurudwara Gai Ghat, Prakash Punj
	Sasaram	Gurudwara Chacha Phaggu Mal
	Katihar (Lakshmipur)	Shri Guru Tegh Bahadur Aitihasi Gurudwara
	Munger	Gurudwara Pakki Sangat
	Rajauli	Gurudwara Rajauli Sangat
	Bhagalpur	Gurudwara Bari Sangat Shri Guru Tegh Bahadur Ji Sahib
Sufi Circuit	Patna	Khanquah Mujeebia (Phulwarisharif), Khanquah Emadia Qualandaria (Mangal Talab), Begu Hajjam's Mosque, Khanquah Munemia Quamaria & Dargah of Hazrat Munem Paakbaaz (RA), Maner Sharif
	Kako (Jehanabad)	Hazrat Bibi Kamal Tomb
	Nalanda	Ibrahim Baya Tomb
	Bihar Sharif	Badi Dargah, Chhoti Dargah
	Munger	Jamia Rahmani Khanquah
	Buxar	Dargah Dariya Shah Baba
	Sasaram	Sher Shah Suri's Musoleum
	Aurangabad	Amjhaar Sharif Mazaar, Sita Thapa
	Vaishali	Hajipur Karbala, Ramchaura
	Siwan	Hasanpura Khanquah
Ramayan Circuit	Sitamarhi	Janaki Madir, Haleshwarsthan, Panth Pakar
	West Champaran	Chanki Garh (Janaki Garh), Valmiki Ashram
	Buxar	Ram Rekha Ghat, Ahirauli
	Bhojpur	Tar
	Darbhanga	Gautam Kund, Ahilya Sthan
	Munger	Sita Kund
	Jamui	Giddheshwar
	Madhubahi	Phulhar
Madhepura	Singheshwar Sthan	

Besides these circuits, the state is also making rapid strides towards development of Eco Tourism destinations. The state has numerous treasures to present when it comes to exploring the bouquet of nature related attractions that may make up Ecotourism (Figure 2, Table 8 & Figure 3).

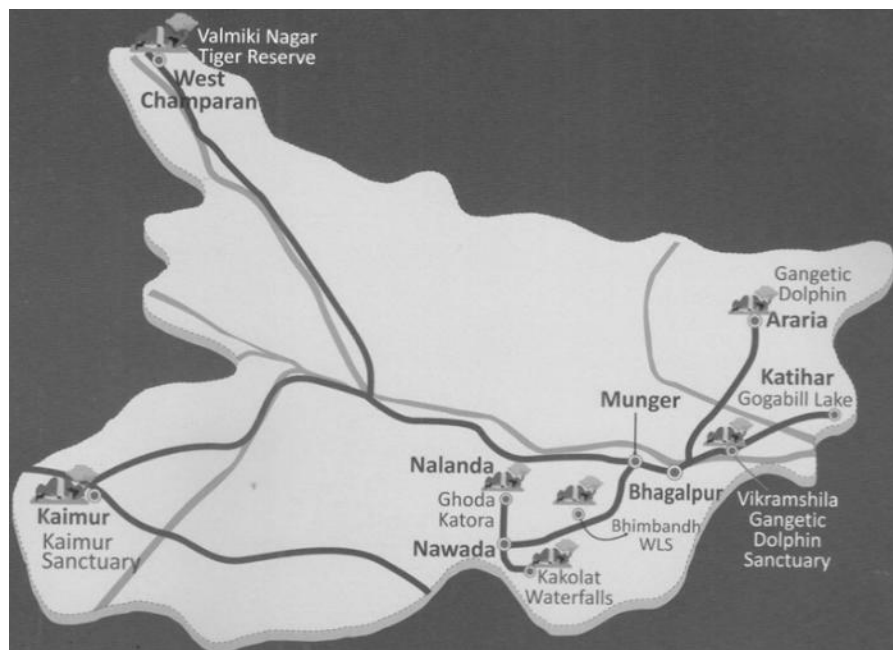


Figure 2. Map of state of Bihar highlighting the ecotourism destinations (Source: Bihar Tourism)

