

TOURISM-ECOSYSTEM-ECONOMY TRIAD

BALANCING TOURISM GROWTH, ENVIRONMENTAL CONSERVATION AND SUSTAINABILITY



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Tourism-Ecosystem-Economy Triad: Balancing Tourism Growth, Environmental Conservation and Sustainability

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**Tourism-Ecosystem-Economy Triad: Balancing Tourism Growth,
Environmental Conservation and Sustainability**

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FOREWORD

Tourism has long been recognized as a key driver of economic development, cultural exchange, and global connectivity. However, as the industry continues to expand, it brings with it a host of environmental and sustainability challenges. Striking a balance between tourism growth, ecological conservation, and long-term sustainability is no longer an option—it is a necessity. *Tourism-Ecosystem-Economy Triad: Balancing Tourism Growth, Environmental Conservation, and Sustainability* provides a timely and insightful exploration of this critical balance, offering a comprehensive framework for reimagining the future of tourism.

This book masterfully unpacks the intricate relationship between tourism, the natural ecosystem, and economic development. It sheds light on how unregulated tourism growth can lead to environmental degradation, while also highlighting innovative strategies that leverage sustainable practices to drive economic benefits without compromising the planet's resources. By bridging academic research with real-world case studies, this book provides actionable insights for policymakers, tourism professionals, researchers, and students alike.

One of the most compelling aspects of this work is its emphasis on solutions. From eco-tourism initiatives and responsible travel policies to the role of technology and local community engagement, the book outlines practical steps to ensure that tourism remains a force for good. It encourages a paradigm shift where economic success is measured not just by revenue, but also by the preservation of natural and cultural heritage.

Dr. Mohammad Talukder's expertise in sustainable tourism and his deep understanding of emerging technologies make this book an invaluable resource. His ability to blend theoretical perspectives with pragmatic approaches ensures that readers gain a holistic understanding of how tourism can coexist with environmental and economic sustainability.

As we stand at the crossroads of a rapidly evolving tourism landscape, this book serves as both a guide and a call to action. It is my hope that it will inspire industry leaders, researchers, and policymakers to adopt a more responsible approach to tourism—one that prioritizes long-term sustainability over short-term gains.

I highly recommend *Tourism-Ecosystem-Economy Triad* to anyone interested in shaping the future of tourism in a way that benefits both people and the planet.

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PREFACE

Tourism is a powerful driver of economic growth, cultural exchange, and global connectivity. However, its rapid expansion often poses challenges to environmental conservation and sustainability. The intricate relationship between tourism, the ecosystem, and the economy forms a delicate balance, requiring a strategic approach to ensure that growth does not come at the expense of ecological integrity and future viability. This book, *Tourism-Ecosystem-Economy Triad: Balancing Tourism Growth, Environmental Conservation, and Sustainability*, explores this dynamic interconnection and offers insights into fostering responsible tourism development.

The tourism industry is a double-edged sword—it creates employment opportunities, stimulates local economies, and promotes cultural heritage, yet it can also lead to over-tourism, environmental degradation, and loss of biodiversity. The key challenge lies in harmonizing these elements, ensuring that tourism remains a tool for positive change rather than a force of destruction. The book delves into strategies that align tourism development with ecological preservation, highlighting case studies, policies, and innovative solutions that have proven effective worldwide.

Throughout this book, we examine the principles of sustainable tourism, the role of stakeholders in achieving a balance, and the impact of climate change on tourism ecosystems. By integrating environmental management practices, technology-driven solutions, and community participation, this book seeks to provide a roadmap for policymakers, industry leaders, academics, and students to navigate the complexities of the tourism-ecosystem-economy triad.

It is my hope that this book will contribute to the ongoing discourse on sustainable tourism and inspire responsible practices that benefit both present and future generations. Let us strive to ensure that tourism remains a catalyst for economic prosperity while safeguarding the planet's natural and cultural treasures.

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CHAPTER 1

The Challenges and Opportunities for the Scientific Tourism of Medicinal Plants: Case Study in Indonesia

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Abstract: Medicinal plant tourism is essential to inform visitors about the many kinds of herbal plants, their health advantages, and how they can be used as traditional remedies. To gather vital information for this book, interviews were conducted with four key decision-making stakeholders who have significantly influenced social science perspectives on medicinal plant science tourism. The backdrop of opportunities and challenges in the sustainable management of tourism attractions that highlight medicinal plants is the main subject of this book. The ability to generate economic benefits for local communities, enhance sustainable management, involve local communities in tourism planning and management, identify appropriate strategic partners, and carry out routine monitoring are the key obstacles to Indonesia's sustainable management of medicinal plant tourism. This tourism possibility greatly aids the conservation of traditional knowledge and the preservation of therapeutic plant species. With the right strategy, Indonesian medicinal plant tourism can support the preservation of traditional knowledge and the conservation of medicinal plant species, while also boosting the local economy. To achieve this, it is essential to engage with local populations and raise awareness of the value of medicinal plants. This type of tourism can be valuable for rural economies while protecting the environment and local culture, by boosting economic benefits through sustainable management.

Keywords: Environmental impact, Future opportunities, Indonesia, Management challenges, Medicinal plants, Social impact, Tourism.

INTRODUCTION

As a form of sustainable tourism, medicinal plant tourism holds enormous promise for preserving balance among social, environmental, and economic

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interests. In addition to its recreational focus, this kind of tourism promotes community empowerment, education, and conservation. Indonesia has enormous potential to develop medicinal plant tourism, given its status as a nation with the highest biodiversity in the world, which preserves cultural heritage and boosts local economies.

As one of Indonesia's most significant conservation and educational facilities, the Bogor Botanical Garden (KRB) is crucial to the growth of medicinal plant tourism. The KRB's vast array of therapeutic plants and auxiliary facilities makes it the ideal location for promoting conservation and knowledge-based tourism. The significance of medicinal plants in traditional medicine, health, and environmental preservation can be understood by visitors on this tour.

The growth of medicinal plant tourism is fraught with challenges, particularly in striking a balance among social, environmental, and economic factors. The expansion of tourism often leads to increased carbon footprints, resource exploitation, and stress on regional ecosystems. To prevent adverse effects and guarantee long-term advantages for all parties, suitable and sustainable management measures are therefore required.

The question at hand is how medicinal plant tourism can support the harmony of environmental preservation, tourism, and economic viability. What are the main elements that affect how well medicinal plant tourism is managed?

This article aims to conduct an economic, environmental, and social analysis of the factors influencing the sustainability of medicinal plant tourism in the KRB. It also attempts to explain how innovation, effective management, and sound policies can promote harmony between sustainability and environmental preservation in the growth of medicinal plant tourism. It also highlights the difficulties and opportunities in preserving conservation, involving local populations, and guaranteeing economic viability through medicinal plant tourism.

Using both qualitative and quantitative methods, this study offers a thorough understanding of the management of medicinal plant tourism. In-depth examination of stakeholder viewpoints and the evaluation of economic and environmental repercussions are made possible by the qualitative and quantitative methods employed. To understand the actual circumstances of managing medicinal plant tourism, stakeholder interviews and firsthand observations are crucial. Because the KRB is a key study object and a hub for the Indonesian medicinal plant conservation, and education, this site was specifically selected. To establish sustainable medicinal plant tourism, this chapter focuses on identifying and implementing best practices for sustainable development.

Additionally, a descriptive study is employed to examine the interaction between social, economic, and environmental factors in the management of medicinal plant tourism. To ensure that local communities and stakeholders are involved in identifying possibilities, problems, and best practices that support its sustainability, a participatory approach is being used in preparation. Readers should gain a solid understanding of the significance of medicinal plant tourism in the KRB from this introduction section. It is a sustainable tourism solution that focuses on community empowerment, environmental preservation, and economic balance.

BOGOR BOTANICAL GARDEN

An Overview of KRB Background and Characteristics

One of the biggest and oldest botanical gardens in Southeast Asia is the KRB. The Dutch colonial government established the KRB in 1817 under the direction of German botanist Prof. Dr. Caspar Georg Carl Reinwardt. Initially, the gardens served as a center for plant study, particularly for plantation and agricultural purposes in the Dutch East Indies (Yuzammi, 2018). Over the years, the KRB has grown into one of Indonesia's hubs for nature tourism, education, and conservation (Witono & Irawati, 2023).

Location and Land Area Geographically

At 6°36' S and 106°47' E, the KRB is situated in the heart of Bogor City, West Java Province. Being in the center of the city and conveniently accessible from Jakarta, some 60 kilometers to the south, its location is highly advantageous.

The KRB spans a total of 87 hectares. This space is divided into several themed zones, including artificial forests, thematic gardens, plant protection areas, and special collection gardens, such as those featuring medicinal plants.

The KRB Medicinal Plant Collection

The KRB is one of Indonesia's most significant centers for conserving medicinal plants. Approximately 4 hectares of the garden's total area are devoted to the special zone for medicinal plants (Ilhami *et al.*, 2022). This region is home to a diverse array of medicinal plants of great economic, ecological, and therapeutic significance, which are native to the archipelago.

The KRB has around 200 species of medicinal plants, categorized according to their scientific classification and therapeutic uses. Popular medicinal plant examples include *Zingiber officinale*, commonly known as ginger, which helps

CHAPTER 2

Trend Towards Sustainability: Rising Awareness of Environmental and Health Issues is Influencing Consumer Preferences

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Abstract: This study examines the impact of consumer preferences on fast-food consumption patterns in Haryana, India. Through a quantitative research approach, data were collected from 485 individuals using structured surveys. Descriptive statistics, correlation analysis, and Chi-square tests were conducted to analyze the relationship between traditional food consumption, fast-food consumption, and consumer preferences. The findings highlight the significant role of consumer preferences and cultural influences in shaping fast-food consumption behaviors. Understanding these dynamics is essential for businesses and policymakers to effectively navigate India's diverse food retail landscape and meet the evolving needs of consumers.

Keywords: Consumer preferences, Cultural influences, Fast-food consumption, Food retail, Haryana, India, Quantitative research, Traditional food.

INTRODUCTION

India's culinary landscape is a rich tapestry woven from diverse regional cuisines, cultural traditions, and culinary legacies passed down through generations. In recent years, however, the Indian food retail sector has witnessed a profound transformation, characterized by the burgeoning presence of fast-food chains alongside traditional culinary establishments. This paradigm shift reflects not only evolving consumer preferences but also broader socio-economic changes shaping India's urban and rural landscapes. Against this backdrop, this study focuses on Haryana, a state emblematic of India's socio-cultural diversity, to unravel the intricate relationship between consumer preferences and fast-food consumption patterns.

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The emergence of organized fast-food retailing in India represents a significant departure from traditional food retail models, ushering in a new era of culinary globalization. With multinational food chains vying for market share alongside local eateries, consumers are presented with an unprecedented array of dining options. This shift is driven by a confluence of factors, including urbanization, changing lifestyles, and increasing disposable incomes. As a result, traditional culinary practices are undergoing a renaissance, coexisting with, and at times, converging with global fast-food trends. Understanding the dynamics of this evolving food retail landscape is essential for stakeholders seeking to navigate the complexities of India's vibrant culinary market.

