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Adventure Tourism and Regional Socio-Economic Transformation in Assam: Development of the AT-RST Framework

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ABSTRACT

Adventure tourism is a rapidly growing global sector with significant potential for regional socio-economic development, especially in peripheral regions like Assam, Northeast India. Despite Assam's rich natural and cultural assets, limited research exists on its tourism-driven transformation. This study explores adventure tourism's role in Assam's development and introduces the Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework as an integrated conceptual model. Using secondary data from government reports, policy documents, and academic literature, the study examines Kaziranga and Manas National Parks to illustrate tourism impacts. Findings indicate that adventure tourism fosters employment, entrepreneurship, infrastructure, livelihood diversification, and community participation, contributing to regional economic change. However, successful outcomes depend on the interplay between tourism resources, infrastructure, governance, and local engagement. The AT-RST Framework offers a theoretical lens to explain these dynamics and supports structured planning for emerging destinations. While the study enriches the literature on adventure tourism and regional development, it is limited by its reliance on secondary data and case-study scope. Future primary and mixed-method research is recommended for further validation. The findings provide actionable policy insights for sustainable, inclusive tourism planning in Assam, helping stakeholders maximize socio-economic benefits while safeguarding environmental sustainability.

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1. Introduction

The tourism sector has emerged as one of the most significant contributors to global economic development, playing a pivotal role in employment generation, infrastructure enhancement, and regional restructuring (UNWTO, 2022; Sharpley & Telfer, 2015). In developing economies, tourism frequently serves as a strategic alternative for economic diversification, particularly in regions characterised by limited industrial development and resource constraints (Scheyvens, 2019). The increasing recognition of tourism as an instrument for developmental purposes has prompted both policymakers and academics to investigate its broader socio-economic implications, extending beyond conventional analyses of visitor expenditure and destination marketing (Hall, 2019; Mowforth & Munt, 2016).

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Within this context, adventure tourism has experienced remarkable growth, establishing itself as one of the fastest-expanding segments within the global tourism industry (Buckley, 2020; Pomfret, 2019). Adventure tourism encompasses physical activities, engagement with natural environments, and cultural encounters, thereby providing distinctive and immersive travel experiences (Coghlan & Buckley, 2020). Activities including trekking, wildlife observation, river rafting, birdwatching, and nature-based recreation have attracted increasing numbers of tourists seeking authentic experiences and meaningful connections with host communities (Rantala et al., 2019; Beames & Atencio, 2020). Consequently, destinations endowed with abundant natural resources and diverse cultural landscapes have become increasingly attractive for adventure tourism development (Weaver & Lawton, 2018).

The nexus between tourism and regional development has received considerable scholarly attention within the academic literature (Nepal, 2021; Saarinen, 2020). Previous empirical investigations suggest that tourism can stimulate local economies through multiple mechanisms, including employment creation, entrepreneurial opportunity generation, infrastructure expansion, and improved market accessibility (Ashley et al., 2018; Mitchell & Ashley, 2020). Furthermore, sustainable tourism practices have been demonstrated to support environmental conservation objectives whilst concurrently generating socio-economic benefits for host communities (Weaver, 2021; Higgins-Desbiolles, 2020). These developmental outcomes hold particular relevance in ecologically rich yet economically disadvantaged regions where alternative development pathways remain constrained (Mosi & Hall, 2021).

Assam, situated in Northeast India, possesses exceptional tourism potential attributable to its remarkable biodiversity, wildlife resources, extensive river systems, forest landscapes, and rich cultural heritage (Deka & Goswami, 2022; Saikia, 2020). Internationally recognised destinations including Kaziranga National Park, Manas National Park, and the Brahmaputra River provide a robust foundation for adventure tourism development (Singh & Barman, 2021). Nevertheless, despite these advantages, the role of adventure tourism in promoting broader regional socio-economic transformation remains insufficiently examined within the existing literature (Goswami & Baruah, 2020). Accordingly, this study seeks to investigate how adventure tourism contributes to regional development in Assam and to develop a conceptual framework explicating these relationships.

The relationship between tourism development and regional socio-economic transformation has garnered increasing scholarly attention within tourism and development discourse (Sharpley, 2020; Nepal, 2021). Previous research has highlighted tourism's capacity to generate employment opportunities, stimulate local entrepreneurship, improve infrastructure, and contribute to regional economic growth (Scheyvens, 2019; Telfer, 2018). Similarly, studies on adventure tourism have emphasised its growing importance as a sustainable tourism segment capable of generating economic benefits whilst simultaneously promoting environmental conservation and community engagement (Buckley, 2020; Weaver, 2021; Rantala et al., 2019). Despite these contributions, significant gaps persist within the existing body of knowledge.

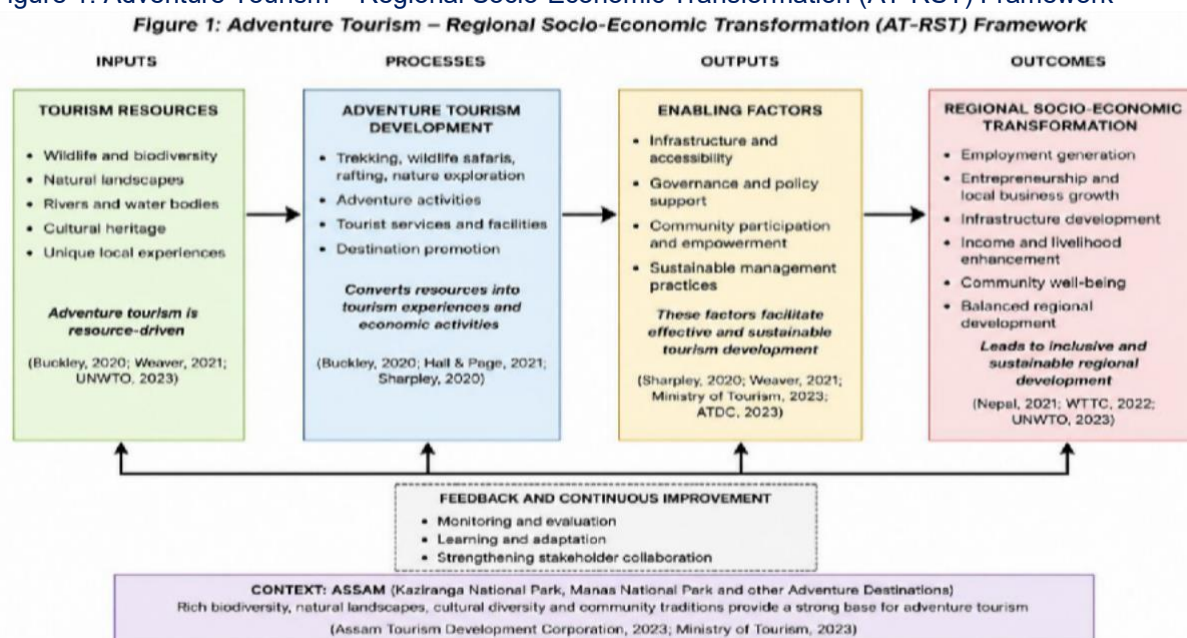
Firstly, the predominant focus of available literature has been on the economic performance of tourism destinations, visitor experiences, and destination competitiveness (Crouch & Ritchie, 2018; Dwyer et al., 2019). Comparatively limited attention has been devoted to understanding the broader mechanisms through which adventure tourism contributes to long-term regional socio-economic transformation (Pomfret, 2019; Coghlan & Buckley, 2020). Although tourism is frequently advocated as a development strategy, the pathways connecting tourism resources, infrastructure, governance systems, community

participation, and developmental outcomes remain inadequately explained (Hall, 2019; Mowforth & Munt, 2016).

