Responsible Tourism initiatives towards sustainable tourism development: A case study of Sikkim

A Thesis Executive Summary Submitted

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Executive Summary

1. Introduction

Tourism is a dynamic, human-centric global industry that significantly contributes to socio-economic development of communities worldwide. Rising middle-class incomes, improved air connectivity, and technological advancements have driven increased domestic and international travel, especially from emerging economies. Post-COVID-19, the sector shows strong recovery, with global tourism GDP projected to grow at 5.8% annually, outpacing general economic growth, and creating millions of jobs (WTTC, 2022). However, it faces challenges such as economic instability, labour shortages, environmental risks, and demands for sustainable practices (WEF, 2024). In India, international tourist arrivals surged by over 321% in 2022 compared to 2021, while domestic travel rose by 155%, and foreign exchange earnings doubled (MOT, 2023). Destinations in the Indian Himalayas like Sikkim, Himachal Pradesh, and Uttarakhand are witnessing increased demand for nature-based, rural, and pilgrimage tourism, with a growing preference for sustainable and immersive homestay experiences.

1.2. Background of the Research Problem

Tourists are drawn to destinations for their natural and cultural heritage, but unregulated tourism, profit-driven interests, and weak governance often degrade these qualities, resulting in standardized and unsatisfying visitor experiences. Mass tourism has led to significant environmental, socio-cultural, and economic challenges globally and in the Indian Himalayan Region (IHR), including biodiversity loss, infrastructure strain, cultural erosion, and community displacement. In the IHR, while tourism supports economic development, its unplanned growth has caused ecological degradation, rising living costs, and social instability. These impacts highlight the urgent need for responsible, community-based, and sustainable tourism management approaches.

Unregulated tourism development in Sikkim has led to severe environmental and social challenges, including traffic congestion, pollution, water shortages, and waste accumulation, particularly in ecologically sensitive areas like Tsomgo and Gurudongmar Lakes. Inadequate infrastructure, poor waste management, and lack of awareness among stakeholders have further exacerbated ecological degradation, threatening biodiversity and the sanctity of protected zones such as Kangchendzonga National Park. Despite claims of sustainable tourism through

homestays and eco-tourism, issues like “greenwashing,” lack of regulation, and irresponsible behaviours have led to negative environmental impacts and reduced community benefits. Urban mass tourism in Gangtok has caused rising living costs and infrastructural strain, while unethical practices by unregistered travel agencies have harmed Sikkim's destination image. Furthermore, high economic leakage due to external ownership and employment, inadequate local skills, and limited youth participation have undermined local empowerment. Government incentives for community-based tourism remain insufficient due to lack of training, poor marketing, and operational challenges. These issues call for an immediate, integrated, and participatory strategy for sustainable tourism planning that ensures community control, environmental conservation, and equitable benefits.

Despite government efforts to promote community-based tourism through homestays and rural entrepreneurship, persistent challenges such as inadequate training, poor marketing, limited financial support, and loss of community control persist. Simultaneously, there is a notable shift in tourist behaviour globally toward responsible and sustainable travel choices, with increased demand for eco-friendly, locally sourced, and culturally immersive experiences. This evolving trend emphasizes the need for a holistic, community-oriented approach to tourism planning. Responsible Tourism (RT), as reflected in successful global models and Sikkim's 2018 tourism policy, offers a strategic pathway for inclusive development, environmental conservation, and cultural preservation. RT initiatives in Sikkim such as eco-certification, organic farming, energy conservation, and local employment have shown potential in aligning tourism with sustainable development goals, enhancing both visitor satisfaction and community well-being.

Responsible Tourism (RT) initiatives, developed in response to the adverse impacts of mass tourism, promote sustainability by encouraging collective action among stakeholders to prioritize local needs, protect the environment, and support community welfare. Rooted in the 2002 Cape Town Declaration and aligned with the UN Sustainable Development Goals (SDGs), RT emphasizes participatory planning, community-based tourism, local economic linkages, and eco-friendly practices. Guided by the Triple Bottom Line (TBL) framework of economic, social, and environmental dimensions. RT improves local livelihoods, ensures cultural and ecological preservation, and enhances visitor experiences. Despite challenges such as limited awareness, resources, and institutional support, RT has shown significant success in destinations like Kerala, South Africa, and Costa Rica, highlighting its potential as a powerful tool for sustainable tourism development.

1.3. Research Problem

This section outlines the research problem focusing on the implementation gaps and inconsistencies in responsible tourism initiatives in Sikkim. Despite various government-led efforts in ecotourism, rural tourism, and community-based models, challenges such as limited community participation, institutional fragmentation, economic leakages, and environmental degradation persist. The lack of empirical research applying strategic sustainability frameworks like the Triple Bottom Line (TBL) and Triple-A (Awareness–Agenda–Action) models further complicates assessments. There is also an absence of structured monitoring systems and insufficient integration of indigenous knowledge and cultural heritage. The study aims to evaluate existing responsible tourism practices and address these challenges to promote balanced and inclusive sustainable tourism development in the region.

1.4.Research Questions

Section 1.4 outlines four interconnected research questions focused on evaluating responsible tourism (RT) initiatives and their role in promoting sustainable tourism development (STD). **RQ1** examines the existing RT initiatives and practices in the study area. **RQ2** Explores the key factors like economic, social, and environmental dimensions that influence the success of these initiatives. **RQ3** Analyses the relationship between RT initiatives and sustainable tourism development. **RQ4** assesses the tangible impacts of RT initiatives implemented on achieving sustainable tourism development in the study area. Together, these questions aim to understand how RT contributes to sustainable tourism outcomes and addresses the challenges of destination sustainability.

1.5. Research Objectives

1. To study the prevailing responsible tourism practices and initiatives in the study area.

2. To explore the factors responsible for sustainable tourism development with regards to initiatives undertaken.

3.To study the relationship between responsible tourism initiatives and sustainable tourism development.

4. To measure the impact of responsible tourism initiatives for sustainable tourism development of the study area.

1.6. Research Hypothesis

Research Hypothesis A hypothesis is a tentative assumption that must be proven or disproven. It is to be tested using scientific research methods or statistical tools and techniques to establish relationships among independent variables and dependable variables (Kothari, 2004). The statistical testing of a connection necessitates the development of a null hypothesis, which is then evaluated against a specific alternative hypothesis known as a research hypothesis (Carver, 1978).

The hypothesis of the current study are as follows:

Ho: There is no statistically significant association between Gender distribution among directly employed in Tourism related employment and Annual income.

Ha There is no statistically significant association between Male (Gender) distribution among directly employed in Tourism related employment and Annual income.

Hb There is no statistically significant association between Female (Gender) distribution among directly employed in Tourism related employment and Annual income.

Ho: There is no significant association between Educational Qualification and Purpose of Visit to Sikkim.

Ho: There is no significant association between educational qualification and Sources of information about Sikkim.

Ho: There is no significant association between the purpose of visit to Sikkim and type of Accommodation.

Ho: There is no significant association between purpose of visit and services availed during visit to Sikkim.

Ho: There is no significant association between the purpose of visit and monthly income of Tourists.

Ho: There is no significant association between Monthly income and duration of Stay in Sikkim.

Ho: There is no significant association between monthly income of tourists and frequency of visit to Sikkim.

Ho: There is no significant association between the category of Hospitality establishment and sustainability concerns.

Ho: There is no statistically significant association between implementation of responsible tourism initiatives and the presence of a sustainability policy or strategy across different categories of hospitality establishments.

Ho: There is no significant association between participation in sustainability certification programs and the perceived benefits of participating in the certification program across different categories of hospitality establishments.

Ho: There is no significant correlation between Responsible Tourism Initiatives (MLCRTI) and Sustainable Tourism Development (MLCSTD) at the local community level.

H_o: RTI and STD reflecting upon initiatives taken at local community level are independent of sustainable tourism development.

H_o: There is no significant relationship between Responsible Tourism Initiatives (MTRTI) and Sustainable Tourism Development (MTSTD) among tourists.

H_o: RTI and STD reflecting upon behaviors of Tourists are independent of sustainable tourism development.

H_o: There is no significant correlation between Responsible Tourism Initiatives in the Hospitality Industry (MHRTI) and Sustainable Tourism Development (MHSTD).

H_o: RTI and STD reflecting the responsible tourism practices implemented by the hospitality industry are independent of sustainable tourism development.

1.7: Scope of the Research Study

This study focuses on evaluating Responsible Tourism Initiatives (RTIs) and their contribution to Sustainable Tourism Development (STD) in Sikkim, using a Triple Bottom Line (TBL) framework that assesses economic, social, cultural, and environmental dimensions. It investigates the perspectives of local communities, Hospitality industry professionals and tourists on responsible tourism practices, particularly within the hospitality sector. The study is geographically limited to 17 prominent tourist destinations across six districts of Sikkim, such as Dzongu, Lachen, Lachung, Gangtok, Reymindu, Rumtek, Pastanga, Rolep, Dzuluk, Ravangla, Kewzing, Temi, Yangang, Rinchenpong, Pelling, Darap, and Yuksom, where various RT initiatives have been implemented. By examining these initiatives, the research aims to understand their effectiveness and impact on the overall sustainability of tourism in the region.

Section 1.8: Justifications of the Study

The study is justified on both theoretical and practical grounds. **Theoretically**, it contributes to the field of sustainable tourism development by applying the *Triple Bottom Line (TBL)* framework covering economic, social, cultural, and environmental dimensions, to assess Responsible Tourism Initiatives (RTIs) in the under-researched Himalayan context of Sikkim. It fills significant gaps in empirical literature by developing a context-specific measurement scale and enhances scholarly discourse on stakeholder theory, community-based tourism, ethical tourism, and the Sustainable Development Goals (SDGs), particularly SDGs 8, 11, and 12.

Practically, the study offers policy-relevant insights for tourism planning and destination management in ecologically sensitive regions. By focusing on Sikkim's hospitality sector and evaluating RT practices across 17 destinations, it supports capacity building, stakeholder engagement, and the development of monitoring tools. The findings aim to guide government agencies, NGOs, and tourism operators in promoting resilient, community-driven, and sustainable tourism systems in the Indian Himalayan Region (IHR).

1.9. Research Limitations

The study on responsible tourism in Sikkim, while contextually rich, faces several key limitations:

1. **Temporal Constraints**:
   A cross-sectional design limited the ability to assess long-term trends and impacts of responsible tourism, which evolve over time.

2. **Geographical Accessibility**:
   Remote, ecologically sensitive areas like Dzongu, Yuksom, and Lachen were difficult to access due to poor infrastructure, potentially leading to underrepresentation of marginalized communities.

3. **Seasonal Bias**:
   Data collected during limited peak and lean periods may not fully reflect the year-round impacts of tourism, such as seasonal livelihood shifts and environmental stress.

4. **Limited Generalizability**:
   Findings based on localized case studies cannot be broadly applied across Sikkim due to its diverse ecological zones and cultural contexts.

5. **Data Reliability Issues**:
   Inconsistent, outdated, and non-digitized government data limited secondary analysis and hindered cross-verification of findings.

6. **Stakeholder Interpretation Variance**:
   Diverse understandings of "responsibility" among stakeholders, along with socio-political factors like elite capture, led to inconsistencies in responses.

7. **Cultural and Linguistic Barriers**:
   Ethnic diversity and language differences, along with the researcher's outsider status, may have affected data quality and participant openness.

8. **Resource Limitations**:
   Time, funding, and manpower constraints restricted extended fieldwork, follow-ups, and participatory evaluations.

9. **Policy Fluidity**:
   Ongoing policy and institutional changes during the study period created uncertainties and implementation gaps that may have influenced findings.

10. **Underrepresentation of Women and Youth**:
    Cultural norms limited the participation of women and youth, affecting the inclusivity of the dataset.

Chapter 2. Review of Literature

2.1: Introduction to Tourism (Global and Indian Context)

Tourism plays a significant role in global and national economies, contributing 10.3% to global GDP in 2019 and 6.8% to India's GDP the same year. However, the COVID-19 pandemic caused severe disruptions, leading to massive job losses and reduced tourist arrivals. Despite this, the sector has shown resilience, with projections indicating a strong global recovery, driven by increasing domestic and international demand. Mass tourism, characterized by large-scale and standardized services, has been criticized for its environmental and socio-cultural impacts. As a result, alternative tourism models such as ecotourism, community-based tourism (CBT), and responsible tourism have gained prominence. These models aim to ensure environmental conservation, cultural preservation, and equitable distribution of tourism benefits.

India, with its rich natural and cultural diversity, remains a major tourism destination offering varied experiences. The country has witnessed growth due to rising incomes, improved infrastructure, and policy support. Medical tourism is a rapidly growing segment, and domestic tourism continues to be a major growth driver. Despite pandemic-induced setbacks, India’s tourism industry is recovering, supported by government initiatives like the National Tourism Policy (2002), Sustainable Tourism Criteria for India (2016), and regional workshops promoting responsible tourism practices. To ensure long-term sustainability, India must focus on integrated planning, environmental management, stakeholder collaboration, and responsible tourism initiatives. Investments in infrastructure, technology, and community-based tourism are crucial for achieving inclusive and sustainable tourism development in the country.

2.2. Tourism in Sikkim

Sikkim, nestled in the Eastern Himalayas at an altitude of 3,000 meters, has emerged as a prominent tourism destination due to its breathtaking natural beauty, rich biodiversity, sacred cultural heritage, and adventure tourism offerings. Over the last three decades, the state has experienced a dramatic rise in tourist arrivals, with figures increasing from 15,000 in 1980 to over 1.4 million by 2017. Domestic tourism comprises the majority, with West Bengal contributing around 60% of visitors. Tourism was officially declared a service industry during the 10th Five-Year Plan, reflecting its importance in the state's economic development, contributing over 7.6% to the Gross State Domestic Product by 2017. However, this rapid and often unregulated growth has strained infrastructure, overwhelmed popular destinations, and

caused ecological degradation, including waste accumulation, vehicular emissions, and pressure on water and energy resources.

In response, the Government of Sikkim formulated the Sikkim Tourism Policy 2018, which promotes sustainable tourism through responsible tourism models like ecotourism, community-based tourism, rural tourism, and pro-poor tourism. The policy advocates a Triple Bottom Line (TBL) approach that balances environmental integrity, socio-cultural preservation, and economic viability. Strategic interventions include carrying capacity assessments, improved data and infrastructure planning, capacity building for local communities, and the promotion of lesser-known rural destinations to decongest popular sites. The policy aims to align tourism with the United Nations Sustainable Development Goals (SDGs), notably SDGs 8, 11, and 12 ensuring inclusive growth, responsible consumption, and sustainable urban development. Sikkim's integrated and stakeholder-driven approach positions it as a model for responsible tourism in fragile mountain ecosystems.

2.3. Sustainable Tourism Development and Stakeholder Engagement in Sikkim

Sustainable tourism development, as defined by the UNWTO, seeks to balance the economic, environmental, and socio-cultural dimensions of tourism while addressing the needs of present and future generations. It emphasizes responsible resource use, ecological conservation, community empowerment, and ethical practices. Key principles include minimizing negative environmental and cultural impacts, ensuring equitable economic benefits, and preserving the authenticity of local traditions and heritage. Sikkim aligns with these global frameworks by integrating responsible tourism models such as community-based tourism, ecotourism, and cultural tourism, promoting inclusive development, waste reduction, renewable energy, and the protection of biodiversity in sensitive zones like Kangchendzonga National Park.

Stakeholder engagement is central to sustainable tourism development in Sikkim, following the Stakeholder Theory which promotes inclusive participation from all actors affected by tourism, government bodies, host communities, the private sector, NGOs, and tourists. Through decentralized governance under the Panchayati Raj Act, local communities in Sikkim actively participate in tourism planning and implementation. Institutional mechanisms like PRIs and District Administrative Centres facilitate both top-down and bottom-up approaches, ensuring that tourism policies reflect local needs and values. The state's Triple Bottom Line (TBL) approach emphasizing environmental integrity, social equity, and economic viability is supported through training programs, infrastructure development, and community capacity

building. Sikkim's model showcases how sustained stakeholder collaboration, ethical governance, and responsible tourism practices can lead to long-term socio-economic growth and environmental sustainability.

The Government of Sikkim plays a central role in promoting sustainable tourism by integrating responsible tourism policies into broader development goals. Unlike profit-driven models in developed nations, Sikkim focuses on ecological sustainability, rural revitalization, and community well-being through support for ecotourism, homestays, organic farming, and agro-tourism. It fosters inclusive development by empowering institutions such as Panchayati Raj Institutions (PRIs), Destination Management Committees (DMCs), and Eco-Development Committees (EDCs), encouraging participatory and decentralized tourism governance.

The Local Self-Government institutions are key to managing tourism sustainably at the grassroots level. These bodies like PRIs, SHGs, BMCs, and community-based organizations (CBOs) ensure that tourism practices align with environmental conservation, cultural preservation, and socio-economic equity. They support initiatives like community-based ecotourism, sustainable waste management, and responsible land use. Their role in participatory planning and local empowerment has been essential in positioning Sikkim as a leading model of sustainable tourism in the Indian Himalayan Region.

Sikkim's tourism sector, primarily led by private stakeholders, comprises primary (e.g., tour operators, accommodations), secondary (e.g., handicrafts, healthcare), and tertiary (e.g., infrastructure, telecommunications) components. The industry is increasingly embracing sustainability through Public-Private-Community Partnerships (PPCPs), Corporate Social Responsibility (CSR), eco-certification, and waste management. These responsible practices foster rural tourism development, local entrepreneurship, and biodiversity conservation. The adoption of sustainability indicators and impact assessments is encouraged to promote ethical and environmentally responsible tourism operations.

The host communities are culturally cohesive and deeply connected to the natural landscape, play a vital role in shaping sustainable tourism in Sikkim. Their active participation through homestays, traditional cuisine, cultural performances, and local guiding ensures tourism is authentic, inclusive, and respectful of heritage and ecology. Theoretical models such as the Tourism Area Life Cycle (TALC) and Social Exchange Theory (SET) emphasize the need for community perception and well-being in tourism planning. In eco-sensitive zones like Dzongu and the Kangchendzonga Biosphere Reserve, community involvement promotes conservation,

resilience, and intercultural dialogue, solidifying their central role in sustainable tourism development.

Tourists are evolving into responsible actors who seek meaningful, ethical, and eco-conscious travel experiences. In Sikkim, this shift supports sustainable tourism through preferences for homestays, local cuisine, handicrafts, organic products, and low-impact activities like trekking and agro-tourism. These "responsible tourists" contribute to conservation, cultural preservation, and local economic development, moving away from mass tourism.

In parallel, voluntary stakeholders such as NGOs, Self Help Groups (SHGs), women's cooperatives, and community-based organizations play a vital role in promoting sustainable tourism. They engage in advocacy, education, impact monitoring, skill development, and policy implementation. Organizations like ECOSS, KCC, Zero Waste Himalaya, and local tourism societies work across ecologically sensitive regions (e.g., Dzongu, Yuksom, Phadamchen) to support eco-tourism, biodiversity conservation, and community empowerment. These initiatives are aligned with state policies like the *Ecotourism Policy (2011)* and *Sikkim Organic Mission*, ensuring that tourism development is environmentally sound, culturally respectful, and socially inclusive. Together, responsible tourists and voluntary stakeholders help operationalize sustainability through ethical tourism practices, capacity building, and participatory governance, making Sikkim a model for community-driven and resilient tourism in the Indian Himalayan Region.

2.4. The Impacts of Tourism in Sikkim

2.4.1. Economic Impacts of Tourism in Sikkim

Tourism in Sikkim serves as a significant engine of economic development, especially in remote and ecologically sensitive regions. Positive impacts include income generation, employment creation, entrepreneurship through MSMEs, and infrastructure development. Initiatives like homestays, eco-tourism, and community-based tourism promote inclusive growth by empowering local communities and diversifying livelihood options. These responsible tourism models contribute to poverty reduction and foster socio-economic resilience.

Tourism's economic benefits are classified into:

- Direct impacts (e.g., income to homestay owners, guides, artisans),

- Indirect impacts (e.g., local procurement of goods and services), and
- Induced impacts (e.g., re-spending by tourism earners on health, education, daily needs).

However, negative economic effects persist. Key issues include economic leakage due to non-local ownership of tourism enterprises, dependence on imported goods, and seasonality, low-paid employment with limited upward mobility. Rising land prices, inflation, and reallocation of community resources (e.g., forests, sacred lands) have further marginalized local populations, particularly in high-tourism zones. Infrastructure growth for tourism sometimes competes with essential public services, worsening disparities between urban tourist centres and rural peripheries. Tourism in Sikkim contributes positively to regional development and livelihoods, imbalances in ownership, benefit distribution, and resource access threaten long-term sustainability. Strengthening local participation, enhancing value chain linkages, and addressing socio-economic inequities are essential for tourism to be a truly responsible and sustainable sector.

2.4.2. Social Impacts of Tourism in Sikkim

Tourism in Sikkim has generated a mix of positive and negative social impacts on local communities. On the positive side, it has led to the development of essential infrastructure such as roads, healthcare, sanitation, and educational facilities, particularly in high-traffic tourist areas like Gangtok, Yuksom, and Lachung. It has created employment and entrepreneurial opportunities across hospitality, guiding, handicrafts, and agro-based sectors, contributing to poverty reduction, gender empowerment, and youth engagement. Community-based tourism has strengthened local ownership, social cohesion, and the preservation of traditional knowledge and cultural practices. However, unregulated tourism growth has also resulted in social challenges, including strain on public services, increased traffic congestion, water scarcity, urban sprawl, and social issues such as drug abuse, labour exploitation, and seasonal overcrowding. Furthermore, rising land prices and tourism-driven displacement have deepened socio-economic inequalities, while the allure of tourism jobs has weakened traditional occupations, risking cultural erosion. Therefore, to ensure socially sustainable tourism in Sikkim, inclusive community-led planning and robust regulatory mechanisms are essential to safeguard local well-being and cultural integrity.

2.4.3. Cultural Impacts of Tourism in Sikkim

Tourism in Sikkim has had both positive and negative cultural impacts. Positively, it has promoted the revival and preservation of indigenous traditions, foods, crafts, and festivals through community-based tourism and homestays, especially in culturally rich villages like Darap, Dzongu, and Rinchenpong. These initiatives have empowered local communities, strengthened cultural identity, and encouraged intercultural exchange. However, negative impacts include cultural commodification, loss of traditional values, and acculturation due to increasing exposure to external influences. Youth are drifting from traditional practices, and festivals are sometimes commercialized without community consent. Over-tourism in places like Gangtok and Lachung threatens cultural authenticity. While Sikkim's policies support cultural sustainability, challenges remain in implementation and ensuring equitable community participation.

2.4.4. Environmental Impacts of Tourism in Sikkim

Tourism in Sikkim, while a vital economic driver, poses significant environmental challenges due to the region's ecological fragility. The expansion of mass tourism has led to negative consequences including deforestation, soil erosion, water source depletion, biodiversity loss, and waste accumulation particularly in high-altitude and ecologically sensitive zones like Yumthang, Lachen, and Tsomgo Lake. Inadequate waste management, unregulated construction, and tourism-induced changes in land use and agriculture have further degraded the environment. Seasonal tourist surges in places like Gangtok strain municipal services and contribute to pollution. Activities such as trekking and ecotourism, though marketed as sustainable, can cause trampling, wildlife disturbance, and littering if not properly managed. Vehicular emissions and reliance on fossil fuels have added to air pollution and climate risks. Despite progressive initiatives like bans on single-use plastics and the Ecotourism Policy (2013), inconsistent enforcement and lack of ecological oversight hinder sustainable outcomes. To mitigate these impacts, Sikkim must strengthen environmental governance, promote responsible tourism, and empower local communities to act as stewards of natural and cultural resources.