Table 8. Ecotourism destinations being maintained by Bihar Tourism, Source:(Bihar Tourism, 2024)

Circuit / Scheme	Place belong to	Destinations to visit
Eco Tourism Circuit	Patna	Sanjay Gandhi Jaivik Udyan (Zoo), Eco Park (Rajdhani Vatika), MV Ganga Vihar or MV Kautilya, Golghar
	Kaimur	TelharWaterfalls,Kaimur Wildlife Sanctuary,Karkatgarh Waterfalls
	West Champaran	Valmiki Tiger Reserve, Amawaman Lake, Udaipur Wildlife Sanctuary
	Nalanda	Pandu Pokhar, Ghora Katora
	Banka	Odhni Dam
	Begusarai	Kanwar Lake (Kanwar Jheel, Largest fresh water oxbow lake in asia)
	Jamui	Nakti & Nagi Dam Bird Sanctuary,Garhi Dam, Mahaveer Vatika (Madhopur)
	Nawada	Kakolat Waterfalls
	Rohtas	Kashish Waterfalls, Manjhar Kund, Dhuan Kund (Natural Waterfalls), Tutla Bhawani Waterfalls (Tutrahi or Titula Dham), Indrapuri Barrage (Sone Barrage)
	Rajgir	Rajgir Zoo Safari, Nature Safari & Glass Bridge
	Bhagalpur	Vikramshila Gangetic Dolphin Sanctuary
	Munger	Bhimbandh Wildlife Sanctuary
	Darbhanga	KusheshwarAsthan Bird Sanctuary
	Gaya	Gautam Buddha Wildlife Sanctuary
	Katihar	Gogabil Lake