Secondly, studies examining tourism in Northeast India have predominantly concentrated on ecotourism, wildlife tourism, and destination promotion (Deka & Goswami, 2022; Saikia, 2020). Despite Assam's widespread recognition for its biodiversity, cultural heritage, and adventure tourism potential, there remains a paucity of integrated research exploring how tourism influences employment generation, livelihood diversification, entrepreneurial development, and infrastructure improvement at the regional level (Goswami & Baruah, 2020; Singh & Barman, 2021). Existing investigations generally examine these dimensions independently rather than as interconnected components of a broader developmental process (Ashley et al., 2018; Mitchell & Ashley, 2020).

Thirdly, limited conceptual frameworks have been proposed to explain the relationship between adventure tourism and regional transformation in emerging destinations (Weaver & Lawton, 2018; Nepal, 2021). Consequently, there exists a need for a comprehensive framework capable of illustrating how tourism-related resources and stakeholder interactions collectively influence socio-economic outcomes (Hall, 2019; Saarinen, 2020). Addressing these gaps, the present study investigates the role of adventure tourism in regional socio-economic transformation in Assam and develops the Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework. The study aims to provide a more integrated understanding of tourism-led development and to contribute to both tourism theory and regional development practice (Sharpley & Telfer, 2015; Scheyvens, 2019).

Figure 1. Adventure Tourism – Regional Socio-Economic Transformation (AT-RST) Framework



Source: Developed by the author based on Buckley (2020), Hall & Page (2021), Nepal (2021), Sharpley (2020), Weaver (2021), UNWTO (2023), WTTC (2022), Ministry of Tourism (2023) and Assam Tourism Development Corporation (2023).

The Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework is proposed to elucidate the mechanisms through which adventure tourism contributes to regional development in emerging tourism destinations. The framework is predicated on the premise that tourism resources alone are insufficient to generate sustainable socio-economic benefits (Weaver, 2021; Higgins-Desbiolles, 2020). Rather, the developmental outcomes of tourism depend on the interaction between tourism

resources, institutional support mechanisms, and community participation (Ashley et al., 2018; Mosi & Hall, 2021).

At the primary stage, the framework recognises the importance of tourism resources, encompassing biodiversity, natural landscapes, river systems, wildlife attractions, and cultural heritage (Buckley, 2020; Coghlan & Buckley, 2020). These resources constitute the fundamental attractions that motivate tourist visitation and support the development of adventure tourism activities (Rantala et al., 2019; Beames & Atencio, 2020). In the context of Assam, destinations including Kaziranga National Park, Manas National Park, and the Brahmaputra River provide significant opportunities for tourism development (Deka & Goswami, 2022; Singh & Barman, 2021).

The second stage highlights adventure tourism development as the central mechanism through which tourism resources are transformed into economic opportunities (Buckley, 2020; Pomfret, 2019). However, the effectiveness of this process depends on several enabling factors, namely infrastructure development, governance and policy support, and active community participation (Hall, 2019; Saarinen, 2020). These factors influence destination accessibility, investment attractiveness, service quality, and local stakeholder engagement (Weaver & Lawton, 2018; Nepal, 2021).

The framework further proposes that successful tourism development generates a range of intermediate outcomes, including employment creation, entrepreneurship development, tourism-related investments, and livelihood diversification (Ashley et al., 2018; Mitchell & Ashley, 2020). These outcomes contribute directly to local economic activities and improve income-generating opportunities for host communities (Scheyvens, 2019; Telfer, 2018). Finally, the cumulative effects of these processes lead to broader regional socio-economic transformation characterised by economic growth, improved infrastructure, community empowerment, poverty reduction, and sustainable development (Sharpley, 2020; Sharpley & Telfer, 2015). The AT-RST Framework therefore provides an integrated perspective on tourism-led development and offers a conceptual foundation for understanding how adventure tourism can function as a catalyst for regional transformation in Assam and other emerging tourism destinations (Nepal, 2021; Mosi & Hall, 2021).

Notwithstanding the growing recognition of adventure tourism as a catalyst for regional development, limited research has systematically examined how tourism resources, governance structures, infrastructure development, and community participation collectively contribute to socio-economic transformation in emerging destinations (Buckley, 2020; Pomfret, 2019). This limitation is particularly evident in Assam, where tourism studies have predominantly focused on destination attractiveness, wildlife conservation, and visitor experiences, while broader developmental outcomes have received comparatively less scholarly attention (Goswami & Baruah, 2020; Saikia, 2020).

In response to this gap, the present study aims to investigate the role of adventure tourism in facilitating regional socio-economic transformation in Assam. Specifically, the study seeks to: (1) examine the relationship between adventure tourism development and regional socio-economic outcomes; (2) analyse the contribution of tourism to employment generation, entrepreneurship development, infrastructure improvement, and livelihood diversification; (3) evaluate the significance of governance mechanisms and community participation in enhancing tourism benefits; and (4) develop the Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework as a conceptual model for understanding tourism-led development.

The study makes several important contributions to the existing literature. Firstly, it extends tourism-development scholarship by providing an integrated perspective on the relationship between adventure tourism and regional transformation (Sharpley, 2020; Nepal, 2021). Secondly, it introduces the AT-RST Framework, which explains how tourism

resources and institutional factors interact to generate socio-economic outcomes (Weaver, 2021; Higgins-Desbiolles, 2020). Thirdly, the study contributes to the limited body of research on tourism-led development in Northeast India by providing a focused analysis of Assam as an emerging adventure tourism destination (Deka & Goswami, 2022; Singh & Barman, 2021). Finally, the findings offer practical insights for policymakers, tourism planners, and local stakeholders seeking to promote sustainable and inclusive tourism development (Scheyvens, 2019; Mosi & Hall, 2021). By linking tourism development with broader socio-economic objectives, the study contributes to both theoretical understanding and policy discourse surrounding sustainable regional development in emerging tourism destinations (Hall, 2019; Saarinen, 2020).

The present study further strengthens the theoretical understanding of tourism-led regional development by integrating tourism-led development theory, sustainable tourism principles, community-based tourism, and regional development perspectives within a single conceptual framework (Sharpley & Telfer, 2015; Weaver, 2021). Unlike previous studies that have generally examined these dimensions independently, the proposed Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework demonstrates how tourism resources, governance support, infrastructure development, and community participation collectively contribute to sustainable regional socio-economic transformation (Ashley et al., 2018; Mosi & Hall, 2021). This integrated perspective represents the principal theoretical contribution of the present study and provides a foundation for future empirical investigations in emerging adventure tourism destinations (Buckley, 2020; Nepal, 2021).