At the heart of India's culinary mosaic lies a tapestry of cultural influences, gastronomic traditions, and communal dining practices. From festive celebrations to daily meals, food serves as a conduit for social bonding, cultural expression, and familial ties. However, as India embraces the fast-paced lifestyle of the 21st century, traditional culinary norms are being reshaped by changing consumer preferences and global food trends. This interplay between tradition and modernity underscores the need for a nuanced understanding of how cultural influences shape fast-food consumption patterns. By delving into the cultural nuances of food choices and dining habits, this study aims to unravel the complex interplay between tradition, globalization, and consumer behavior in Haryana's fast-food landscape.

Objectives

1. To examine the consumption patterns of traditional food and fast food among individuals in Haryana.
2. To assess the relationship between traditional food consumption and fast-food consumption.
3. To explore the impact of consumer preferences on fast-food consumption behavior.

LITERATURE REVIEW

Fast-food Retailing in India

India is widely recognised as a significant global contributor to food production; nonetheless, its share in international food commerce is very small, amounting to around 1.5%. This is a significant potential for both domestic and global marketers. In recent years, there has been a significant growth in India's food chain business, with a notable focus on the diversity of products. The international food chain sector in India is now undergoing growth and expansion, particularly

in metropolitan areas, alongside the existing traditional and regional food retailing models. (Kenny *et al.*, 2020)

The Indian food service retail business has seen significant rivalry during the last decade. Both traditional food stores and organised Indian food service retail establishments are now under intense competition from multinational food service retailers. Indian food service merchants are making concerted efforts to recruit, please, and keep customers. In an effort to maintain their presence in the market, businesses are striving to maintain a sense of modesty by creating enhanced and unique shopping experiences for their consumers. The Indian fast-food businesses are compelled and incentivized to assess the quality of their offerings and gauge customer satisfaction due to intense competition, escalating customer demands, and evolving consumer preferences.

In recent times, scholars have undertaken investigations to examine the effects of structured international food retailing on unorganised food retailing. Numerous scholarly investigations have been conducted to explore diverse methodologies for evaluating the consequences, leading to the projection that the introduction of multinational food retail chains would have an adverse influence on traditional food retailing. In recent times, there has been a growing body of research that presents divergent conclusions about the aforementioned influence of the international food business on traditional food retailing. (Kaushik & Singh, 2026). Currently, it is evident that the diverse and complicated demographic and psychographic profile of Indian customers has not provided any obstacles to the introduction of organised international food commerce. Both retail methods, namely traditional brick-and-mortar stores and online platforms, are now coexisting and experiencing significant success. The findings of this study provide empirical evidence that supports the hypothesis put forward by previous scholars that the presence of foreign food retail chains in India has a detrimental impact on the traditional food retail sector. (Fast-food in India, 2017) The policy of the Indian government is to provide fundamental food security for Indian inhabitants, taking into account a range of factors such as competition, price, and the exploitation of farmers.

Based on the findings of the India Food Report in 2016, the Food Retail industry in India, which includes Food & Grocery and Food Service, is estimated to be worth Rs 25,12,962 crore, accounting for around 65 percent of the nation's overall retail market (Aggarwal *et al.*, 2025). The Food & Grocery Retail sector has a market value of “Rs 23,03,496 crore, while the food service retail market is estimated at Rs 2,09,466 crore. The annual growth rate of food service retail over the last four years has been 15%, while the food service industry has had an average annual growth rate of 22%. The projected growth rates indicate that the

CHAPTER 3

The Importance of Ecotourism in Local Communities and Environmental Sustainability

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Abstract: Ecotourism is a key component of sustainable tourism, offering an essential approach to achieving community development and environmental sustainability. Ecotourism refers to responsible travel, prioritising both nature and culture. It serves as a powerful promoter of economic growth, environmental preservation, and community empowerment. This chapter examines the intricate relationship between ecotourism and its impact on local communities, as well as the environmental sustainability and economic benefits of ecotourism. This benefit includes job creation, investment in regional infrastructure, and community development, such as raising awareness about protecting natural resources and ensuring the long-term sustainability of valuable resources that will enable future generations to enjoy the same benefits decade after decade. This chapter also emphasises the significance of ecotourism in environmental conservation, as it helps protect natural resources and promotes the sustainable management of these resources. It highlights the activities of local groups that focus on ecotourism, cultural preservation, and educational programs. Ecotourism faces enormous challenges and opportunities in tourism development and in addressing the impacts of mass tourism. To identify the condition of ecotourism, various case studies were analysed to examine successful ecotourism practices. Finally, this chapter aims to motivate ecotourism in creating a more sustainable and equitable future for the planet and provide a strategy to overcome the challenges of sustainable development for local communities and the environment.

Keywords: Community, Economy, Ecotourism, Environment, Evelopment, Nature, Resources, Sustainability, Travel.

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INTRODUCTION

Responsible travel, also known as ecotourism, focuses on the preservation of natural environments and cultural respect (Kiper 2013). We aim for low-impact travel experiences that generally support conservation, entrepreneurial development in local communities, and promote sustainable practices. Some of the activities of ecotourism include wildlife observation, cultural heritage tours, and eco-holidays (tourist accommodations) that minimise environmental degradation while maximising cultural appreciation. It is also paramount for educational purposes, allowing tourists and local people to gain an understanding of the value of biodiversity and cultural diversity. Sustainable tourism relies heavily on ecotourism, as it focuses directly on environmental, social, and economic sustainability (Kumar, Hasija *et al.*, 2023). It is about reducing the carbon footprint of tourist activities and financing conservation efforts to preserve ecosystems. Ecotourism also fosters community-led tourism initiatives, providing economic opportunities within communities that preserve their local customs and culture. Ecotourism combines responsible practices with tourism development, where tourism development refers to activities that conform to the principles of sustainability, ensuring that the actions of today do not deplete resources for tomorrow's consumers (Sharma and Sodani 2024).

Objectives

The primary aim of this chapter is to explore the multifaceted role of ecotourism in fostering sustainable development. It seeks:

- To analyze the financial, ecological, and cultural impacts of ecotourism.
- To highlight the challenges and opportunities related to ecotourism.
- To provide insights into how ecotourism benefits local communities and protects natural resources.
- To motivate policymakers, investors, and travelers to embrace sustainable tourism practices by presenting successful case studies and strategic frameworks.

This chapter ultimately highlights the significance of ecotourism in promoting balance between social activity and environmental preservation.

ECOTOURISM: CONCEPTUAL FRAMEWORK

Tourism is an experience that transforms ecotourism into responsible travel practices, environmental stewardship, and the preservation of culture (Svitlichna, Tonkoshkur *et al.* 2024), as well as new travel habits. It is not just one kind of tourism; it is a philosophy that seeks to unify the human use of both the natural

and cultural environments. Ecotourism employs a conceptual framework that encompasses its core values, principles, and impacts on society and the environment (Kiper 2013). Yet at its core, ecotourism is about leaving a footprint on the planet as light as possible and ensuring that the vast majority of the benefits accrue to both communities and ecosystems. This explores the responsible travel dynamics, the ecotourism guiding principles, and its multidimensional features, including its role in supporting economic development, resource conservation, and empowering communities. With biodiversity protection, respect for cultural heritage, and promotion of sustainable livelihoods as its core, ecotourism serves as a benchmark for sustainable tourism practices (Sharma and Sodani, 2024). This section examines the key elements that define ecotourism, demonstrating how it serves as a vital instrument for sustainable development and a model for reconciling tourism growth with environmental conservation (Fig. 1).

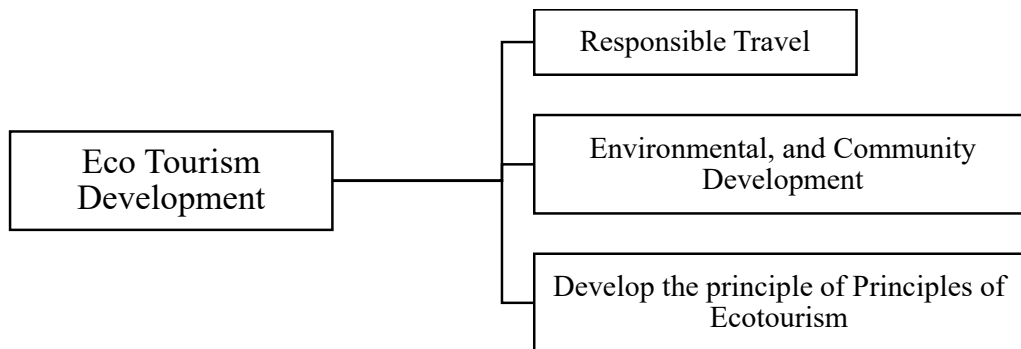


Fig. (1). Ecotourism development (Self-develop).

Responsible Travel: Prioritising Nature and Culture

At the heart of ecotourism lies responsible travel, which focuses on minimising the negative impacts that travel can have, in terms of economic, social, and environmental impacts, and maximising the positive effects it can have. This approach prioritises:

- **Minimising Environmental Impact**

Inspiring eco-friendly practices such as reducing waste, preserving water, and selecting sustainable transport.

- **Respecting Cultural Heritage**

Ensure that tourism activities respect local cultures, behaviours, and ways of life without exploitation or manipulation (Zhuang, Yao *et al.* 2019).

CHAPTER 4

Rural Tourism Development: Balancing Economic Growth and Environmental Sustainability

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Abstract: Tourism development and the influx of visitors have generated new economic and social roles and opportunities for residents in rural villages. Additionally, the growth of residential construction and shifts in traditional rural housing types and materials have created new job opportunities in these areas. While tourism has brought several positive impacts to rural regions over the past few decades, it has also imposed various negative effects, particularly on the environment. As a subset of tourism, rural tourism can influence multiple dimensions, impacting not only a country but also local communities. For rural tourism to contribute effectively to sustainable development, it is essential to prioritize principles that encompass the economic, social, and environmental dimensions, and to employ a holistic approach at every stage. This chapter highlights the connection between tourism and rural growth by examining the roles of entrepreneurship, community participation, environmental considerations, and technological advancements. Tourism has driven improvements in these economic and social aspects, leading to significant developments within rural communities.

Keywords: Economic dimensions, Environmental dimensions, Rural tourism, Sustainable development, Technological advancements, Tourism development.

INTRODUCTION

Over the past century, tourism has grown to the point where it is now recognized as a global sector. This business can readily compensate for issues such as unemployment and poverty in nations, contributing to the growth of the private sector, infrastructure, and job creation. This is the rationale behind governments' current efforts to increase tourism in their nations via careful and thoughtful planning (University of Isfahan, Iran *et al.*, 2017). A complicated phenomenon, tourism has an impact on social, political, cultural, and economic spheres as a result of its activities. The travel and tourism sector has grown due to the comp-

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lexity and variety of services provided to tourists (Ishii, 2012). Through its function and substance, tourism is a unique industry and a vital component of the social and economic fabric of most nations worldwide (Chin *et al.*, 2014). The tourism sector generates significant financial benefits for the host town or tourist destination. One of the primary reasons an area promotes itself as a tourism destination, especially in developing nations, is the anticipated economic benefits (Cucari *et al.*, 2019). The host community, as well as tourists themselves, benefit economically, socially, and culturally from tourism. These effects on a region include job creation, income diversification, increased participation, and improvements to the environment, infrastructure, and facilities (Buhalis & Law, 2008).