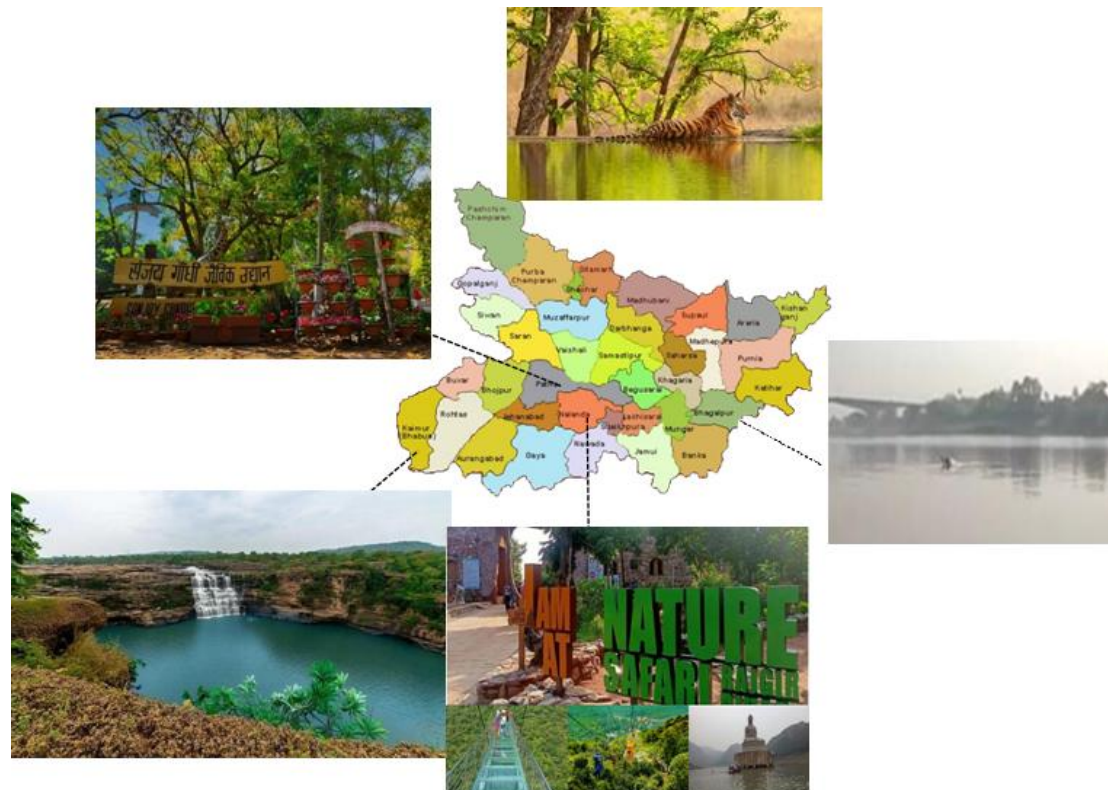


Figure 3. Bihar Ecotourism circuit

The ecotourism destination analysis and tourism circuit in Bihar shows that it has a number of strengths inherent that makes it a high potential ecotourism destination. To begin with, the availability of different tourism circuits-buddhist, spiritual, rural and eco-tourism circuits illustrate a well organized thematic planning of tourism development. Second, the state has highly endowed natural and ecological resources like wildlife sanctuaries, waterfalls, wetland and forest reserves which offer a solid base on nature-based and ecotourism activities. Also, the combination of the cultural, religious and natural attractions expands the opportunities of creating holistic and experiential tourism products.

Nevertheless, regardless of these advantages, the ecotourism in the state faces a number of challenges that impede the successful development of ecotourism in the state. The limitation on the overall tourist experience is through infrastructure gaps especially on the aspect of their accessibility, accommodation, and basic tourist facilities in isolated ecological regions. Moreover, the state is very exposed to climatic upheavals like heat waves, flooding and abnormal rainy patterns which come directly to bear on tourism seasonality and sustainability of destinations. There are also operational issues like lack of awareness, lack of maintenance and partial financial distribution that limit the long-term success of ecotourism projects. Thus, although Bihar has a great potential due to its resource base and circuit-based mode of development, the success of ecotourism highly relies on overcoming such structural and environmental issues with the help of integrated planning, development of infrastructure and sustainable management approaches.

5. Synthesis of Findings

This paper brings together the results of the previous literature and policy research to offer a comprehensive overview of ecotourism development in India and of the emerging areas in the country like Bihar. It is synthesized that the development of ecotourism is influenced by three aspects that are interrelated: policy frameworks, infrastructure and destination development, and stakeholder participation.

To begin with, policy-level efforts are very much conscious of encouraging sustainable tourism; this is, however, limited by the fact that they are governed in a fragmented manner and lack a standardized monitoring system. Second, infrastructure development has been uneven in terms of regions with the existing ones having gained more than the upcoming

states like the Bihar. Third, the involvement of stakeholders, especially the community is also found to be a key success factor but there is inconsistency in its practice.

The synthesis of the findings indicates that there are critical dimensions that affect the development of ecotourism, which include policy framework, infrastructure, involvement of stakeholders and sustainability practices. These dimensions, as summarized in Table 9, all indicate critical gaps in policy intent and implementation, and implied management.

Table 9. Synthesis Framework of Ecotourism Development—Key Dimensions, Findings, and Managerial Implications

Dimension	Key Findings from Literature	Managerial Implications
Policy & Governance	Strong policy intent but weak implementation	Need monitoring & evaluation frameworks
Infrastructure Development	Uneven regional growth	Cluster-based tourism planning
Stakeholder Participation	Limited community integration	Expand community-based tourism models
Sustainability Practices	Inconsistent application	Standardize sustainability indicators
Regional Focus	Bias toward developed states	Promote emerging regions like Bihar

On the whole, the synthesis suggests that there is a huge discrepancy between policy establishment and implementation, and integrated and management-focused solutions to ecotourism development are necessary.