2. Literature Reviews

2.1. Adventure Tourism and Sustainable Development

Adventure tourism has emerged as one of the fastest-growing segments of the global tourism industry, attracting increasing attention from scholars, policymakers, and destination managers. Unlike conventional forms of tourism, adventure tourism combines physical activity, interaction with natural environments, and cultural engagement, thereby providing tourists with immersive and experiential travel opportunities (Buckley, 2020). The growing demand for authentic and nature-based experiences has significantly contributed to the expansion of adventure tourism across both developed and developing destinations.

Beyond its recreational value, adventure tourism has increasingly been recognized as a potential instrument for sustainable development. Sustainable tourism emphasizes the balanced integration of economic growth, environmental conservation, and social well-being. According to Weaver (2021), tourism can contribute to sustainable development when tourism activities are planned and managed in ways that protect natural resources while simultaneously generating socio-economic benefits for host communities. This perspective is particularly relevant for destinations characterized by rich biodiversity and fragile ecosystems.

Adventure tourism contributes to sustainability through several interconnected pathways. Economically, it creates employment opportunities and stimulates local entrepreneurship in sectors such as accommodation, transportation, guiding services, handicrafts, and food production. Socially, tourism encourages community participation and strengthens local cultural identity through interactions between residents and visitors. Environmentally, tourism can provide incentives for conservation by increasing the economic value of natural resources and protected areas (Buckley, 2020).

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2.2. Tourism-Led Regional Development Theory

Tourism has long been recognized as an important instrument for regional economic development, particularly in areas characterized by limited industrialization and restricted economic opportunities. The tourism-led development perspective argues that tourism can stimulate economic growth by generating employment, attracting investment, enhancing infrastructure, and creating multiplier effects across various sectors of the local economy (Sharpley, 2020). Consequently, tourism has increasingly been incorporated into regional development strategies as a mechanism for promoting inclusive growth and reducing spatial inequalities.

The contribution of tourism to regional development extends beyond direct tourism expenditure. Tourism activities create demand for accommodation services, transportation, food production, handicrafts, and other local enterprises, thereby supporting a wide range of economic linkages. Hall and Page (2021) emphasize that tourism functions as a multidimensional development sector because its benefits are distributed across numerous industries and stakeholder groups. Through these linkages, tourism can stimulate entrepreneurship and encourage the emergence of small and medium-sized enterprises, which play a critical role in local economic diversification.

From a regional perspective, tourism also contributes to infrastructure development. Investments in roads, transportation networks, communication facilities, and public services are often undertaken to improve destination accessibility and visitor experiences. Such developments not only benefit tourists but also enhance the quality of life for local residents and improve access to markets and public services. As a result, tourism can contribute to long-term socio-economic transformation by strengthening the overall development capacity of a region (Nepal, 2021).

However, the developmental impact of tourism is not automatic. The extent to which tourism contributes to regional transformation depends on governance effectiveness, institutional support, and the degree of local participation in tourism activities. Regions that successfully integrate tourism into broader development planning are more likely to achieve sustainable and equitable outcomes. Therefore, tourism-led development should be viewed as a comprehensive process that combines economic growth, social inclusion, and sustainable resource management. This perspective provides an important theoretical foundation for understanding the role of adventure tourism in Assam and supports the development of the proposed AT-RST Framework.

2.3. Community-Based Tourism and Local Empowerment

Community-based tourism (CBT) has emerged as an important approach for promoting sustainable and inclusive tourism development. Unlike conventional tourism models, which often concentrate economic benefits among external investors and tourism operators, community-based tourism seeks to ensure that local residents actively participate in tourism planning, management, and benefit-sharing processes. As a result, CBT has gained considerable attention as a mechanism for fostering local empowerment and enhancing the socio-economic impacts of tourism development.

The fundamental principle of community-based tourism is that local communities should be recognized not merely as beneficiaries of tourism but as active stakeholders in the tourism development process. Through participation in tourism-related enterprises such as

homestays, guiding services, handicraft production, cultural performances, and food services, local residents can generate income while preserving their cultural heritage and traditional knowledge. According to [Weaver \(2021\)](#), community participation strengthens the sustainability of tourism initiatives by encouraging local ownership and responsibility.

From a socio-economic perspective, community-based tourism contributes to employment generation, livelihood diversification, and entrepreneurship development. Tourism-related opportunities often provide supplementary income sources for rural households, thereby reducing economic dependence on traditional occupations. Furthermore, active community involvement promotes social cohesion, strengthens local institutions, and enhances residents' capacity to participate in decision-making processes affecting regional development.

In the context of Assam, community participation is particularly important because many adventure tourism destinations are located in rural and ecologically sensitive areas. The involvement of local communities can contribute to both tourism development and environmental conservation by ensuring that tourism activities are aligned with local needs and sustainability objectives. Therefore, community-based tourism represents a critical component of the proposed AT-RST Framework and serves as an essential mechanism linking adventure tourism development with broader regional socio-economic transformation.

2.4. Governance, Infrastructure Development, and Tourism Sustainability

The success of tourism development depends not only on the availability of tourism resources but also on the effectiveness of governance systems and the quality of supporting infrastructure.

Tourism destinations with strong institutional support, well-developed infrastructure, and effective policy frameworks are generally more successful in attracting visitors, encouraging investment, and generating sustainable socio-economic benefits. Consequently, governance and infrastructure are widely recognized as critical determinants of tourism competitiveness and long-term sustainability.

Governance refers to the processes through which public institutions, private stakeholders, and local communities collaborate to plan, regulate, and manage tourism development. Effective governance promotes transparency, stakeholder participation, environmental protection, and equitable distribution of tourism benefits. According to [Sharpley \(2020\)](#), tourism planning and policy implementation play a crucial role in ensuring that tourism development contributes to broader economic and social objectives. Similarly, [Hall and Page \(2021\)](#) argue that governance mechanisms influence destination management, resource allocation, and the overall effectiveness of tourism strategies.

Infrastructure development is another essential component of sustainable tourism growth. Transportation networks, accommodation facilities, communication systems, healthcare services, and public utilities significantly influence destination accessibility and visitor satisfaction.

Investments in infrastructure not only improve tourism experiences but also enhance the quality of life of local residents by increasing access to services and economic opportunities. In developing regions, tourism often serves as a catalyst for infrastructure expansion, thereby supporting wider regional development processes ([Nepal, 2021](#)).

In the context of Assam, governance and infrastructure remain fundamental challenges as well as opportunities for tourism development. Although the state possesses abundant natural and cultural resources, limitations in transportation connectivity, tourism facilities, and destination management have constrained the full realization of its tourism potential. Therefore, strengthening governance frameworks, improving infrastructure, and promoting

sustainable tourism policies are essential for maximizing the socio-economic benefits of adventure tourism. These factors constitute key enabling mechanisms within the proposed AT-RST Framework and help explain how tourism resources can be transformed into sustainable development outcomes.