There are many different kinds of tourism, but rural tourism is one of the most well-liked. Due to the significance and appeal of this type of travel, tourism experts predict that villages will become among the most popular travel destinations in the future (Su *et al.*, 2019). This kind of tourism enhances the social and economic well-being of the local community while showcasing the life, culture, art, and legacy of rural places (Taghdisi *et al.*, 2015). To improve the visitor experience, it also facilitates interactions between visitors and residents.

Rural tourism resources are one of the most crucial ways to address the issues and difficulties facing rural communities. Rural tourism has been viewed as a strategy for promoting economic growth in sensitive locations in recent decades, particularly in rural areas [9]. Depending on various circumstances and variables, tourism can affect the quality of life in destination towns in both positive and negative ways (Yang *et al.*, 2021). Thus, promoting tourism in a way that highlights its effects on rural people and the environment has recently emerged as one of the methods for developing rural regions. According to research findings (Amin, 2017), rural tourism can significantly contribute to the growth of rural communities when properly managed; however, if poorly managed, it can have detrimental effects on the environment and the rural population. To restore, manage, promote, and protect the rich cultural and natural heritage in rural areas, and to improve the quality of visitor accommodations, efforts are currently concentrated on supporting rural tourism (Attaalla, 2024).

Additionally, the tourism development approach is being used to address rural issues like poverty (Chettiparamb & Kokkranikal, 2012) migration, income improvement, and job diversification (Mathew & Thankachan, 2019), lowering environmental stress (Markose *et al.*, 2022), raising living standards, advancing technology (Troisi *et al.*, 2023), enhancing physical and environmental conditions (Hardianti *et al.*, 2024), maintaining demographic stability, enhancing socioeconomic stability (Basu, 2024) and promoting public service. Thus, tourism

as a rural development policy may have beneficial consequences and be advantageous if it is planned and has a methodical structure. Naturally, understanding the key sources of tourism is more crucial in this industry, as each rural region has unique capabilities, and tourist development should be organized accordingly (Sadeghi *et al.* 2018).

In this study, an effort has been made to highlight some of the effects and advancements of tourism in rural areas. Bringing up these topics can demonstrate how tourism contributes to rural development and transformation.

RESEARCH APPROACH

The writers' personal experiences and theoretical book reviews are the two categories of data collection methods. A significant portion of the writers' research in recent years has focused on rural development and tourism. The key and considerable portion of this work is the outcome of their survey and theoretical investigation. The research's contents are derived from the writers' studies and theoretical investigations in this area. Without field studies, tourism cannot fully understand a location and its natural attractions. As a result, the primary focus of this study is the authors' perceptions of tourism, their interactions with the village, and their relationships with one another, as informed by earlier research.

DEVELOPMENT OF TOURISM IN RURAL AREAS

The Concept of Rural Tourism

The definition of the World Tourism Organization (UNWTO) highlights the connection between tourists' experiences and activities, as well as the variety of goods derived from agriculture, fisheries, nature, and local culture (Chaparro-Banegas *et al.*, 2023). Rural tourism is recognized as a form of tourism that places a strong emphasis on marketing and supply management (*UNWTO Tourism Highlights, 2015 Edition*, 2015). One of the most significant features of rural tourism, as defined by this definition, is the presence of village-based activities and goods, which must possess specific attributes. When it comes to this kind of tourism, visitors are especially eager to interact with locals and learn about their way of life (Tom & Preethi, 2024). Additionally, visitors from rural areas frequently engage in the customs and activities of the locals. This kind of tourism places a strong emphasis on home-based and small enterprises. When rural culture is a significant component of the offering, rural tourism is employed as a method or concept. In actuality, the features of the area where tourist operations are conducted determine rural tourism (Yang *et al.*, 2021).

CHAPTER 5

Barriers and Facilitators for Entrepreneurship in Tourism: A Global Perspective

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Abstract: Entrepreneurship in the tourism and travel industry has been a hot topic for researchers in recent years. Tourism entrepreneurship offers opportunities for new startups, unique travel experiences, and connections with emerging markets. However, several barriers and facilitators across different geographic and economic contexts impact the journey of tourism entrepreneurs. This research provides an overview of the major barriers and facilitators to tourism entrepreneurship. In this study, we use secondary data from multiple sources. The study identifies major barriers, including market fluctuations, regulatory constraints, and limited access to finance. It also examines facilitators such as technological growth, government support, and favourable environmental legislation. Understanding the interplay between these obstacles and drivers will facilitate the development of effective policies for entrepreneurship in the tourism sector.

Keywords: Barriers, Entrepreneurship, Facilitators, Opportunities, Tourism entrepreneurs, Tourism.

INTRODUCTION

Tourism is an essential sector of the global economy, serving as a major tool for economic development, promoting cultural interaction, and improving social well-being (Manalu *et al.*, 2024). Up to 10% of the worldwide Gross Domestic Product (GDP) comes from tourism, making it the largest economic industry in the world (Hallak *et al.*, 2015). In addition to its financial benefits, tourism also provides a platform for cultural exchange, allowing different groups to understand and cooperate. According to recent statistics, tourism accounted for nearly 10.5% of total global employment before the pandemic outbreak (approximately 334 million jobs in 2019) (Solvoll *et al.*, 2015).

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The ability of tourism to transform destinations into vibrant centres of activity underscores the important role in global development strategies. In addition, it has been argued that a well-developed, systematically implemented, and professionally executed tourism development strategy has the potential to transform a country's natural resources into a significant economic asset, promoting sustainable growth, improving local livelihoods, and contributing significantly to the overall economic development of the region (Karanasios & Burgess, 2008).

As highlighted by Shane & Venkataraman (2000), to effectively transform a nation's resources into economic assets for growth, tourism strategies must also harness the potential embedded in entrepreneurship. Additionally, changes brought about by evolving consumer preferences and the emergence of innovative ideas could impact the tourism sector (Greve & Salaff, 2003). In particular, the tourism industry needs to adopt entrepreneurial behavior to implement the required innovations when structural aspects are changed, and products shift towards experiential value (Utami *et al.*, 2023a). Rapid changes in the global economy have made pursuing entrepreneurial endeavours more crucial for generating wealth (Utami *et al.*, 2023a). From delivering tourism services to promoting destinations, all depend heavily on tourism entrepreneurship. Stakeholders in the sector may successfully address the growing demand for experiential products by promoting entrepreneurial activities, thereby helping build sustainable tourism destinations (Braunerhjelm *et al.*, 2015). Existing research on tourism entrepreneurship highlights the pivotal role played by entrepreneurial intentions and market intelligence in fostering Small and Medium-sized Enterprises (SMEs), which are essential for the development of emerging markets. SMEs in tourism play a crucial role as economic drivers of regional development and job creation, thereby revitalizing local economy through the tourism multiplier effect (Tleuberdinova *et al.*, 2021).

Larger and well-established organizations have indicated scant progress in innovating their products and services to respond to the surging demand for unique and emotionally significant tourism experiences. As a result, the tourism sector primarily depends on emerging enterprises to enable market growth and to promote innovation in conjunction with the evolution of the industry towards the delivery of Experience-centric products. Accordingly, the concept of entrepreneurship has increasingly emerged as a central theme in policy measures designed to spur the tourism industry, to advance innovation, and enable value creation. In addition, researchers emphasize the need for greater academic focus on innovation and transformation in tourism to better capitalize on opportunities driven by demand for experience-driven products (Chandni, L. & Rangjani, V. A *et al.*, 2024). The analysis and deployment of such potentials necessitate

entrepreneurial action (Adeola & Evans, 2020). The proliferation of specialized tourism products, the establishment of digital platforms that facilitate uninterrupted travel experiences, and the emergence of community-centred enterprises that promote sustainability collectively signify the robust interaction between innovation and the market conditions within the field of tourism entrepreneurship (Bates & Robb, 2013). Besides the benefits, tourism entrepreneurship is full of challenges that discourage entrepreneurs from entering the market. The biggest challenge is raising funds, since many potential entrepreneurs face difficulties obtaining finance due to a lack of collateral and poor credit records (McKercher, B. & Du Cros, H. 2002). However, the bureaucratic framework that has been structured is also too complicated, in the sense that health and safety regulations, licensing, and taxation matters entail bureaucratic complexities that are generally counterproductive to businesses (Dias *et al.*, 2024). Moreover, a lack of basic knowledge and skills is again a significant hindrance to entrepreneurial capability, as many people entering this industry do not receive proper training in finance, marketing, and operations management (McKercher & Robbins, 1998). Also, external events like economic recessions, environmental disasters, and global crises like the COVID-19 pandemic show how much the industry is vulnerable to unexpected events, thereby increasing the uncertainty experienced by entrepreneurs in tourism (Dias *et al.*, 2024).

Although the barriers to tourism entrepreneurship are significant, many facilitators have the potential to create an environment that enables entrepreneurial activities. Government policies that encourage investment, innovation, and sustainability are the most important facilitators (Ziyae *et al.*, 2021). For example, fiscal incentives, financial subsidies, and grants can reduce the economic burden on entrepreneurs, whereas streamlined regulatory systems can reduce the entry barriers to the market. The development of technology has revolutionized the tourism industry, equipping business professionals with new tools to enhance their operational processes and connect with customers more effectively. Online booking systems and social media services have significantly altered marketing and distribution models, enabling entrepreneurs to reach international audiences with minimal financial costs (Aref, F. 2011).

Despite growing awareness of the need for tourism entrepreneurship, the existing body of literature is quite fragmented and narrow in scope. Most previous studies have focused on entrepreneurship in general frameworks, rather than specifically addressing the features and challenges unique to tourism. This study addresses this gap by conducting a literature review of the challenges and facilitators of tourism entrepreneurship. The findings also have important implications for both theory and practice, helping to develop strategies that remove barriers, enhance facilitators, and promote sustainable entrepreneurship within the tourism sector.

CHAPTER 6

Responsible Tourism (RT) and Contributions to the Community at Kumarakom: an Overview

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Abstract: Ecotourist endeavors paved the way for inclusive tourist practices that involve the community. A relevant example of this is the Thenmala Ecotourism project. Almost 10 years after the introduction of the project above, as a responsible tourism practice, the government of Kerala has integrated members of local Panchayat self-help groups and given greater authority to resident communities. This study aims to highlight the contribution of responsible tourism activities to employment and income generation for residents categorized as being below the poverty line. The focus is on the changes that accompanied the introduction of RT initiatives and, consequently how the residents' lives have improved. Methodologically, the study employs a descriptive approach, utilizing a survey questionnaire to understand changes before and after the initiation of RT practices, and a paired sample test for analysis.

Keywords: Agricultural practices, Income and employment generation, Local community, Responsible tourism, Women empowerment.

INTRODUCTION

Kumarakom is a notable backwater tourism destination in Kerala, the largest of its kind in South India. The tourist village is renowned for its paddy fields, mangrove forests, and coconut-filled islands situated on the banks of freshwater Lake Vembanad. The tourist village of Kumarakom is a relaxed haven, laced with a string of canals that make it a refined paradise on earth, offering a unique travel experience. The Kumarakom tourist destination comprises three panchayats: Kumarakom, Aimanam, and Arpookara, which are taken into consideration for this study. Responsible tourism practices are implemented through Kudumbasree, a self-help group composed of members from low-income groups, whose uplift-

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ment has a positive socio-economic impact. The Kudumbasree is itself a poverty alleviation and women's empowerment programme of the Government of Kerala. The RT initiative became a great success owing to Kudumbasree members. Today, a significant number of men are also engaged in this initiative, contributing to the region's prosperity and upholding the basic principles of the 2002 Cape Town declaration (Rogerson, 2014).