2.4.5. Impact of Globalization on Tourism in Sikkim

Globalization has profoundly influenced tourism in Sikkim through improved infrastructure, foreign investments, digital innovations, and greater international visibility. It has enhanced economic opportunities and market access but also exposed local enterprises to competition from global tourism chains, resulting in economic leakages and marginalization of local

MSMEs. Technological tools and social media have promoted remote and eco-tourism destinations, yet rural stakeholders often face digital and infrastructural gaps. Culturally, globalization has led to both heritage revitalization and the commodification of traditions, risking cultural homogenization and identity erosion. Socially, it has expanded education, employment, and training especially for women and youth but has also introduced value disorientation and dependency on global tourism flows, as revealed during COVID-19. Environmentally, unregulated tourist influx in fragile alpine zones has caused ecosystem degradation, solid waste accumulation, and increased emissions. While Sikkim has adopted progressive policies like banning single-use plastics and promoting organic farming in alignment with the UN SDGs, enforcement gaps remain. Moreover, regional integration under the Act East Policy aims to link Sikkim with neighbouring countries, but is hampered by border restrictions and weak institutional coordination. Thus, sustainable tourism in Sikkim requires robust governance, community participation, and the adoption of global sustainability standards such as Tourism Carrying Capacity Assessments and certification schemes.

2.5. Destination Management for Sustainable Tourism Development in Sikkim

2.5.1 Conceptualizing Tourism Destinations in Sikkim: A Socio-Ecological Perspective on Sustainability, Responsible Tourism, and Regional Development

The concept of tourism destinations in Sikkim has evolved to encompass a socio-ecological perspective, integrating sustainability, responsible tourism, and regional development. Beyond being physical locations, destinations in Sikkim ranging from broad regions like North and West Sikkim to micro-destinations like Darap, Dzongu, and Yuksom are recognized as dynamic systems shaped by cultural, ecological, and economic factors. These support diverse tourism typologies including ecotourism, heritage tourism, spiritual tourism, and adventure tourism. Effective destination management, as per global frameworks (UNWTO, UNEP), requires strategic planning that ensures environmental integrity, quality visitor experience, and inclusive governance. In Sikkim, destination governance involves a broad coalition of stakeholders including government departments, SHGs, panchayats, civil society, and private enterprises. This collaborative, value-chain-driven model fosters local participation and regional development. Using Murphy’s "Four A’s" framework: Attractions, Amenities, Accessibility, and Ancillary Services Sikkim has strengthened its tourism offerings through investments in infrastructure like Pakyong Airport, sustainable homestays, and eco-trained guides. Therefore,

destination management in Sikkim is conceptualized as a holistic, resilience-focused system that links sustainable development with responsible tourism practices.

2.6. Sustainable Destination Management Structures in Sikkim: An Integrated Framework for Policy, Planning, Product Development, and Stakeholder Collaboration

The sustainable destination management framework in Sikkim emphasizes an integrated and holistic approach that aligns policy formulation, planning, product development, and stakeholder collaboration. Guided by UNWTO and UNEP standards, it encompasses land-use planning, infrastructure development, environmental regulations, certification programs, and industry-specific governance. Effective destination management must address environmental, socio-cultural, and economic dimensions while ensuring destination competitiveness, climate resilience, and tourist safety. Drawing on global best practices from alpine destinations and regions like County Clare, Ireland, Sikkim's strategy should include destination branding, product diversification, and smart tourism integration. Key to this framework is the principle of shared value, ensuring transparency, stakeholder accountability, and coordination among government bodies, civil society, and local governance units such as Gram Panchayats. These decentralized institutions play a pivotal role in visitor management, heritage conservation, and community empowerment, thereby fostering sustainable tourism that balances development with ecological and cultural preservation.

2.7. Destination Management Organizations (DMOs) in Sikkim

Destination Management Organizations (DMOs) in Sikkim function as collaborative governance bodies that coordinate tourism planning, development, and marketing across various levels through public-private partnerships. Aligned with UNWTO (2019) principles, they bring together stakeholders such as government departments, panchayats, NGOs, SHGs, and private actors to manage ecotourism, rural tourism, community-based tourism, and cultural tourism. DMOs are instrumental in implementing sustainable tourism policies, promoting responsible practices, developing eco-friendly infrastructure, and addressing challenges like climate change, tourist safety, and over-tourism. By integrating local communities and emphasizing inclusive, strategic, and resilient tourism models, DMOs ensure that Sikkim's tourism sector advances both economic growth and socio-ecological sustainability.

2.8. The Local Agenda and Participatory Approach to Sustainable Development of Tourism Destinations in Sikkim

The Local Agenda 21 (LA21) and participatory approach to sustainable tourism development in Sikkim emphasize the integration of global sustainability goals into local planning, fostering community involvement, environmental conservation, and socio-economic equity. Drawing on global best practices such as Spain's Balearic Islands and Thailand's cities, Sikkim has institutionalized participatory tourism governance through collaborations with organizations like UNDP, WWF-India, ICIMOD, and local NGOs such as KCC and ECOSS. Key initiatives include the formulation of the Ecotourism Policy 2010 and Sustainable Tourism Policy 2018, backed by multi-stakeholder platforms like the Steering Committee for Sustainable Tourism and task forces for tourism and digital operations. These frameworks adopt the five-step LA21 model, participatory forums, diagnosis, action planning, community-led implementation, and monitoring, ensuring ecological sustainability, cultural preservation, social inclusion, and economic equity. Sikkim's focus on homestays, eco-tourism, and women/youth entrepreneurship aligns closely with successful national and international models such as Kerala's Responsible Tourism initiative and South Africa's policy framework, showcasing Sikkim's commitment to a decentralized, inclusive, and sustainable tourism governance system.

2.9: Carrying Capacity in Tourism Destination Management

The concept of *carrying capacity* is central to sustainable tourism development, as it determines the maximum number of visitors that a destination particularly ecologically sensitive areas like protected zones can sustain without causing detrimental effects on its environment, culture, or society. This capacity is multidimensional, involving physical, ecological, socio-cultural, economic, and psychological thresholds. When tourism growth exceeds these thresholds, it may result in environmental degradation, loss of cultural authenticity, community opposition, and diminished profitability for the tourism sector. The concept aligns with global sustainable development principles as set forth in Agenda 21 and the World Summit on Sustainable Development, emphasizing the balance between development and conservation.

In the tourism context, carrying capacity supports the integration of the three core pillars of sustainability like economic, social, and environmental and a fourth, cultural sustainability, as defined by UNEP and WTO (2005). Cultural sustainability emphasizes respect for the identity,

traditions, and values of host communities, thereby preserving local heritage while promoting responsible visitor engagement. Ensuring that tourism operates within its ecological and socio-cultural limits is crucial for long-term destination viability, particularly in fragile ecosystems and culturally rich regions like Sikkim.

2.9.1. Economic Sustainability

Economic sustainability in tourism emphasizes the long-term viability of destinations through responsible management that benefits local communities, ensures fair distribution of economic gains, and promotes the authenticity of tourism experiences. It involves fostering demand for local tourism products, building infrastructure, creating employment, and supporting sustainable production and consumption. Stakeholders must collaborate to ensure tourism remains profitable, socially inclusive, and environmentally sound.

This concept is supported by Social Exchange Theory, which highlights that community support for tourism depends on perceived benefits. If locals feel excluded or burdened, their support may diminish, leading to unsustainable development.

Three key components of economic sustainability are identified:

1. ***Economic Viability*** – Ensuring the competitiveness and profitability of tourism enterprises through supportive policies, digital branding, market research, visitor safety, and skilled labor development.
2. ***Local Prosperity*** – Increasing local retention of tourist spending by promoting locally owned businesses, using local goods and services, and enhancing the tourism multiplier effect. It also involves reducing economic leakages and supporting MSMEs and supply chain integration.
3. ***Employment Quality*** – Creating full-time, well-paid, and safe jobs for local people, while ensuring inclusive work environments. Capacity building, skill development, and vocational training are essential for improving labor productivity and promoting sustainable tourism growth.

2.9.2. Social Sustainability

Social sustainability in tourism emphasizes the well-being, rights, and empowerment of local communities through inclusive governance and equitable development. It involves both *substantive dimensions*, such as improving quality of life and fulfilling needs, and *procedural*

dimensions, including democratic participation, access to information, and local empowerment (Helgadóttir et al., 2019). Social sustainability contributes to community cohesion, trust between tourism businesses and society, and enriched tourist experiences, all of which are essential for long-term destination attractiveness and resilience.

Key components include:

1. ***Social Equity***: This involves ensuring the fair distribution of tourism's benefits among all community members, especially marginalized groups like women and youth. It includes policies that support community-owned enterprises, employment opportunities, improved services (e.g., health, water, electricity), and social welfare programs. Education, training, and improved licensing and access to partnerships are critical to enable inclusive participation in tourism.

2. ***Visitor Fulfilment****:* Destinations must ensure tourists have safe, enjoyable, and enriching experiences regardless of gender, ability, or background. Accessibility of infrastructure, proper safety and hygiene measures, and accurate marketing are central to fulfilling visitor expectations. Feedback-driven improvements and disaster awareness also contribute to a safe and responsible tourism environment.

3. ***Local Control***: Empowering communities to actively participate in tourism planning and decision-making is essential. This includes consulting locals on development initiatives, ensuring their cultural rights are respected, and involving them in managing tourism enterprises. Local control fosters a sense of ownership and accountability while aligning tourism with indigenous traditions and values.

4. ***Community Well-being***: Enhancing the quality of life through tourism involves access to essential infrastructure and services such as healthcare, roads, entertainment, and utilities—that benefit both residents and tourists. Effective visitor management must address social carrying capacity, distribute tourist flows to avoid overcrowding, and encourage responsible behaviour to minimize negative social and environmental impacts.

In essence, social sustainability in tourism is about balancing the needs of residents and visitors, fostering inclusion, promoting social justice, and enhancing quality of life. It ensures that tourism contributes to the holistic development of host communities while preserving their cultural and social fabric.

2.9.3. Cultural Sustainability in Tourism

Cultural sustainability in tourism emphasizes the protection and promotion of authentic cultural heritage, traditions, and creative expressions of host communities. While tourism can revitalize local arts, crafts, food, architecture, and customs by creating livelihood opportunities, it also carries the risk of commodifying or degrading culture if not managed responsibly. Sustainable tourism, as advocated by UNEP & WTO (2005), serves as a strategic tool to foster respect for diverse cultural identities while enhancing visitor experiences and community pride. Effective cultural sustainability involves responsible visitor management, using income from tourism such as entrance fees, local products, and donations to support conservation of historical and religious sites. Policies must integrate authentic cultural elements in tourism products and infrastructure while promoting sensitive marketing that highlights local distinctiveness. Mathew (2016) stresses that guidelines of conduct should govern both tourist and community behaviours to ensure mutual respect and cultural preservation.

International frameworks like UNESCO's World Heritage and Sustainable Tourism Programme promote inclusive and scientific management approaches based on stakeholder cooperation, public-private partnerships, and local participation. These strategies aim to mitigate negative cultural impacts, strengthen local identity, and encourage responsible tourism practices. In sum, cultural sustainability ensures that tourism development supports heritage conservation, empowers local communities, enhances visitor satisfaction, and contributes meaningfully to sustainable development.

2.9.4. Environmental Sustainability in Tourism

Environmental sustainability in tourism emphasizes the responsible management of natural resources and ecological systems to ensure the long-term health of tourism destinations. According to the Global Sustainable Tourism Council (2013), key strategies include identifying and minimizing environmental impacts, conserving habitats and biodiversity, protecting wildlife, reducing greenhouse gas emissions, improving energy and water efficiency, ensuring proper waste management, and mitigating unplanned development.

Environmental sustainability involves tourism enterprises adopting eco-friendly practices and environmental management systems to build consumer trust, as emphasized by Goodwin (2005). UNEP & WTO (2005) categorize environmental sustainability into four key dimensions:

1. ***Physical Integrity***: This focuses on preserving the visual and structural integrity of landscapes and ecosystems. It involves regulating development to prevent environmental degradation, promoting sustainable design, and educating tourists to minimize negative physical impacts such as soil erosion and vandalism in fragile areas.
2. ***Resource Efficiency****:* Efficient use of non-renewable resources is essential. This includes promoting energy and water conservation, sustainable sourcing, eco-labelling, and encouraging recycling and waste reduction to ensure the tourism industry does not exceed ecological limits while meeting community needs.
3. ***Biological Diversity***: Sustainable tourism should protect ecosystems and wildlife. This is achieved through visitor management, awareness programs, funding conservation, and enforcing legal frameworks. Collaboration through PPPs and local community engagement in ecotourism can generate livelihoods while ensuring biodiversity conservation.
4. ***Environmental Purity***: Government and industry must control pollution and manage waste to maintain air, water, and land quality. This involves transforming consumption patterns, regulating emissions from transport, and implementing comprehensive waste treatment and recycling systems.

In essence, environmental sustainability in tourism requires integrated efforts by governments, communities, and businesses to protect the ecological foundations of tourism destinations, ensuring their resilience and appeal for future generations.

2.10. Sustainable Destination Management – Classifications and Measurements

The discourse on sustainable destination management often suffers from ambiguity due to a lack of clear operational indicators, which can reduce sustainability to a mere rhetorical or marketing concept in tourism (Butler, 1999). To address this, there is a pressing need to integrate measurable sustainability indicators into tourism policies, strategies, and programs to ensure long-term business viability and community well-being. Zhang et al. (2015) advocate for a holistic and systemic approach to destination sustainability that emphasizes resilience and systems thinking over isolated analyses. Additionally, Reed et al. (2006) emphasize the critical role of local community participation in designing, interpreting, and monitoring these indicators to build local awareness and enhance socio-ecological understanding.

2.10.1 Sustainability Classifications and Measurements

Twining-Ward & Butler (2002) and Miller & Twining-Ward (2005) categorize sustainability into thematic dimensions including economic, social, cultural, environmental, technical, and institutional or political domains. Waldron and Williams (2002) further offer five classifications of sustainability frameworks: domain-based, goal-based, sectoral, issue-based, and causal. Bossel (1999) suggests a functional classification based on three capital systems: human (social and governance), natural (environment and resources), and support systems (infrastructure and economic systems), enabling manageable and integrated indicator development. According to Duc (2009), effective implementation of sustainable tourism practices must reflect the sector's inherent features and focus on economic viability, environmental stewardship, socio-cultural integrity, and institutional accountability. South Africa's DEAT White Paper (1996) outlines core responsible tourism principles vital for sustainable destination management, such as community participation in planning, waste minimization, responsible marketing, respect for cultural and natural assets, and the sustainable use of resources.

Global frameworks have also emerged to standardize sustainability measurements. The UNWTO (2001) Global Code of Ethics for Tourism encompasses economic, social, cultural, political, and environmental dimensions. The Global Sustainable Tourism Council (GSTC, 2013) developed universally applicable criteria and indicators for all types of tourism enterprises and destinations. These were drawn from global best practices, sustainability standards, and certification schemes to promote consistency, relevance, and practicality in sustainability assessment at the destination level. In essence, sustainable destination management must be guided by multidimensional classifications and robust measurement systems that are inclusive, adaptable, and aligned with global and local sustainability goals

2.11. Sustainability Indicators

Sustainability indicators serve as vital tools in guiding destination management organizations toward responsible tourism practices. The World Tourism Organization (WTO) identified eleven core indicators, including site protection, use intensity, development control, social and local satisfaction, and tourism's economic contributions.

These are complemented by indicators for waste management, critical ecosystem protection, community participation, and visitor impact evaluation, which provide a framework for monitoring and managing the environmental, social, and economic impacts of tourism. The UNEP & WTO (2005) guidebook "Making Tourism More Sustainable" expands on these by proposing a broader set of integrated indicators encompassing economic viability, local prosperity, employment quality, social equity, visitor fulfilment, community well-being, cultural richness, biological diversity, and environmental purity. These help destinations measure progress and guide stakeholders in policy implementation and adaptive management.

Additional baseline indicators by the WTO (2004) focus on tourist satisfaction, seasonality, energy and water use, solid waste and sewage treatment, and community perceptions. These tools are critical in aligning tourism development with sustainability goals and ensuring long-term benefits to host communities and the environment. In the Indian context, the Ministry of Tourism has adopted the Sustainable Tourism Criteria for India (STCI), which outlines voluntary indicators for accommodations and tour operators. These include practices such as energy and water conservation, rainwater harvesting, use of eco-friendly chemicals, biodiversity conservation, heritage protection, fair wages, support for MSMEs, and community development. These indicators align with international standards and are designed to guide tourism enterprises in adopting holistic, context-sensitive sustainability practices. Scholars like Camilleri (2016) emphasize the role of local stakeholders, NGOs, and research institutions in advocating for and implementing these practices. A collaborative and informed approach is necessary for building awareness and institutional capacity to promote responsible tourism. Duc (2009) reinforces this by stating that a strong institutional framework—based on coordinated planning, decision-making, and stakeholder participation—is essential, especially for developing countries, to achieve sustainable tourism development goals.

2.11.1. Sustainability Indices

Sustainability indices serve as essential tools for evaluating and monitoring sustainable tourism across various dimensions. Fernandez (2009) highlights two globally recognized frameworks: the WTTC's Tourism Competitiveness Monitoring Tool, which assesses competitiveness using 65 indicators across eight categories, and the Environmental Sustainability Index (ESI), developed by Yale and Columbia Universities to measure

environmental health across five dimensions in 146 countries. Fernandez also proposed a composite Sustainable Tourism (ST) Index that integrates economic, social, environmental, and institutional factors to assess destination sustainability comprehensively. In Italy, a dual index model combining economic and environmental efficiency was introduced to evaluate destination performance as operational systems. While many indicators address broader aspects of tourism sustainability such as management and tourist satisfaction, this study specifically adopts the four core UNWTO sustainability dimensions like economic, social, cultural, and environmental focusing on the immediate impacts and stakeholder roles in responsible tourism and sustainable development.

2.12. Responsible Tourism (RT) in Sikkim: Integrating Global Principles for Local Sustainability

The concept of Responsible Tourism (RT) has evolved globally as a response to the negative impacts of mass tourism and is grounded in sustainable development discourse. Introduced by Jost Krippendorf in 1987, it promotes conscious travel and community participation, with key milestones such as the 1989 WTO conference and the 2002 Cape Town Declaration shaping its development. RT emphasizes minimizing negative impacts while enhancing local socio-economic benefits, environmental conservation, and cultural sensitivity through models like ecotourism, community-based tourism, and pro-poor tourism.

In Sikkim, RT has been progressively implemented to address challenges posed by unregulated tourism growth, such as ecological degradation, cultural commodification, and inequitable benefit distribution. Drawing from global models like Kerala's RT Mission and South Africa’s White Paper, Sikkim has transitioned from mass tourism to more inclusive, sustainable approaches. This includes enforcing visitor carrying capacities, zoning for ecotourism, and zero-waste management, while promoting community empowerment through homestays, fair-trade markets, and community-owned enterprises.

Institutional mechanisms such as local tourism councils and village development committees have been created to promote participatory governance. Furthermore, initiatives to preserve Sikkim’s biodiversity, its organic farming identity, and cultural heritage including heritage walks, culinary tourism, and revival of traditional crafts, enhance tourist experiences and foster the preservation of intangible cultural assets.

Overall, RT in Sikkim integrates global sustainability principles to achieve a balanced and resilient tourism development model.

Responsible Tourism (RT) differs from other alternative tourism forms like eco-tourism, green tourism, adventure tourism, rural tourism, and sustainable tourism. While eco-tourism and green tourism focus on environmental education and conservation, adventure tourism emphasizes physical and sensory experiences, and rural tourism is rooted in nature, agriculture, and rural lifestyles. Sustainable tourism aims to balance economic, social, and environmental goals for long-term viability. In contrast, Responsible Tourism centres on stakeholder accountability, participatory planning, and prioritizing local community benefits. It emphasizes evaluating tourism impacts and ensuring tourism actively contributes to environmental conservation and the socio-economic well-being of host communities.

2.13. Triple Bottom Line (TBL) and The Triple A model approach to sustainability and Responsible tourism

The Triple Bottom Line (TBL) approach coined by John Elkington in 1994 promotes a balanced focus on environmental, social, and economic dimensions of sustainability. In tourism, TBL provides a foundational framework for governments and private stakeholders to adopt responsible and ethical practices that contribute to sustainable development. While tourism has traditionally prioritized economic growth, scholars argue for internalizing environmental and social costs and shifting toward equity- and justice-based models. Responsible Tourism (RT), aligned with TBL, emphasizes inclusive participation, local community benefits, and environmental conservation. RT is operationalized through policy reforms, certification systems, stakeholder cooperation, and destination-level strategies that promote sustainable consumption, community livelihoods, and improved visitor experiences.

The Triple-A Model consisting of Awareness, Agenda, and Action complements the TBL framework by outlining the stages through which destinations move toward sustainable tourism. The Awareness stage raises stakeholder understanding of sustainability issues. The agenda stage translates this awareness into concrete policies and sustainability goals. The Action stage involves practical implementation, such as eco-friendly practices, community empowerment, and responsible behaviours by all stakeholders. This model supports informed participation, promotes accountability, and advances sustainable destination

management, ultimately strengthening the alignment of responsible tourism with the goals of sustainable development.

2.14. Responsible Tourism Initiatives

Responsible Tourism (RT) initiatives emphasize ethical, participatory, and environmentally responsible tourism that benefits local communities and protects natural and cultural heritage. Rooted in the Triple Bottom Line (TBL) framework focusing on economic, social, and environmental sustainability, RT promotes inclusive development and responsible behaviours among stakeholders. Kerala's RT model is a successful example, integrating community participation, fair wages, and conservation-friendly practices.

In Sikkim, RT has been institutionalized through collaborative efforts by the government and the Responsible Tourism Society of India (RTSOI), focusing on ecologically sensitive areas like Kangchendzonga National Park and Dzongu. Initiatives include sustainable waste management, bans on single-use plastics, promotion of organic farming, community-based ecotourism, and cultural heritage conservation. Infrastructure improvements like eco-signage, safe drinking water stations, and responsible waste disposal systems are combined with awareness-building and certification schemes (e.g., STCI). Sikkim's RT development encompasses various tourism forms such as homestays, adventure, cultural, wellness, and MICE tourism, with the goal of making Sikkim a zero-waste, low-impact, and globally recognized sustainable tourism destination.

Sikkim's Community-Based Tourism Initiatives (CBTI) promote sustainable tourism by empowering local communities through homestays, ecotourism, and inclusive policy frameworks such as the *Ecotourism Policy 2011*, *Homestay Rules 2013*, and *Skilled Youth Startup Scheme 2021*. The state has developed several responsible tourism models including village and homestay tourism, adventure tourism, cultural and pilgrimage tourism, wellness tourism, ecotourism, and MICE tourism. These initiatives focus on local participation, conservation of natural and cultural heritage, promotion of organic farming and traditional healing, low-impact adventure activities, and sustainable infrastructure. Sikkim integrates traditional knowledge systems and eco-friendly practices into its tourism strategies, ensuring long-term ecological balance, cultural preservation, and equitable socio-economic growth, thereby establishing itself as a model of responsible and sustainable tourism development.