2.5. Synthesis of Literature and Development of the AT-RST Framework

The preceding literature review demonstrates that adventure tourism is increasingly recognized as a multidimensional development mechanism capable of generating economic, social, and environmental benefits. Existing studies collectively indicate that tourism contributes to employment generation, entrepreneurship promotion, infrastructure expansion, and community empowerment, particularly in regions characterized by rich natural resources and limited industrial development (Buckley, 2020; Nepal, 2021; Sharpley, 2020). However, the literature also reveals that these outcomes do not occur automatically and depend upon the interaction of multiple enabling factors.

Adventure tourism literature emphasizes the importance of natural and cultural resources as primary attractions that motivate tourist visitation. At the same time, tourism-led development theory highlights the role of tourism in stimulating broader regional economic activities through multiplier effects, investment generation, and livelihood diversification. Community-based tourism studies further demonstrate that local participation is essential for ensuring equitable distribution of tourism benefits and strengthening destination sustainability. Similarly, governance and infrastructure literature suggests that institutional effectiveness, policy support, and destination accessibility significantly influence tourism performance and development outcomes.

Despite these insights, previous studies have generally examined these factors independently. Limited attention has been given to understanding how tourism resources, governance systems, infrastructure development, and community participation collectively influence regional socio-economic transformation. This limitation is particularly evident in emerging tourism destinations such as Assam, where tourism development remains uneven across regions.

To address this gap, the present study develops the Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework. The framework integrates key concepts derived from the literature and proposes that tourism resources, when supported by effective governance, infrastructure, and community participation, generate intermediate socio-economic outcomes that ultimately contribute to regional transformation. The framework therefore provides a comprehensive conceptual foundation for examining tourism-led development in Assam and serves as the central analytical model guiding the present research. Although previous studies have established important relationships between tourism, employment generation, entrepreneurship development, community participation, governance, and regional development, these dimensions have generally been investigated as separate research themes rather than as interconnected components of a unified development process. Consequently, the existing literature provides only a partial explanation of how these factors collectively influence regional socio-economic transformation. The proposed Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework addresses this conceptual limitation by integrating these complementary theoretical perspectives into a single analytical framework. In doing so, the framework extends existing tourism development literature by providing a more comprehensive explanation of the mechanisms through which adventure tourism contributes to sustainable regional development in emerging destinations such as Assam.

3. Research Methods

This study adopts a qualitative research design to examine the role of adventure tourism in facilitating regional socio-economic transformation in Assam. A qualitative approach is particularly appropriate for exploratory research seeking to develop conceptual understanding of complex social phenomena, as it enables the exploration of how tourism resources, governance mechanisms, infrastructure development, and community participation interact within the context of an emerging tourism destination (Denzin & Lincoln, 2018; Creswell & Poth, 2018; Jennings, 2019). Rather than testing predetermined hypotheses, this research aims to synthesise existing knowledge and develop a theoretical framework explaining tourism-led development (Richards & Munsters, 2020; Phillimore & Goodson, 2019).

The study is primarily based on secondary data collected from approximately 65–80 documents, including academic literature, government publications (Ministry of Tourism, Government of India; Assam Tourism Development Corporation), international organisation reports (UNWTO, 2023; WTTC, 2022), policy documents, statistical records, and destination-specific publications relating to Kaziranga National Park and Manas National Park. Secondary data are particularly suitable for conceptual and exploratory studies that seek to synthesise existing knowledge and develop theoretical frameworks (Bryman, 2018; Saunders et al., 2019; Ritchie et al., 2020). Document selection followed four criteria: relevance to adventure tourism and regional development; publication by recognised agencies or peer-reviewed journals; availability of reliable information relating to Assam; and contribution to theoretical or practical understanding of tourism-led development (Scott, 2020; Prior, 2019). To enhance trustworthiness and rigour, data triangulation was employed, whereby information from multiple sources was cross-verified to reduce potential bias and strengthen interpretive consistency (Flick, 2018; Lincoln & Guba, 2019).

A case study approach was incorporated to strengthen contextual relevance, with Kaziranga National Park and Manas National Park selected as illustrative examples due to their international recognition as UNESCO World Heritage Sites, significant tourism potential, and contributions to local economic activities (Yin, 2018; Stake, 2020; Deka & Goswami, 2022; Singh & Barman, 2021). Thematic analysis was employed as the primary analytical technique to identify recurring patterns within the collected data (Braun & Clarke, 2022; Nowell et al., 2017). Following data familiarisation, initial coding was conducted, and related concepts were grouped to develop five major themes: employment generation, entrepreneurship development, infrastructure improvement, governance support, and community participation. These themes were then interpreted in relation to the research objectives and theoretical perspectives, culminating in the development of the Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework. This systematic process of screening, categorisation, and thematic coding ensured methodological transparency and provided both theoretical insights and empirical support for understanding tourism-led development in Assam (Hall & Page, 2021; Nepal, 2021; Sharpley, 2020; Weaver, 2021).

The study relies exclusively on publicly available secondary data; therefore, formal institutional ethical approval was not required. Nevertheless, the study adhered to accepted principles of research integrity by accurately citing all information sources, avoiding plagiarism, maintaining transparency in data interpretation, and ensuring objective reporting without misrepresentation. The findings should be interpreted within the context of the selected documentary sources and destinations, as the study does not include primary data collected from tourists, local communities, or tourism stakeholders. Future research employing primary surveys, interviews, or mixed-method approaches may further

validate and extend the proposed AT-RST Framework across different tourism destinations.

4. Result and Discussion

Findings

The findings are presented according to the four research objectives of the study. First, the analysis examines the relationship between adventure tourism and regional socio-economic transformation in Assam. Second, it evaluates the contribution of adventure tourism to employment generation, entrepreneurship development, infrastructure improvement, and livelihood diversification. Third, it analyses the role of governance mechanisms and community participation in enhancing tourism outcomes. Finally, the findings are synthesized to demonstrate how these interconnected factors support the development and theoretical relevance of the Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework.

4.1. Adventure Tourism Resources and Development Potential in Assam

Assam possesses significant potential for adventure tourism development owing to its exceptional natural resources, biodiversity, cultural heritage, and geographical diversity. Located in Northeast India, the state is characterized by extensive river systems, dense forests, wildlife habitats, wetlands, hills, and culturally diverse communities that collectively provide a strong foundation for tourism development. These resources position Assam as one of the emerging adventure tourism destinations in India.

Among the state's most valuable tourism assets are Kaziranga National Park and Manas National Park, both recognized as UNESCO World Heritage Sites. These destinations attract domestic and international tourists seeking wildlife experiences, nature-based recreation, and adventure activities. In addition to wildlife tourism, Assam offers opportunities for river-based adventure tourism through the Brahmaputra River, including river cruising, rafting, kayaking, angling, and water-based recreational activities. The state's diverse topography also supports trekking, birdwatching, camping, cycling, and ecotourism activities.

The tourism potential of Assam extends beyond natural attractions. The state's rich cultural heritage, indigenous traditions, festivals, handicrafts, and local cuisines contribute significantly to destination attractiveness. The integration of natural and cultural resources enhances the overall visitor experience and creates opportunities for community participation in tourism-related enterprises.