The responsible tourism practices of Kumarakom tourist destinations have garnered international attention and garnered numerous national and international awards (Mathew & Sreejesh, 2017). National and international agencies have conducted numerous studies, making it a game-changer. Today, it has become a subject of study in the curricula of many universities, especially King's College, London. Building momentum from this project, the Government of Kerala established an RT mission department and expanded the project across the entire state of Kerala. It has been reported that around 21,000 persons have become direct beneficiaries. In contrast, 32,000 have become indirect beneficiaries of the various RT practices implemented by the RT mission, resulting in a de facto revenue of 5.82 crores in 2018 (Cheng *et al.*, 2020).

At the inception stage of the RT initiative in 2007, the major objectives were:

- Fallow land cultivation and enhance agricultural production.
- Fish farming and lotus cultivation.
- Establishing a linkage with the hotel industry and enhancing demand for local products.
- Development of the Souvenir Industry.
- Village Life Experience- Community-based package tour.
- Promotion of the indigenous art form and culture.
- Promotion of cultural tourism and ethnic cuisines.
- Awareness of the adverse impacts of tourism, such as child labor, child abuse, labor exploitation, prostitution, *etc.*
- Protection of the environment.
- Energy saving and energy efficiency.
- Comprehensive resource mapping of different aspects like art, culture, profile, resources, manpower, *etc.*
- Destination labor directory.

The above-targeted goals were almost achieved, and this period (2007-2013) was found to be the golden period of RT at Kumarakom (Tom & Preethi, 2024). The economic impacts of RT have become a subject of research among many scholars and have proven successful. By 2017, the RT initiative had been transformed into RT practices and was accepted by all stakeholders.

DEVELOPMENTS

Kavya Lekshmi & Mallick (2022) say all communities were aware of their significance, owing to the RT initiatives. Many members of the local community who live in the proximity of the resorts and hotels also benefit from tourism.

Through Kudumbasree units, locals were employed for at least one or two days in rotation, earning an average of Rs. 500 to Rs. 1000 per day, provided by the resorts for residents. Cleaning, gardening, stitching, and other casual employments were given to these people. The community became more aware of the use of water, energy, and waste management in areas where RT practices are dominant. The major RT practices that support the local community are the following: Agricultural Practices/Animal Husbandry, Enterprise Development, Resort Jobs, Village Life Experience Packages, souvenir units, and Cultural Groups (Mathew, P. V., & Sreejesh, S. 2017).

Agricultural Practices/Animal Husbandry

Vegetable cultivation is one of the successful outcomes of this practice. It includes long peas, snake gourd, bitter gourd, amaranth, cucumber, pumpkin, green chili, tapioca, brinjal, coconut, and allied products, such as tender coconut, peas, and papaya. Fifteen families are involved in this project. Dairy farms, fish farms, and poultry farms are other contributing factors to local community income. Organic farming is the most attractive practice in the area. By forming 'karshakasamithis' with the help of Kudumbasree, many such units are now involved in this area. During the inception stage, Kudumbasree had a dominant role. Today, many members are involved in RT practices individually. Earlier, 15 to 20 members constituted a group, and the entire group worked together, sharing the profit equally.

According to Michot in 2010, there were 760 women solely engaged in vegetable cultivation. By 2018, these practices had significantly expanded into other sectors, as mentioned earlier. Women's empowerment remained a major outcome of RT in 2017-18 as well.

Enterprise Development

Another noted area where significant contributions occurred is the entrepreneurial jobs started by the local community. One of the landmarks of the RT initiative is the opening of an ethnic food restaurant near the KTDC complex. More than six women are now engaged with this. Other units included with RT are a cloth bag, a paper bag, chilli powder, plastic waste collection, a laundry unit, a weaving society, candle making, dish washing, *etc.*

CHAPTER 7

Linkage between Sustainable Tourism, Economic Growth, and Transportation of Hazardous Waste in Rural Tourist Areas

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Abstract: In the global travel industry, sustainable tourism development has become a crucial paradigm that aims to balance environmental preservation with economic growth. This review offers a thorough examination of the opportunities and challenges inherent in striking a careful balance within the framework of sustainable tourism between environmental preservation and economic prosperity. It examines how these aspects are related to one another and the necessity of an integrative strategy that recognizes the complex connections between ecosystems, local communities, and tourism-related activities. Solid waste management is a major issue, especially in rural areas where there are usually few or no options for waste disposal. Inadequate waste management can result in various environmental and health problems, including the spread of disease and contamination of water and air. Researchers and stakeholders can use the previously presented studies as a reference when designing integrated solid waste collection and treatment systems to improve sustainability on a global scale. Given the circumstances, the chapter emphasizes how important proper waste management is in rural areas and how urgently practical solutions to this issue are needed. This chapter focuses on social and environmental issues as it investigates the main consequences of inappropriate waste management in developing countries. The economic part of sustainable tourism is one of the main topics covered in this paper, with a focus on how tourism can boost local economies while reducing its negative effects.

Keywords: Economic growth, Environmental and health risk, Hazardous waste, Rural waste management, Sustainable tourism.

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INTRODUCTION

Solid Waste (SW) mismanagement has a global impact on social inclusion, environmental contamination, and economic sustainability. To address this issue, integrated assessments and holistic approaches are needed. Large cities and rural areas face different management challenges, especially when it comes to the volume of waste production and the accessibility of Solid Waste Management (SWM) facilities. There should be an emphasis on these differences (Emara, 2023). Inappropriate disposal leads to severe heavy metal pollution that contaminates plants, water, and soil. Open burning releases a variety of pollutants into the atmosphere, such as CO, CO₂, SO, NO, PM10, and others. Picking waste in open dump sites poses a serious health risk to workers, and releasing sulfur dioxide into water bodies increases environmental contamination (Ferronato & Torretta, 2019). The risks to the environment and health from these activities should not be ignored. These include occupational risks for workers, air pollution from the management of household hazardous waste and medical waste, the processing and recycling of used batteries, and the production of char fuel from Waste Electrical and Electronic Equipment (WEEE). An effective solid waste management system relies on timely and reliable data to inform essential aspects of the program, such as information on the waste sources, type, composition, waste generation rates, and proper disposal methods. On the contrary, solid waste can be categorized based on the source and type of generation (Shamshiry *et al.*, 2011). Solid waste is categorized by source in a procedure known as source-based classification. So, this classification perspective is crucial to the waste management process because it provides information about the waste's origin, which ultimately aids waste management at the point of discharge (Shamshiry *et al.*, 2011). The principles of equity, efficiency, and sustainability are the guiding principles for sustainable Solid Waste Management (SWM). Equity focuses on ensuring access to effective and accessible waste collection services for everyone, which contributes to environmental health and safety and security of residents and tourists. Efficiency is associated with waste collection and treatment, conducted safely and efficiently; disposal of waste without harmful effects on the environment; and the 3Rs (Reduce, Reuse, Recycle), promoting sustainability. The development of partnerships among stakeholders through government action as a catalyst and facilitator will have a significant impact on planning programs for solid waste management optimization. The municipality should encourage the use of waste reduction, recycling, reuse, composting, and segregation at the source. Solid waste is any unwanted material that cannot be recycled or reused because its producers do not value it highly enough. It is produced by a combination of commercial, industrial, institutional, and residential activities. (Khan *et al.*, 2022). The aim of SWM is to resolve the environmental and human health problems caused by inappropriate waste disposal. The plan is to manage

solid waste at every point in the system, including generation, storage, collection, transportation, processing, and disposal. Since waste characteristics provide crucial information about the composition and behavior of the waste stream, understanding them is crucial to the effective implementation of this strategy. However, waste characterization is influenced by societal structures, economic activity, and environmental factors, all of which differ significantly between urban and rural areas, resulting in varying degrees of SWM complications (Teshom *et al.*, 2022). As a result, rising per capita waste has led to SWM issues spreading from urban to rural areas, especially in densely populated and popular tourist destinations.

Increased connectivity and living standards, shifting consumption patterns in those areas, a lack of appropriate management facilities, a lack of commitment and/or competence on the part of local governments to meet service needs, and inefficient decision-making processes are some of the factors that contribute to this (Guo *et al.*, 2021). To manage waste in the most effective ways and reduce potential risks associated with its handling, waste managers must have a thorough understanding of the diverse types of waste (Mahesh *et al.*, 2010). After surveying 1,080 households in 18 rural communities, the authors examined the types, amounts, and disposal methods of waste. According to the study, most of the household waste consisted of organic materials, followed by cardboard, paper, and plastic. In most homes, the authors discovered that waste is dumped outside, endangering the environment and public health. To reduce waste's negative environmental impacts and support sustainable waste management, the study suggests implementing waste separation and recycling programs in rural communities. The success of waste management programs in rural areas, according to the authors, is largely dependent on community awareness and participation. According to a study by Patwa *et al.* (2020), solid waste management is still in its infancy in India's rural areas, with many villages lacking adequate waste management infrastructure and systems. The authors found that biodegradable waste, paper, plastic, glass, and metals are the main categories of solid waste produced in rural areas. The article also offers a thorough analysis of the many solid waste treatment methods employed worldwide, including incineration, anaerobic digestion, composting, and vermicomposting (Talukder, 2025). The authors examined each technology's suitability for India's rural areas and stressed the importance of selecting the right technology based on the specific characteristics of the waste produced. The study recommends the implementation of decentralized SWM systems in rural areas, where waste can be treated and processed at the source (Fig. 1). To encourage behavioral change and raise awareness of the significance of proper waste management, the authors also recommend that the local community be involved in waste management programs. The article's overall aim is to emphasize the critical need for efficient

CHAPTER 8

Innovative Tech Solutions and Sustainable Tourism Outcomes: The Role of Environmental Consciousness, Digital Capabilities, and Big Data Analytics Capability

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Abstract: Purpose: This study aimed to explore the relationship between Innovative Tech Solutions and Sustainable Tourism Outcomes in northern Pakistan, with environmental consciousness and digital capabilities as mediators, and Big Data analytics capability as the moderating factor.

Design/Methodology/Approach: This study employs PLS-SEM to analyze survey data from tourism businesses in northern Pakistan. The analysis evaluates how environmental consciousness is influenced by environmental consciousness, with Big Data Analytics Capability moderating these relationships.

Findings: It is expected that Innovative Tech Solutions will have a positive impact on Sustainable Tourism Outcomes in northern Pakistan. Businesses with stronger environmental consciousness and digital capabilities will achieve more substantial results. Additionally, Big Data Analytics Capability will enhance the effectiveness of tech solutions, enabling data-driven strategies that improve sustainability outcomes.

Originality/Value: This chapter contributes novel insights into how Big Data Analytics Capability can enhance the impact of digital innovations on sustainable tourism in northern Pakistan. It applies PLS-SEM to the regional tourism sector, offering valuable, data-driven strategies for achieving sustainability in tourism.

Keywords: Big data analytics capability, Digital capabilities, Environmental consciousness, Innovative tech solutions, Sustainable tourism.