6. Discussion

The results of the present research reveal that the development of ecotourism in Bihar is influenced by the complex of environmental, structural, and institutional factors, which are signs of more general issues related to the development of new tourist destinations (Sultan et al., 2020). Instead of being individual problems, the perceived challenges have an indication of systemic constraints in planning, governance, and sustainable integration.

One of the main lessons learnt during the analysis is that the tourism industry in Bihar is very sensitive to climatic variability. The rising nature of heat waves, unpredictable rainfall, and floods do not only interfere with tourism flows, but they also reflect the lack of climate-adaptive planning in tourism development plans (Slocum, 2020). As a sustainable tourism consideration, this constitutes a vulnerability on the resiliency-based destination management whereby the environmental hazards are not adequately entrenched in the infrastructural planning and the policy platforms (Yadav and Dubey, 2023).

The seasonal variation of the influx of tourists also implies the structural constraints of products diversification. In contrast to the more developed ecotourism destinations like Kerala or Uttarakhand, the tourism products in Bihar are still greatly focused on certain circuits and time-limited visitation patterns. This absence of diversification limits the potential of year-round tourism and is symptomatic of not utilizing other forms of tourism like community based tourism and the experiential ecotourism. In theoretical terms, this corresponds to the Sustainable Tourism Framework which underlines the necessity of creating the value of economic, environmental, and social equality of the three dimensions of time and space (MoT, 2022).

The other crucial problem that may arise out of the results is the imbalance in tourist activities, which will result in overcrowding in some destinations. The trend implies the weakness of visitor management plans and spatial planning. The effort to concentrate the tourist flow in several major destinations enhances the ecological pressure and undermines the quality of destinations, which is linked with the issues of carrying capacity and overtourism. This type of dynamics suggests that the growth of tourism in Bihar has not yet been based on the principles of sustainable use of resources and the development of destinations under control (UNDESA, 2023).

Constraints of institutions and governance are also another reason why there is a discrepancy between policy intention and implementation results. Although at the national and state-levels,

there is a clear indication of commitment to tourism promotion, its implementation into sustainable practices is not uniform (MoT, 2023a). This is because of disjointed systems of governance, inadequate monitoring systems and lack of coordination between stakeholders. Consistent with Stakeholder Theory, ecotourism development needs strategic involvement of government institutions, local communities and non-state actors an aspect which is still in its infancy in the Bihar context (UNDESA, 2024a, 2024b).

In addition, the institutional interest and paucity of scholarly interest in Bihar, as revealed in the research, are also factors that lead to slower developmental patterns. In contrast to developed ecotourism destinations where research is ongoing to inform policy and practice, Bihar does not have an effective evidence-based ecosystem to inform the sustainable tourism planning. This also supports the necessity of localized policy interventions and the need to conduct region-specific research (Høegh-Guldberg & Eide, 2021).

In a wider sense of sustainable tourism and management, the results indicate the importance of a shift in the approach towards promotion towards a management-based framework. This involves incorporating climate resilience in tourism infrastructures, enhancing community-based ecotourism, enhancing visitor management systems, and ensuring sustainability outcomes are continually monitored and evaluated (Cheablam & Shrestha, 2015). This is not only necessary to improve tourism competitiveness but also to ensure environmental conservation and socio-economic development in the long run (UNDESA, 2024c).