Despite these advantages, the tourism potential of Assam remains underutilized. Challenges relating to infrastructure development, transportation connectivity, destination promotion, investment attraction, and tourism management continue to constrain the growth of the sector. Nevertheless, recent government initiatives, tourism policies, and infrastructure investments indicate growing recognition of tourism as a driver of regional development.

From the perspective of the proposed AT-RST Framework, tourism resources represent the foundational component of tourism-led socio-economic transformation. The availability of high-quality natural and cultural attractions creates opportunities for tourism development, employment generation, entrepreneurship, and community participation. Consequently, the effective utilization of these resources can contribute significantly to sustainable regional development and socio-economic transformation across different regions of Assam. The findings indicate that Assam possesses significant adventure tourism resources capable of supporting long-term regional socio-economic transformation. However, the analysis also suggests that natural resources alone are

insufficient to generate sustainable development outcomes. Their effective utilization depends on supporting infrastructure, governance mechanisms, and active community participation. This finding directly addresses the first research objective and provides empirical support for the foundational component of the proposed Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework. The present finding is consistent with previous studies that identify natural and cultural resources as the foundation of adventure tourism development (Buckley, 2020; Weaver, 2021). However, unlike earlier studies that primarily emphasize destination attractiveness and tourism growth, the present study extends the discussion by demonstrating that tourism resources alone cannot ensure regional socio-economic transformation. The Assam case highlights that the developmental benefits of adventure tourism are realized only when tourism resources are supported by effective governance, infrastructure development, and active community participation. This integrated perspective represents an important extension of existing tourism development literature and strengthens the theoretical relevance of the proposed AT-RST Framework.

4.2. Adventure Tourism and Employment Generation in Assam

One of the most significant contributions of adventure tourism to regional socio-economic development is its ability to generate employment opportunities. In Assam, the expansion of tourism activities has created both direct and indirect employment across various sectors, thereby contributing to local livelihoods and economic diversification. The findings of this study indicate that adventure tourism serves as an important source of income generation, particularly in rural and environmentally sensitive regions where alternative employment opportunities are often limited.

Direct employment is generated through tourism-related services such as tour guiding, hospitality operations, accommodation management, transportation services, wildlife interpretation, river tourism activities, and adventure-based recreational services. Destinations such as Kaziranga National Park and Manas National Park support a substantial number of jobs associated with hotels, resorts, homestays, safari operations, restaurants, and tourism management activities. These employment opportunities provide income sources for local residents and contribute to the overall economic vitality of tourism destinations.

Adventure tourism also creates indirect employment through its linkages with other sectors of the local economy. Increased tourist demand stimulates economic activities in handicrafts, agriculture, food production, transportation, retail trade, and construction services. Local entrepreneurs and small businesses often benefit from the growing tourism market, leading to additional employment generation within host communities. Such multiplier effects enhance the broader developmental impact of tourism beyond the tourism sector itself.

The contribution of tourism to employment is particularly important in Assam because many tourism destinations are located in rural areas where economic opportunities remain relatively limited. Tourism provides alternative livelihood options that can reduce dependence on traditional occupations while encouraging skill development and entrepreneurial activities. Moreover, tourism-related employment often promotes the participation of women and youth, thereby contributing to more inclusive development outcomes.

From the perspective of the AT-RST Framework, employment generation represents one of the primary pathways through which adventure tourism contributes to socio-economic transformation. By creating jobs, increasing household incomes, and strengthening local economic activities, tourism plays a critical role in improving living

standards and supporting sustainable regional development in regions of Assam. The above findings directly address the first research objective by demonstrating that Assam possesses substantial natural, cultural, and ecological resources capable of supporting sustainable adventure tourism development. However, the analysis also indicates that the developmental potential of these resources depends upon complementary investments in infrastructure, effective governance, and active community participation. Thus, tourism resources alone are insufficient to achieve regional socio-economic transformation unless they are supported by appropriate institutional and policy interventions. The findings demonstrate that employment generation represents one of the most significant socio-economic outcomes of adventure tourism development in Assam. The analysis indicates that tourism creates both direct and indirect employment opportunities across accommodation, transportation, guiding services, handicrafts, and hospitality sectors. These findings directly address the second research objective and support the employment dimension of the proposed AT-RST Framework. Furthermore, unlike many previous studies that primarily focused on the economic contribution of tourism, the present study highlights employment generation as an interconnected outcome influenced by tourism resources, infrastructure development, governance support, and community participation, thereby strengthening the theoretical explanation of tourism-led regional transformation. The findings demonstrate that employment generation represents one of the most immediate socio-economic outcomes of adventure tourism development in Assam. While previous studies have acknowledged tourism's role in creating jobs, the present study further shows that employment contributes not only to income generation but also to livelihood diversification, social inclusion, and local economic resilience in rural destinations. These findings support the second research objective and reinforce the AT-RST Framework by illustrating that employment serves as a critical pathway through which adventure tourism facilitates broader regional socio-economic transformation rather than functioning merely as an economic activity.

4.3. Adventure Tourism and Entrepreneurship Development in Assam

Beyond employment generation, adventure tourism plays a crucial role in promoting entrepreneurship and local business development. The findings of this study suggest that tourism creates opportunities for individuals and communities to establish and expand tourism-related enterprises, thereby contributing to regional economic diversification and sustainable livelihood development. In Assam, the growth of adventure tourism has encouraged the emergence of various small and medium-sized enterprises that directly and indirectly support the tourism sector.

One of the most visible outcomes of tourism expansion is the development of homestays and community-based accommodation facilities. In several tourism destinations, local residents have transformed their homes into tourism enterprises, providing accommodation, traditional food, and cultural experiences to visitors. These initiatives not only generate additional household income but also strengthen local participation in tourism development. Homestays have become particularly important in areas surrounding Kaziranga National Park, Manas National Park, and other emerging ecotourism destinations.

Adventure tourism has also stimulated entrepreneurial activities in transportation services, tour operations, guiding services, handicraft production, food processing, and cultural tourism enterprises. Local entrepreneurs increasingly provide tourism-related products and services that enhance visitor experiences while generating economic benefits for host communities. The expansion of these businesses contributes to the circulation of tourism income within local economies and reduces economic leakages.

Furthermore, tourism entrepreneurship encourages innovation and skill development. Individuals involved in tourism enterprises often acquire new competencies in business management, marketing, hospitality, communication, and customer service. These skills enhance the long-term economic capacity of communities and support broader development objectives. Tourism-related entrepreneurship also creates opportunities for women and youth, promoting inclusive economic participation and strengthening community resilience.

The experiences of Kaziranga and Manas demonstrate that tourism can function as a catalyst for local enterprise development when adequate institutional support and market opportunities are available. However, challenges relating to access to finance, training, marketing, and infrastructure continue to affect the growth potential of many tourism businesses.