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INTRODUCTION

Tourism is a vital driver of economic growth and cultural exchange globally, making significant contributions to employment, infrastructure development, and regional integration (Travel, W. T. T. C., & Impact, T. E. 2012). Over the past few decades, tourism has evolved beyond traditional leisure travel to incorporate sustainable practices that balance economic, environmental, and social needs (Sharpley, 2018). In this context, technology has become one of the key players shaping marketing, management, and perceptions of destinations. Particularly, Innovative Tech Solutions such as Artificial Intelligence (AI), the Internet of Things (IoT), big data analytics, and Augmented Reality (AR) have enabled tourism stakeholders to efficiently and sustainably manage visitor experience, enhance personalization, and promote sustainable outcomes (Aliyah *et al.*, 2023)

Global Shift Toward Sustainable Tourism and Technology Integration

There is growing evidence of the use of smart technology and data analysis in the tourism industry to improve performance and reduce impacts (Wen-Chih Chiou). Currently, big data and AI applications are well-integrated in tourist-friendly destinations such as Singapore, South Korea, and Malaysia, creating sustainable and enjoyable experiences for visitors (Kotler, 2022). However, moving towards sustainability is not without problems in managing visitors' demands on locations and landscapes, particularly where there are concerns about ecosystems (Canton, 2021). Some challenges that face sustainable tourism frameworks in developing countries include weak infrastructure, liberal policies, and limited knowledge of information technology (Morrison, 2013). However, technological solutions offer the best way to circumvent these challenges by incorporating real-time data tracking and analysis, as well as eco-tourism advancements that make the whole process more sustainable in the long-term (Huang, 2021).

Tourism in Pakistan: Opportunities and Challenges

Pakistan has a large number of tourist attractions, including diverse terrains and cultural values, that have made the country highly considered for eco-tourism, adventure tourism, and religious tourism. Places like Gilgit-Baltistan, Hunza, and Swat provide unparalleled opportunity for adventure tourism, skiing, and cultural visit and tourists from domestic as well as other Countries. In the developing world, the strict implementation of a sustainable tourism framework faces challenges like poor infrastructures, disjointed policies, and lack of digital literacy (Mandic *et al.*, 2018). However, technology-based interventions offer the potential to bypass these barriers with instant real-time data tracking, analytics, and collaboration for eco-tourism creativity relevant to sustainable models (Li *et al.*, 2022).

However, seasonal influxes of tourists, limited infrastructure, and environmental degradation pose significant challenges to the sector's sustainable development (Hays *et al.*, 2013). In response, the government has launched several initiatives, such as the "Salam Pakistan" campaign and improvements in visa policies, to promote tourism and position Pakistan as a global travel destination (PTDC, 2023).

Despite these efforts, Pakistan's tourism sector continues to face barriers, including insufficient digital infrastructure, fragmented governance between federal and provincial bodies, and a lack of data-driven tourism management frameworks. Many of these challenges align with those faced by other developing nations, highlighting the importance of integrating big data analytics and innovative technologies to create resilient, sustainable tourism ecosystems (Buhalis & Sinarta, 2019). Smart tourism strategies can enhance visitor management while ensuring that tourism contributes positively to local economies and conserves fragile ecosystems.

Research Gaps and the Need for This Study

While big data analytics and digital capabilities are transforming tourism globally, research on their application in developing countries like Pakistan remains limited. Specifically, little attention has been paid to the mediating roles of environmental consciousness and digital capabilities in linking innovative technologies to sustainable tourism outcomes. Additionally, the moderating role of Big Data Analytics Capability (BDAC) in amplifying the impact of tech solutions on tourism sustainability remains underexplored (Esu & Ebitu, 2010). Since the tourism industry is still growing in the northern areas of Pakistan, research should be conducted to analyze how incorporating technology into sustainable tourism development models can help address the region's challenges in the context of modern sustainable tourism requirements and standards (Stefi, 2023). Previous research on tourism, particularly in the context of Pakistan, has primarily focused on economic effects and infrastructural advancements, while giving minor attention to the role of digitalization in promoting sustainable tourism (Hays *et al.*, 2013). Moreover, the following indicators suggest that tour operators are not adequately aware of global sustainability standards. First, Tour operators tend to focus on immediate earnings rather than on sustainable resource use (Crouch, 1995). These gaps can be effectively addressed through the adoption of technological solutions, environmental awareness, and harmonious policies.

Research Objectives and Questions

This study aims to address the identified gaps by exploring the role of Innovative Tech Solutions in fostering Sustainable Tourism Outcomes in northern Pakistan.

CHAPTER 9

Responsible Tourism for Sustainable Development: A Case from the Western Ghats of India

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Abstract: This study presents the case of tourism in Ranipuram, located in the northern district of Kerala, Kasargod, part of India's Western Ghats. Although it is abundant in resources, it still requires exploration and development as a tourism destination. Barriers such as inadequate infrastructure, lack of awareness, and environmental concerns are among the challenges that make it under-explored. The underexplored nature of this region contributes to its underdevelopment, despite its immense potential. This study emphasizes the importance of responsible tourism, which aims to maximize the benefits of tourism while minimizing its negative environmental impacts, given the area's location in the Western Ghats. The ecological sensitivity of the Western Ghats calls for responsible practices. Tourism development in this area can significantly contribute to the region's economic and infrastructure development. It can benefit both the communities residing there and the tourists visiting. This study examines the characteristics of the destination, specifically Ranipuram, and highlights sustainable models employed. This case study of Ranipuram advances the understanding of responsible tourism in ecologically sensitive areas.

Keywords: Ecologically sensitive areas, Responsible tourism, Rural development, Sustainable development, Tourism policy, Tourism, Western Ghats.

INTRODUCTION

Kerala was the first state in India to declare tourism as an industry in 1986 (Markose *et al.*, 2022). It has pioneered efforts to promote tourism and is popularly known as God's own country in India (Das & Dileep, 2023). Kerala's recognition of tourism as an industry in 1986 was a landmark event in India. This added context to Kerala's pioneering role in the tourism sector. Since "God's Own Country" is a well-known tourism brand for Kerala, this branding has impacted tourism growth, especially in the southern regions. Tourism in Kerala is clustered

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towards the southern region; however, the northern parts also carry immense potential. Tourism destinations in the northern regions of Kerala are not well known to the outside world. In this context, the study focuses on Kasargod, the northern district of Kerala. Northern parts lag in tourism infrastructure, promotion, and visitor numbers compared to southern parts. The Kasargod district is culturally diverse, with seven languages, festivals, and tourism destinations. This study focuses on one such destination in Kasargod known as *Ranipuram*. It is located 750m above the sea level and was formerly known as *Madathumala*. It shares borders with Karnataka, a neighboring state of Kerala. Ranipuram is a trekking destination with versatile vegetation, including evergreen shola woods, monsoon forests, and grasslands (Varghese & Natori, 2024). Significant market opportunities exist for rural tourism in Kerala (Markose *et al.*, 2022).

Responsible tourism is fundamental to sustainable rural development, economic growth, social inclusivity, resource management, and community development (Amloy *et al.*, 2024). It has the potential to financially empower rural communities. Tourism is reported as an engine of rural development, conservation, and a means of livelihood among poor and rural communities (Clifton *et al.*, 2018). It is reported that tourism management practices can contribute to the improvement of the quality of life and, eventually, poverty alleviation. Tourism can contribute to job creation, entrepreneurship, and income generation. Investing in rural development efforts by combining sustainability and responsible tourism can help alleviate poverty (Mthembu, 2018). However, power imbalances between the government, tourism developers, and communities, and within the communities, impact equity outcomes (Tian *et al.*, 2023). Sustainable and responsible tourism needs to stem from ecological thinking backed by tourist cooperation. There needs to be a socially and ethically fair engagement with the host community (Dávid, 2011).

Ranipuram is an emerging tourism destination with limited exposure. Infrastructure development efforts have been initiated and are reported to be on track for growth. Ranipuram differs from other trekking destinations due to its location in the Western Ghats and its unique ecological features. This creates a stronger case for its untapped tourism potential. This also suggests the need for responsible tourism practices to achieve sustainable growth in tourism in Ranipuram. In this context, the study presents the case of tourism in Ranipuram in the northern end district of Kerala, Kasargod, which is part of the western ghats of India. Even though it is abundant in resources, it still needs to be explored and developed as a tourism destination. This case analysis presents the characteristics of the destination, as well as explores sustainable practices and growth opportunities in the area. The case could also provide insights into responsible tourism development in rural and ecologically sensitive areas (Sudheer, 2021).

REVIEW OF LITERATURE

Responsible Tourism

Responsible tourism is also known as sustainable tourism, and it involves practices that enable growth by not harming the environment and protecting the culture and heritage of the context, as well as the aspirations of local communities (Dhilipan Rajha & Rajini, 2024). It is important that these practices ensure that the residents are treated fairly and justly, along with the growth of tourism in the region (Velu & Anuradha, 2024). To bring positive change through tourism, there is a need to re-focus on sustainability practices that respect the community's well-being and accept environmental responsibility (Hassan *et al.*, 2024). The main principles of sustainable tourism are conserving the environment, taking up the social and cultural responsibility of the destination, developing viable economic plans, and educating the tourists and the stakeholders on conserving the environment and the culture of the location (Ólafsdóttir & Runnström, 2009).

Responsible tourism aims to protect the areas and empower the community members (Mohanani, 2024). To promote sustainable tourism development, local communities need to actively participate in promoting responsible tourist behavior and work to enhance infrastructure and related services (Ali & Li, 2024). Green tourism and eco-tourism emerged as an outcome of concerns about protecting the environment and simultaneously promoting tourism development (Al-sakkaf *et al.*, 2024). Responsible tourism practices can improve tourist satisfaction, which, in turn, can lead to repeat visits and economic growth in the region (Mathew *et al.*, 2024). Also, the rise of digital platforms has significantly changed the tourism landscape. Using digital platforms can potentially promote responsible tourism practices and benefit all stakeholders (El Archi *et al.*, 2024). An individual can also play an important role in responsible tourism; one such way could be by prioritizing proper waste management and being conscious about mitigating environmental impact (Nag *et al.*, 2024). Responsible tourism practices can help lower carbon footprints and protect natural habitats (Sahoo *et al.*, 2024). Also, efforts are required to manage tourist and resident behavior to protect the environment and culture (Dhilipan Rajha & Rajini, 2024).

Tourism in Ecologically Sensitive Areas

Ecologically sensitive areas provide natural habitat to native and migratory wildlife (Butt *et al.*, 2019). Ecologically sensitive areas are of interest to tourists due to their special environmental and cultural characteristics (Ólafsdóttir & Runnström, 2009). A few characteristics of ecologically sensitive areas include being rich in diverse plant and animal species, having delicate ecosystems that could be disturbed by human interference, and featuring geological formations

CHAPTER 10

Role of Society, Security, and Media in Tourism**Godwin Ehiarekhian Oboh^{1,*}**¹ *Benson Idahosa University, Benin-City, Nigeria*

Abstract: The chapter discusses the relationship between local community groups, police and media in the tourism industry. The paper explains ways stakeholders of tourism can enhance service delivery in the tourism industry and benefit from the services they render to tourists. The chapter used an exploratory research design to structure the content and discussion of the paper such that each of the sections of the paper relates closely to the aims and objectives of this book. The chapter explores ways local communities, police and media can work together more effectively and contribute toward ensuring a sustainable and responsible tourism practice that guarantees the safety and satisfaction of tourists and other stakeholders in the tourism industry.

Keywords: Community groups and tourism, Government, Media, Police, Society.