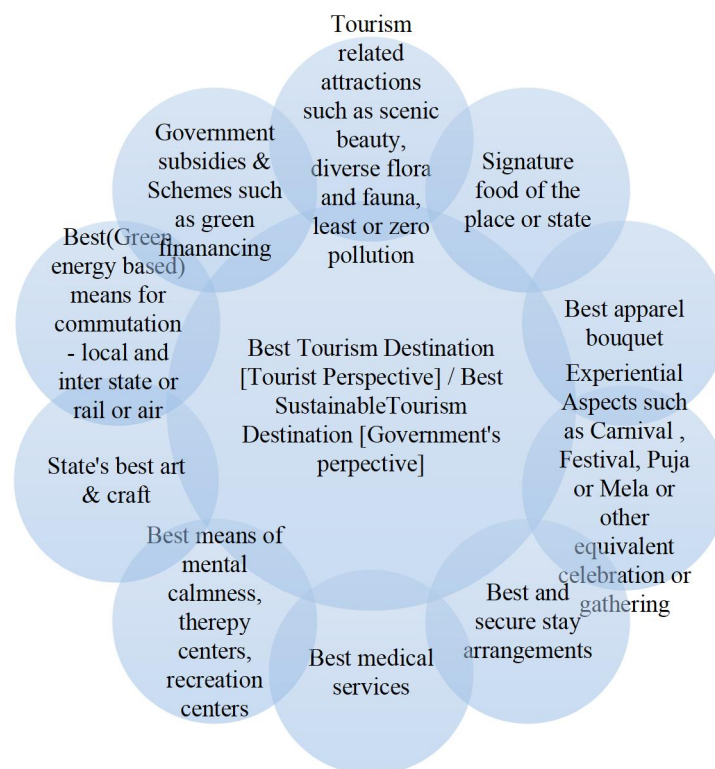


Figure 4. Attributes of best tourism (sustainable tourism) destination

6.1 Strategic Recommendations for Sustainable Ecotourism Development in Bihar

The groupings are made into thematic categories and the following key recommendations are proposed based on the discussions:

1. Policy Interventions
 - Develop a state-wide monitoring and evaluation system, to determine sustainability results of tourism initiatives.
 - Implement a system of One State-One Tourism Pass to enhance tourists movement around circuits as well as promoting integrated destination management.

2. Infrastructure and Destination Development
 - Create tourism centers at regional levels (cluster-based) so as to maximize resource exploitation and lessen congestion in overcrowded destinations.
 - Invest in infrastructural resilience to climatic conditions, especially in remote and ecologically sensitive regions, to be able to have year-round access to infrastructures and make them sustainable.
3. Community participation and capacity building
 - Ecotourism and homestay should be expanded as a community-based initiative to improve the community livelihood and cultural assimilation.
 - Introduce systematic training and certification procedures (e.g. Tourist Mitra programs) on sustainable practices and responsibility towards tourism behavior.
4. Online Marketing and Customer interaction
 - Empower official online platforms of real time information, awareness, destination promotion using verified content.
 - Market state diaspora and digital outreach initiatives in order to broaden outreach and appeal to responsible tourism segments.
5. Smart Tourism Technology
 - Make use of the latest technologies (AR/VR, GIS, digital experience centers) and adopt them as a part of public- private collaborations and improve the experience of immersive and sustainable tourism.
 - Create tourism management systems based on data to monitor the flow of visitors and make decisions.

Table 10. Recent Scheme/ Event by Bihar Tourism

Year	Scheme/ Event Names	Brief Note
2022	Tagline Contest	Online contest to invite Indians of (10 years & above) to write a tagline which best represents tourism of Bihar
2022	Bihar margiyasuvidha (Wayside Amenities) protsahan yojana	Phasewise development of stay related facilities fully equipped with all the amenities to provide conveniences to travelers, on 23 routes
2023	Photography Contest on Tourist Places of Bihar	Photography Contest on Tourist Places of Bihar
2023	Reel Making Competition	Create Reel for Tourist places, food & culture of Bihar
2023	Content Writing Competition	To write compelling content for various media walls to urge visit appeal and drive action
2024	Provisioning of MICE Destinations & announcement	To cope with increasing demand of MICE destinations and to practice 365 destination approach
2024	Bihar Tour Operators, Travel Agency, and Hotel Management Incentive Scheme	To provide incentive and reimbursement in domestic travel
2024	Bihar Tourism – in influencer’s eye	Contest for social media influencers across India under Spiritual and Religious Tourism, Cuisines. EcoTourism, Art & Culture, Wellness Tourism and Heritage / Historical tourism
2024	Destination Wedding	To promote destination wedding tourism
2024	Mukhya Mantri Home Stay/Bed and Breakfast Promotion Scheme	To empower local communities and promote local culture