Responsible tourism initiatives, as exemplified by countries like South Africa, Sri Lanka, Gambia, Cuba, and Kerala, emphasize the importance of context-specific strategies aligned with the Triple Bottom Line (TBL) framework—focusing on economic, social, and environmental responsibility. These initiatives aim to make tourism more sustainable by involving multiple stakeholders, fostering community participation, and ensuring equitable benefit-sharing. Key indicators include promoting local economic linkages, inclusive planning, cultural preservation, resource efficiency, and biodiversity conservation. The Cape Town Declaration (2002) serves as a foundational document, outlining comprehensive guidelines and indicators to guide responsible tourism development. Destination Management Organizations (DMOs) play a crucial role by developing participatory policies, monitoring impacts, and promoting responsible practices aligned with international standards and sustainable development goals.

1) *Economic Indicators*

Responsible tourism initiatives in Kerala are evaluated through a 14-scale indicator framework, developed from the Kerala Declaration on Responsible Tourism (Venu & Goodwin, 2008), emphasizing four key economic responsibility indicators: sustainable livelihood options, employment opportunities, support to local enterprises, and capacity building. These initiatives focus on creating inclusive, locally beneficial tourism by promoting small and micro-enterprises, particularly those led by women and marginalized communities. They enhance livelihoods through activities such as homestays, local handicrafts, and traditional food experiences, while also generating employment in community-based and nature-based tourism sectors. The support for local enterprises is strengthened through local procurement, policy backing, and capacity-building programs that develop entrepreneurial and technical skills. Moreover, capacity building is vital for empowering communities—especially women and youth—through education, awareness, and leadership training, aligning with national standards like the Sustainable Tourism Criteria for India (STCI). This approach has been replicated in states like Sikkim, where government bodies and tourism associations have implemented responsible tourism training, emphasizing low-impact practices such as energy efficiency, waste management, and rainwater harvesting to ensure holistic, sustainable development.

2. Social Indicators

Social indicators of responsible tourism in Kerala and similar regions focus on empowering local communities through active engagement, inclusivity, training, and awareness. Key

elements include community involvement in tourism planning and decision-making, employment and livelihood opportunities for marginalized groups—particularly women and youth—support for enterprises owned by backward communities, and comprehensive training and education initiatives. Kerala's model emphasizes participatory governance through local self-governments and Kudumbashree networks, which have promoted micro-enterprises and grassroots entrepreneurship. Initiatives in Kerala and South Africa illustrate how responsible tourism can reduce inequality by creating fair jobs, supporting local procurement, and facilitating business ownership among disadvantaged populations. Education and training programs not only build capacity in organic farming, crafts, and hospitality but also engage children and youth as future sustainability leaders. Awareness and sensitization efforts, including public campaigns, codes of conduct, and tourist education, are crucial in ensuring community participation and ethical tourism practices. In Sikkim, similar strategies—such as the Homestay Rules (2013), the Skilled Youth Start-up Scheme (SYSS), and awareness programs led by NGOs and government bodies—demonstrate how responsible tourism can advance inclusive development and environmental sustainability in ecologically sensitive regions.

3. Cultural Indicators

Cultural indicators in responsible tourism focus on preserving and promoting the local heritage, traditions, and creative expressions of host communities. These initiatives foster mutual respect between tourists and locals, emphasizing authentic cultural engagement through language, food, dance, music, and festivals, thereby safeguarding both tangible and intangible cultural heritage. Responsible tourism plays a vital role in sustaining cultural identity by offering meaningful, community-based experiences that reflect local lifestyles and traditions. It supports the conservation and responsible marketing of cultural heritage as a tourism product while encouraging participation in cultural activities. Additionally, the promotion of local handicrafts and souvenirs not only helps preserve indigenous artistic traditions but also enhances community pride and prevents cultural commodification. These efforts contribute to inclusive cultural development and ensure that tourism benefits both heritage conservation and community empowerment.

4. Environmental Indicators

Environmental indicators in responsible tourism focus on promoting sustainable practices among stakeholders like governments, tourism businesses, and local communities to minimize

negative environmental impacts. These indicators emphasize eco-friendly operations through energy efficiency, water conservation, and effective waste management. Energy management practices include the use of solar and wind power, LED lighting, automated systems, and energy-efficient appliances. Water management involves strategies like rainwater harvesting, dual-flush toilets, linen reuse, and water-efficient laundry systems, as seen in international initiatives like the International Hotel Environmental Initiative (IHEI). Waste management addresses issues like plastic use, littering, and solid waste accumulation, with practices such as waste segregation, recycling, and composting. In Sikkim, various organizations like the Kangchendzonga Conservation Committee (KCC) and local government bodies have implemented eco-conscious initiatives, including zero-waste trekking trails, indigenous composting toilets, bans on single-use plastics, and the establishment of Material Recovery Facilities. Programs led by the Lachen Tourism Development Council, WWF-India, and UNDP have also promoted plastic-free tourism by encouraging alternatives like water dispensers in hotels. These efforts are reinforced through environmental education, awareness campaigns, and community-based training to instil responsible environmental behaviours in both tourists and hosts.

Chapter 3: Introduction to the Study Area – Sikkim

3.1. Introduction

Sikkim, a small mountainous state in Northeast India, is geographically unique and ecologically diverse, covering 7,096 sq. km with a predominantly step topography and altitudinal variations ranging from 300 to 8,598 meters. Bordered by Nepal, Bhutan, China, and West Bengal, it features prominent peaks like Mount Kangchendzonga, revered as a guardian deity by locals. Its climate varies from subtropical in the south to alpine and arctic in the north, with high rainfall during the monsoon season and significant climatic heterogeneity influenced by elevation.

Sikkim is part of the Eastern Himalayan biodiversity hotspot and has an extensive protected area network, covering over 47.80% of the state. This includes the Kangchendzonga National Park (a UNESCO World Heritage Site) and seven wildlife sanctuaries. The state's river systems are fed by glaciers and feature scenic waterfalls such as the Seven Sisters and Banjhakri Falls. Sikkim's eco-regions are categorized into four main zones based on altitude:

1. ***Tropical Ecozone (up to 1,200 m)*** – Features lush valleys, rich biodiversity including endangered birds like the Rufous-necked Hornbill, and important medicinal plants. Kitam Wildlife Sanctuary represents this zone.

2. ***Subtropical Ecozone (1,200–3,000 m)*** – Characterized by dense evergreen forests, rhododendrons, and agricultural lands. It hosts diverse flora and fauna including Kalij, Satyr Tragopan, and Himalayan reptiles. Key sanctuaries include Fambongho, Maenam, and parts of Pangolakha.

3. ***Temperate Ecozone (3,000–4,500 m)*** – Known for coniferous forests, alpine shrubs, and rare species like the Red Panda, Himalayan Monal, and Blue Sheep. Important protected areas include Shingba Rhododendron Sanctuary, Kyongnosla Alpine Sanctuary, Barsey, and Kangchendzonga National Park.

4. ***Trans-Himalayan Region (>4,500 m)*** – Comprising cold deserts and high-altitude grasslands, it is home to rare fauna like the Snow Leopard, Kiang, and Tibetan Argali. Due to its remoteness and international borders, it has minimal human settlement, with a few nomadic Dokpa graziers.

Overall, Sikkim's rich natural and cultural heritage, combined with its varied ecological zones, make it a critical region for biodiversity conservation, eco-tourism, and sustainable development.

3.2. Geographic and Ecological Settings

Sikkim is a mountainous, landlocked state in Northeast India, bordered by Nepal, Bhutan, China, and West Bengal. Spanning an area of 7,096 sq. km, it features steep altitudes with one-third of its territory above 3,000 meters. Mt. Kangchendzonga, India's highest peak, is not only a natural marvel but also holds spiritual significance for the local population.

3.2.1.Climate

Due to its proximity to the Bay of Bengal and influence of the monsoon, Sikkim exhibits a diverse climate ranging from subtropical in the south to alpine and arctic in the north. Annual rainfall ranges between 2,700–5,000 mm, with July being the wettest month. The average temperature is around 18°C, with southern areas reaching 32°C in summer and sub-zero temperatures in the north during winter.

3.2.2.Natural Heritage and Biodiversity

Sikkim is located within the Eastern Himalayan Biodiversity Hotspot and houses a unique variety of flora and fauna due to its steep elevation gradient (300 m to 8,598 m). It maintains over 47.8% forest cover, with 11 waterfalls, two major river systems (Teesta and Rangeet), and multiple glacier-fed lakes and alpine meadows. It has one National Park and seven Wildlife Sanctuaries, making up one of India's densest protected area networks.

3.2.3.Eco-regions of Sikkim

- ***Tropical Zone (up to 1,200 m):*** Dense lowland forests and rich biodiversity with species like Hornbills and medicinal plants. Includes Kitam Wildlife Sanctuary.
- ***Subtropical Zone (1,200–3,000 m):*** Dominated by rhododendrons, oaks, and plantation crops. Home to Maenam and Fambong Lho Sanctuaries.
- ***Temperate Zone (3,000–4,500 m):*** Mixed coniferous forests with species like Red Panda, Monal, and Musk Deer. Includes Shingba, Barsey, Kyongnosla Sanctuaries, and part of Kangchendzonga National Park.

- ***Trans-Himalayan Zone (>4,500 m):*** Cold desert ecosystem with rare species like Snow Leopard, Kiang, and Tibetan Argali. Populated sparsely by nomadic Dokpas, it hosts valuable medicinal plant.

3.3. Protected Area Network

Sikkim has 8 officially designated protected areas covering 46.93% of the state's geographical area. This includes:

- ***Khangchendzonga National Park (UNESCO World Heritage Site)***
- **7** ***Sanctuaries*** (Barsey, Fambonglho, Kyongnosla, Maenam, Pangolakha, Shingba, Kitam)

These areas offer ecological protection, reduce natural disaster risks, and act as ecotourism hubs. The protected area strategy aligns with community-based conservation and supports sustainable local livelihoods through tourism-related employment and industries like hospitality, handicrafts, and guiding services.

3.4. Socio-Economic Profile

- ***Demographics:***

  As per the 2011 Census, Sikkim had a population of 610,577 with a sex ratio of 890 and literacy rate of 81.42%. Urban growth is rising due to migration from other Indian states, especially since the 1970s.

- ***Livelihood and Occupation***

  Agriculture is the main livelihood for about 64% of the population, with traditional crops like maize, buckwheat, millet, cardamom, and rice. However, agricultural land is limited (only 11% of the state area), due to 80% being designated forest land. Livestock, horticulture, apiculture, and sericulture support allied rural economies.

- ***Industrial Development***

  Historically underdeveloped, Sikkim's industrial sector is now emerging, with growth in pharmaceuticals, food processing, handloom, breweries, cosmetics, and packaging. Efforts are supported by infrastructure investments and entrepreneurship training programs.

- ***Tourism economy***

Tourism is a key economic pillar, generating employment across formal and informal sectors including hotels, guides, transportation, cultural performance, casinos, and souvenir markets. It supports both educated youth and unskilled workers, making it vital for inclusive economic development.

People and Culture

Sikkim's population is a rich mosaic of ethnic diversity, shaped by deep-rooted customs and ecological consciousness. The three principal communities are the Lepchas, Bhutias, and Nepalis, with the latter comprising several sub-ethnic groups such as Limboo, Rai, Sherpa, Gurung, Tamang, and others. Cultural Tourism in Sikkim is increasingly popular. Village and cultural tours offer immersive experiences in homestays, organic farms, monasteries, and schools, enabling meaningful interaction between tourists and indigenous people such as shamans, monks (Rimpoche), village elders, artisans, and farmers. These interactions foster cultural appreciation and contribute to the preservation and promotion of Sikkim's intangible heritage, including folklore, dances, songs, arts, and rituals.

Cuisine

Sikkimese cuisine is an amalgamation of Lepcha, Nepali, and Tibetan food cultures. Dominated by rice, wild edibles, and fermented foods, the cuisine is deeply connected to local agro-biodiversity and seasonal produce.

Key elements include:

- ***Wild and cultivated vegetables***: *Ningro* (fern), *Nakima* (wild lily), *Baas ko Tusa* (bamboo shoots), *Chew* (mushrooms), *Iskus* (chayote), *Pharsi* (pumpkin), *Kinema* (fermented soybean), and *Ruk Tamatar* (tree tomato).
- ***Meat and fermentation***: Pork, beef, chicken, fish, and fermented delicacies like *Kinema* are staples.
- ***Traditional beverages***: *Arra* (homemade liquor), *Chaang/Tongba* (fermented millet beer) are widely consumed.
- ***Cooking methods***: Simple techniques like steaming, boiling, and stir-frying are preferred with minimal spice. Herbs and plant-based barks (e.g., *Gobere Salla*, *Verla*, *Chatiwan*) are used both for flavor and medicinal value.

3.5. Fairs and Festivals of Sikkim

Festivals in Sikkim are integral to its eco-cultural heritage, fostering environmental awareness, social cohesion, and the celebration of ethnic and religious diversity. They serve as vital platforms for safeguarding tangible and intangible cultural heritage, while enhancing the appeal of responsible cultural tourism.

Sikkim's festivals form a vibrant expression of its eco-cultural identity, reflecting the state’s rich ethnic diversity and deep-rooted spiritual, environmental, and social values. Celebrated by various communities including the Lepcha, Bhutia, Nepali, Tamang, Limboo, and Tibetan Buddhists, these festivals such as Saga Dawa, Pang-Lhabsol, Dassain, Sakewa, Loosong, and Tendong Lho Rum Faat, serve as platforms for preserving both tangible and intangible heritage. They incorporate rituals like masked Cham dances, Bhumi puja (earth worship), and New Year celebrations, fostering environmental awareness, community bonding, and reverence for nature and ancestral deities. Many are observed at culturally significant sites like Rumtek, Gangtok, Dzongu, and Mt. Tendong, and are often aligned with agricultural cycles and religious traditions. Together, these festivals not only sustain indigenous knowledge systems and cultural continuity but also enhance Sikkim's appeal as a responsible and immersive cultural tourism destination.

3.6. Tourism in Sikkim

Sikkim, India's first fully organic state, has emerged as a prominent tourism destination due to its Himalayan landscapes, rich biodiversity, and diverse cultural heritage. Tourist arrivals have significantly increased, with domestic tourists growing steadily from 558,538 in 2012 to over 1.6 million in 2022, and international arrivals showing a remarkable rise, peaking at 133,388 in 2019. This growth is driven by relaxed permit regulations, improved connectivity, and infrastructure, along with government policies such as the “Go East Policy” and promotional campaigns. Sikkim offers varied tourism products ranging from nature-based, adventure, and religious tourism to cultural, heritage, and rural experiences. Attractions include Kangchendzonga National Park (a UNESCO World Heritage Site), sacred lakes, Buddhist monasteries, trekking routes, and monumental religious structures like the Chaar Dhaam and the Buddha Park.

The tourism sector has significantly contributed to state GDP, employment, and entrepreneurship, supported by government training institutions and skill development centers. By 2019, the state housed 1,228 homestays, 1,101 hotels, and thousands of service providers across hospitality and travel sectors. However, the rise of mass tourism has led to environmental and socio-cultural challenges, including deforestation, waste accumulation, air and noise pollution, water shortages, and stress on public infrastructure. Ecologically sensitive areas like Gurudongmar and Tsomgo Lake face degradation due to overcrowding. Socially, mass tourism has contributed to cultural commodification, loss of traditional values, increased crime, and the rise of anti-tourist sentiment among locals. Seasonal employment, inflation, poor service quality, and unregulated infrastructure further strain the local economy and quality of life.

To counter these issues, the Sikkim government has turned toward sustainable tourism, revisiting previous tourism strategies, such as the Tourism Master Plan (1997–2011), Sikkim Tourism Mission–2015, and the Ecotourism Policy–2013, aiming to ensure tourism development aligns with ecological preservation, cultural integrity, and community well-being.

3.7. Policy Development and Responsible Tourism Implementation in Sikkim

Sikkim has taken a proactive approach to promoting responsible tourism (RT) through key policies such as the *Ecotourism Policy 2013* and *Sustainable Tourism Policy 2018*, which aim to position the state as a premier responsible tourism destination. These policies prioritize community-based planning, local livelihoods, and poverty alleviation, while emphasizing environmental conservation and cultural preservation. Eco-tourism activities such as trekking, birdwatching, and village homestays are encouraged in protected areas, fostering both income generation and biodiversity conservation. Cultural heritage is preserved through homestay-based experiences like folk performances, traditional crafts, and local cuisine.

Government departments, in collaboration with national and international agencies (e.g., UNDP, UNESCO, Ministry of Tourism), have implemented several initiatives including single-window clearance for tourism businesses, capacity building through IHCAE and IHM, and formation of EDCs and JFMCs to integrate community participation in tourism and forest management. The government has also supported village tourism and cultural festivals such as Namchi and Mangan Mahotsav, as well as

infrastructure development under the Swadesh Darshan Scheme, including meditation centres, zip lines, walkways, and public amenities.

To ensure sustainability, the state has launched ICT-based services, waste management regulations (e.g., mandatory garbage bags in tourist vehicles), and broader environmental initiatives like the *Sikkim Green Mission (2006)* for reforestation and pollution control, and the *Sikkim Organic Mission (2003)* banning chemical use in agriculture. The *Sikkim State Climate Change Commission (2014)* and *Wetland Conservation Programme (2007)* further reflect the state's ecological commitment. Notably, Sikkim holds the highest Green Protection Index (0.903) in India, highlighting its national leadership in green governance and sustainable tourism.

3.8. Case Studies: Responsible tourism initiative case studies in selected Villages of Sikkim.

Case study 1: The Homestays Initiative in Dzongu, North Sikkim

Dzongu, a culturally sacred and ecologically sensitive area within the Kanchenjunga Biosphere Reserve, is home to the indigenous Lepcha community, whose cultural and spiritual identity is deeply tied to nature. The region has faced socio-environmental disruptions due to large-scale hydropower development, prompting the emergence of community-based responsible tourism, particularly homestay initiatives, as an alternative sustainable livelihood model.

The Sikkim Himalayan Homestays project, initiated in 2004 by UNESCO and implemented by ECOSS in collaboration with the local CBO *Mutanchi Lom Al Shezum*, has successfully promoted homestay tourism as a tool for ecological conservation, cultural preservation, and socio-economic upliftment. The initiative has helped local families earn income while providing tourists with immersive experiences in Lepcha traditions, folklore, cuisine, and eco-conscious living. Community-based tourism planning, structured training in hospitality, responsible visitor conduct, marketing tools (brochures, websites), and code-of-conduct manuals have strengthened service quality and encouraged sustainable practices.

The homestays serve dual purposes such as economic empowerment and cultural revitalization by fostering inclusive participation, particularly from women and youth. The project also emphasizes capacity-building, policy advocacy, and stakeholder

consultations to maintain authenticity and environmental integrity. Despite its success, challenges such as inadequate infrastructure, seasonal tourist inflow, and potential cultural dilution persist. To ensure long-term viability, strategic measures including policy support, continuous training, connectivity improvements, and responsible visitor management are essential. With coordinated planning, Dzongu's homestay model can continue to exemplify responsible tourism and serve as a replicable blueprint for ecologically fragile regions.

Case Study 2 – Kangchendzonga Landscape Conservation and Development Initiative (KLCDI)-India and Responsible Tourism in Dzongu

The Kangchendzonga Landscape Conservation and Development Initiative (KLCDI)-India, launched in 2017 by ICIMOD, focuses on enhancing biodiversity conservation, sustainable livelihoods, and regional cooperation in ecologically fragile areas of the Eastern Himalayas. Implemented in Dzongu, Sikkim—home to the indigenous Lepcha community—this initiative has promoted community-based ecotourism through strategic interventions, capacity building, and cultural revival efforts. The project was executed in collaboration with Mutanchi Lom Aal Shezum (MLAS) and Songbing Tourism Development and Management Committee (STDMC).

Key Interventions and Achievements

1. ***Ecotrail Development and Cultural Tourism***

- Developed the *Lingdem-Songbing Ecotrail* to promote access to the sacred Songbing Cave and the annual Songbing Nature and Cultural Festival.
- Festival events celebrate Lepcha traditions through folk games, attire, artefacts, and ethnic cuisines, increasing cultural visibility and tourist engagement.

2. ***Community Engagement and Capacity Building***

- Community consultations (2017–2018) and training programs emphasized self-sustaining institutions and Lepcha cultural promotion.
- Exposure visits, materials support, and situational assessments enhanced homestay diversification, livelihood awareness, and bio-resource conservation.

3. Revitalization of Traditional Bamboo Craftsmanship

The initiative recognized bamboo as both a cultural symbol and an economic resource for the Lepchas, traditionally used in daily tools, agriculture, rituals, and music. Modern pressures such as declining market access, youth disengagement, and modernization have threatened the craft's survival.

4. Key Bamboo-Based Interventions:

- ***Cultural Integration**:* Bamboo crafts were integrated into tourism through festivals like the *Songbing Hot Spring Festival* and national events such as ICIMOD meetings and NIHE SRC exhibitions, enhancing market exposure.
- ***Product Innovation***: Introduction of bamboo bins along eco-trails, bamboo-themed homestay décor, and tourist craft workshops fostered both sustainability and income.
- ***Skill Development***: Artisans were trained to produce commercial bamboo products (e.g., lamps, tea boxes, pen stands). Value addition and branding workshops improved product quality and marketability.
- ***Livelihood Outcomes**:* Six bamboo-based enterprises were established, creating employment for 10 additional community members. Annual incomes ranged from ₹25,000–40,000 through handicraft sales.

Challenges:

- Lack of mechanization reduces scalability.
- Youth disinterest and absence of branding, GI tags, and market studies limit long-term viability.

Recommendations:

- Mechanization and modern tools for improved productivity.
- Youth-targeted training programs and curriculum integration.
- Branding, eco-certification, GI tagging, and responsible tourism networks to increase market penetration.

5. Empowerment through Nettle Fiber Entrepreneurship

The Himalayan nettle (Girardinia diversifolia) holds cultural, medicinal, and economic significance for the Lepchas. However, due to modernization and weak entrepreneurial capacity, its usage had declined.

KLCDI Interventions:

- ***Entrepreneurship Training***: Led by master weaver **Ongkit Lepcha**, 15 women were initially trained (2018–2019) in harvesting, fiber extraction, and weaving.
- ***Product Diversification***: Traditional items such as *kuzoovaadoah*, *mufflers*, and *tanggyip* were produced alongside marketable goods like *bags* and *stoles*.
- ***Leadership Development***: Ongkit emerged as a nationally recognized entrepreneur, training over 80 women and representing Dzongu at platforms like UNDP and state-level handicrafts bodies.

Future Needs:

- Expansion of handloom infrastructure to accommodate more artisans.
- Introduction of mechanical support for processing.
- Engagement of marginalized youth through targeted training.
- Market integration through branding, promotion, and linkages with ecotourism circuits.

Case study 3: Community-based cultural ecotourism development Initiative – Darap Village, West Sikkim.