INTRODUCTION

Tourism has a multidimensional nature, making it difficult to situate it in a particular college or faculty, as with other academic programs domiciled in institutions of higher learning. It is rather more appropriate for one to see tourism as an independent academic discipline in arts and sciences, notwithstanding where it is domiciled in schools, colleges, and universities for the purpose of administrative convenience. The practice of tourism requires contributions from both the arts and the sciences. Therefore, for one to classify tourism as either an art or a science would imply an undue compartmentalization of the discipline to neglect its usefulness and application to both arts and sciences. The literature on tourism has evolved, having different phases addressed by researchers. Each phase in the study of tourism has a theme that constitutes the issues researchers and scholars have addressed in tourism. An earlier study by researchers on tourism focused on the role of tourism in national development. Contemporary studies on tourism include research on the influence of socioeconomic and cultural variables on tourism. Nevertheless, tourism has both functional and

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dysfunctional implications for the economic growth and development of countries.

Tourism transfers economic income from developed to less-developed nations of the world. Statistics have shown that more than 900 million tourists made international trips during the year 2022, with Europe having 585 million arrivals to tourist destinations in 2022. Tourism affects the quality of the weather conditions. International tourism not only stimulates economic growth, but also increases energy consumption that remotely contributes to the emission of greenhouse gases globally (Danish and Wang, 2018; Bojanic and Warnick, 2020, and UNWTO 2023 cited in Torres-Díaz *et al.*, 2025, Rio-Rama, Alvarez-Garcia and Simonett, 2024).

Some organizations combined tourism enterprises with other businesses to reduce the risk of failure for either venture. At Kedleston, for example, farming alongside management of the bathhouse was always a significant venture, if not the major part of the business of the inn (Collinge, 2023). Many researchers have expressed their concerns and desires to identify more effective ways governments and organizations can use tourism to create visibility for nations and regions in the world market and find a pathway for investors to identify potential good places and areas for investment. Consequently, “domestic tourism has been identified as a key driver for regional economic growth, but the positive impact of foreign tourism is only visible in regions that have historically been destinations for international visitors” (Harb and Bassil, 2022, cited in Biagi *et al.*, 2026, Duran, and Pulina, 2024).

Conversely, it is difficult these days to identify the preferred areas of emphasis for researchers studying tourism, given the varying nature and interdependence of tourism's components in the present information age. There are many research works that have reviewed ways in which communication and information technology could be deployed more effectively toward enhancing the operation of tourism. Some researchers are curious to find out ways and means by which governments and organizations can increase their revenues through tourism. In recent decades, tourism has been expanded enormously worldwide, becoming one of the fastest-growing economic sectors. In a territorial context, tourism is seen as an engine of economic growth, regional development, and a contribution to increasing the economic well-being of the local population (Costa and Costa, 2024). A section of the theme of this book focuses on ways local community groups could contribute toward a sustainable and responsible tourism practice in the Twenty-First Century. The concept of sustainability has been applied in the tourism sector in different ways, at both national and local levels, and in the public and private sectors. The last decade of the twentieth century saw an

increased effort by some private sector tourism organizations to make it evident that they were placing the environment in a more central position to their operations and attempting to become more sustainable by protecting the environment (Counihan & Van Esterik, 2013, 2008).

There are different elements, however, that cater for both the good and the bad experiences tourists share with people on tourism journeys. Much of the unpleasant experience that tourists later share with the members of their families on their travels comes from the encounters that they had with the people who live in their tourist destinations. This perhaps explains why some researchers have decided to give more attention to the study of the role of local community groups in tourism. Community-based tourism is a model suitable for developing nations. It offers local community groups an opportunity to participate in tourism, as well as provides them with the opportunity to benefit from tourism and generate income for the residents in a tourist destination (Lo and Janta, 2020). So, governments may need to develop a policy framework for the operation of the tourism industry. The inherent complexities of tourism as a profession also require that its development be accompanied by efficient planning and management processes that are fundamental principles of sustainability (Anjos and Kennell 2019). Otherwise, the interests of tourists will continually be undermined by some tourism organizers. The satisfaction of a tourist is dependent on a post-service assessment, whereby a tourist compares expectations for a particular tourism journey with the actual experience gathered from it. If the tourist's experience falls short of expectations, the tourist may feel dissatisfied or let down. On the condition that the service experience surpasses expectations, then a tourist is satisfied (Goyal & Taneja, 2023). Given the nature of tourism practice, it is difficult for a government to use a single policy framework to ensure a standard practice in all the tourism organizations that are under its jurisdiction and control. There have been instances, however, in which tourists had to return to the places they visited as tourists to invest in businesses. This is because tourists have a sense of attachment to any good place they visit, either for its beauty or the weather, in addition to the friendly way the local community groups relate to the tourists when they visit the community.

Consequently, the foundation for sustainable and responsible tourism practice lies in local communities, countries, and regions, which is why local community groups play an important role in tourism. Sustainable-tourism transformations are changes that require a holistic approach to tourism as a system of various interconnected components, as discussed in the regenerative-tourism literature (Becken and Coghlan, 2024; Bellator and Pollock, 2023, cited in Lupini *et al.*, 2026, Bertella, and Font, 2024). Whatever the experience a tourist had and wherever the experience was acquired, it has implications for the commitment of

CHAPTER 11

Potentials and Challenges to Heritage Tourism Development: The Case of the Subha Sa'esie and Tsa'eda Emba Districts, Northern Ethiopia

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Abstract: This study evaluates the potential and challenges of developing heritage tourism in the Subha Sa'esie and Tsa'eda Emba districts in northern Ethiopia and proposes strategic actions for sustainable tourism development. Given the significance of heritage tourism for local economies and the region, this study employed a combination of field surveys, interviews, and questionnaire-based approaches to evaluate the potential and challenges of heritage tourism development in these districts. The results reveal that the study area possesses rich and diverse heritage tourism potential, including prehistoric rock art, rock-hewn churches, and various archaeological and historical sites. However, several challenges, such as insufficient promotional efforts, marketing strategies, inadequate infrastructure and facilities, and lack of public awareness, have led to these resources remaining predominantly unrecognized and underexploited. Additionally, these invaluable antiquities face significant threats from human activities (such as unprofessional conservation practices and the use of heritage sites as quarries during construction) and natural factors (including biodeterioration, weathering, water infiltration, and structural discontinuities). To address these challenges, a series of measures needs to be implemented. These measures encompass raising public awareness and providing education regarding the significance of effective conservation, management, promotion, and sustainable development of these vital resources as tourist attractions, thereby augmenting the economic benefits for local communities and the region as a whole.

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Keywords: Challenges, Cultural heritage, Heritage tourism, Potentials, Rock art, Rock-hewn church.

INTRODUCTION

Tourism is one of the largest and fastest-growing global industries (Asmelash, 2015; Telfer and Sharpley, 2008). This sector serves as a significant impetus for economic growth in both developed and developing countries and contributes to enhancing community welfare through the generation of employment opportunities (Jafari, 1987; Pederson, 2002; Bahn, 1996 and Bahn, 1996; Markovic *et al.*, 2009). Many countries view tourism as an engine for economic growth and strategically leverage their tourism resources to boost development (Asmelash, 2015; Prager, 1993, 1985; Dieke, 2003; Krestter *et al.*, 2001; Moscardo, 1996; United Nations Economic Commission for Africa, 2011; World Travel and Tourism Council, 2018). Among the diverse tourism resources, cultural heritage is the most notable and widespread for developing the tourism industry in many countries. Heritage tourism is a type of tourism focused on cultural heritage resources (Getnet, 2017;) (Surebankar & Hadli, 2010). It is not only a cornerstone of the tourism industry but also a vital contributor to socio-economic development (Chang, 1997; Edgel, 2006;) (Schaefer, 2012;) (Yale, 1991). Heritage tourism is a crucial segment of the tourism industry, accounting for 37% of total international tourism demand and growing by approximately 15% annually (Getnet, 2017) (Richard & Telfer David, 2002) (Timothy, 2011). It also plays a crucial role in preserving cultural sites and creating opportunities for people to connect with their ancestors and societies of the past (Getnet, 2018) (Richard & Telfer David, 2002) (Timothy, 2011). Many countries have thus integrated heritage tourism into their core economic strategies (Timothy, 1996).

Ethiopia is endowed with diverse and remarkable heritage resources, some of which are inscribed on the World Heritage List. The country possesses significant heritage tourism potential such as pre-Aksumite and Aksumite sites (specifically the world's largest monolithic stele, underground tombs, palaces, *etc.*), hundreds of remarkable and magnificent rock-hewn churches, prehistoric rock art sites, and other natural resources (including landscapes and national parks) (Asrat, 2002) (Hagos, 2016) (D'Andrea *et al.*, 2008) (Gervers, 2006) (Gluvačević, 2016) (Fattovich, 1999) (Mengistu, 2008) (Molla *et al.*, 2024) (Phillipson, 2009) (Levin, 1979) (Rickerby *et al.*, 2014) United Nations Economic Commission for Africa, 2011). These heritage resources offer substantial potential to attract both domestic and international visitors and to serve as a critical foundation for the country's tourism industry. In particular, the Eastern and Central zones of Tigray are renowned for their heritage resources, which have significant potential to attract thousands of domestic and international tourists. The Subha Sa'esie and Tsa'eda

Emba districts, located just 25 kilometers from Adigrat, are the best examples that have huge heritage tourism potentials, among which prehistoric rock arts, historic rock-hewn and built churches and monasteries (where most of them are embedded with impressive religious wall paintings), and archaeological and historical sites are the most common ones. However, the socio-cultural and aesthetic values, and their contributions to tourism development, are not widely recognized or promoted. Only a few archaeologists and historians have attempted to document the historical background of these heritage resources, and many remain largely unexplored. Consequently, our understanding of these cultural assets and their potential for tourism development is limited. Additionally, these heritage resources are deteriorating rapidly, are poorly managed, and have not yet been developed into significant tourist destinations. Hence, this study seeks to evaluate and describe heritage resources within the study area, focusing on their tourism potential; examine the primary obstacles to the growth of heritage tourism, which include challenges related to infrastructure, accessibility, and public awareness; identify the significant conservation and preservation issues impacting heritage sites and assess their implications for tourism potential; and propose actionable strategies aimed at enhancing heritage tourism in the region through improved conservation, promotion, and sustainable management practices.

METHODS

This study employed field surveys, interviews, and questionnaires to document heritage tourism resources, identify causes of deterioration, and propose conservation measures in the Subha Sa'esie and Tsa'eda Emba districts. A field survey was carried out to assess the tourism potential and challenges of each heritage site. Thirty local community members and six stakeholders, including culture and tourism experts and regional and district officers, were also interviewed, and questionnaires were distributed to assess their knowledge and awareness of the value of local heritage resources for tourism and to identify challenges hindering tourism development. A non-probabilistic sampling method was applied to select participants for interviews and questionnaires. Additionally, both published and unpublished secondary sources were reviewed to contextualize the findings and supplement field data.