Within the AT-RST Framework, entrepreneurship development represents a critical mechanism linking tourism growth with socio-economic transformation. By encouraging local enterprise creation, increasing income opportunities, and strengthening economic self-reliance, adventure tourism contributes significantly to sustainable regional development in Assam. These findings directly support the second research objective by demonstrating that employment generation represents one of the principal mechanisms through which adventure tourism contributes to regional socio-economic transformation. Beyond creating jobs, tourism enhances household incomes, promotes livelihood diversification, and strengthens local economic resilience. This suggests that employment should be viewed not merely as an economic outcome but as a catalyst for broader regional development within the proposed AT-RST Framework. The findings indicate that adventure tourism has contributed significantly to entrepreneurship development by creating opportunities for local enterprises, including homestays, transport services, food businesses, handicrafts, tour operations, and guiding services. These entrepreneurial activities not only generate income but also diversify the regional economy and strengthen local economic resilience. This finding directly addresses the second research objective and reinforces the entrepreneurship component of the AT-RST Framework. In contrast to previous studies that have largely examined entrepreneurship as an isolated economic outcome, the present study demonstrates that entrepreneurial growth is closely linked with tourism resources, institutional support, infrastructure development, and community participation, thereby contributing to broader regional socio-economic transformation.

4.4. Adventure Tourism and Entrepreneurship Development in Assam

Infrastructure development represents one of the most significant outcomes of tourism expansion and an essential prerequisite for sustainable destination growth. The findings of this study indicate that adventure tourism has contributed to improvements in transportation networks, accommodation facilities, communication systems, and public services across several tourism destinations in Assam. These developments not only enhance visitor experiences but also generate long-term benefits for local communities and regional economies.

The growth of tourism has encouraged investments in road connectivity, transportation services, and tourism facilities, particularly in areas surrounding major destinations such as Kaziranga National Park and Manas National Park. Improved road infrastructure has increased accessibility to remote regions, facilitating the movement of tourists while simultaneously improving local access to markets, healthcare services, educational institutions, and employment opportunities. Such infrastructure improvements contribute to broader regional development beyond the tourism sector.

Accommodation infrastructure has also expanded significantly in response to increasing tourist demand. Hotels, resorts, eco-lodges, homestays, and other hospitality establishments have emerged across several tourism destinations, creating additional economic opportunities for local residents. These facilities not only support tourism growth but also contribute to local investment and business development.

Communication infrastructure and digital connectivity have become increasingly important components of tourism development. The availability of internet services, online booking platforms, digital marketing tools, and information systems has improved destination visibility and enhanced tourist convenience. Technological advancements have further enabled local tourism enterprises to access wider markets and strengthen their competitiveness.

However, despite recent progress, infrastructure limitations remain a significant challenge for tourism development in Assam. Inadequate transportation facilities, limited tourism amenities, insufficient investment, and uneven regional development continue to restrict the full utilization of the state's tourism potential. Addressing these challenges requires coordinated efforts among government agencies, private investors, and local stakeholders.

Within the AT-RST Framework, infrastructure development functions as a critical enabling factor that facilitates tourism growth and enhances socio-economic outcomes. Improved infrastructure strengthens destination competitiveness, supports entrepreneurship, increases employment opportunities, and promotes regional integration. Consequently, infrastructure development serves as an important pathway through which adventure tourism contributes to long-term socio-economic transformation in Assam. The findings indicate that entrepreneurship development extends the economic benefits of tourism beyond direct visitor expenditure by encouraging local innovation, business creation, and value-chain development. This supports the study's argument that sustainable tourism development depends upon strengthening local entrepreneurial capacity alongside destination development. Accordingly, entrepreneurship functions as a critical component of the AT-RST Framework linking tourism growth with long-term socio-economic transformation. The findings suggest that infrastructure development functions as a critical enabling factor in maximizing the socio-economic benefits of adventure tourism in Assam. Improvements in transportation networks, accommodation facilities, communication systems, and visitor amenities have enhanced destination accessibility and strengthened regional tourism competitiveness. This finding directly addresses the third research objective and supports the infrastructure component of the proposed AT-RST Framework. Unlike earlier studies that primarily viewed infrastructure as a supporting element for tourism growth, the present study demonstrates that infrastructure also plays a strategic role in facilitating regional socio-economic transformation by improving connectivity, attracting investment, and creating long-term development opportunities.

4.5. Community Participation, Governance, and Socio-Economic Transformation

Community participation and effective governance are fundamental determinants of sustainable tourism development and play a crucial role in ensuring that tourism benefits are equitably distributed among local stakeholders. The findings of this study indicate that the socio-economic impacts of adventure tourism in Assam are significantly influenced by the level of community involvement and the effectiveness of governance mechanisms supporting tourism development. These factors collectively shape the capacity of tourism to contribute to long-term regional transformation.

Community participation enables local residents to become active stakeholders in tourism development rather than passive beneficiaries. In several tourism destinations

across Assam, local communities are increasingly involved in homestay operations, guiding services, handicraft production, cultural performances, transportation services, and conservation activities. Such participation generates income opportunities, strengthens local ownership, and enhances community support for tourism initiatives. The involvement of local communities also contributes to the preservation of cultural traditions and indigenous knowledge, thereby enriching visitor experiences while promoting cultural sustainability.

Governance plays an equally important role in facilitating tourism-led development. Effective governance involves the coordination of government agencies, tourism organizations, private investors, and community stakeholders to ensure that tourism growth aligns with broader development objectives. Tourism policies, infrastructure investments, environmental regulations, and capacity-building programs contribute to creating a supportive environment for sustainable tourism development. The Government of Assam and tourism-related institutions have undertaken several initiatives aimed at improving tourism infrastructure, destination management, and promotional activities.

The experiences of Kaziranga National Park and Manas National Park demonstrate that successful tourism development depends on the integration of community participation and institutional support. Destinations characterized by strong stakeholder collaboration are more likely to achieve sustainable economic benefits, environmental conservation, and social inclusion. Conversely, limited participation and weak governance structures may reduce the effectiveness of tourism development efforts and constrain socio-economic outcomes.

Within the AT-RST Framework, community participation and governance function as critical enabling mechanisms that connect tourism development with broader socio-economic transformation. Their combined influence strengthens employment generation, entrepreneurship development, infrastructure expansion, and livelihood diversification. Consequently, these factors contribute significantly to economic growth, poverty reduction, community empowerment, and sustainable regional development in Assam. The analysis demonstrates that infrastructure development performs a dual function by improving destination accessibility for tourists while simultaneously enhancing the quality of life of local communities. Therefore, infrastructure investment should be regarded not only as a tourism requirement but also as a broader regional development strategy that strengthens the sustainability and competitiveness of emerging adventure tourism destinations. The findings demonstrate that community participation and effective governance are fundamental to ensuring that the socio-economic benefits of adventure tourism are distributed in a sustainable and inclusive manner. Active involvement of local communities in tourism planning, decision-making, and tourism-related enterprises strengthens livelihood opportunities while supporting environmental conservation and cultural preservation. This finding directly addresses the third research objective and provides strong support for the governance and community participation components of the proposed AT-RST Framework. Unlike previous studies that often examined governance and community participation separately, the present study demonstrates that their combined interaction with tourism resources and infrastructure plays a decisive role in facilitating long-term regional socio-economic transformation in Assam.