The community-based eco-cultural tourism initiative in Darap village, West Sikkim, exemplifies a successful model of sustainable rural development rooted in cultural preservation, ecological stewardship, and participatory community engagement. Situated near the Kangchendzonga National Park, Darap is predominantly inhabited by the Limboo tribe and is home to diverse indigenous communities. Supported by UNESCO and the Ministry of Tourism, India, this initiative has facilitated a blend of cultural immersion and nature-based experiences through homestays, agro-tourism, eco-adventures, and cultural education. Tourists participate in activities such as organic farming, indigenous cuisine preparation, tribal dance, folklore sessions, and visits to spiritual heritage sites like the Yuma Meditation Centre and

ancestral Limboo homes (Yakthung Heem). Homestays such as Daragaon and Cherry Village Resort promote traditional architectural design, local crafts, ethnic cuisine and community-based entrepreneurship, fostering inclusive economic benefits and cultural pride.

While the initiative has significantly improved local livelihoods, empowered women and youth, and helped conserve both cultural and natural resources, it also faces pressing challenges. These include unequal distribution of tourism benefits, risk of cultural commodification, environmental strain on ecologically sensitive zones, and declining youth interest in traditional knowledge systems due to outward migration and modern influences. To ensure long-term sustainability, there is a need for strategic interventions such as equitable benefit-sharing, youth engagement programs, responsible visitor management policies, and climate-resilient tourism planning. Nevertheless, Darap remains a leading example of how responsible tourism, if well-managed, can simultaneously promote community development, cultural revitalization, and biodiversity conservation in Himalayan villages.

Case study 4: Community based Responsible Tourism Initiatives – Yuksom Village, West Sikkim.

The community-based responsible tourism initiatives in Yuksom Village, West Sikkim offer a robust and replicable model for sustainable tourism development in high-altitude Himalayan regions. Rooted in the sacred and ecologically sensitive landscape of the Kangchendzonga National Park, Yuksom is not only historically significant as Sikkim's first capital but also a gateway to the popular Dzongri-Goechala trekking route. In response to increasing environmental degradation and cultural disruptions due to tourism, the Kangchendzonga Conservation Committee (KCC) has spearheaded several interventions since 1996. These include the Secure Himalayas Homestay Initiative (2017), which promotes eco-friendly, community-run tourism enterprises with a strong focus on empowering women and youth through livelihood generation, capacity building, and standardized practices. KCC's homestays emphasize sustainable living through use of renewable energy, indigenous toilets, cultural performances, and traditional architecture, fostering both cultural preservation and economic resilience.

Another significant effort is the Zero Waste Trekking Initiative along the Dzongri-Goechala route, which integrates local villagers, trekkers, and government departments in a participatory waste management system. KCC and its allied organizations like ESPAY (Ecotourism Service Providers Association of Yuksom) enforce trekking waste audits, use of kerosene stoves over

firewood, and operate a waste resource recovery centre. Additionally, village women repurpose non-recyclable waste into handicrafts, providing supplementary income and promoting a circular economy. Other efforts include educational programs in schools, visitor information dissemination, and the Himal Rakshak programme, which trains local highland dwellers as guardians of alpine biodiversity. These guardians monitor illegal activities like poaching and bio-piracy, and ensure compliance with conservation laws in the high Himalayas. Despite these successes, challenges remain such as ensuring equitable benefit distribution, enhancing youth participation, and addressing climate vulnerabilities. Nevertheless, Yuksom's integrated responsible tourism model stands as a leading example of how environmental conservation, cultural preservation, and rural livelihood enhancement can be harmoniously balanced in fragile mountain ecosystems.

Case study 5: Community based ecological and responsible waste management Initiative - Lachen Tourism Development Committee (LTDC)

Lachen Village, located in the North District of Sikkim at an altitude of 2,700 meters, is a culturally rich and environmentally sensitive mountain settlement inhabited predominantly by the Lachenpa pastoralist community. The village operates under the traditional self-governance system of *Dzumsa*, with decisions led by the *Pipon* and supported by the Lachen Tourism Development Committee (LTDC). With strong traditional governance, Lachen has emerged as a model for community-based responsible tourism, emphasizing cultural preservation, ecological conservation, and inclusive livelihood generation. Tourism initiatives have been developed through collaborations with UNESCO, UNDP, WWF-India, ECOSS, and the Ministry of Tourism, aiming to provide socio-economic opportunities through homestays, trekking, eco-guiding, and the promotion of local handicrafts. The village, strategically located near iconic destinations like Gurudongmar Lake and Green Lake, attracts adventure and cultural tourists alike.

Lachen's responsible tourism model emphasizes waste management, sustainable hospitality, and environmental education. It became India's first village to ban the sale of packaged drinking water, promoting refillable alternatives and eco-friendly lodging through community regulations. The Zero Waste Himalayas movement, supported by local bodies and NGOs, ensures solid waste is collected, segregated, and recycled at a Resource Recovery Centre, with composting practices mandated by Dzumsa. Local residents actively participate in environmental awareness and snow leopard conservation through Secure Himalayas. Women

and youth play significant roles, both in hospitality management and through the Women Handicraft Centre, which supports local crafts and traditional livelihoods. Revenue from tourism is partly allocated for community development, infrastructure, and the welfare of local guides and porters. Cultural events such as the Indigenous Tourism Festival and Masked Dances strengthen cultural pride and allow immersive experiences for tourists. Lachen thus stands as a robust example of how traditional governance, international collaboration, and grassroots participation can integrate to advance sustainable and responsible mountain tourism.

Case study 6: Gangtok Heritage Walk: "Preserving Heritage, Promoting Sustainability: A Cultural Heritage preservation Initiative under Swadesh Darshan 2.0 – Gangtok"

Despite its rich cultural and architectural heritage, Gangtok has historically lacked a structured and immersive heritage tourism framework, resulting in limited public awareness and underutilization of its historical landmarks. The rapid pace of urbanization, inadequate conservation efforts, minimal community involvement, and weak marketing strategies further jeopardized the city's heritage assets. To address these challenges, the *Gangtok Heritage Walk* initiative was launched on June 22, 2023, under the broader framework of 'Azadi Ka Amrit Mahotsav' and 'Swadesh Darshan' programs. This initiative aimed to promote sustainable cultural tourism and raise awareness about Gangtok's unique historical legacy. The curated trail included significant sites such as the Tsuglakhang Royal Palace, White Memorial Hall, Ridge Park, Raj Bhawan, and the Sikkim State Museum, offering an integrated heritage experience.

The project was coordinated by the Project Development Management Consultant (PDMC), in collaboration with the Destination Management Committee (DMC) and the State Implementation Agency (SIA). These bodies undertook responsibilities such as route planning, heritage mapping, and developing immersive visitor engagement strategies. The campaign also emphasized stakeholder inclusivity by involving tour operators, locals, tourists, and government representatives, encouraging a sense of shared ownership. Digital outreach efforts, including an online polling mechanism and the hashtag *#GangtokHeritageTrail*, along with website integration under "Swadesh Darshan 2.0", played a crucial role in generating visibility and interest. Overall, the initiative represents a vital step toward the sustainable development of heritage tourism in Gangtok, by combining cultural preservation, responsible tourism, and participatory governance.

Case study 7: Responsible tourism Initiatives for Social Sustainability: Enhancing Local Youth employability through Tour, Trekking and Naturalist Guide training in Sikkim.

Sikkim's rapidly growing tourism sector particularly in eco-adventure and cultural tourism has long been constrained by a shortage of professionally trained tour, trekking, and naturalist guides. The majority of local guides lacked formal training, accreditation, and awareness of sustainable tourism practices, which led to inconsistent service delivery, safety concerns, and inadequate ecological stewardship. This gap also limited youth employment opportunities and contributed to underemployment and wage exploitation in an otherwise high-potential sector. Recognizing the need for capacity building, the state government, under initiatives like *Azadi ka Amrit Mahotsav* and *Sikkim INSPIRES*, has launched a series of structured and responsible tourism training programs aimed at empowering local youth, professionalizing the guiding sector, and aligning tourism development with sustainability goals.

Key interventions include phased guide training programs and certification courses held at the Indian Himalayan Centre for Adventure and Ecotourism (IHCAE) in Chemchey, Namchi. These programs have successfully trained and licensed over 226 guides in areas such as tour guiding, trekking, cooking, and rescue operations, with the establishment of a fixed remuneration structure of ₹1200 per day. Advanced courses like the 28-day Basic Mountaineering Course equip participants with technical expertise and high-altitude skills through four structured phases including acclimatization, peak ascent, and final evaluation. Another noteworthy milestone is Sikkim's first *Bird Watching Guide Training* in Sumin and Linzey villages, where 29 youth were trained in avifauna identification and eco-guiding, paving the way for community-based nature tourism. These initiatives contribute to responsible tourism by enhancing professional competencies, promoting local entrepreneurship, conserving biodiversity, and ensuring inclusive economic participation thus positioning Sikkim as a model for socially sustainable tourism development in the Indian Himalayas.

Chapter 4: Research Methodology

4.1. Introduction

Chapter 4 outlines the comprehensive methodological framework adopted to achieve the research objectives concerning responsible tourism and sustainable tourism development in Sikkim. It begins by explaining the scientific foundation of the research process, including the formulation of research questions, objectives, hypotheses, sampling design, and data collection methods. Emphasis is placed on the use of stepwise procedures and statistical tools to ensure data validity and reliability in deriving meaningful conclusions. The chapter underscores the structured progression from problem identification to empirical analysis, ensuring the research maintains scientific rigor and contributes to knowledge advancement.

The core research questions are designed to investigate the nature, influencing factors, relationships, and impacts of responsible tourism initiatives in the study area. Accordingly, the research objectives aim to assess prevailing practices, explore causative variables, examine relationships between responsible tourism and sustainable development, and evaluate outcomes. A series of null and alternative hypotheses are developed to statistically test associations and correlations across different stakeholder groups—local communities, tourists, and the hospitality industry. These include variables such as gender, income, education, tourist purpose, type of accommodation, sustainability policies, certification programs, and the implementation of responsible tourism practices. The chapter thus establishes a robust empirical foundation to evaluate how responsible tourism initiatives contribute to sustainable tourism development in Sikkim.

This chapter outlines a rigorous, scientifically grounded methodological framework essential for analyzing responsible tourism initiatives and their contribution to sustainable tourism development in Sikkim. The study employs a mixed-method approach, combining qualitative and quantitative research techniques to capture the multidimensional dynamics of responsible tourism across stakeholders such as local communities, tourists, and the hospitality sector.

4.2. Research Design & Methodological Approach

The research adopts a descriptive-explanatory research design, integrating:

- ***Qualitative methods****:* Used to explore perceptions, experiences, motivations, and practices through case studies, semi-structured interviews, observations, and documentary analysis. These techniques provide in-depth contextual understanding.
- ***Quantitative methods***: Employed to measure the relationship and impact of responsible tourism initiatives on the dimensions of sustainable tourism—economic, environmental, social, and cultural using structured questionnaires and statistical tools like correlation and regression analysis.

4.2.1. Research Paradigm and Sampling

- The study applies correlational research design to examine associations without manipulating the environment.
- Sampling was done across 17 tourist destinations in Sikkim through semi-structured questionnaires, field observations, and personal interviews with various stakeholders.
- Respondents included: government and NGO representatives, SHGs, hospitality professionals, community members, and both domestic and international tourists.

4.2.3. Data Design

- ***Primary data****:* Collected through questionnaires, interviews, participant observations, and field surveys to assess responsible tourism behaviours, practices, and impacts.
- ***Secondary data***: Sourced from a wide range of national and international agencies (UNWTO, UNEP, UNDP, PATA, MoT, MoEFCC), Sikkim state departments, NGOs, academic literature, and policy documents.

A comprehensive review of literature and policy documents helped develop responsible tourism indicators across sustainability dimensions. Triangulation of data sources ensured reliability and validity.

4.2.4. Field Survey and Survey Instruments

- Extensive fieldwork filled data gaps left by secondary sources and validated research instruments.
- Field surveys facilitated:

    1. Real-time data collection
    2. On-site validation of questionnaires

3. Face-to-face interviews and photo documentation

- ***Survey instruments*** were divided into two sections:

    1. ***Responsible Tourism Initiatives*** (exogenous variable)
    2. ***Sustainable Tourism Development*** (endogenous variable)

    The instruments were tailored for three key respondent groups: local communities, hospitality industry professionals, and tourists, allowing for cross-sectional analysis.

4.2.5. Purpose and Analytical Focus

The central aim is to assess whether statistically significant relationships exist between responsible tourism initiatives and sustainable tourism outcomes. This includes:

- Determining the prevalence and characteristics of responsible tourism practices (RO1)
- Identifying sustainability-enabling factors (RO2)
- Analyzing relationships between RTI and STD (RO3)
- Measuring impacts of RTI on STD (RO4)

4.2.6. Scale Development for the Constructs

- The scale development section outlines a rigorous adaptive methodology used to construct valid and reliable measurement tools for assessing Responsible Tourism Initiatives (RTIs) and Sustainable Tourism Development (STD) in the context of Sikkim. Drawing on the Triple Bottom Line (TBL) framework like economic, social, cultural, and environmental dimensions. The study identified and refined relevant scale items through literature review, expert consultations, and stakeholder engagement. The development process included item generation, expert validation, and the elimination of redundant or low-relevance indicators. A 5-point Likert scale was employed to quantify stakeholder perceptions, ensuring standardization across various groups such as local communities, tourists, and hospitality service providers. These scales were essential to assess how stakeholders perceive, implement, and benefit from responsible tourism practices.
- The dimensions covered include economic initiatives like local hiring and entrepreneurship, social aspects such as community involvement and equitable opportunities, cultural preservation through heritage promotion and tourist education,

and environmental practices like waste management and conservation. For measuring STD, scales were adapted from established international sources such as UNEP & WTO, Mir (2021), and Mathew & Sreejesh (2017), and were similarly evaluated using Likert-scale items. Overall, the structured scale development provides a comprehensive and context-sensitive toolset to empirically examine the interrelationship between responsible tourism practices and the multidimensional goals of sustainable tourism development in tourism-dependent regions like Sikkim.

- The four core dimensions of Sustainable Tourism Development like economic, social, cultural, and environmental are measured using standardized scale items adopted from reputable sources such as UNEP & WTO (2005), Mir (2021), and Mathew & Sreejesh (2017). The economic sustainability dimension captures indicators such as integration of tourism with the local economy, skill development within communities, provision of stable employment and income, infrastructural development, and entrepreneurship support that together enhance the living standards of local residents.
- The social sustainability dimension includes indicators reflecting equitable access to livelihood for disadvantaged groups, shared infrastructure for locals and tourists, local involvement in tourism planning, satisfaction with public amenities, and mitigation of social issues like crime or over-tourism. Cultural sustainability focuses on preserving heritage sites, cultural pride, traditional arts, and landscapes, while environmental sustainability emphasizes eco-friendly practices, biodiversity conservation, pollution control, awareness initiatives, and waste reduction. These four dimensions collectively provide a holistic framework to assess the long-term viability and inclusivity of tourism development within destination regions.

4.2.7. Pretesting and Development of Questionnaire for Local Community, Tourists and Hospitality Industry

- The pretesting and development of questionnaires for the study were carried out through a multi-phase, stakeholder-informed process targeting three key groups: tourists, hospitality industry professionals, and local community members in Sikkim. Each set of questionnaires was designed to capture perspectives on responsible tourism initiatives and their influence on sustainable tourism development across economic, social, cultural, and environmental dimensions. Initial drafts were developed with inputs from academic and industry experts, followed by multiple rounds of feedback,

pilot testing, and revisions to ensure clarity, relevance, and contextual appropriateness. For tourists, the final questionnaire (reduced to 61 items) assessed demographics, travel behaviour, perceptions of responsible tourism practices, and attitudes towards sustainable tourism. Statements examined areas like local product consumption, employment, environmental behaviours, and respect for culture.

- For the hospitality industry, the final instrument (59 items) focused on their operational practices and opinions regarding sustainability, including local hiring, support for community businesses, cultural promotion, and environmental conservation measures like waste reduction and energy efficiency. Similarly, the local community questionnaire (finalized at 60 items) assessed resident perspectives on employment, entrepreneurship, cultural preservation, environmental awareness, and quality of life impacts. All questionnaires used a combination of nominal, interval, and Likert scale formats to quantify stakeholder responses. These carefully structured tools enabled the systematic collection of primary data that reflected the multifaceted relationships between responsible tourism practices and sustainable development goals within Sikkim's tourism destinations.

4.2.8. Pilot Study

The pilot study served as a foundational step in ensuring the feasibility, reliability, and validity of the research instruments used to assess responsible tourism initiatives and sustainable tourism development in Sikkim. The study aimed to minimize potential risks and refine methodologies before the main data collection. Content validity was established through expert reviews involving tourism academics, government officials, and industry professionals who evaluated the draft instruments and recommended revisions for clarity and relevance. Minor wording changes were incorporated to better reflect local contexts and stakeholder understanding. Face validity was further confirmed by distributing the revised instruments to faculty and research scholars, who verified the logical sequence and clarity of questionnaire items.

In terms of reliability, the pilot study sought to ensure internal consistency within the constructs of responsible tourism and sustainable tourism development. Responses were collected from 65 local community members, 55 tourists, and 60 hospitality industry professionals. The internal consistency of the questionnaire items was statistically tested using Cronbach’s Alpha. Following the guidelines by George & Mallery (2020), coefficients above 0.7 were considered

acceptable, with higher values indicating greater reliability. The pilot study confirmed that the measurement tools were both valid and reliable, establishing a solid foundation for full-scale data collection and subsequent quantitative analysis.

4.3. Reliability Statistics

The Cronbach's Alpha analysis revealed varied levels of scores for various aspects of responsible tourism initiatives and practices, with values of .883 for local community members,.834 for tourist respondents, and.819 for the hospitality industry participants. The Cronbach's Alpha scores for construct sustainable tourism development were .774 for local community participants, .804 for responsible tourists' respondents, and .728 for Hospitality Industry respondents who participated in the pilot survey. This indicates that respondents have high level of consistency and strongly agree with the items presented on a five-point Likert scale. As a result, statistical tests of reliability indicate that the data is both reliable and valid.

4.4. Sampling Methods

The study employed a purposive-cum-convenience sampling method, combining purposive sampling for its strategic value in selecting information-rich respondents and convenience sampling for its practical utility in covering a geographically widespread area. As endorsed by Maxwell & Loomis (2003), purposive sampling allowed the researcher to deliberately select respondents (tourists, local community members, and hospitality professionals) best suited to address the research objectives. Convenience sampling, supported by Dornyei (2007) and Etikan et al. (2016), was adopted for administering questionnaires due to factors such as limited time, participant availability, and the absence of recent, authentic census data particularly among the local communities and hospitality stakeholders making random sampling infeasible.

Regarding sample size, the study acknowledged its importance in ensuring the robustness of statistical analysis, particularly in factor analysis. A methodological approach was followed by referencing recommended ratios of sample size (N) to the number of variables (p), often described in N:p ratios. These ratios provide guidance for establishing an adequate and scientifically defensible sample size needed to extract meaningful patterns from the dataset. The sample size was therefore determined with reference to existing statistical conventions, ensuring that the study met the minimum thresholds required for valid and reliable quantitative analysis.

The study determined a sample size of 300 as adequate for factor analysis and aligned with scholarly recommendations from researchers such as Comrey & Lee (1992), Kass & Tinsley (1979), and Tabachnick & Fidell (2019), who considered 300 as a "good" sample size for quantitative research. Furthermore, the researcher followed additional guidelines suggesting an N:p ratio (number of respondents to variables) of 5:1 to 10:1. Although 400 questionnaires were administered, approximately 10% were excluded due to incompleteness, resulting in a final dataset consistent with best practices in social science research. This approach was further validated by referencing Dr. Mudasir Ahmad Mir's 2021 doctoral research, which successfully used a comparable sample size.

4.4.1. Sampling Techniques

Given the lack of authentic and up-to-date data, especially regarding responsible tourists in Sikkim, probability sampling techniques were deemed impractical. The researcher therefore adopted a purposive-cum-convenience sampling technique to effectively gather data from key stakeholder groups: tourists at various tourism sites (eco, cultural, rural, adventure, and community-based), local community members in selected villages, and hospitality professionals across accommodation facilities. The sampling design included a defined sampling frame based on accessible and relevant populations, and the sampling units comprised individuals from each stakeholder group, with the objective of assessing their perspectives, attitudes, and experiences related to responsible tourism initiatives and practices within the Sikkim tourism sector.

4.5. Data Analysis Techniques

Data analysis in this study refers to a structured and rigorous process involving the cleaning, transformation, interpretation, and modelling of complex datasets to extract meaningful insights, support inference-making, and inform decision-making. This process ensures both data accuracy and repeatability through analytical and logical validation. The primary goal is to derive conclusions that are both statistically sound and contextually relevant to responsible tourism and sustainable development.

The analytical techniques employed include graphical representations, frequency distributions, cross tabulation, descriptive statistics, principal component analysis (PCA), correlation, regression, and Chi-square tests for hypothesis testing. These methods were selected to

comprehensively interpret the data collected from various stakeholders. Additionally, the reliability and validity of the instruments used were rigorously assessed to enhance the robustness of the analysis. The significance level (α) was consistently set at 0.05, indicating a 95% confidence level in hypothesis testing and interpretation of results.

Chapter 5: Data Analysis and Interpretation

5.1. Introduction

Data screening plays a vital role in ensuring the accuracy and integrity of quantitative analysis, particularly in research related to responsible tourism and sustainable destination development. According to Kothari (2004), effective data screening enhances the reliability and validity of results by addressing potential errors, missing values, outliers, and unengaged responses. In the context of this study, data were collected from three primary stakeholder groups—local communities, tourists, and hospitality industry professionals—using structured questionnaires. A total of 438 responses were collected from local communities, 440 from tourists, and 432 from hospitality stakeholders, with 110 responses excluded due to inconsistencies or missing information.

5.1.1. Verification of Data Quality

The verification of data quality involved a systematic approach including checks for missing values, outliers, errors, and unengaged responses, followed by assessments of validity and reliability. The data analysis was structured into three broad sections. The first examined the demographic and travel-related profiles of respondents. The second involved perception analysis through cross-tabulations and Chi-square tests, while the third section employed advanced statistical techniques such as factor analysis, correlation, and regression analysis. Key variables included gender and income for analyzing local community involvement; education, travel behaviours, and income for tourist perspectives; and establishment category, sustainability policies, and certifications for evaluating hospitality sector practices. This structured analytical framework supported a comprehensive understanding of stakeholder engagement in responsible tourism initiatives in Sikkim.

5.1.2. Demographic Profile of Local Community Respondents

Out of 438 responses collected from local community members across selected destinations in Sikkim, 34 were excluded due to missing values and errors, and 4 were removed as outliers. This resulted in a final valid sample size of 400 respondents for analysis. This section focuses on analyzing key demographic characteristics such as age, gender, education, occupation, income, and involvement in tourism-related employment. These variables help in

understanding the socio-economic background and engagement level of the local community in responsible tourism practices, which is essential for assessing their perceptions and the overall impact of sustainable tourism development in the region.

5.2. Analysis of Data interpretation of local community

Section-I: Demographic Profile of respondents

The demographic profile of the 400 local community respondents in Sikkim reveals notable patterns. The majority were male (60%), and the dominant age group was 25–34 years (40%), followed by youth aged 15–24 (26%). Most respondents (59.5%) had been residing in their respective areas since birth, indicating deep-rooted local ties. Educationally, a significant proportion had attained secondary education (29.5%), while only a small fraction held postgraduate (24%) or Ph.D. (1.8%) qualifications. In terms of occupation, students made up the largest segment (43%), followed by business owners (23.3%) and government employees (17.3%), with farming comprising the smallest share (5%).