Site Description

The Subha Sa'esie and Tsa'eda Emba districts, see Fig. (1) are located in Eastern Tigray, northern Ethiopia, about 35 km southeast of Adigrat, the administrative center of Eastern Tigray. These districts are rich in cultural heritage resources, including ancient built and rock-hewn churches adorned with impressive wall paintings, prehistoric rock art sites, and numerous archaeological and historical

CHAPTER 12

Sustainable Rural Community Development - A Study on Heritage and Sculpture Village Shivarapattana in Karnataka

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Abstract: Numerous studies have been conducted on the primary advantages of rural tourism; nevertheless, most of these studies have concentrated on the creation of sustainable rural tourism. There is much more to learn about how tourism affects rural community development. The aspects of tourist contributions that are available to policymakers and how these dimensions impact the contributions from rural tourism are not well understood. Without a thorough understanding of the advantages that rural tourism may offer small towns, policymakers may decide not to devote their limited funds to these kinds of initiatives. This study has three goals in mind. The rural development is a new and novel concept till today in most of the underdeveloped countries in the World. Sustainable Rural Community development is important because, to date, 70% of the Indian population resides in villages, and until rural people are empowered, the country cannot develop in all areas. In this research paper, an attempt is made to identify the means of Community Development, their initiatives, and the challenges they face in the rural setting. The sample size selected for this study is 520 respondents, and the Simple Random Sampling technique is used to collect the data. The collected data is analysed using SPSS software. The study revealed that in Shivarapattana, there is significant scope for Sustainable Rural Community Development, as they have been involved in designing sculptures for several years and in various Community-Based Tourism approaches and initiatives to conserve and protect the rural community through the art of sculpture-making.

Keywords: Community development, Rural tourism, Shivarapattana, Sustainable rural community development.

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INTRODUCTION

The Sustainable Development Goals (SDGs) are a set of 17 interconnected global objectives that aim to guide for achieving a more sustainable future for the entire world community. These objectives address important issues like poverty, access to quality education, climate change, clean water and sanitation, partnerships, and sustainable communities. A further claim that these elements are essential to the future of humanity and the earth is made by the SDGs and Agenda 2030, which place a strong emphasis on addressing the dimensions of people, planet, prosperity, peace, and partnership (United Nations, 2021). According to these definitions, developing sustainable communities involves balancing the needs of development with environmental protection and social cohesion; these communities not only preserve and improve the environment but also foster more compassionate local communities (aese.psu.edu). It is imperative to guarantee sustainable growth at the community level by considering the goals and requirements of every individual (Haryani, 2021). While the topic of sustainable community development is always being explored (Kunjuraman, 2022), Academic discussions are primarily limited to the sustainability of infrastructure and do not prioritise community development (Hussain *et al.*, 2023). The community is a representation of the main players in a system that deals with tasks (Wilson *et al.*, 2022). The socioeconomic circumstances of a local community are greatly impacted by the success or failure of such undertakings (Syahza, 2020). Environmental concerns have presented numerous obstacles for community development globally, and natural resources are a topic of scholarly discussion because of their non-renewable nature and excessive consumption in most regions of the world (Rasul *et al.*, 2021).

REVIEW OF LITERATURE

Excellent mixed-use communities can benefit society and the environment in many ways. They can raise the likelihood that many trips would include active transportation (*e.g.*, by foot or bicycle). The inclusion of live-work units in the neighbourhood would also improve this, as the Covid-19 pandemic has demonstrated how many people cannot modify their homes to serve as both places to live and work (Pareja-Eastaway and Tosics, 2021). Given its significance for social capital, health, and quality of life, community resources must be considered while building or renovating an SC. These places that encourage social interaction ought to be accessible on foot (Wintson, 2022). Because of the fast-growing ecological difficulties facing the world today, the notion of sustainable development has progressively moved to the centre of policy debate since the late 1980s and early 1990s (Riva, 2018).

To discuss and critique issues such as anti-expertism, localism and self-help, the overemphasis on social capital, the perceived moral superiority of the non-governmental (NGO) sector, and the excessive focus on collectivism, discipline capture, and self-effacement, they presented perspectives on the “darker side” of community development (Connell and Lachapelle, 2023). As a post-COVID-19 revitalisation strategy, Community-Based Tourism (CBT) offers a model for strengthening the social, environmental, and economic requirements of communities (Morakot *et al.*, 2022). The authors focused on the awareness levels of Community-Based Tourism (CBT) and how CBT is observed to contribute to Kenya's rural areas' socioeconomic and sustainable development strategy (Juma & Khademi-Vidra, 2019). Due to the predominance of state-based systems and current conservation discourse, heritage professionals have not given community-based systems adequate attention in heritage conservation and management. To preserve local cultural assets, a sound conservation and management strategy must include community-based methods (Bardhan, 2021). India is home to an abundance of magnificent monuments and archaeological artefacts that reflect its rich past. These sites represent the cultural history of the ancient civilisation that once existed in the country—the neighbourhood, guests, and tourism. The preservation of our cultural legacies, which certainly improves India's reputation and the sense of national pride of every Indian, should fall more on the shoulders of stakeholders and operators (Arnab *et al.*, 2018). Rural areas are vulnerable to the negative effects of tourism because they have so many ecological and cultural traditions, especially in artisan groups (Bui *et al.*, 2020). In the article, the author discussed the opportunities and difficulties of community-based tourism in Shivarapattana's Heritage Village and Sculpture. These included the entrepreneurship opportunities available to sculptors, as well as issues such as police harassment, a shortage of raw materials, technological advancements, and a lack of government support for the village's promotion (Mukunda and Vijay, 2021; Mukunda and Vijay, 2025). The residents who were most aware of the WHS's efforts in community conservation and tourism expansion also showed the greatest desire to participate in decision-making. However, those who were better informed and kept up to date on advances in tourism and conservation projects showed a greater interest in supporting the WHS and taking part in economic activities (Manesh *et al.*, 2017). Even if a lot of countries have included sustainable tourism, UNWTO has underlined the need for better monitoring, sharing, and disclosure of the impacts of tourism on sustainable development in their development strategies and implementation activities (UNWTO World Tourism Organisation 2019). The authors concluded that there is still a lot of scholarly interest in the economic elements of rural tourism after a thorough examination of the literature on the subject's growth. They also discovered that economics influenced the features of rural tourism (Rosalina *et al.*, 2021).

CHAPTER 13

Ecotourism's Contribution to Sustainable Development: A Case Study on the Tourism-Ecosystem-Economy Triad in Egypt

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Abstract: Ecotourism is, therefore, one of the key concepts in striving for the sustainable development of tourism, the environment, and the economy. This chapter explores the relationships among tourism, ecosystems, and the economy—tourism, ecosystem condition, and the economy—with reference to the concept of sustainable development. With increased emphasis on the environmental health of water, food, and infection control, the One Health approach integrates human, animal, and environmental health. This approach is used to manage human health, animals, and the environment, promoting sustainability in line with the growth of the tourism sector. Currently, ecotourism has become one of the expanding sectors in Egypt. This presents an opportunity to implement contemporary technological advancements and AI to enhance the detection and preservation of the environment while ensuring safety for tourists. Tools such as information-gathering instruments, analytical technologies like AI, and environmentally friendly solutions help monitor the effects of environmental factors and tourism on vulnerable ecosystems. Furthermore, eco-awareness and the involvement of local communities through Community-Based Ecotourism (CBE) enhance stakeholders' engagement in the management of resources for sustainability. Environmental assessment tools, combined with increasing awareness of the importance of the environment in tourism, significantly assist in shaping a strategic direction to overcome barriers that hinder the utilization of ecotourism in Egypt's tourism industry. By enhancing sustainable tourism practices and incorporating technological solutions, Egypt can create the optimal environment for the growth of the tourism sector, which can help conserve the environment and, therefore, achieve the global goal of development.

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Keywords: Community-based tourism, Ecotourism, Environmental conservation, One health, Sustainable development, Tourism-ecosystem-economy triad.

INTRODUCTION TO ECOTOURISM AND SUSTAINABLE DEVELOPMENT

Ecotourism is one of the tourism strategies adopted to facilitate sustainable development, as it serves as a link between positive economic development, environmental sustainability, and fairness in resource distribution. There are three key aspects of ecotourism: responsible tourism in natural areas; the minimal impact of tourism activities on these areas; and economic and social benefits of the development of tourism activities to local communities (Gallegati *et al.*, 2025). Sustainable development, as defined by the United Nations, is a type of development that occurs without excessively harming future generations. This goal is achieved by integrating quantitative analyses of economic development with qualitative evaluations of environmental protection and social values. Ecotourism connects these interrelated aspects of the environment economy, and social welfare by encouraging the sustainable use of resources. Sustainability is a popular topic in today's society, and knowledge of sustainable development is crucial in positioning these discourses. For this reason, the World Tourism Organization uses the "Tourism-Ecosystem-Economy Triad" as a strategic approach that integrates the processes of tourism development and its role as a factor in sustainable development, given the complex interconnections among all three components. This framework enables the conduct of tourist activities without negatively impacting the ecosystem or encroaching on the natural resource base, thereby facilitating the generation of economic returns that can be reinvested in the continued protection of the ecosystem. Below is a deeper analysis of how each element of the triad functions in the context of sustainable tourism. It is one of the largest and most rapidly developing industries in the world, driving changes in regional and global economies. However, the steady increase in tourism has led to the following problems: increased congestion in areas that attract tourists, environmental pollution, and, finally, the degradation of natural resources. The question is how to achieve tourism development without leading to environmental pollution and degradation. The negative impacts, which include issues faced by residents. increased pressure on land and resource use, and increasing traffic and crime rates, can be mitigated through responsible tourism policies such as low-impact accommodations and transportation. In addition, travelers are restricted to certain areas (Y. Zhang & Deng, 2024). Travel and tourism constitute a vital sector in the Egyptian economy. Millions flock to the country for vacations every year. The country boasts historical and cultural sites intermingled with cultural icons. These destinations are among the best tourist destinations in the world because of their natural features. However, there is still a

steady increase in tourism, which has an impact. The increase in tourism has created some difficulties. In particular, economic growth is a concern compared with environmental conservation and sustainable development (K Elnagar & Derbali, 2020). By applying the principles of Eco-Health, adopting technological advancements, and embracing sustainability as a guideline for the future of the Egyptian tourism industry, it is possible to suggest a set of concepts that align well with current and future global trends for responsible and sustainable tourism development (El Archi *et al.*, 2023). Ecologically and socially responsible tourism development may improve the distribution of the positive impacts of tourism within society and contribute to the organic development of cultural and natural tourism in Egypt (K. Mohamed, 2018). The transformation into a diversified tourism base is therefore crucial for sustaining the benefits of tourism without compromising established environmental standards. Therefore, if Egypt implements innovative strategies, such as constructing environmentally friendly structures, recycling, and using renewable energy sources, it can enhance tourists' experiences while reducing negative environmental impacts (Salah *et al.*, 2022). Integrating a One Health approach, which considers the health of humans, animals, and the environment, can greatly add to the future prospects of Egyptian tourism. In this chapter, the author analyzes how innovative solutions are being applied to increase food security, the quality of water, and environmental health in tourist areas (Allal *et al.*, 2019). These challenges can be effectively addressed to achieve a sustainable, secure, and environmentally friendly model of tourism that would be favorable for both the tourism industry and the environment in Egypt. These strategies are explained in more detail below. These findings demonstrate that synergistic approaches will promote the growth of Egypt's sustainable tourism market (K. Mohamed, 2018).