To move towards a more varied offering bouquet, the government has also introduced helicopter tourism in 2023 that is mostly utilized in wedding and pre-wedding ceremony (DTI, 2023). The government has also involved some hotels offering Destination Wedding to its

clients, as a memorable event, to keep up with the national push to stimulate the wedding industry (Chi et al., 2022).

6.2 Managerial Implications

The results of this research provide some valuable insights to the policymakers, tourism administrators and industry stakeholders. In management terms, the research points out the necessity to shift the focus of promotion-based approach to a performance-based tourism management framework.

To begin with, the lack of organized monitoring systems implies that there should be data-driven decision-making tools that can assess the success of tourism initiatives. Second, the unequal development of the regions requires a cluster-based strategy in order to maximize the distribution of resources and as well as minimize regional differences. Third, there is low incorporation of community participation meaning that the community based ecotourism models need to be tightened in order to achieve inclusive and sustainable development.

Additionally, the results highlight the significance of integrating climate resilience and sustainability measures in the planning of tourism. Managers and policymakers need to be holistic in their approach where the environmental, social and economic aspects are combined to make ecotourism destinations long-term viable.

7. Research Gap Classification and Future Directions

The research establishes a number of research gaps that are critical in the field of ecotourism based on the systematic review.

Firstly, there is a geographical gap since most of the research is done on the well established destinations like Kerala, Uttarakhand and Odisha whereas the emerging ones like Bihar are still not explored. Second, there is a gap in the methodology because most of the studies use descriptive or case-based studies, with minimal applications of quantitative evaluation methods. Third, a managerial gap can be seen in the fact there is no research on the performance measurement, effectiveness of policies, and governance mechanisms in ecotourism development.

To address these gaps, future studies need to be interdisciplinary, use newer analytical tools, and concentrate on future destinations to inform evidence-based policymaking and sustainable tourism management.

8. Conclusion

This research paper has explored the development of ecotourism in India and Bihar, in particular, combining the policy analysis, systematic review of literature, and the evaluation of the region. The results show that although India has achieved a lot in terms of encouraging tourism using different institutional efforts, the development of the sustainability and ecotourism concepts is still disproportionate and relatively new. The review of the academic literature indicates that geographical focus of ecotourism studies in well-known destinations like Kerala, Uttarakhand, and Odisha is high, and new destinations like Bihar have not been well covered. To fill this gap, the paper focuses on the high-potential but underdeveloped ecotourism destination of Bihar with various tourism circuits and abundant natural and cultural resources. But the paper also cites a number of structural issues such as vulnerability to climate, inadequate infrastructure, ineffective product diversification and ineffective implementation systems. Such constraints suggest that there is no linkage between policy intent and on-ground implementation, constraining the effectiveness of ecotourism programs in the state. Theoretically and practically, the study is valuable because it offers a regional perspective on the development of ecotourism in an up-and-coming destination and brings about the necessity of integrated, sustainability-based, tourism planning. The results highlight the value of climate resilient infrastructure, community involvement, and efficient monitoring mechanisms in the long-term sustainability. The research can be further developed by future researchers through the use of empirical studies of tourist behavior, the perception of the stakeholders and the success of particular ecotourism projects in Bihar and other emerging

areas. Moreover, the cross-state comparisons and the use of the latest technologies, including GIS, AI, and tools of immersive tourism, can also promote a better understanding and contribute to the sustainable work of a destination.

Declaration of Ethics

This study was approved by Bennett University, Times Group, Greater Noida, and all participants provided informed consent prior to their involvement. The research was conducted in accordance with ethical standards and the competent authority.

Funding Declaration

The authors declare that this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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