The income profile of respondents shows a concentration in the lower to middle-income brackets, with the highest proportion earning between ₹50,000–₹100,000 annually (26.8%), and a notable portion earning below ₹25,000 (25%). Direct employment in the tourism sector was reported by 36.3% of respondents, while 17% were engaged indirectly, and nearly half (46.8%) were not involved in tourism at all. These insights reflect the socio-economic diversity and varying degrees of engagement with tourism among local communities in Sikkim.

5.2. Section II Analysis of Cross Tabulation and Chi-Square

The Chi-square test is a statistical tool used to determine whether there is a significant association between two categorical variables. It is often applied through cross-tabulation, and the results are assessed using a significance level, usually set at 0.05. If the *p*-value is less than 0.05, the result is considered significant, indicating a relationship between the variables and leading to the rejection of the null hypothesis. If the *p*-value is greater than 0.05, the result is non-significant, suggesting that the variables are independent and the null hypothesis is accepted.

5.2.1. Association between Gender distribution among directly employed in Tourism related employment and Annual income

The Chi-square analysis examined the association between gender distribution and annual income among those directly employed in tourism-related employment within local communities. Among male respondents, the test showed a significant association ($\chi^2 = 36.078$, $p = 0.015$), indicating that income levels among men varied based on their engagement in tourism jobs. Specifically, some males in lower income brackets (< ₹25,000) were employed in less skilled roles, while those earning above ₹1,50,000 were likely in managerial positions. As the *p*-value was less than 0.05, the null hypothesis for male respondents was rejected, confirming a statistically significant relationship.

In contrast, for female respondents, the Chi-square value ($\chi^2 = 14.443$, $p = 0.566$) indicated no significant association between gender and income among those directly employed in tourism. Most females who were employed earned incomes in the middle range (₹50,000–₹1,00,000), typically in supervisory roles. Since the *p*-value was greater than 0.05, the null hypothesis for females was not rejected, meaning that gender and income levels among directly employed women in tourism are statistically independent.

5.3. Section III: Descriptive Statistics of Responsible Tourism Initiatives for Local Communities

The descriptive analysis of local community responses to 18 indicators of responsible tourism initiatives in Sikkim shows strong agreement among respondents. Mean values ranged from 3.77 to 4.35, indicating a generally positive perception of responsible tourism and its contribution to sustainable development. Standard deviation values between 0.744 and 0.960 reflect moderate variation in responses, suggesting broad consensus but some diversity in opinions. Overall, the data highlights that local communities largely support and recognize the importance of responsible tourism practices across economic, social, cultural, and environmental dimensions.

5.3.1. Factor Analysis (KMO and Bartlett's Test of Sphericity):

The study applied factor analysis to simplify and interpret complex data related to responsible tourism initiatives. To assess the suitability of the dataset for factor analysis, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity were conducted.

- The KMO value was 0.862, which is considered 'great', indicating that the sample is adequate for reliable factor extraction.
- Bartlett's Test of Sphericity yielded a chi-square value of 1727.97 with a significance level (P) of 0.000, which is highly significant ($P \leq 0.05$), suggesting that the variables are sufficiently correlated to proceed with factor analysis.

The results confirm that the correlations between the items mentioned are significant enough for conducting Principal Component Analysis (PCA). The factor analysis method is appropriate to analyse sample data on the most critical attributes of responsible tourism initiatives in Sikkim.

5.3.2. Communalities

The communalities in the factor analysis reflect the extent to which each variable shares common variance with other variables in the dataset. In this study, the extracted communalities ranged from 0.330 to 0.694, indicating a moderate to substantial level of shared variance among the responsible tourism initiative indicators. These values suggest that while not all the variance in each variable is explained by the extracted factors, a significant portion is retained, allowing for meaningful interpretation. This confirms that the variables are interrelated and that the factor analysis is an appropriate technique for simplifying and understanding the underlying structure of responsible tourism practices in Sikkim.

5.4. Overall reliability of Coefficient

The overall reliability of the scale, measured using Cronbach's Alpha, was found to be 0.841, indicating very good internal consistency among the 18 indicators related to responsible tourism initiatives. This value exceeds the generally accepted threshold of 0.7, confirming that the construct used in the study is reliable and that the indicators are well-correlated and consistently measure the underlying concept.

5.5. Principal Component Analysis (PCA):

The study employed Principal Component Analysis (PCA) using Varimax rotation to simplify and interpret complex data related to responsible tourism initiatives in Sikkim. Factor loadings below 0.4 were excluded to retain only significant variables. The Kaiser-Meyer-Olkin (KMO) value of 0.862 and Bartlett's Test ($p = .000$) confirmed the suitability of the data for factor analysis. PCA extracted four key factors like Economic Responsibility, Social Responsibility, Cultural Responsibility, and Environmental Responsibility with eigenvalues above 1, collectively explaining 50.64% of the total variance.

- ***Factor 1: Economic Responsibility*** (Eigenvalue = 5.007; Variance = 27.81%; α = 0.733) included seven items emphasizing local purchasing, enterprise promotion, employment generation, and skill development. The highest loading (.656) was for promoting the purchase of local products, highlighting economic empowerment through tourism.
- ***Factor 2: Social Responsibility*** (Eigenvalue = 1.500; Variance = 8.33%; $\alpha = 0.703$) included five items related to support for socially/economically disadvantaged groups, women's employment, and inclusive infrastructure. The highest loading (.738) was for promoting enterprises run by disadvantaged groups, reflecting tourism's role in social equity.
- ***Factor 3: Cultural Responsibility*** (Eigenvalue = 1.382; Variance = 7.67%; $\alpha = 0.760$) consisted of three items focused on cultural promotion and heritage appreciation. The strongest factor loading (.788) was for promoting cultural understanding and knowledge, underscoring the role of tourism in preserving Sikkim's intangible cultural heritage.
- ***Factor 4: Environmental Responsibility*** (Eigenvalue = 1.228; Variance = 6.82%; α = 0.649) encompassed water conservation, eco-friendly practices, and awareness programs. The highest loading (.753) pertained to water-saving techniques, indicating a strong emphasis on ecological sustainability practices among tourism stakeholders.

Overall, the PCA revealed that responsible tourism initiatives in Sikkim are multifaceted, covering economic, social, cultural, and environmental dimensions. The internal consistency (Cronbach's $\alpha = 0.841$) confirmed the reliability of the constructs, making them suitable for further statistical analysis and policy recommendations.

5.6. Descriptive Statistics of Sustainable Tourism Development for Local Community

The descriptive statistics of 25 sustainable tourism development indicators reveal strong and consistent perceptions among local community respondents in Sikkim. The mean scores range from 2.32 to 4.41, with many indicators scoring above 4.0, indicating a high level of agreement on several dimensions of sustainable tourism, particularly those related to cultural preservation, environmental responsibility, and basic infrastructure improvement.

Indicators such as “People respect tourists and feel proud of their local culture” (M = 4.41), “Cultural and historic heritage sites are being preserved and managed” (M = 4.29), and “Local culture, art forms and traditions are being preserved” (M = 4.29) received the highest average scores, emphasizing the community’s strong cultural pride and support for heritage conservation. Similarly, environmental indicators such as “Destination management focuses on environmental awareness/conservation” (M = 4.27) and “Minimization of damage to the natural ecosystem” (M = 4.21) were also highly rated, suggesting a broad local consensus on the value of environmental sustainability.

On the other hand, low-scoring indicators include “Social issues like crime, drug use, prostitution” (M = 2.32) and “Overcrowded hiking trails” (M = 2.94), which point to perceived socio-environmental challenges and possible negative externalities of tourism development. Other moderately rated items include “Congestion, disturbance and noise” (M = 2.92) and “Satisfaction with local infrastructure like roads and services” (M = 3.30), indicating areas where community concerns persist.

The standard deviation values range from 0.745 to 1.284, showing moderate to high variability in responses. Higher standard deviations in items such as “Social issues” and “Congestion” suggest divergent views or a lack of uniform experiences among respondents, likely influenced by geographic or demographic differences.

The local community in Sikkim generally perceives sustainable tourism development positively, especially in terms of cultural preservation, environmental conservation, and livelihood opportunities. However, concerns remain about infrastructure adequacy and emerging social and ecological challenges linked to increased tourist pressure. These findings highlight both achievements and areas needing attention in the sustainable development of tourism destinations in Sikkim.

5.7. KMO, Bartlett's Test, and Communalities for Sustainable Tourism Development Variables

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy for the factor analysis yielded a value of 0.827, which, according to Hutchesson & Sofroniou (1999), is considered 'great', suggesting that the sample is well-suited for factor analysis. The Bartlett's Test of Sphericity produced a Chi-square value of 2192.494 with 231 degrees of freedom and a significance level of $p < .000$, indicating that the variables are significantly correlated and that factor analysis is statistically justified for the dataset on sustainable tourism development in Sikkim.

The communalities derived from Principal Component Analysis (PCA) range from 0.421 to 0.707, signifying that a substantial portion of the variance in each variable is explained by the extracted common factors. Variables such as *"Destination management focuses on environmental awareness/conservation"* (communalities = 0.707), *"Satisfied with roads and infrastructure"* (0.686), and *"Destination provides open spaces and amenities"* (0.645) show high communalities, indicating that these variables share a strong common variance with the overall construct of sustainable tourism.

On the other hand, indicators like *"Local community, business stakeholders, and travelers are sensitive about environmental concerns"* show lower communalities (0.421), suggesting relatively less shared variance with other variables but still within acceptable range. The results overall confirm that sustainable tourism development indicators are interrelated, validating the use of PCA for further dimensional reduction and structural interpretation. This analysis contributes to identifying core factors shaping sustainable tourism practices in Sikkim.

5.8. Overall reliability of Coefficient

The overall reliability of the construct measured through 18 indicators was assessed using Cronbach's Alpha, a widely accepted statistical tool in management and social science research. The Cronbach's Alpha value was found to be 0.787, which falls within the acceptable threshold of 0.7 to 0.8, indicating very good internal consistency among the indicators. This result confirms that the items used in the scale are reliably interrelated and measure a coherent construct relevant to the study of sustainable tourism development.

5.9. Principal Component Analysis

The Principal Component Analysis (PCA) conducted in the study aimed to extract key dimensions underlying sustainable tourism development in Sikkim based on 22 indicators. Using Varimax rotation, five uncorrelated and interpretable factors were identified, cumulatively explaining 52.51% of the total variance, with Cronbach's Alpha values exceeding 0.6 for all components, indicating satisfactory internal consistency.

- ***Factor 1: Environmental Consciousness and Sustainable Tourism Practices*** (22.86% variance; α = .759) included variables such as environmental awareness by destination managers, eco-system protection, pollution control, and stakeholder sensitivity—highlighting the ecological focus of tourism development.
- ***Factor 2: Sustainable Tourism Development and Cultural Heritage Preservation*** (10.36% variance; α = .717) encompassed indicators related to landscape preservation, promotion of local culture and heritage, and environmental harmony, stressing the integration of cultural heritage with sustainable planning.
- ***Factor 3: Community-Centered Inclusive Destination Development*** (7.07% variance; α = .654) included infrastructure designed to meet community and visitor needs, opportunities for marginalized groups, and participatory planning—underscoring the need for inclusive governance in tourism.
- ***Factor 4: Negative Social and Environmental Impacts on Destination*** (6.30% variance; α = .674) reflected challenges such as congestion, overcrowded trails, and social issues—signifying concerns over unregulated or mass tourism in fragile areas.
- ***Factor 5: Socio-Economic Development and Well-being of Local Community*** (5.90% variance; α = .649) comprised variables like skills development, income stability, enterprise growth, and improved living standards—demonstrating the economic benefits accrued from tourism.

Overall, the PCA results validate that sustainable tourism development in Sikkim is multifaceted, with strong interrelations across environmental stewardship, cultural preservation, social inclusivity, economic well-being, and mitigation of negative impacts. The findings advocate for integrated, community-oriented tourism governance that emphasizes sustainability across all dimensions.

5.10. Relationship between Responsible Tourism Initiatives and Sustainable Tourism Development at the local Community Level.

A Pearson correlation analysis was conducted to examine the strength and direction of the linear relationship between Responsible Tourism Initiatives (MLCRTI) and Sustainable Tourism Development (MLCSTD) at the local community level in Sikkim. The results show a moderately positive and statistically significant correlation between the two constructs, with a correlation coefficient of $r = 0.509$ at $p < 0.01$ ($N = 400$). This suggests that as responsible tourism initiatives increase, perceptions and outcomes related to sustainable tourism development also tend to improve.

The null hypothesis (H_0), which posited no significant relationship between the two variables, is therefore rejected, affirming a meaningful association between responsible tourism practices and sustainable development outcomes in the community context.

5.11. Regression Analysis Between Independent and Dependent Factors

The impact of Responsible Tourism Initiatives on Sustainable Tourism Development in local community

Regression analysis was employed to investigate the relationship between Responsible Tourism Initiatives (RTI) as the independent variable and Sustainable Tourism Development (STD) as the dependent variable, based on local community-level data. The analysis used factor scores derived from Principal Component Analysis (PCA), where four RTI-related factors and five STD-related factors were extracted and grouped. These composite constructs were statistically tested to assess how RTI influences or predicts STD outcomes.

The null hypothesis (H_0), which posits that responsible tourism initiatives at the local level are independent of sustainable tourism development, forms the basis of the test. The purpose of this analysis was to determine whether and to what extent initiatives in responsible tourism significantly explain the variance in sustainable tourism development at the community level.

The regression analysis reveals a statistically significant and positive relationship between Responsible Tourism Initiatives (RTI) and Sustainable Tourism Development (STD) at the local community level in Sikkim. The model explains 26% of the variance in sustainable tourism development outcomes ($R^2 = 0.260$), indicating that RTI is a meaningful predictor of

STD. The F-value (139.527, $p < .000$) from the ANOVA test confirms the overall model's statistical significance. Moreover, the standardized regression coefficient (Beta = 0.509, $p < .000$) suggests a strong positive influence of RTI on STD. The unstandardized coefficient (B = 0.456) implies that for every one-unit increase in RTI, there is a corresponding 0.456 unit increase in STD, holding other factors constant.

Therefore, the null hypothesis is rejected, confirming that responsible tourism initiatives significantly contribute to sustainable tourism development in Sikkim, particularly from the perspective of local community engagement and benefit.

5.12. Analysis of Data interpretation of Tourists

5.12.1. Section-I (Part A): Demographic Profile of respondents

A total of 400 valid tourist responses were analysed after removing 34 unengaged cases and 6 outliers. The demographic profile of tourists visiting Sikkim reveals key insights relevant to tourism planning and marketing. A significant majority of tourists were male (68.5%), while females constituted 31.5% of the respondents. In terms of age, the largest group was aged 25–34 years (38.3%), followed by 15–24 (21.8%), 35–44 (21.5%), 45–54 (12.5%), 55–64 (3.3%), and those above 65 years (2.8%). Educationally, tourists were largely well-qualified, with a high proportion holding graduate and postgraduate degrees. Employment status data show that 29.8% of tourists were private sector employees, 28.5% were businesspersons, 22.8% were unemployed, 16.5% were in government service, and 2.5% were retired. Regarding monthly income, tourists were nearly evenly distributed across income brackets, with 26.3% earning less than ₹25,000, 25.3% earning between ₹25,000–₹50,000, and 24.3% each earning between ₹50,000–₹1,00,000 and above ₹2,00,000. This diversity in gender, age, education, employment, and income underscores a varied tourist demographic, offering valuable input for sustainable and inclusive tourism strategies in Sikkim.

5.12.2. Section-I (Part B): Travel related information of respondents

The analysis of travel-related information from 400 surveyed tourists in Sikkim reveals key insights into domestic and international tourism trends, motivations, and preferences. Most domestic tourists hailed from West Bengal (24.3%), followed by states like Delhi, Karnataka, and Assam, while international visitors primarily came from Bangladesh (14.3%) and Nepal

(11.5%). Ecotourism emerged as the leading purpose of visit (n=168), with other motivations including rest and relaxation, culture, spirituality, and adventure. Regarding travel information, the internet was the dominant source (n=125), followed by travel agencies and traditional media. In terms of services availed, hotel reservations (n=350), package tours (n=260), and local guides (n=220) were the most commonly used, highlighting tourist reliance on formal hospitality and transport services. Accommodation preferences showed an almost equal split between homestays (n=141) and hotels (n=140), with smaller numbers opting for tents, hostels, and family stays. Nature, culture, and heritage were the main factors contributing to Sikkim's tourism attractiveness (n=360), alongside safety, professionalism of locals, and ease of access. These findings provide crucial inputs for improving destination management, enhancing infrastructure, and promoting sustainable and responsible tourism in Sikkim.

5.13. Section II: Cross tabulation and Chi-Square Analysis of Tourists Data

5.13.1. Association between Educational Qualification and Purpose of visit to Sikkim

The cross-tabulation analysis between Educational Qualification and Purpose of Visit to Sikkim reveals a statistically significant association between these two variables. Among 400 surveyed tourists, a large majority (315 respondents) possessed higher educational qualifications—namely graduate, postgraduate, and Ph.D. degrees—while only 13 had up to secondary education. Notably, 76 out of 164 graduates and 58 out of 134 postgraduates visited Sikkim for ecotourism, suggesting a strong preference among highly educated tourists for environmentally responsible and sustainable travel, likely motivated by academic, educational, or research interests. In contrast, tourists with lower educational levels tended to visit Sikkim more for rest, relaxation, or other recreational purposes.

The Pearson Chi-Square test result ($\chi^2 = 32.091$, $df = 20$, $p = 0.042$) confirms this relationship to be statistically significant at the 5% level, leading to the rejection of the null hypothesis. Therefore, the findings establish that educational qualification significantly influences the purpose of tourists' visits to Sikkim, emphasizing the role of education in shaping responsible tourism preferences and behaviours.

5.13.2. Association between Education qualification and source of information about Sikkim

The cross-tabulation analysis between Educational Qualification and Sources of Information about Sikkim reveals that the majority of tourists, regardless of their educational background, accessed information primarily through Internet/Websites (n=125), followed by Travel Agencies/Tour Operators (n=93), and Magazines/Newspapers/TV (n=92). Only a minimal number of respondents (n=9) obtained information through other sources.

Despite these usage patterns, the Chi-Square test result ($\chi^2 = 20.139$, df = 20, p = 0.449) indicates that the association between educational qualification and source of information is not statistically significant at the 5% level. Therefore, the null hypothesis is not rejected, confirming that educational qualification and sources of information about Sikkim are independent variables.

This implies that tourists across all educational levels use similar platforms particularly digital and travel-related services to gather destination information, reflecting the general accessibility and widespread reliance on online and organized travel sources for tourism planning.

5.13.3. Association between Purpose of visit to Sikkim and Type of Accommodation during stay in Sikkim

The cross-tabulation between Purpose of Visit to Sikkim and Type of Accommodation Used reveals a significant association between the two variables. Among 400 tourist respondents, homestays (n=141) and hotels (n=140) were the most frequently used accommodations. Specifically, ecotourism visitors prominently chose homestays (n=68) and hotels (n=66), reflecting a preference for immersive and locally integrated lodging options. Tourists visiting for rest and relaxation also commonly used hotels (n=24) and homestays (n=19), while adventure tourists utilized a broader mix, including tent/caravan stays (n=19).

The Chi-Square test result ($\chi^2 = 67.639$, df = 25, p = 0.001) indicates a statistically significant relationship, leading to the rejection of the null hypothesis. This suggests that tourists' accommodation choices in Sikkim are influenced by their travel motivations, with distinct patterns emerging across categories such as ecotourism, culture, spirituality, and adventure,

reinforcing the interdependency of travel purpose and accommodation preference in destination planning.

5.13.4. Association between Purpose of visit to Sikkim and services availed during visit during stay in Sikkim

The cross-tabulation analysis between Purpose of Visit and Services Availed During Visit to Sikkim demonstrates a statistically significant relationship between the two variables. Among the 400 tourists surveyed, the most availed services included hotel reservations (n=115), guide services (n=108), and public transportation (n=77). Specifically, ecotourists showed a marked tendency to avail hotel reservations (n=59), guide services (n=37), and public transportation (n=32) highlighting a preference for sustainable and locally supportive services.

The Chi-Square test value ($\chi^2 = 53.947$, df = 30, p = 0.005) confirms a significant association between the purpose of visit and the types of services utilized. As a result, the null hypothesis is rejected, indicating that tourists' motivations (ecotourism, cultural, spiritual, etc.) significantly influence their choice of tourism-related services. These findings reinforce the need for differentiated service offerings and targeted marketing strategies that align with diverse tourist expectations and behaviours in Sikkim.

5.13.5. Association between Purpose of visit and monthly income of tourists visiting Sikkim

The cross-tabulation analysis between purpose of visit and monthly income of tourists in Sikkim reveals varying income-based travel motivations but lacks a statistically significant association. Of the 400 respondents, the largest segment (n=105) had a monthly income below ₹25,000, indicating a notable preference for budget-friendly tourism. Interestingly, a majority of ecotourists (n=88 out of 168) reported income levels above ₹50,000, suggesting that higher-income individuals are more inclined toward environmentally conscious travel. Conversely, leisure tourists (rest and relaxation) and those seeking cultural experiences primarily came from the lower-income brackets (below ₹50,000).

The Chi-Square test value ($\chi^2 = 28.107$, df = 15, p = 0.021), although below 0.05, was interpreted as not statistically significant within the context of this study possibly due to the multiple categories and sample distribution. Consequently, the null hypothesis is not rejected,

implying no strong association between tourists' income levels and their stated purpose of visit. This suggests that diverse income groups participate in various tourism activities in Sikkim without a dominant income-based pattern of preference.

5.13.6. Association between monthly income and duration of stay of tourists in Sikkim

The cross-tabulation between monthly income and duration of stay of tourists in Sikkim indicates no statistically significant association between the two variables. Among the 400 respondents, the highest number of tourists (n=143) stayed for more than 5 days, followed by 126 for 4–5 days, 124 for 2–3 days, and only 7 tourists stayed for 1 day. Notably, tourists from both lower-income (below ₹25,000) and higher-income (above ₹2 lakhs) groups were found across all categories of stay duration. For instance, 28 low-income tourists stayed for more than 5 days, and 32 mid-income tourists (₹25,000–₹50,000) also reported extended stays, while only 26 high-income tourists stayed for 2–3 days. These results suggest that income level does not determine the length of visit.

The Pearson Chi-Square test value ($\chi^2 = 13.564$, df = 9, p = 0.139) exceeds the 0.05 threshold, thus the null hypothesis is not rejected. Therefore, monthly income and duration of stay in Sikkim are statistically independent, indicating that travel length is likely influenced by other factors such as purpose, personal preferences, or travel itineraries rather than income alone.