Discussion: Validation of the AT-RST Framework and Implications for Regional Development

The findings of this study provide substantial support for the proposed Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework and demonstrate that adventure tourism functions as a multidimensional catalyst for regional socio-economic

development in Assam. The analysis reveals that tourism contributes to regional transformation through interconnected mechanisms involving tourism resources, employment generation, entrepreneurship development, infrastructure improvement, governance support, and community participation. These findings indicate that sustainable tourism development extends beyond recreational and economic activities by creating broader social, institutional, and developmental benefits.

The first component of the AT-RST Framework highlights tourism resources as the foundation of regional tourism development. Evidence from Assam demonstrates that the state's rich biodiversity, river systems, wildlife resources, cultural heritage, and geographical diversity provide significant opportunities for adventure tourism. The experiences of Kaziranga National Park and Manas National Park illustrate how natural and cultural resources can stimulate tourism growth and regional economic development. However, the findings also demonstrate that the availability of tourism resources alone does not guarantee sustainable socio-economic transformation.

The second component of the framework emphasizes the importance of enabling factors, particularly infrastructure development, governance mechanisms, and community participation. The findings reveal that tourism resources generate meaningful socio-economic outcomes only when supported by adequate infrastructure, effective public policies, institutional coordination, and active stakeholder engagement. This observation is consistent with previous tourism and regional development studies that recognize the importance of institutional support; however, the present study extends this understanding by demonstrating how these factors interact simultaneously within a single integrated development process rather than operating independently.

The framework further proposes that tourism development produces intermediate outcomes, including employment generation, entrepreneurship development, livelihood diversification, infrastructure expansion, and investment attraction. The findings provide substantial evidence supporting these relationships and demonstrate that tourism-related activities create new economic opportunities while strengthening local enterprises and improving community livelihoods. Unlike many previous studies that have examined these socio-economic dimensions separately, the present research demonstrates that employment, entrepreneurship, governance, infrastructure, and community participation are mutually reinforcing components of regional transformation. This integrated perspective represents the principal theoretical contribution of the study and distinguishes the proposed AT-RST Framework from existing tourism development models.

Ultimately, the cumulative interaction of these components contributes to broader regional socio-economic transformation characterized by economic growth, infrastructure improvement, community empowerment, poverty reduction, and sustainable regional development. The findings therefore support all four research objectives by demonstrating the relationship between adventure tourism and socio-economic transformation, explaining the contribution of tourism to employment and entrepreneurship, highlighting the importance of governance and community participation, and validating the proposed AT-RST Framework as an integrated conceptual model for tourism-led regional development.

From a policy perspective, the findings suggest that governments and tourism planners should adopt an integrated approach to adventure tourism development by combining resource conservation, infrastructure investment, institutional collaboration, and community participation within long-term regional development strategies. Strengthening public-private partnerships, improving destination accessibility, investing in skill development, supporting local tourism enterprises, and encouraging community participation in tourism planning will maximize the socio-economic benefits of tourism while ensuring environmental sustainability.

▪ The present study also makes an important theoretical contribution by extending existing tourism development literature. While previous studies have generally focused on individual dimensions of tourism-led development, the proposed Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework integrates tourism resources, governance support, infrastructure development, community participation, employment generation, and entrepreneurship into a single explanatory model. Consequently, the framework advances theoretical understanding by explaining how these interconnected factors collectively facilitate sustainable regional socio-economic transformation in emerging adventure tourism destinations such as Assam. The framework therefore provides a valuable foundation for future empirical testing and comparative research in other regions of India and similar developing destinations.

4.6. Case Study: Kaziranga National Park as a Model of Tourism-Led Regional Socio-Economic Transformation

Kaziranga National Park represents one of the most successful examples of tourism-led development in Assam and provides strong empirical support for the proposed Adventure Tourism–Regional

Socio-Economic Transformation (AT-RST) Framework. Recognized globally for its population of the one-horned rhinoceros and designated as a UNESCO World Heritage Site, Kaziranga attracts a substantial number of domestic and international tourists annually. The destination has emerged as a major tourism hub and has generated significant socio-economic benefits for surrounding communities.

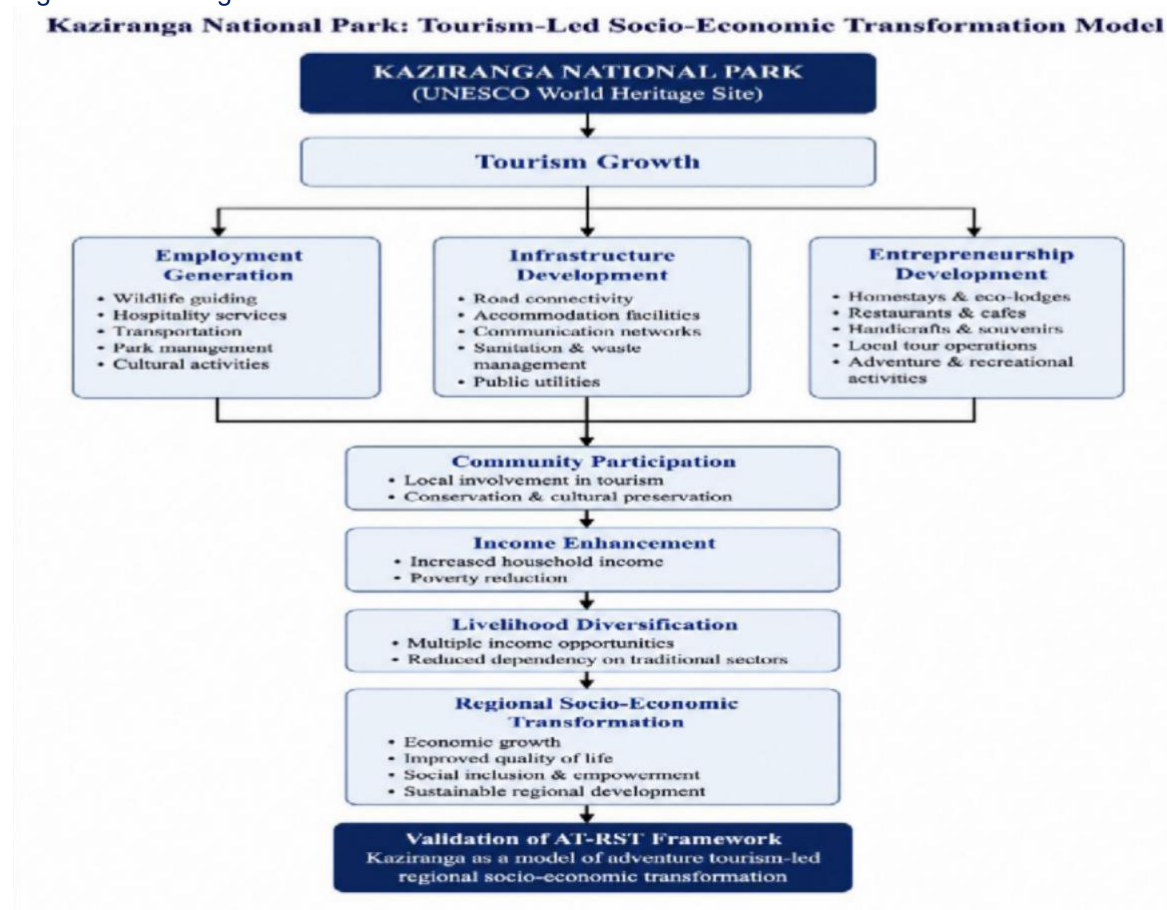
The growth of tourism in Kaziranga has stimulated investment in accommodation facilities, transportation services, restaurants, handicraft markets, and recreational activities. Numerous hotels, resorts, eco-lodges, and homestays have been established in response to increasing tourist demand. These developments have created direct employment opportunities for local residents in hospitality, guiding services, wildlife tourism, transportation, and destination management.