COMMUNITY-BASED ECOTOURISM IN EGYPT: A HOLISTIC MODEL FOR SUSTAINABLE DEVELOPMENT

Community-Based Ecotourism (CBE) is a model of sustainable tourism in which local communities participate in the management and benefits arising from tourism. This approach helps maintain the preservation of ecosystems, enhances the development of culture and tourism, and generates economic returns for societies while realizing the concept of "One Health," which encompasses human, environmental, and animal health. Egypt is one of the countries that has leveraged ecotourism due to its diverse ecosystems and rich cultural values. CBE presents significant opportunities for development (Wondirad *et al.*, 2020).

CHAPTER 14

Technological Advancements for Sustainable Solutions in the Tourism Industry

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Abstract: The tourism industry, one of the most critical sectors of the global economy, is increasingly facing sustainability challenges. Toile hence takes a form of sustainable tourism consciousness, as environmental concerns drive proactivity toward more environmentally friendly practices. This paper discusses the role of technology development in sustaining solutions for the tourism industry. It delves deeper into the role of digital technologies, renewable energies, smart structures, and data in promoting sustainability. When these technologies are adopted, the tourism industry has the potential to reduce its negative impacts on the environment while at the same time improving the satisfaction of tourists. The paper includes a set of case studies and examples of best practices from destinations around the world to illustrate the optimal use of innovation in minimizing the ecological impact. For example, the application of IoT and AI in controlling energy consumption in hotels, the utilization of renewable energy sources in tourist resorts, and the deployment of waste management smart systems in crowded touristic centers are discussed. In addition, data analytical capability is presented as a critical performance driver because of its usefulness in resource allocation and operation excellence. These case studies demonstrate that harnessing technological advancements also protects the environment and generates economic and social benefits. Accordingly, one must focus on modern approaches to technology-enhanced development that have the potential to deliver sustainable and stable growth in the tourism industry. This paper also throws the impetus back to the future and the necessity to advance and implement better technology for sustainable tourism.

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Keywords: Community tourism, Eco tourism or green tourism, Ecological tourism, Soft tourism.

INTRODUCTION

Tourism is both a boon and a bane to the economy, as it generates revenue but also strains the environment. Sustainable tourism, in turn, minimizes its environmental impact and preserves resources for future generations. Technology plays a crucial role in achieving these goals through the use of high-tech methods, including the efficient use of energy and waste disposal. Today, the worldwide sustainable tourism market size is expected to reach nearly USD 1.51 trillion in 2024. The total non-oil economy is expected to grow at a remarkable compound annual growth rate of 23.8% and may reach USD 12.8 trillion by 2034. This significant growth is driven by increasing awareness and demand for eco-friendly and socially responsible travel options. Sustainable tourism encompasses several key market segment types, including Ecological Tourism, Eco Tourism or Green Tourism, Soft Tourism, and Community Tourism. These categories cater to various consumer orientations and booking channels, such as phone, online, and in-person bookings. The market further segments into different tourist types, including independent travelers, tour groups, and package travelers. Sustainable tourism also appeals to a wide range of age groups and regions, indicating its broad market potential.

Among the regions, India is anticipated to witness the highest growth in sustainable tourism, with a CAGR of 27.1% through 2034. Other regions showing strong performance include North America, Europe, and parts of Asia and the Pacific. Europe, as the most visited region, is nearing its pre-pandemic visitor numbers, while the Middle East has already exceeded them. In 2023, international tourism receipts reached USD 1.4 trillion, approaching the USD 1.5 trillion earned in 2019. Export receipts for tourism and all imports of tourists were estimated at \$ 1.6 trillion, which includes passenger transport. According to a convention, the scale of tourism's economic values is revealed to be TDGDP or tourism direct gross domestic product, which reached 3.3 trillion USD in 2023.

According to the UN World Tourism Organisation (UNWTO), global tourism should return to pre-COVID-19 levels within the next two years or by the end of the year 2024. This believes that elements like the rise in flight availability and connectivity, reemerging Asian markets, and persistent travel demand will be instrumental in this process. Moreover, emerging projects such as the new global standard of sustainable tourism accepted by the UN will also strengthen the requirements of the sector.

This plan is welcoming as the UN has endorsed the Statistical Framework for measuring the sustainability of tourism. Such assessments further allow engaging the policymaking process through overwhelming evidentiary support for data-driven tourism policies and sustainable development concepts.

TECHNOLOGICAL ADVANCEMENTS IN SUSTAINABLE TOURISM

1. **Mobile Applications** – Mobile technology has dramatically impacted the tourism sector, including applications such as VR and AI. It improves the experience of the tourist by encouraging the right practices that are eco-friendly. There are many apps out there, like VisitScotland and Triplt, which include options for an environmentally friendly way to travel, digital tickets, as well as details about sustainable places to stay and things to do. Launched into virtual reality, tourists can navigate through a country, state, or city virtually without needing to physically get there and pollute the environment. The free-flowing use of AI relies heavily on developing chatbots, recommendatory systems, and other mechanisms to enable adept decision-making on the part of tourists concerning sustainable traveling.
2. **Alternative Energy Source-** The use of solar, wind, and hydropower is equally essential for breaking the energy-related carbon footprint of the tourism sector. The tourism sector, particularly hotels and resorts, has increasingly adopted solar energy over fossil fuel sources. Coastal and island resorts are integrating wind as a source of energy, thereby covering their energy requirements. Small hydropower projects provide clean energy in ecologically sustainable tourism destinations in the proximity of water bodies.
3. **Smart Infrastructure-** Smart infrastructure system uses intelligent solutions to optimize the usage of energy, waste management, and general efficiency. Smart Grid can support the distribution of energy, address the issue of power utilization, reduce power wastage, and promote the use of renewable energy. Environmentally friendly construction practices, including LEED certification, ensure that hotels and most other tourist facilities are made with consideration for the environment. Measures of water use optimization, including the systems of water utilization and reuse, decrease the impact of traveler streams on the water resource.
4. **Data Analytics-** is a crucial factor driving an enhanced understanding of the efficiency and effectiveness of sustainability in tourism. Handling big data enables the understanding of tourists' behavior patterns and the effective use of resources while minimizing negative environmental impacts. The structures contain energy, waste, and other measurable intelligent IoT sensors to support sustainable real-time decisions.

CHAPTER 15

Sustainable Development Through Community-Based Rural Tourism: A Case Study of Konkan Region of Maharashtra

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Abstract: This chapter examines the interplay between the Sustainable Development Goals (SDGs) and community-based rural tourism in the Konkan region of Maharashtra. The study highlights various examples and types of community-based rural tourism in the Konkan region of Maharashtra. The performance of the Konkan region of Maharashtra in the Sustainable Development Goals Index during the period 2015-16 to 2022-23 is analyzed in this chapter. The challenges and opportunities in attaining sustainable development goals through community-based rural tourism in the Konkan region of Maharashtra are discussed in the present chapter. Ultimately, the findings underscore the potential of community-based rural tourism as a catalyst for achieving SDGs, enhancing both community resilience and ecological sustainability in the Konkan region.

Keywords: Community-based tourism, India, Konkan, Maharashtra, Sustainable Development Goals.

INTRODUCTION

In recent years, the vision of "Viksit Bharat" has gained momentum as a transformative movement aimed at propelling India toward sustainable development and holistic growth. Central to this vision is the burgeoning potential

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of tourism in India, which not only showcases the country's rich cultural heritage and diverse landscapes but also serves as a catalyst for economic progress and environmental stewardship. As one of the largest and fastest-growing sectors globally, tourism in India presents a unique opportunity to leverage natural and cultural assets while promoting sustainability. By embracing responsible tourism practices, India can enhance its attractiveness as a travel destination while ensuring that the benefits of tourism extend to local communities and ecosystems. Sustainable development, which balances economic growth with environmental preservation and social equity, is crucial in this context. Consequently, aligning the objectives of Viksit Bharat with sustainable tourism practices can foster a resilient economy, preserve India's ecological and cultural wealth, and ultimately contribute to the well-being of future generations. In this introduction, we will explore the interconnectedness of Viksit Bharat, tourism's potential for sustainable development in India, and the myriad benefits that arise from a conscientious approach to tourism that honors the environment, society, and the economy alike (Harale & Pawar, 2024). The tourism sector in India has witnessed remarkable growth and transformation in recent years, driven by a combination of emerging trends and changing traveler preferences. Recent trends in tourism in India reflect a shift towards experiential travel, with tourists increasingly seeking authentic cultural experiences and off-the-beaten-path destinations. The rise of eco-tourism and sustainable travel initiatives underscores growing awareness among travelers of the importance of environmental conservation. Additionally, the increasing use of technology, such as smart travel apps and digital payment systems, has made travel planning and experiences more accessible and streamlined (Harale *et al.*, 2024). Moreover, the COVID-19 pandemic has led to a renewed focus on health and safety protocols, shaping how tourism operates in the country. As India continues to position itself as a diverse and vibrant travel destination, these recent trends are reshaping the landscape of tourism, providing opportunities for growth and innovation across the sector (Harale, 2022b).

The Konkan region of Maharashtra state is one of the tourist attractions in India. The Konkan region is a socially and culturally vibrant region. Central to the sustainable growth of this tourism industry is community involvement, as local residents play a crucial role in preserving traditions, promoting eco-friendly practices, and offering authentic experiences. This collaborative approach not only enhances tourist experiences but also fosters economic development and cultural pride within the Konkan communities. Providing training to local communities and raising awareness among them about the Sustainable Development Goals is a prerequisite for fostering the growth of the tourism sector (Bhave *et al.*, 2022). This can be achieved with the help of grassroots-level NGOs and (Deshmukh, 2025) bodies. Krishi Vigyan Kendras are the public sector agricultural extension agencies working for the structural transformation of the

rural sector in India (Pawar, 2023). Krishi Vigyan Kendra disseminates training to the farmers related to eco-tourism. Several studies have found that the income levels and living conditions of farmers and rural communities in some parts of India have improved due to interventions by Krishi Vigyan Kendra (Wavare *et al.*, 2024). These agricultural farm science centres, commonly known as KVKs, also help farmers improve their scientific knowledge and environmental consciousness (GAUTAM *et al.*, 2022). However, the intensity of public sector expenditure on agricultural research and extension in India is insufficient (GAUTAM *et al.*, 2022).

CONCEPT AND ORIGIN OF SUSTAINABLE DEVELOPMENT

The term Sustainable Development has gained crucial importance nowadays as global society struggles with the problems of climate change, resource scarcity, and socio-economic inequality. Sustainable development is a solution for balancing economic growth, protecting the environment and climate, and attaining social equity. According to a United Nations report, Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland, 1991). The concept provides a wide range of social, economic, and environmental objectives, further supporting an integrated approach to the development process. The sustainable development concept has three important dimensions – economic sustainability, social sustainability and environmental sustainability. The key dimensions of sustainable development are interconnected and cannot be separated from each other. Economic sustainability provides the guiding framework to attain inclusive and equitable economic growth. According to this dimension, the benefits derived from economic activities should be shared across all sectors of society in such a way that they do not lead to overconsumption and the depletion of natural resources. The second dimension of sustainable development focuses on achieving social equity, cultural diversity, and community well-being. Free access to basic services, education, and equal opportunities for all ensures personal growth and development. This is a prerequisite for building an economically vibrant and environmentally conscious nation. The third dimension of sustainable development involves framing policies and actions that lead to the responsible management of natural resources, the mitigation of environmental degradation, and the preservation and conservation of ecosystems. The three dimensions of sustainable development are illustrated in Fig. (1).

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