5.13.7. Association between monthly income and frequency of visit of tourists to Sikkim

The cross-tabulation between monthly income of tourists and their frequency of visits to Sikkim reveals a statistically significant association between these two variables. Among the 400 respondents, 243 tourists (60.8%) were first-time visitors, followed by 97 (24.3%) who visited 2–3 times, 33 (8.3%) visited 4–5 times, and 27 (6.8%) visited more than 5 times. Notably, 67 out of 105 low-income tourists (monthly income < ₹25,000) were first-time visitors, suggesting that lower-income groups are more likely to explore Sikkim as a new destination, possibly due to its affordability. On the other hand, only 3 high-income tourists (above ₹2 lakhs) had visited more than 5 times, indicating that higher-income groups might either have diverse travel patterns or different destination preferences.

The Pearson Chi-Square value of 23.302 (df = 9, p = 0.006) is statistically significant at the 0.05 level, leading to rejection of the null hypothesis. Therefore, it can be concluded that

monthly income and frequency of visit to Sikkim are significantly associated, implying that income levels may influence how often tourists return to the destination.

5.14. Descriptive Statistics of Responsible Tourism Behaviours of Tourists

The descriptive statistics of tourists' perceptions regarding 22 indicators of responsible tourism initiatives (RTIs) and behaviours towards sustainable tourism development (STD) in Sikkim reveal a generally high level of agreement among respondents. The mean scores for these indicators range from 3.78 to 4.49 on a 5-point Likert scale, indicating favourable and consistent attitudes toward responsible tourism practices. Indicators with the highest mean values include: *"Responsible tourism initiatives provide opportunities for teaching local cultures"* (Mean = 4.49), *"Respect for local culture and tradition"* (Mean = 4.44), and *"Avoiding littering and acting sustainably"* (Mean = 4.44), signifying that tourists strongly endorse cultural respect and environmentally responsible behaviours.

The standard deviation values, ranging from .646 to .984, suggest moderate variability in responses, with most indicators showing relatively low dispersion, implying a consensus among tourists. For example, responses on *"Promoting engagement with local communities"* (SD = .646) and *"Creating respect for local traditions"* (SD = .691) had the least variance, reflecting a high level of agreement. Meanwhile, indicators such as *"Choosing travel insurance or getting vaccinated"* (SD = .964) and *"Booking through local travel agents"* (SD = .942) showed slightly greater variability, indicating some divergence in behaviour.

Overall, the findings indicate that tourists visiting Sikkim demonstrate a strong orientation towards responsible tourism, with widespread support for initiatives that support local economies, cultural authenticity, environmental conservation, and social responsibility. This alignment reinforces the relevance and impact of RTIs in shaping sustainable tourism patterns in the region.

5.14.1. Factor Analysis: Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity and Communalities

The factor analysis undertaken in this section aimed to identify underlying patterns and interrelationships among 22 observed variables related to responsible tourism initiatives and

tourist behaviours in the context of Sikkim. The Kaiser-Meyer-Olkin (KMO) measure of 0.858 and Bartlett's Test of Sphericity (Chi-square = 2246.411, $p < 0.001$) confirmed the sampling adequacy and significance of correlations among variables, thereby validating the dataset's suitability for Principal Component Analysis (PCA).

The analysis of communalities, which measure how much variance in each item is explained by the extracted components, yielded post-extraction values ranging from 0.347 to 0.686. These values demonstrate that while some variance is inevitably lost during data reduction, a substantial portion of each variable's variance is shared with other variables. High communalities for items like *"respect for local culture and tradition"* (0.686), *"teaching local cultures"* (0.626), and *"conserving water"* (0.708) indicate strong shared variance and interdependence among these indicators. Lower values such as *"consciously switching off electronic devices"* (0.347) suggest relatively weaker commonality.

Overall, the findings from the KMO, Bartlett's test, and communality scores indicate that the dataset is well-suited for dimensional reduction through PCA. The interrelatedness of indicators supports the existence of latent constructs that meaningfully represent tourists' perceptions and behaviours towards responsible tourism. This analysis forms a strong statistical foundation for identifying core dimensions of sustainable and responsible tourism development in Sikkim.

5.15. Overall Reliability of Coefficient

The reliability analysis using Cronbach's Alpha reveals that the overall internal consistency of the 13 indicators related to responsible tourism initiatives is very good, with a Cronbach's Alpha value of 0.747. This score falls within the acceptable threshold range (0.7–0.8), confirming that the scale used in the study is statistically reliable and the selected indicators are consistently interrelated. Thus, the construct used to measure responsible tourism behaviours demonstrates sound measurement reliability, supporting its use in further inferential and structural analysis.

5.15.1. Principal Component Analysis

The Principal Component Analysis (PCA) conducted on 13 key indicators of responsible tourism initiatives in Sikkim successfully identified four distinct underlying factors, explaining

a cumulative 52.92% of the total variance. These factors represent major dimensions of tourist behaviours and attitudes toward sustainable tourism.

The first factor, **"*Commitment to sustainability and respect for local cultures and traditions*,"** had the highest explanatory power (25.70%) and reflected responsible behaviours such as using public transport and engaging with local communities.

The second factor, **"*Environmentally responsible practices by accommodations and tourists,"*** highlighted eco-friendly infrastructure and energy-conscious tourist behaviours, contributing 10.63% of the variance.

The third factor, **"*Education on responsible and ethical tourism behaviours,"*** underscored the importance of providing tourists with information on codes of conduct, child labour prohibition, and health precautions.

The fourth factor, **"*Fostering local economic development and community empowerment*,"** emphasized tourists' support for local goods, services, and fair pricing mechanisms.

The overall Cronbach's Alpha reliability coefficient of 0.747 indicates good internal consistency of the indicators, validating the robustness of the measurement scale. Each factor's Cronbach's Alpha ranged from 0.411 to 0.657, showing moderate to strong internal reliability. This factor structure demonstrates that responsible tourism in Sikkim is multidimensional rooted in sustainability, environmental consciousness, tourist education, and support for local economies. The findings underscore that tourists in Sikkim generally display strong alignment with responsible tourism principles, providing critical insights for policymakers, tourism planners, and local stakeholders to further institutionalize sustainable tourism practices across the state.

5.16. Descriptive Statistics of perception and opinions on Destination Sustainability of Tourists

The descriptive statistical analysis of 21 indicators related to sustainable tourism development in Sikkim, as perceived by local community respondents, reveals a generally positive and consistent outlook. The mean scores range from 2.31 to 4.42, suggesting that most respondents agree with the indicators reflecting sustainable development practices, while only a few indicators point to concern or disagreement. High mean values particularly for items such as

the preservation of natural areas (M = 4.41), respect for tourists and local culture (M = 4.42), and promotion of local traditions (M = 4.33) indicate strong consensus on the effectiveness of sustainability-oriented tourism practices and cultural preservation efforts in the region. Conversely, lower means, such as for issues like tourism-induced crime or drug use (M = 2.31) and overcrowding at popular sites (M = 2.88), suggest moderate concerns among residents regarding the social downsides of tourism.

The standard deviation values, ranging from 0.747 to 1.325, show variation in the level of agreement across different indicators, which implies that while certain dimensions (e.g., environmental and cultural sustainability) are broadly accepted, there is divergent opinion on areas like infrastructure adequacy and social impacts of tourism. The relatively higher variability in standard deviation for indicators such as overcrowding and crime reflects greater disagreement or diverse lived experiences among community members. Overall, the findings depict that local communities in Sikkim are well-aligned with the principles of sustainable tourism, especially in terms of environmental protection, cultural preservation, and economic participation, though challenges related to infrastructure sufficiency and social pressures remain areas of concern.

5.17. Factor Analysis: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity and Communalities

The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity confirm the appropriateness of the dataset for conducting factor analysis on sustainable tourism development variables in Sikkim. The KMO value of 0.888 indicates great sampling adequacy, as per Hutchesson & Sofroniou (1999), and Bartlett's test of sphericity yields a statistically significant chi-square value of 3314.276 (df = 210, p = .000). This result confirms that the variables are sufficiently correlated and not independent, validating the suitability of Principal Component Analysis (PCA) for dimension reduction and identifying key latent factors.

The communalities, which indicate the amount of variance in each variable explained by the extracted factors, range from 0.471 to 0.744. These values suggest a moderate to strong shared variance among the 21 variables representing perceptions of sustainable tourism development. High communalities—for instance, variables such as "destination management focuses on environmental awareness/conservation" (0.744) and "social issues due to irresponsible tourism" (0.729) highlight significant inter-correlation among key constructs. This reinforces

that the variables selected for the analysis are interconnected and relevant, capturing diverse but related dimensions of sustainability such as environmental conservation, community well-being, infrastructure adequacy, and social impacts of tourism.

5.18. Principal Component Analysis

The Principal Component Analysis (PCA) conducted on sustainable tourism development indicators in Sikkim resulted in the extraction of four key uncorrelated factors that cumulatively explain 58.05% of the total variance, indicating a strong underlying structure among the variables. The overall Cronbach's Alpha reliability score was 0.831, confirming very good internal consistency across the 18 items assessed.

Factor 1: Sustainable Tourism Development and Destination Sustainability (Eigenvalue = 5.987, Variance = 33.26%, α = 0.824) includes 8 indicators such as entrepreneurial opportunities for local communities, employment in tourism, heritage preservation, and improvement in basic needs and infrastructure. The highest loading (.705) was for promoting local entrepreneurship, indicating its central role in achieving sustainable tourism.

Factor 2: Environmental Sustainability (Eigenvalue = 2.016, Variance = 11.20%, α = 0.857) captures 5 variables emphasizing environmental awareness, stakeholder sensitivity, cleanliness, and biodiversity conservation. The highest loading (.832) was for destination management focusing on environmental conservation, reinforcing the critical role of ecological stewardship in sustainable tourism.

Factor 3: Quality of Destination Infrastructure and Community Engagement (Eigenvalue = 1.366, Variance = 7.59%, α = 0.539) includes satisfaction with roads and services, community pride, and adequacy of basic infrastructure. Tourists' satisfaction with infrastructure (.773 loading) underscores the importance of well-developed public utilities and services in enhancing tourism experiences.

Factor 4: Negative Impacts of Unregulated Tourism Growth (Eigenvalue = 1.081, Variance = 6.00%, α = 0.756) comprises two items—overcrowding at tourist hotspots and increase in social issues due to irresponsible tourist behavior. High factor loadings (.861 and .859) suggest growing concern over unmanaged tourism's adverse effects on local communities and destination integrity.

Overall, the PCA provides a clear empirical framework illustrating how sustainable tourism in Sikkim is multidimensional, involving economic inclusion, environmental responsibility, infrastructure adequacy, and the management of negative externalities.

5.19. Relationship between Responsible Tourism Initiatives and Sustainable Tourism Development for Tourists.

The relationship between Responsible Tourism Initiatives (MTRTI) and Sustainable Tourism Development (MTSTD) among tourists in Sikkim was assessed using Pearson's correlation analysis, which revealed a moderate positive correlation ($r = 0.410$, $p < 0.01$) based on data from 400 tourist respondents.

This statistically significant result ($p < 0.01$) rejects the null hypothesis (H_0) and confirms that an increase in responsible tourist behaviours is positively associated with improved sustainable tourism development outcomes.

The findings underscore that tourists' engagement in responsible actions such as supporting local economies, respecting cultural values, and adopting environmentally sustainable practices meaningfully contributes to advancing sustainable tourism development in the region.

5.20. Regression Analysis Between Independent and Dependent Factors

The impact of Responsible Tourism Initiatives and Sustainable Tourism Development for Tourists

The regression analysis was conducted to examine the influence of Responsible Tourism Initiatives (RTI) on Sustainable Tourism Development (STD) from the perspective of tourist behaviour. The model revealed a moderate relationship, with an R^2 value of 0.168, indicating that approximately 16.8% of the variation in sustainable tourism development can be explained by responsible tourism practices adopted by tourists. This is supported by the significant F-value ($F = 80.591$, $p < 0.001$), confirming that the regression model is statistically valid.

The standardized beta coefficient ($\beta = 0.410$, $p < 0.001$) further affirms that RTI significantly and positively influences STD. As such, the null hypothesis (H_0), which proposed that RTI and STD are independent, is rejected. These findings clearly demonstrate that tourists' responsible actions such as environmental consciousness, cultural respect, and local economic participation

serve as meaningful predictors of sustainable tourism outcomes in Sikkim. Therefore, encouraging responsible tourist behaviours is essential for achieving long-term sustainability in the region's tourism sector.

5.21. Analysis of Data interpretation Hospitality Industry

5.21.1. Section-I: Institutional profiling of the Hospitality Industry

The institutional profiling of 400 hospitality establishments across various destinations in Sikkim reveals significant insights into the sector's alignment with sustainability and responsible tourism practices. From the total 432 responses, 27 invalid and 5 outlier cases were excluded, resulting in 400 valid cases.

The analysis of accommodation types shows that hotels (45.8%) and homestays (42.5%) dominate the landscape, followed by restaurants, campsites, and a minimal presence of resorts. Geographically, hospitality establishments are concentrated in Pelling (15.3%), Gangtok (13.8%), and Lachung (12.3%), with representation across a wide range of destinations including rural and ecotourism sites like Yuksom, Dzongu, Ravangla, and Rolep.

An overwhelming 98% of hospitality units claim to be linked to sustainability in operations, while 57% report having a formal sustainability policy or strategy. Key challenges faced by these establishments include waste management (n=360), energy conservation (n=286), water conservation (n=271), staff awareness (n=246), and green procurement (n=209). In terms of responsible tourism (RT) practices, energy-efficient lighting (n=68) and waste management (n=61) are the most commonly implemented initiatives, followed by bans on plastic use, promotion of local guides, and conducting cultural programs. Some units also promote water conservation, reuse of linens, local food sourcing, and environmental donations. However, more niche practices like offering vegetarian/vegan meals are still limited (n=15).

Sustainability certifications are viewed very favourably: 95% of establishments expressed interest in acquiring such credentials. The most valued prospective benefits include resource and cost savings (n=286), brand enhancement (n=259), increased sustainability awareness (n=233), and competitive advantage (n=198). Other anticipated gains are regulatory compliance, customer loyalty, and employee retention. Crucially, 92% of respondents affirmed that government-led Responsible Tourism Initiatives (RTIs) play a vital role in driving the

sustainable development of tourism destinations in Sikkim. This reflects the perceived importance of governance, policy support, and strategic planning in fostering environmentally and socially responsible tourism ecosystems.

5.22. Section II: Cross tabulation and Chi-square Analysis of Hospitality Industry

Association between category of Hospitality establishment and sustainability concerns.

The association between different categories of hospitality establishments (such as hotels, homestays, campsites, resorts, and restaurants) and their prioritization of various sustainability concerns. The key concerns examined include waste management, energy conservation, water conservation, staff awareness on sustainability, and green procurement.

The cross-tabulated results reveal that hotels and homestays are the most proactive in addressing these concerns. For example, 162 hotels and 157 homestays prioritized waste management, making it the most widely acknowledged concern. Similarly, energy conservation was highlighted by 128 hotels and 125 homestays, while water conservation was flagged by 126 hotels and 110 homestays. Staff awareness on sustainability and green procurement was comparatively less prioritized, with green procurement being the least addressed concern.

The Pearson Chi-Square value of 36.885 with 20 degrees of freedom and a significance level (p-value) of 0.012 indicates that there is a statistically significant association between the type of hospitality establishment and their respective sustainability concerns.

Hence, the null hypothesis (H_0), stating that there is no significant association, is rejected. This finding implies that sustainability priorities vary meaningfully across different types of hospitality enterprises in Sikkim, reflecting diverse operational capacities, resource availability, and sustainability awareness within each category.

***Association between responsible tourism initiatives implemented by hospitality Industry and sustainability policy or strategy across various categories of hospitality establishments*.**

The analysis investigates the association between responsible tourism initiatives (RTIs) implemented by the hospitality industry and the presence or absence of sustainability policies across different categories of establishments (hotels, homestays, restaurants, campsites, etc.) in

Sikkim. Out of 400 surveyed establishments, 228 (57%) had adopted a sustainability policy/strategy, while 172 (43%) had not. Among those with a policy, homestays (104) and hotels (101) were the most represented, indicating a higher sustainability orientation in these categories.

A range of responsible tourism practices were implemented, including energy-efficient lighting (68 units), waste management (51), ban on plastic use (51), local guide services (51), and other measures such as installing water-efficient toilets, promoting cultural programmes, offering local/organic food, and supporting environmental charities.

The Chi-Square tests conducted to examine statistical associations confirmed significant relationships between the implementation of RTIs and the presence or absence of a sustainability policy across the various types of establishments. The Pearson Chi-Square values were 48.367 ($p = 0.007$) for the presence of a sustainability policy and 47.388 ($p = 0.009$) for its absence, both below the 0.05 threshold.

These findings reject the null hypotheses (Ho) and establish that there is a statistically significant association between RTI implementation and the existence (or lack) of sustainability policies across hospitality sectors.

In essence, properties that implement responsible tourism practices are more likely to have formal sustainability policies in place, and conversely, the lack of such policies correlates with fewer RT practices highlighting the interdependence between institutional commitment to sustainability and practical implementation of RT initiatives.

Association between Sustainability Certification and Benefits of Certification among Hospitality Establishments.

The relationship between participation in sustainability certification programs and the perceived benefits across various categories of hospitality establishments in Sikkim. Among the 400 hospitality units surveyed, a substantial majority (n=360) expressed a willingness to participate in sustainability certification programs. The most frequently cited perceived benefits included resource and cost savings (n=145), followed by regulatory compliance (n=76), competitive advantage (n=34), increased brand value (n=33), and customer loyalty (n=30). This indicates a strong collective perception among hospitality operators that

certification enhances operational efficiency, market positioning, and environmental responsibility.

However, the results of the Pearson Chi-Square test ($\chi^2 = 4.369$, df = 7, p = 0.736) reveal that there is no statistically significant association between participation in sustainability certification programs and the perceived benefits when disaggregated by type of hospitality establishment.

This implies that the perceived benefits of certification are generally consistent across categories such as hotels, homestays, restaurants, and campsites. Therefore, while sustainability certifications are broadly viewed as advantageous, the motivations for adopting them do not significantly differ by establishment type, suggesting a sector-wide recognition of their value.

5.23. Section III: Descriptive Statistics on Responsible Tourism Practices and Initiatives Implemented by the Hospitality Industry.

The descriptive statistical analysis of 26 responsible tourism indicators provides comprehensive insights into the extent of responsible tourism practices implemented by the hospitality industry in Sikkim.

The mean values for these indicators range between 3.65 and 4.77, reflecting a generally high level of agreement among hospitality stakeholders regarding the adoption and relevance of responsible tourism initiatives. Particularly high mean scores were recorded for indicators such as the use of energy-efficient lights (M = 4.77), environmental conservation and protection of natural ecosystems (M = 4.68), prohibition of child labour (M = 4.65), and ban on plastic bottles and bags (M = 4.61). These scores suggest that environmental and ethical concerns are strongly prioritized by the sector. Additionally, indicators related to local employment, sourcing, culture, and heritage promotion—such as the promotion of local entrepreneurship (M = 4.41), inclusion of local cuisine (M = 4.57), and cultural awareness (M = 4.54)—also received substantial consensus, underlining the industry's commitment to community-based and culturally respectful tourism.

The standard deviation values range from 0.493 to 2.129, indicating variability in agreement levels. While most indicators showed moderate to low variability, suggesting consensus among

respondents, a few indicators such as community engagement in decision-making (SD = 2.129) displayed higher standard deviation, reflecting diverse opinions or uneven implementation across establishments. Overall, the findings indicate that responsible tourism practices are widely embraced by Sikkim's hospitality industry, with strong support for environmental sustainability, cultural preservation, and community inclusion. The statistical variance also suggests areas where further standardization, capacity-building, or policy intervention may be required to ensure consistent implementation across the sector.

5.24. Factor Analysis: Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity and Communalities.

The results of the Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity confirm that the dataset is statistically appropriate for Principal Component Analysis (PCA). The KMO value of 0.868 is classified as 'great' according to Hutchesson & Sofroniou (1999), indicating excellent sampling adequacy and strong intercorrelations among variables. Additionally, Bartlett's test yields a highly significant Chi-square value ($\chi^2 = 2973.904$, df = 325, $p < 0.001$), rejecting the null hypothesis of variable independence. These results affirm that the dataset is well-suited for factor extraction and dimensionality reduction in the context of evaluating responsible tourism initiatives in Sikkim.

The communalities, which reflect the proportion of variance explained by the extracted components, range from 0.442 to 0.646, indicating a moderate to high level of shared variance among the variables. This suggests that the items such as community participation, local procurement, energy efficiency, and cultural heritage promotion are meaningfully interrelated. Thus, the factor analysis method is valid for identifying key components that define responsible tourism practices, further reinforcing the empirical robustness of the study's framework on sustainable tourism development in Sikkim.

5.25. Overall reliability of Coefficient

The reliability analysis using Cronbach's Alpha yielded a coefficient of 0.807 across 21 indicators. This value exceeds the generally accepted threshold of 0.7, indicating very good internal consistency among the items measuring the construct of responsible tourism initiatives. Such a score suggests that the scale used in the study is statistically reliable and that the

indicators are consistently related, providing confidence in the overall measurement framework applied in assessing responsible tourism practices within Sikkim's hospitality sector.

5.26. Principal Component Analysis

The Principal Component Analysis (PCA) identified five key factors explaining the implementation of responsible tourism initiatives within Sikkim's hospitality sector. These factors collectively account for 52.04% of the total variance, reflecting diverse but interconnected dimensions of sustainable tourism practices.

1. ***Local Economic Development and Community-Based Empowerment through Tourism*** emerged as the most dominant factor, explaining 26.26% of variance with a strong reliability score of Cronbach's Alpha = .858. It included nine variables emphasizing employment generation, support for local businesses, sourcing local produce, and promoting entrepreneurship. The highest loading was observed for the provision of livelihood opportunities for socially and economically marginalized groups (.745), highlighting tourism's potential in inclusive economic development.
2. ***Responsible and Ethical Tourism Practices*** accounted for 8.03% of variance with a modest reliability score of .392. It focused on environmentally and socially responsible behaviors like banning plastic, using eco-products, cultural sensitivity, and prohibiting child labor. The highest factor loading was seen for encouraging the use of eco-friendly products (.699), indicating widespread support for environmental ethics in tourism.
3. ***Cultural Heritage Promotion and Preservation*** explained 6.75% of the variance (Cronbach's Alpha = .582), comprising variables that support the promotion of local arts, culture, and traditions. The top-loading item was promoting local arts and handicrafts (.738), reflecting a strong linkage between tourism and intangible cultural heritage.
4. ***Community Involvement and Participatory Governance*** represented 5.74% of variance (Alpha = .404), comprising indicators like engagement with local governance, restoration of degraded sites, and community participation in destination planning. The highest loading item was engagement with local self-government bodies for community development (.759), indicating the importance of decentralized, inclusive planning in tourism.
5. ***Responsible Environmental Management,*** accounting for 5.25% of variance (Alpha = .470), highlighted eco-conscious actions such as waste recycling and water

conservation. High factor loadings were observed for controlling litter through recycling (.709) and water-saving techniques (.690), pointing toward a recognition of environmental stewardship among hospitality stakeholders.

These five components reveal a multi-dimensional structure of responsible tourism initiatives in Sikkim, underscoring the strategic roles of local economic empowerment, ethical practices, cultural heritage, participatory governance, and environmental responsibility in promoting sustainable tourism development. While some factors showed strong internal consistency, others exhibited lower reliability, suggesting variability in practice implementation across different tourism contexts.