In addition to direct employment, tourism has encouraged entrepreneurship development through local businesses involved in handicrafts, food production, cultural performances, and tourism support services. The resulting multiplier effects have contributed to income generation and livelihood diversification among nearby communities. Tourism activities have also encouraged improvements in road connectivity, communication facilities, and public infrastructure, benefiting both tourists and local residents.

Community participation has played an important role in sustaining tourism development around Kaziranga. Local residents increasingly engage in tourism-related enterprises and conservation initiatives, creating a stronger linkage between tourism growth and community welfare. The combination of tourism resources, infrastructure investment, entrepreneurship, and community involvement illustrates the interconnected mechanisms proposed within the AT-RST Framework.

The Kaziranga experience demonstrates that adventure and nature-based tourism can function as a catalyst for regional development when supported by effective governance and stakeholder collaboration. Consequently, Kaziranga serves as a practical example of how tourism can contribute to employment generation, infrastructure expansion, economic diversification, and broader socio-economic transformation in Assam.

Figure 2. Kaziranga National Park: Tourism-Led Socio-Economic Transformational Model



Overall, the findings collectively demonstrate that the objectives of this study have been achieved by establishing a clear relationship between adventure tourism and regional socio-economic transformation in Assam. While previous studies have generally examined employment generation, entrepreneurship, infrastructure development, governance, and community participation as separate dimensions of tourism development, the present study demonstrates that these factors operate as interconnected components of a broader regional development process. The findings further reveal that tourism resources alone are insufficient to generate sustainable socio-economic outcomes unless supported by effective governance, adequate infrastructure, and active community participation. Consequently, the proposed Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework extends existing tourism development literature by providing an integrated conceptual explanation of how these interdependent factors collectively facilitate sustainable and inclusive regional transformation in emerging adventure tourism destinations such as Assam.

5. Conclusion

This study examined the role of adventure tourism in promoting regional socio-economic transformation in Assam and developed the Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework to explain the mechanisms through which tourism contributes to regional development. Drawing upon secondary data, tourism literature, policy documents, and case studies of Kaziranga National Park and Manas National Park, the study explored the relationships between tourism resources, governance mechanisms, infrastructure development, community participation, and socio-economic outcomes.

The findings indicate that adventure tourism possesses significant potential to contribute to regional development in Assam. The state's rich biodiversity, unique landscapes, wildlife resources, river systems, and cultural heritage provide a strong foundation for tourism growth. These resources create opportunities for employment generation, entrepreneurship development, infrastructure expansion, and livelihood diversification. The study further demonstrates that tourism development A major contribution of this research is the development of the AT-RST Framework. The framework proposes that tourism resources alone do not automatically lead to socio-economic transformation. Instead, the effectiveness of tourism development depends on the interaction between enabling factors such as governance support, infrastructure development, and community participation.

From a theoretical perspective, the proposed AT-RST Framework represents the principal academic contribution of this study. Unlike earlier studies that generally examined tourism resources, governance, infrastructure, entrepreneurship, employment generation, and community participation as separate dimensions of tourism development, the present study integrates these interrelated components into a single conceptual framework. The findings demonstrate that sustainable regional socio-economic transformation is achieved not through tourism resources alone but through their interaction with enabling institutional, infrastructural, and community-based factors. Consequently, the AT-RST Framework extends the theoretical understanding of adventure tourism by providing a comprehensive explanation of how tourism functions as a multidimensional driver of inclusive regional development in emerging destinations such as Assam.

These factors influence the extent to which tourism generates employment, investment, entrepreneurship, and broader development outcomes. Consequently, the framework provides a comprehensive explanation of tourism-led regional transformation and contributes to the growing literature on adventure tourism and regional development.

The study also offers several practical implications for policymakers and tourism planners. First, greater investment in tourism infrastructure, transportation networks, digital connectivity, and destination facilities is essential for improving accessibility and competitiveness. Second, community participation should be strengthened through training programs, capacity-building initiatives, and support for local tourism enterprises. Third, sustainable tourism policies should emphasize environmental conservation while ensuring that tourism benefits are equitably distributed among local communities. Fourth, stronger collaboration among government agencies, private stakeholders, and local communities is necessary to promote integrated tourism development.

In addition, policymakers should adopt an integrated and long-term strategy for adventure tourism development by strengthening public–private partnerships, promoting destination-based entrepreneurship, improving skill development and capacity-building programme for local communities, and encouraging greater participation of residents in tourism planning and decision-making. Investment should also focus on environmentally responsible tourism infrastructure, digital connectivity, visitor safety, destination management systems, and conservation initiatives to ensure that economic growth is achieved without compromising ecological sustainability. Collaboration among government agencies, tourism businesses, local communities, and conservation organizations will be essential for maximizing the long-term socio-economic benefits of adventure tourism in Assam.

Despite its contributions, the study is limited by its reliance on secondary data and conceptual analysis. Future research may employ primary data collection methods, including surveys and interviews, to empirically test the relationships proposed within the AT-RST Framework.

Comparative studies across different regions of Northeast India may also provide additional insights into tourism-led development processes. Future research should focus on empirically validating the proposed AT-RST Framework through primary data collected from adventure tourism destinations in Assam and other regions of Northeast India. Quantitative and mixed-method research designs may be employed to examine the strength and direction of the relationships among tourism resources, governance, infrastructure development, community participation, employment generation, entrepreneurship, and regional socio-economic transformation. Comparative studies across different Indian states and other developing countries would further improve the generalisability of the framework and contribute to a broader understanding of tourism-led regional development.

In conclusion, the findings of this study confirm that adventure tourism possesses substantial potential to function as a catalyst for sustainable and inclusive regional socio-economic transformation in Assam. The study demonstrates that tourism contributes not only to employment generation, entrepreneurship development, infrastructure improvement, and livelihood diversification but also to community empowerment and regional competitiveness when supported by effective governance and active stakeholder participation. By proposing the Adventure Tourism–Regional Socio-Economic Transformation (AT-RST) Framework, this research provides a comprehensive conceptual model that explains the interconnected mechanisms through which tourism contributes to regional development. The framework therefore offers both theoretical value for tourism scholars and practical guidance for policymakers seeking to promote sustainable tourism development in emerging destinations. It is expected that the findings and the proposed framework will serve as a useful reference for future academic research, tourism planning, and evidence-based policy formulation aimed at maximizing the developmental benefits of adventure tourism in Assam and comparable regions.

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