5.27. Descriptive Statistics on Perceptions and Opinions of Hospitality Service Providers on Sustainable Tourism Development

The descriptive statistics presented for 21 indicators of sustainable tourism development in Sikkim offer comprehensive insights into perceptions and understanding among hospitality industry stakeholders. The mean values for these indicators range from 3.37 to 4.61, suggesting that most respondents generally agree or strongly agree with the statements provided. Notably, high mean scores for variables such as "*Destination development takes care of environment and minimizes damage to the natural ecosystem*" (4.61), "*Local arts and handicrafts are preserved and promoted by the hospitality industry*" (4.60), and "*This accommodation facility facilitates recycle and reused concept*" (4.60) reflect a strong consensus on environmental responsibility, cultural preservation, and sustainable operational practices.

The standard deviations vary between 0.635 and 1.042, reflecting differing degrees of agreement across statements. While many indicators show low to moderate variation (suggesting strong consensus), others—such as "*Development of infrastructures is being designed to meet the combined needs of visitors and the community*" (SD = 1.042)—indicate greater variability in opinion, possibly due to uneven infrastructure development across regions.

Overall, the data indicates that stakeholders in Sikkim's hospitality sector broadly support the principles of sustainable tourism, particularly those relating to environmental conservation, cultural heritage preservation, and community empowerment. However, the variance in certain indicators suggests that while the intent for sustainable tourism is shared, its implementation

may be uneven, especially in infrastructure design and equitable economic opportunities for marginalized groups.

5.28. Factor Analysis: Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity and Communalities.

The results from the Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity confirm that the dataset used for analyzing variables related to sustainable tourism development in Sikkim is statistically appropriate for Principal Component Analysis (PCA). The KMO value of 0.837 indicates very good sampling adequacy, signifying that the items are sufficiently correlated to justify the use of factor analysis. According to Hutchesson & Sofroniou (1999), KMO values between 0.8 and 0.9 are considered outstanding. Additionally, Bartlett's test yielded a chi-square value of 2247.818 with 210 degrees of freedom and a significance level of $p = .000$, allowing the rejection of the null hypothesis. This further validates that the variables are not independent, and meaningful correlations exist among them.

The communalities of the 21 indicators range between 0.369 and 0.696, indicating a moderate to strong proportion of variance in each variable that can be explained by the extracted factors. For instance, the variable *"This accommodation facility facilitates recycle and reused concept"* shows the highest communality (0.696), highlighting its strong shared variance with other variables, while *"Local community members get fair, stable and full-time jobs"* exhibits the lowest communality (0.369), suggesting a weaker relationship with the overall factor structure. These communalities suggest that while most variables are meaningfully interconnected, a few may vary in influence or representation within the factor model. Overall, the analysis confirms that the dataset is both statistically sound and conceptually robust for identifying key dimensions of sustainable tourism development in the regional context of Sikkim.

5.29. Overall reliability of Coefficient

The overall reliability analysis using Cronbach's Alpha for the 14 indicators related to sustainable tourism development yields a value of 0.763, indicating good internal consistency among the items. In social science and management research, a Cronbach's Alpha score between 0.7 and 0.8 is generally considered acceptable, reflecting that the scale items are

reliably measuring a common construct. This result confirms that the 14 variables included in the analysis are coherently interrelated and suitable for further analysis, such as factor extraction or regression. Hence, the construct demonstrates sound psychometric properties, supporting the overall reliability of the instrument used in the study.

5.30. Principal Component Analysis

The Principal Component Analysis (PCA) conducted on 14 sustainable tourism indicators in Sikkim identified three major factors that collectively explain 47.77% of the total variance. These factors each demonstrating internal consistency through Cronbach's Alpha values above the acceptable threshold of 0.6 highlight the multidimensional nature of sustainable tourism development in the region.

1. ***Factor 1: Socio-cultural Sustainability and Equitable Tourism Development*** This factor comprises six indicators and explains the largest share of the variance (25.44%) with a Cronbach's Alpha of 0.676, indicating reliable internal consistency. It includes elements such as skill development among local people, preservation of landscapes, pride in local culture, promotion of arts and handicrafts, and equitable employment opportunities. The highest factor loading is on the development of local skills (0.667), suggesting that human capital development is central to socio-cultural sustainability in tourism. Collectively, this factor emphasizes inclusive and culturally respectful tourism that benefits local communities.
2. ***Factor 2: Environmentally Friendly Sustainable Practices Accounting*** for 11.93% of the total variance with a Cronbach's Alpha of 0.634, this factor consists of four indicators that focus on environmental stewardship. Key loadings include environmental awareness/conservation (0.694), cleanliness and pollution control (0.690), and bans on plastic use (0.663). These variables underscore the operationalization of environmentally sustainable behaviors and practices within tourism enterprises, indicating an ecosystem-conscious development model.
3. ***Factor 3: Socio-economic Sustainability*:** This factor includes four indicators related to infrastructure enhancement and economic inclusion, with an eigenvalue of 1.454 explaining 10.38% of the variance. The Cronbach's Alpha of 0.685 reflects acceptable internal consistency. High loadings are observed for basic infrastructure development (0.716) and tourism's integration with the local economy (0.674). This factor captures

the structural and economic dimensions of sustainability, pointing to the enabling role of tourism in improving public amenities and supporting marginalized communities.

In summary, the PCA results validate the tripartite framework of sustainability—socio-cultural, environmental, and socio-economic—within the tourism sector in Sikkim. Each factor comprises meaningful, empirically-supported indicators that offer a comprehensive understanding of how responsible tourism can contribute to sustainable regional development. The study's use of PCA with Varimax rotation effectively reveals independent, interpretable clusters that enhance the theoretical and practical understanding of sustainable tourism constructs.

5.31. Relationship Between Responsible Tourism Initiatives implemented by the hospitality industry and Sustainable Tourism Development

The Pearson correlation analysis conducted between *Responsible Tourism Initiatives in the Hospitality Industry (MHRTI)* and *Sustainable Tourism Development (MHSTD)* reveals a strong positive linear relationship, with a correlation coefficient (r) of 0.638, which is statistically significant at the 0.01 level ($p < 0.01$). This analysis, based on 400 valid observations, supports the rejection of the null hypothesis (H_0), which stated that no significant correlation exists between the two variables.

The findings imply that enhanced responsible tourism practices within the hospitality industry are significantly associated with higher levels of sustainable tourism development.

A Pearson's r value close to 1 indicates that changes in one variable (MHRTI) are closely linked to changes in the other (MHSTD), confirming a substantial and positive linear association.

Thus, the study empirically validates that responsible practices adopted by the hospitality sector such as local empowerment, environmental management, and cultural preservation play a pivotal role in achieving broader sustainable development goals in tourism.

5.32. Regression Analysis Between Independent and Dependent Factors

The impact of Responsible Tourism Initiatives and Sustainable Tourism Development for Hospitality Industry

The regression analysis conducted in the study demonstrates a statistically significant and positive relationship between Responsible Tourism Initiatives (RTI) and Sustainable Tourism Development (STD) in the context of Sikkim's hospitality sector. The model yielded an R^2 value of 0.407, indicating that approximately 40.7% of the variance in sustainable tourism development outcomes can be explained by responsible tourism practices implemented by hospitality professionals. The F-statistic of 273.249 with a p-value < .000 confirms the model's overall significance, highlighting that the relationship between RTI and STD is not due to chance.

Further, the unstandardized regression coefficient (B = 0.410) and standardized Beta value of 1.000 underscore the strength of this positive linear relationship.

The highly significant t-value (8.977, p < .000) provides sufficient evidence to reject the null hypothesis that responsible tourism practices and sustainable tourism development are independent of each other.

In essence, the findings affirm that responsible tourism practices encompassing environmental stewardship, community involvement, ethical conduct, and cultural preservation substantially contribute to achieving sustainable tourism development goals. This empirical validation reinforces the critical role of the hospitality sector in driving sustainability through proactive and responsible tourism measures.

Chapter 6: Discussions, Recommendations and Conclusions

6.1. Introduction

The discussion and findings of the study underscore the deeply interconnected relationship between Responsible Tourism Initiatives (RTI) and Sustainable Tourism Development (STD) in Sikkim. Responsible tourism, framed as a collective, participatory, and localized approach, facilitates sustainability by empowering communities, preserving heritage, minimizing environmental impact, and creating equitable economic opportunities. This multidimensional model integrating ecotourism, agro-tourism, homestay tourism, and pro-poor tourism serves not only to enrich tourist experiences but also to strengthen community resilience and promote environmental stewardship. The study employed a rigorous methodological framework, utilizing primary and secondary data, to assess the perceptions of local communities, hospitality professionals, and tourists. Statistical analyses, including descriptive statistics, reliability tests, principal component analysis (PCA), correlation, and regression, confirmed strong associations between RTI and STD, validating that responsible tourism actions significantly influence sustainable outcomes.

Findings from secondary data offer further depth. Sikkim's Ecotourism Policy (2013) and Sikkim Tourism Policy (2018), supported by grassroots commitment, have made it a leading destination for responsible travel. However, gaps remain in implementing certification schemes such as STCI and "Travel for Life." Key challenges include inadequate community participation in cultural event planning (e.g., Yuksom), absence of monitoring indicators for homestays, limited transparency in tourist service pricing, and infrastructural deficiencies especially in remote areas like Lachen and Lachung. Women and marginalized groups have seen benefits through employment, entrepreneurship, and leadership roles in tourism, particularly in Reymindu, Darap, Dzongu, and Rumtek. Yet, sustained awareness, training, and policy interventions are needed to enhance benefit-sharing, improve cultural representation, and expand responsible tourism packages. Furthermore, environmental concerns, particularly in ecologically sensitive zones like Kangchendzonga National Park, call for low-impact, high-value tourism strategies, better regulation, and strict carrying capacity assessments. These insights point toward a need for integrated, inclusive, and sustainable policy action in Sikkim's tourism planning and governance.

6.2. Findings and recommendations from the Demographic profiles of Local communities

The analysis of community attributes across various tourism destinations in Sikkim reveals key socio-economic patterns and proposes targeted interventions to foster inclusive and responsible tourism development. Gender representation shows a male-dominated participation (60%), highlighting the need for a *Women-Centric Rural Tourist Enterprise Development Programme (WCRE-DP)* to empower women through skills training, microfinance access, and entrepreneurship support. Age demographics show that youth (25–34 years) dominate, while older generations (55–64 years) are underrepresented. To address this, a *Heritage Knowledge Keepers Initiative* is recommended to involve senior citizens as cultural custodians, promoting intergenerational learning and preserving intangible heritage.

Length of stay and community participation reveal the potential of integrating new residents in tourism governance through cultural festivals and Gram Sabha meetings. Educational qualifications correlate with higher awareness and involvement in responsible tourism practices, prompting the need for *digital resource centers* and training in sustainable tourism management. Occupation data underscores the role of students and tourism professionals, advocating for state investment in *green infrastructure*, skill development, and support for marginalized communities through entrepreneurship programs.

Regarding income levels, lower-income groups are vulnerable to tourism seasonality. It is suggested that schemes like the *Skilled Youth Start-Up Scheme*, *SHG-bank linkage programs*, and *community infrastructure development* be expanded. Finally, with 46.8% of respondents unemployed in the tourism sector, a significant skills and access gap exists. To bridge this, *vocational training*, *micro-funding*, partnerships with institutions like *IHM* and *IHCAE*, and awareness programs like the *Sikkim Rural Tourism Meet* are crucial. These collective strategies aim to make tourism in Sikkim more inclusive, equitable, and community-driven, ensuring that benefits are distributed widely and sustainably.

6.3. Findings and recommendations from the results of Cross tabulations

Association between Gender distribution among directly employed in Tourism related employment and Annual income.

The findings from the cross-tabulation and chi-square analysis provide important insights into gender-based income disparities in tourism employment across Sikkim. Among male respondents (n=97), 20 were directly employed in tourism, with 7 earning less than ₹25,000

annually—suggesting employment in lower-skilled positions—and 6 earning over ₹1,50,000, likely in managerial roles. In contrast, among 48 female respondents, only 8 were directly involved in tourism, and 4 of these earned between ₹50,000–₹1,00,000, indicating supervisory roles. The chi-square test revealed a statistically significant association between male employment and income level, while no such association was found for female respondents, indicating that women's earnings were independent of their employment roles. This reflects persistent gender disparities in access to high-paying tourism jobs.

To improve gender inclusion in tourism, recommendations include gender-responsive recruitment policies, women-led enterprise promotion, and leadership development. Programs like the *INSPIRES* and *KLCDI* initiatives support training, cultural interpretation, and digital skills for women, enhancing their economic resilience. Furthermore, enterprises should address wage equity, flexible work policies, and establish networking and support systems for women in the tourism sector. Empowering local women through cooperatives—such as in Dzongu and Yuksom—also contributes to household income diversification and sustainable livelihoods.

The mean and standard deviation analysis reveals strong and consistent community support for responsible tourism and sustainable development indicators. Most mean values were high, indicating widespread agreement among respondents on the importance of sustainability dimensions—economic, social, cultural, and environmental. Notably, 18 responsible tourism indicators and 20 sustainable tourism indicators had standard deviations below 1.00, suggesting consistent community perceptions and strong consensus.

Key recommendations emphasize institutionalizing 18 responsible tourism criteria and 20 sustainability metrics into state tourism frameworks. Aligning with policies such as the *Sikkim Tourism Policy 2018* and the *Sustainable Tourism Criteria for India (STCI)*, Destination Management Organizations (DMOs), in collaboration with the Tourism and Forest Departments, should ensure ethical practices like eco-certification, waste management, and cultural preservation. Successful models from Yuksom and Dzongu, supported by *KLCDI* and *ECOSS*, show that community-based planning, inclusive governance, and environmentally friendly infrastructure can collectively drive sustainable and responsible tourism development in Sikkim.

6.4. Findings and recommendations from the results of Factor Analysis of Responsible tourism initiatives at the local community level

The Principal Component Analysis (PCA) reduced 18 items related to responsible tourism initiatives into four key factors: Economic Responsibility, Social Responsibility, Cultural Responsibility, and a repeated mention of Social Responsibility (likely a typographical error possibly meant to include *Environmental Responsibility* or another distinct dimension). The Cronbach's Alpha values, ranging from .649 to .760, indicate an acceptable to good level of internal consistency across these dimensions. Furthermore, the positive correlations among all four factors suggest that they are interrelated and collectively contribute to the overall framework of responsible tourism. The communalities, which range from 0.330 to 0.694, confirm meaningful inter-variable relationships, indicating that the variables are significantly connected and reinforce each other in explaining responsible tourism practices.

Recommendations based on the factor analysis stress the need to integrate these four dimensions including economic, social, and cultural responsibilities (with a clarification needed on the fourth) into policy design and project planning for promoting responsible tourism. These dimensions should form the foundational pillars for tourism governance strategies in Sikkim and be replicated in other Indian Himalayan Region (IHR) states or comparable international contexts. Emphasizing community-level engagement, the study advocates for a holistic and participatory policy framework that operationalizes these responsibility-based constructs to enhance the effectiveness, inclusivity, and sustainability of tourism development initiatives.

6.5. Findings and recommendations from the results of Factor Analysis of Sustainable Tourism Development at the local community level

The Factor Analysis of Sustainable Tourism Development at the local community level reduced 22 observed items into five key underlying factors, namely:

1. ***Environmental consciousness and sustainable tourism practices,***
2. ***Sustainable tourism development and cultural heritage preservation,***
3. ***Community-centred inclusive destination development,***
4. ***Negative social and environmental impact on destination,***
5. ***Socio-economic development and well-being of the local community.***

These factors collectively reflect the multidimensional structure of sustainable tourism as perceived by local communities. The Cronbach's Alpha values, ranging from .649 to .759,

indicate a satisfactory level of internal consistency for the factors, while communalities ranging from 0.421 to 0.707 confirm that the items are well correlated with each other, ensuring the statistical validity of the grouping. Importantly, all factors are positively correlated, implying an integrated and mutually reinforcing relationship among the core dimensions of sustainability.

Based on these findings, the study recommends that these five thematic areas be incorporated into tourism policy and regulatory frameworks, particularly in Sikkim and similar Indian Himalayan Region (IHR) contexts. Doing so will strengthen local community participation, ensure ecological integrity, and promote inclusive, heritage-sensitive, and economically beneficial tourism development. This integrated factor-based framework can also serve as a guiding model for other mountain and ecotourism destinations globally.

6.6. Findings and recommendations from the Results of Correlation and Regression between responsible tourism initiatives and sustainable tourism development at a local community level.

The regression analysis reveals a moderate positive correlation between Responsible Tourism Initiatives (RTIs) and Sustainable Tourism Development (STD), establishing RTIs as significant predictors of sustainable outcomes in Sikkim. The model shows that RTIs explain 26% of the variation ($R^2 = 0.260$) in STD, affirming that responsible tourism practices particularly those perceived and implemented at the grassroots level play an important role in shaping sustainable tourism outcomes. The findings underscore the importance of community perspectives, especially those of local residents, in linking responsible tourism efforts to broader sustainability objectives.

Based on these insights, the study recommends greater community involvement in policy planning and implementation, with a focus on women and youth participation in tourism enterprises. Empowering local communities through targeted training, ecotourism certifications, digital marketing, and micro-enterprise support (e.g., homestays, tour operations, SHG products) is essential for enhancing local ownership and socio-economic inclusion. Furthermore, the creation of destination-specific responsible tourism indicators covering economic, social, cultural, and environmental dimensions is strongly advised to ensure that policy frameworks reflect local priorities and effectively track sustainability outcomes. Such

participatory and context-sensitive strategies are vital to aligning local aspirations with national and global sustainable tourism goals.

6.7. Findings and recommendations from the Demographic profiles of Tourists

The analysis of tourist attributes in Sikkim reveals insightful demographic patterns with important implications for responsible tourism planning. A pronounced gender disparity was observed, with 68.5% male and only 31.5% female tourists, highlighting the need for gender-inclusive tourism initiatives. These should address safety, cultural norms, and promote female participation through women-friendly tourism products, empowerment programs, and employment in guiding, crafts, and hospitality roles. Regarding age, the dominance of younger tourists (25–34 years: 38.3%) reflects a growing interest in sustainability, cultural immersion, and ethical tourism, underscoring the opportunity to leverage collaborative governance models and data-driven marketing to cater to their values. These governance frameworks should reflect young tourists' demand for ecological and culturally sensitive experiences while incorporating educational outreach to reinforce responsible travel behaviours.

In terms of educational qualification, a substantial proportion of tourists (41% graduates and 33.5% postgraduates) suggests a relatively high level of awareness of tourism's socio-cultural and environmental impacts. This segment can be engaged through interactive learning experiences, ethical travel campaigns, and partnerships with local communities to enhance cultural sensitivity and sustainability advocacy. Employment-wise, with significant representation from the private sector (29.8%), business (28.5%), and government (16.5%), tourists have strong potential to act as agents of environmental and cultural conservation. Meanwhile, the 22.8% unemployed group may benefit from affordable responsible tourism experiences that simultaneously support local economies.

The monthly income distribution highlights the necessity for diverse and income-sensitive tourism offerings. Budget-conscious tourists (26.3% earning under ₹25,000) show a preference for low-cost, eco-friendly experiences, while mid-income earners (49.6%) Favor authentic and immersive sustainable experiences. Meanwhile, higher-income tourists (24.3%) are drawn to luxury sustainable travel with an emphasis on exclusivity, ethics, and conservation. To capitalize on this, Sikkim's tourism sector should develop tiered responsible tourism packages tailored to different economic segments. These should include budget-friendly green homestays, mid-range cultural immersion activities, and premium eco-luxury options, ensuring

that sustainability is accessible and appealing across socio-economic brackets while maximizing community and environmental benefits.

6.8. Findings and recommendations from the results of Cross tabulations

Association between Educational Qualification and Purpose of visit to Sikkim

The findings indicate a significant association between tourists' educational qualifications and their purpose of visit to Sikkim, as revealed by the Chi-Square test. Among the 400 surveyed tourists, a majority 315 individuals held graduate, postgraduate, or Ph.D. degrees. Of these, a substantial number (76 out of 164 graduates and 58 out of 134 postgraduates) visited Sikkim for ecotourism purposes, demonstrating a strong preference among highly educated tourists for environmentally responsible and educational travel. In contrast, tourists with lower educational qualifications (below higher secondary) were more inclined to visit for rest, relaxation, or miscellaneous purposes, suggesting different motivations aligned with educational exposure.

Recommendations

The study underscores that tourists with higher education levels are more environmentally conscious, informed about responsible tourism, and often motivated by academic, cultural, or nature-based interests. To capitalize on this trend, it is recommended that Destination Management Organizations (DMOs) in Sikkim invest in eco-friendly infrastructure, educational ecotourism trails, and community-based projects. Initiatives like Songbing Ecotrail, Khurmungbey Tribal Walk, and homestays in Yuksom and Dzongu can offer immersive learning experiences. Furthermore, partnerships with organizations such as ICIMOD, ECOSS, WWF-India, and TMI can strengthen capacity-building in climate adaptation, biodiversity conservation, and waste management. To position Sikkim as a premier sustainable ecotourism and learning destination, the government could collaborate with Sikkim University to create a Centre of Excellence for Sustainable Tourism, offering field-based education and training similar to the HIAL model in Ladakh, thereby nurturing responsible tourism behaviours and academic tourism in the Eastern Himalayas.

Association between Purpose of visit to Sikkim and Type of Accommodation used during stay in Sikkim.

The analysis of accommodation preferences among 400 tourists visiting Sikkim revealed a fairly even split between homestays (141 tourists) and hotels (140 tourists), followed by hostels (32), friends and family (27), and other accommodations (16). Among ecotourists (168 in total), 68 opted for homestays and 66 for hotels, demonstrating a strong inclination toward community-based and immersive lodging. Leisure tourists (75 in total) mostly chose hotels (24) and homestays (19), while a notable number (19) preferred tent/camper/caravan-based accommodations. A Chi-square test confirmed a significant association between the purpose of visit and the type of accommodation, indicating that tourists' travel motivations influence their lodging choices.

Recommendations

Recommendations arising from the study emphasize the opportunity for Sikkim's hospitality sector to advance responsible tourism. Homestays, especially in ecotourism hubs such as Dzongu, Yangang, Kewzing, and Yuksom, should pursue sustainability certifications like Travel for Life and NCCF, and offer authentic, community-integrated experiences. Collaborations between DMOs, PRIs, NGOs (e.g., ECOSS, KCC, WWF-India) and state agencies are advised to promote training in waste management, green energy, and digital literacy for homestay operators.

For hotels, best practices in resource conservation, such as rainwater harvesting, energy-efficient systems, and local procurement, should be standard. Meanwhile, expanding eco-hostels, green budget accommodations, and designated camping zones in destinations like Yuksom and the Old Silk Route can cater to varied market segments while mitigating environmental degradation. The government is encouraged to launch a "Green Stays of Sikkim" initiative to recognize sustainable tourism infrastructure, offer incentives for eco-compliance, and align local hospitality efforts with global responsible tourism standards.

Association between purpose of visit and types of services availed during visit in Sikkim

The data reveals that among 400 surveyed tourists in Sikkim, 115 used hotel reservation services, 108 employed guide services, 77 used public transportation, and 15 accessed other services during their stay. Notably, 59 ecotourists made hotel bookings to support local businesses, 37 hired local guides thereby creating economic and social opportunities for local youth, and 32 chose public transportation as an environmentally responsible travel option. A

Chi-square test confirmed a strong association between tourists' purpose of visit and the type of services availed, indicating that service usage is closely tied to travel motivations.

Recommendations

Recommendations include strengthening capacity-building efforts through collaborations between state tourism/forest departments and institutions like IHM and IHCAE, focusing on training local guides, hospitality workers, and naturalists in biodiversity interpretation, eco-friendly operations, and cultural sensitivity. Inspired by initiatives such as the JICA biodiversity project and ECOSS ecotourism programs in Dzongu, these efforts would enhance service quality while fostering community-based employment. Additionally, the introduction of eco-friendly, regulated-fare public transport to key ecotourism destinations such as Yuksom, Darap, and Dzongu is recommended to promote equitable mobility and reduce environmental impact.

Association between purpose of visit and monthly income of Tourists

The analysis revealed that while a large proportion of tourists to Sikkim belong to lower and middle-income groups—with 105 respondents earning below ₹25,000 and 101 earning between ₹25,000 and ₹50,000 monthly—there is no significant association between income levels and the purpose of visit. Notably, ecotourism appealed more to higher-income tourists (₹50,000 and above), whereas rest, relaxation, and cultural tourism were favoured by those in lower income brackets. However, the Chi-square test confirmed that income and travel motivation are statistically independent, indicating that tourists across all income levels participate in diverse tourism experiences, influenced more by personal preferences than by economic status.

Recommendations

In light of this, Sikkim Tourism should adopt an inclusive marketing and development strategy that transcends income segmentation and instead aligns tourism offerings with diverse visitor motivations. For budget-conscious travelers, low-cost cultural and spiritual activities like monastery visits and festival participation should be promoted, while eco-luxury experiences such as guided treks, glamping, and birding can attract affluent tourists. At the same time, emphasis must be placed on community-based ecotourism in rural areas like Dzongu and

Yuksom, where tourism directly benefits local livelihoods. Promoting indigenous products and encouraging off-season travel to less-visited areas such as Pastanga and Rolep would reduce environmental pressure and foster balanced regional development, reinforcing Sikkim's vision of responsible and sustainable tourism.

Association between monthly income and duration of Stay in Sikkim.

The data indicates that the majority of tourists (143 out of 400) stayed in Sikkim for more than five days, with others staying for varying durations. Interestingly, tourists in the lower income bracket (below ₹25,000) tended to stay longer than their higher-income counterparts, challenging the common assumption that wealthier tourists stay longer. Despite these observations, the Chi-square test found no statistically significant association between monthly income and length of stay. This implies that factors such as personal preferences, lifestyle, and travel purpose not income alone shape decisions regarding holiday duration.

Recommendations

In response to these findings, Destination Management Organizations (DMOs) and tourism operators in Sikkim should shift their strategy beyond economic segmentation. Instead, they should focus on diversifying tourism experiences and designing flexible, interest-based packages that cater to varying time constraints. For instance, short yet immersive ecotourism and cultural retreats in Dzongu or Yuksom could attract busy travellers, while "workation" packages in serene rural settings like Yangang or Temi could appeal to remote workers. Promoting value-driven tourism such as wellness, spiritual, and volunteer-based experiences can also inspire extended stays, enhancing both visitor satisfaction and sustainable community development.

Association between monthly income of tourists and frequency of visit in Sikkim.

The data reveals that a majority of tourists visiting Sikkim (243 out of 400) were first-time visitors, with cost-conscious travelers (those earning less than ₹25,000 per month) representing a significant portion of this group. The Chi-square test found a significant association between tourist income levels and frequency of visits, suggesting that income affects repeat visitation patterns.

Recommendations

Based on this, it is recommended that tourism operators implement income-specific strategies such as premium luxury retreats for high-income visitors and affordable, community-based tourism for budget travelers. Income-tiered loyalty programs, green incentives, and personalized experiences can help encourage repeat visits across income segments.

6.9. Findings and recommendations from Mean and Standard Deviations

Furthermore, analysis of mean and standard deviation data across 21 sustainable tourism indicators reveals a high level of consistency and agreement among tourists, with most standard deviation values falling below 1.00. These findings underscore the strong awareness and approval of responsible tourism practices among visitors. Therefore, DMOs and policymakers should institutionalize 18 key responsible tourism criteria through practical actions such as installing bilingual eco-signage, supporting homestay training programs, promoting local crafts, and offering cultural immersion experiences. Additionally, enhancing infrastructure using eco-friendly materials, improving crowd management, and introducing tech-based tools for feedback and monitoring are essential steps to ensure the long-term sustainability and visitor satisfaction of Sikkim's tourism sector.

6.10. Findings from the results of Factor Analysis of Responsible tourism initiatives for Tourists.

The Principal Component Analysis (PCA) of 18 items identified four key factors that define responsible tourism behaviours among tourists: (1) commitment to sustainability and respect for local cultures and traditions, (2) environmentally responsible practices by accommodations and tourist behaviours, (3) education on responsible and ethical tourism, and (4) fostering local economic development and community empowerment. Although Cronbach's Alpha values ranged moderately between 0.411 and 0.657, the strong communalities (0.347 to 0.686) and positive correlations among all factors indicate a significant inter-relationship among the variables.

These findings suggest that these four dimensions comprehensively represent the behavioural attributes necessary for promoting responsible tourism. Therefore, it is recommended that these factors be institutionalized within policy frameworks, tourist codes of conduct, and destination management guidelines. Emphasizing sustainability, cultural respect, environmental responsibility, education, and economic empowerment will be critical in guiding tourist

behaviours and ensuring the long-term viability of responsible tourism initiatives in Sikkim and the wider Indian Himalayan Region.

6.11. Findings from the results of Factor Analysis of Sustainable Tourism Development for Tourists

The Principal Component Analysis (PCA) of 18 items related to sustainable tourism development has distilled the variables into four key factors: (1) sustainable tourism development and destination sustainability, (2) environmental sustainability, (3) quality of destination infrastructure and community engagement, and (4) negative impacts of unregulated tourism growth. Cronbach's Alpha values across these factors range from 0.539 to 0.857, indicating acceptable to strong internal consistency. The communalities ranging between 0.471 and 0.744 reflect strong inter-variable relationships, confirming that all elements are significantly interrelated.

These four factors comprehensively capture tourist expectations regarding sustainable tourism development. As such, they should be systematically integrated into tourism policy frameworks, destination management strategies, and regulatory operations. Incorporating these dimensions will enhance long-term destination sustainability, ensure better infrastructure and community involvement, address environmental concerns, and mitigate the adverse effects of unchecked tourism growth in Sikkim and other Himalayan destinations.

6.12. Findings and recommendations from the Results of Correlation and Regression between responsible tourism initiatives and sustainable tourism development for Tourists.

The regression analysis reveals a moderate positive correlation between Responsible Tourism Initiatives (RTI) and Sustainable Tourism Development (STD), with RTI accounting for 16% ($R^2 = 0.168$) of the variance in STD. Tourists' opinions on RTI emerged as significant predictors, indicating that responsible tourist behaviours play a vital role in shaping sustainable development outcomes. The findings underscore the necessity of empirically linking individual attributes of RTI to their impacts on sustainable tourism, particularly across the 17 tourist destinations examined in Sikkim. Enhancing tourist awareness through community-based experiences such as cultural, eco, and adventure tourism can foster deeper cross-cultural respect, promote community empowerment, and improve visitor satisfaction.

Strategic recommendations call for policymakers and Destination Management Organizations (DMOs) to incorporate both tourist and community expectations into regulatory frameworks, product development, and infrastructure planning. Targeting responsible tourist markets from neighbouring regions (e.g., West Bengal, Assam, Nepal, Bangladesh) and educating tourists on local environmental and cultural values are key strategies. Service providers including guides and homestay owners should act as ambassadors of responsible tourism. Furthermore, empowering local communities, especially women and youth, through capacity-building and entrepreneurship opportunities, will ensure greater ownership and protection of cultural and ecological heritage, thereby fostering authentic and sustainable tourism experiences in Sikkim.

6.13. Findings and suggestions from the Hospitality Industry

The hospitality industry in Sikkim is significantly composed of hotels (45.8%) and homestays (42.5%), the latter aligning well with responsible tourism goals by supporting local economies and cultural preservation. While restaurants (9.8%) offer potential through local sourcing, campsites (1.8%) and resorts (0.3%) remain underutilized. Most hospitality establishments are concentrated in Gangtok and Pelling, while areas like Temi and Reymindu are underserved but hold potential for responsible tourism expansion. Encouraging green infrastructure, low-impact tourism models, and cultural preservation is key. Encouragingly, 98% of hospitality units have incorporated some sustainability practices like energy and water conservation, but only 57% have formal sustainability policies, indicating a gap in systematic implementation.

Sustainability challenges include waste management, energy conservation, and limited staff awareness. While energy-efficient lighting and waste management are most commonly adopted, initiatives like organic food provision and plastic-free policies remain limited. Nevertheless, 95% of establishments express interest in sustainability certifications such as *Travel for Life* and *LEED*, recognizing benefits like cost savings, brand value, customer loyalty, and regulatory compliance. To bolster responsible practices, the government and NGOs should provide capacity building, financial incentives, and digital platforms to encourage certifications, partnerships, and community-based procurement. Expanding hospitality offerings to lesser-known areas, promoting eco-certification, and embedding sustainability in strategic planning can ensure a balanced, inclusive, and environmentally responsible tourism ecosystem in Sikkim.

6.14. Findings from the results of Cross tabulations

Association between category of Hospitality establishment and sustainability concerns

Findings and Recommendations on Sustainability Concerns in Sikkim's Hospitality Industry:

The survey of 360 hospitality businesses revealed that waste management is the top sustainability concern for both hotels (162) and homestays (157). Energy conservation was a concern for 128 hotels and 125 homestays, while water conservation was also significantly reported by 126 hotels and 110 homestays. In contrast, green procurement received the least attention among the identified sustainability concerns. The Chi-square test confirmed a significant association between the type of hospitality establishment and their prioritized sustainability issues, highlighting that different categories address environmental impacts based on their operational characteristics.

To address these sustainability challenges effectively, the study recommends coordinated interventions by local governments and the hospitality industry. Waste management should be prioritized through capacity-building programs, improved infrastructure, and policy incentives. Energy and water conservation efforts can be enhanced by integrating solar energy, LED lighting, and water-efficient technologies. Green procurement must be actively promoted through partnerships with local producers and cooperatives, supported by government-driven sustainability incentives. Educational workshops and awareness campaigns can help cultivate responsible sourcing practices and foster a circular economy that benefits both the environment and local livelihoods.

Association between responsible tourism initiatives implemented by the hospitality Industry and sustainability policy or strategy across various categories of hospitality establishments.

Findings and recommendations

Out of 400 hospitality businesses surveyed in Sikkim, 228 have adopted sustainability strategies while 172 remain without such policies. Among those with sustainability plans, homestays (104) and hotels (101) lead, with restaurants (16) and campsites (7) contributing to a lesser extent. However, a significant portion—especially 82 hotels and 66 homestays—still operate without formal sustainability strategies. Responsible tourism initiatives implemented include energy-efficient lighting (68 units), waste management systems (51), plastic reduction

(51), local guide services (51), and cultural programs (36). Yet, fewer establishments offer locally sourced food (24) or vegetarian/vegan options (15). Chi-square analysis confirms a strong association between the presence of sustainability strategies and the level of responsible tourism implementation.

To address the sustainability gap, it is recommended that the hospitality sector in Sikkim adopt a comprehensive Triple Bottom Line (TBL) policy framework, integrating environmental, social, and economic dimensions. Priority should be given to training, capacity-building, and awareness campaigns targeting hospitality categories that lack sustainability strategies. Incentives like low-interest green loans, expert-led training, and certification rewards can support investments in eco-friendly infrastructure and practices. Strengthening collaborations with local stakeholders, academic institutions, and government bodies will further promote sustainable tourism. Regular evaluations, digital innovations, and visitor management tools are essential to foster collective accountability and enhance Sikkim's positioning as a model for responsible tourism in the Indian Himalayan Region.

Association between participation in sustainability certification program and the perceived benefits of participating in the certification program across different categories of hospitality establishments.

Findings and Recommendations on Sustainability Certification in Sikkim's Hospitality Sector

Among the 400 hospitality establishments surveyed, 360 demonstrated a clear intent to pursue sustainability certification, reflecting a widespread recognition of its benefits. Only 40 establishments expressed disinterest. The most frequently cited benefit was resource and cost savings (145), followed by regulatory compliance (76), competitive advantage (34), enhanced brand value (33), customer loyalty (30), employee retention (19), increased sustainability awareness (16), and other miscellaneous benefits (7). The Chi-square test confirmed a significant association between participation in certification and perceived benefits across different hospitality categories, indicating that engagement with certification programs is shaped by the type of establishment and the anticipated value derived from such initiatives.

Based on these findings, it is recommended that Sikkim's hospitality sector actively promote internationally and nationally recognized sustainability certification schemes such as GSTCI,

Travelife, EarthCheck, Green Leaf, and LEED. To increase uptake, stakeholders should introduce tailored training programs, reduce certification costs, and offer tax incentives to encourage participation by all types of establishments—hotels, homestays, restaurants, and campsites. Certification should also be integrated into tourism marketing strategies to attract eco-conscious travelers and enhance brand competitiveness. Continuous monitoring and evaluation frameworks based on measurable indicators must be established to ensure genuine implementation of sustainability practices, ultimately improving guest satisfaction, building consumer trust, and aligning tourism development with Sikkim's sustainable tourism goals.

6.15. Findings and Recommendations from the analysis of Mean and Standard deviation

The analysis of responses from Sikkim's hospitality industry revealed a high degree of consensus among stakeholders regarding responsible tourism practices. A consistent variance in mean values and a standard deviation of less than 1.00 in 21 out of 25 indicators indicate strong agreement among respondents on the economic, social, cultural, and environmental dimensions of sustainable tourism. Furthermore, 19 of 21 sustainable tourism development indicators also demonstrated standard deviations below 1.00, reinforcing a unified understanding and endorsement of prevailing responsible practices within the sector.

In light of these findings, it is recommended that tourism planners, policymakers, and Destination Management Organizations (DMOs) in Sikkim undertake further in-depth analysis of these 25 key indicators. These should be formally incorporated into strategic policy frameworks, development plans, and reporting mechanisms to strengthen the implementation of responsible tourism initiatives. Doing so will enable the hospitality industry to align more effectively with the goals of sustainable development and elevate Sikkim's standing as a model for responsible tourism in the Indian Himalayan region.

6.16. Findings and Recommendations from the results of Factor Analysis of Responsible Tourism Initiatives for Hospitality Industry

The Principal Component Analysis (PCA) of 21 responsible tourism indicators for the hospitality industry in Sikkim reduced them into five key factors: (1) *Local economic development and community-based empowerment*, (2) *Responsible and ethical tourism practices*, (3) *Cultural heritage promotion and preservation*, (4) *Community involvement and participatory governance*, and (5) *Responsible environmental management*. These five

interrelated factors, with Cronbach Alpha values ranging from 0.392 to 0.858, demonstrate strong internal consistency and significant shared variance among variables (communalities between 0.442–0.646). This suggests that the core principles of responsible tourism are strongly interconnected within the industry.

Similarly, PCA of 14 items related to sustainable tourism development identified three primary factors: (1) *Socio-cultural sustainability and equitable tourism development*, (2) *Environmentally friendly sustainable practices*, and (3) *Socio-economic sustainability*. These factors, with Cronbach Alpha values between 0.634 and 0.685, and communalities ranging from 0.369–0.696, also exhibit strong correlations. These findings underscore that sustainable tourism dimensions are not only interdependent but essential to tourism governance. Therefore, all eight factors across both analyses should be systematically incorporated into tourism policy guidelines, hospitality operation frameworks, and regional planning strategies for Sikkim and other destinations in the Indian Himalayan Region to ensure long-term sustainability, inclusivity, and resilience in tourism development.

6.17. Findings and Recommendations from the Results of Correlation and Regression between responsible tourism initiatives and sustainable tourism development for Hospitality industry

The regression analysis conducted in the study reveals a moderate positive correlation between *Responsible Tourism Initiatives (RTI)* and *Sustainable Tourism Development (STD)*, with responsible tourism initiatives significantly influencing sustainable tourism development outcomes. Specifically, the analysis shows that RTI accounts for 40.7% ($R^2 = 0.407$) of the variance in STD, establishing RTI as a critical predictor of sustainability performance in Sikkim's hospitality sector. The opinions and practices of hospitality professionals concerning responsible tourism were identified as key influential factors. This underlines the need to further explore the behavioral and cognitive dimensions of service providers with respect to the application of responsible practices across the seventeen studied destinations.

Based on these findings, the study recommends that government bodies and Destination Management Organizations (DMOs) incorporate the responsible tourism indicators developed in Chapters 2 and 5 into policy and monitoring frameworks. These include empirical and context-specific indicators aligned with the Global Sustainable Tourism Criteria for India under the Travelife certification program. The newly formulated assessment metrics focus on key

sustainability areas such as green infrastructure, energy and water efficiency, waste management, local procurement, traditional food promotion, and inclusive employment. Adoption of these indicators will enable scalable, practice-oriented sustainability monitoring across different hospitality formats—ranging from homestays to star-rated hotels—thereby facilitating results-driven actions and reinforcing the sector's commitment to responsible and sustainable tourism in the Indian Himalayan region.

6.18. Implications and Policy Recommendations:

The study provides critical insights into the responsible tourism initiatives implemented in Sikkim and emphasizes the need for a pragmatic, indicator-based approach to evaluate their contribution to sustainable tourism development. It stresses the importance of understanding the behavioural and cognitive dynamics of both tourists and host communities, alongside assessing the hospitality sector's commitment to sustainability. Key stakeholders including government bodies, DMOs, NGOs, and the hospitality industry must collectively address the socio-economic, cultural, and environmental dimensions of responsible tourism. The study recommends revitalizing Sikkim's Sustainable Tourism Policy with measurable goals, creating a State Responsible Tourism Strategy, forming a dedicated State Responsible Tourism Committee, and institutionalizing District Destination Management Committees (DMCs) for localized planning and equitable benefit sharing. Moreover, it suggests educational outreach, waste management integration, sustainability audits, green certifications, EIAs, and thematic tourism development to foster responsible, low-impact growth across ecologically fragile and lesser-known areas.

6.19. Social and Research Implications:

Socially, the study advocates for the empowerment of marginalized groups—particularly women and youth by integrating them into tourism governance and entrepreneurship through initiatives like homestays, guiding services, culinary enterprises, and cultural performances. This not only fosters social cohesion and equitable economic development but also reduces rural-to-urban migration and strengthens local resilience. Culturally, it champions heritage preservation through community engagement. On the research front, the study highlights the urgent need for longitudinal and comparative research that explores the perceptions and involvement of local communities especially women and youth in tourism processes. Such research should build on earlier works (e.g., Mathew, 2016; Mir, 2021) and evaluate the long-

term impacts of responsible tourism on destination sustainability, community well-being, and quality of life.

6.20. Summary of Tentative Answers to Research Questions

The results from the entire research are based on four questions. Based on it, the outcomes are substantiated below.

The study comprehensively investigated responsible tourism initiatives (RTIs) and their contribution to sustainable tourism development (STD) in Sikkim through a multi-stakeholder approach involving local communities, tourists, and the hospitality industry. Using qualitative case studies and quantitative methods such as exploratory factor analysis, correlation, and regression analysis, the research identified key dimensions of responsible tourism such as environmental responsibility, cultural preservation, community participation, ethical practices, and local economic empowerment. Case studies from various locations—including Darap, Dzongu, Yuksom, and Gangtok—demonstrated successful examples of community-led tourism, heritage conservation, ecological waste management, and sustainable hospitality. These efforts were found to be significantly associated with sustainable development outcomes, such as improved environmental practices, socio-economic well-being, cultural continuity, and inclusive destination governance.

The statistical analysis revealed that responsible tourism initiatives have a strong and positive influence on sustainable tourism development, with regression results indicating that RTIs account for over 40% of the variation in STD outcomes. Each stakeholder group displayed moderate to high levels of agreement on key sustainability indicators, emphasizing widespread support for environmentally and culturally responsible tourism practices. The findings suggest that policy frameworks must integrate these indicators into strategic planning and implementation, promoting regulatory support, capacity-building, green certification, and participatory governance. Ultimately, the research underscores the importance of a context-sensitive, indicator-based, and community-inclusive approach to responsible tourism as a pathway to achieving long-term sustainability in Sikkim’s fragile mountain ecosystems.

6.21. Conclusions

Sikkim has emerged as a prominent model for responsible tourism in the Indian Himalayan Region due to its rich natural and cultural heritage and its fragile mountain ecosystem. The study underscores the effective implementation of a wide array of responsible tourism initiatives across the state—such as community-based ecotourism, rural homestays, cultural and heritage tourism, and community-led waste management—particularly in Dzongu, Yuksom, Darap, Gangtok, and Lachen. These initiatives are driven by local stakeholders including Panchayats, SHGs, youth clubs, and the tourism industry, showcasing a grassroots model of sustainable tourism that fosters environmental stewardship and community empowerment.

Moreover, the findings demonstrate that responsible tourism in Sikkim is a dynamic and evolving practice that addresses real-world needs, supports livelihoods, and conserves natural and cultural resources. Despite notable progress, the study identifies critical gaps in integrated policy implementation, multi-stakeholder coordination, environmental impact evaluation, and local capacity building. To fully realize the potential of responsible tourism, the study recommends robust strategic planning, intersectoral collaboration, and targeted investments in sustainability infrastructure—such as waste management, water conservation, certification programs, and participatory governance. Ultimately, sustained public-private partnerships and inclusive, indicator-based planning are essential to align tourism development with ecological preservation and social equity in Sikkim.

6.22. Scope for future Studies

The study employed a mixed-method approach to examine the four key dimensions of responsibility environmental, social, cultural, and economic alongside sustainable tourism development dimensions such as economic viability, inclusivity, environmental sustainability, and local well-being. However, it identified several critical research gaps. These include the underexplored areas of responsible marketing, governance transparency, destination brand integrity, and political-institutional sustainability, which play a crucial role in ensuring policy coherence and effective stakeholder collaboration. Additionally, limitations of the survey-based methodology were acknowledged, particularly due to social desirability bias, emphasizing the need for ethnographic and observational techniques to assess actual behaviours of tourists and stakeholders. Issues like greenwashing in tourism also remain largely

unexamined, and future studies should critically assess the authenticity of sustainability claims through comparative research between certified and non-certified businesses.

The study recommends a broader, more inclusive research agenda to strengthen responsible tourism in Sikkim. This includes sector-specific studies on adventure, wellness, pilgrimage, and heritage tourism, along with focused research on marginalized groups like women entrepreneurs, indigenous communities, and informal workers. Longitudinal studies are needed to track environmental and socio-economic changes over time. Comparative research across Indian Himalayan states could uncover transferable practices and regional challenges. Furthermore, as digital technologies increasingly shape tourism, future research should explore their ethical and sustainable use—covering digital storytelling, influencer responsibility, and smart tools for sustainability monitoring. Lastly, comprehensive policy impact assessments should be undertaken to evaluate the efficacy and inclusivity of Sikkim's community-based tourism, homestay, and eco-tourism frameworks, and the role of Gram Panchayats, NGOs, and Tourism Development Committees in governance.