

SUSTAINABLE, RESPONSIBLE, AND REGENERATIVE TOURISM DEVELOPMENT



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Sustainable, Responsible, and Regenerative Tourism Development

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FOREWORD

It is my privilege to present “Sustainable, Responsible, and Generative Tourism Development,” a volume that directly addresses the urgent need for innovation and change in the tourism industry. As issues like climate change, overtourism, digital upheavals, and evolving stakeholder expectations have reached critical levels, the tourism sector must go beyond basic sustainability rhetoric to adopt models that actively regenerate and improve destinations, communities, and ecosystems. This book responds to that challenge by outlining a forward-looking approach from sustainable to regenerative tourism development. The chapters, written by a diverse group of scholars from the Global South, adopt a multidisciplinary perspective, integrating behavioral studies, entrepreneurial policy, technology, and community involvement. Collectively, they showcase that tourism can and should serve as a proactive force in restoring environments, bolstering social systems, and ensuring resilience for the future.

The book's chapters, including examples from Malaysian World Heritage Site regeneration, Japan's green innovation impacts, Vietnam's eco-adventure projects, and Europe's AI-driven decision support, offer recommendations for positive change. Emphasizing regenerative tourism, several chapters explore how policies, technology, and collaborative governance not only reduce negative effects but also create real benefits for communities. The work highlights the real-world challenges the sector faces, including gaps between policy and practice, hurdles to digital adoption, and the importance of community trust. Discussions on leadership, stakeholder collaboration, and digital tools like AI and early warning systems show that innovation must be inclusive and context-sensitive. This book provides new insights and practical guidance for scholars, policymakers, and practitioners dedicated to evolving tourism beyond the basic and common concept of sustainability. It encourages a shift toward a place-based and regenerative mindset that actively restores and co-creates value for destinations and their communities.

I commend the editors and contributors for their vision, scholarly rigor, and dedication. I believe this volume will be a beneficial resource for anyone aiming to steer tourism toward a more fair, just, and generative future.

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PREFACE

The modern tourism sector faces unique challenges and opportunities driven by rapid technological advances, changing consumer preferences, and the growing impacts of climate change and global inequalities. In response, there has been a shift from traditional sustainable tourism ideas to more ambitious models of responsible and regenerative tourism development. This book, “Sustainable, Responsible, and Generative Tourism Development,” features leading research from the Global South and Europe, examining how tourism can serve as a tool for ecological recovery, social inclusion, and resilient economic development. The chapters include empirical studies, policy reviews, digital innovations, and community case studies, offering new insights on creating a more just and regenerative future for tourism. Through these diverse perspectives, the book seeks to provide academics, policymakers, and practitioners with innovative approaches and evidence-based recommendations to move tourism beyond sustainability toward regeneration.

Chapter 1 discusses the regeneration of Malaysian World Heritage Sites, emphasizing the important role of local tourists in maintaining these valuable cultural and natural resources. Using a behavioral research model, the chapter shows how the values and attitudes of Malaysian tourists directly impact heritage preservation efforts and provides policy suggestions to enhance the involvement of domestic visitors in long-term site management.

Chapter 2 explores sustainable destination management, focusing on collaborative governance and engaging multiple stakeholders. The authors examine different models of public-private partnerships and community involvement, showcasing how inclusive approaches can tackle local issues and strengthen the resilience of tourism destinations, particularly in emerging economies.

Chapter 3 emphasizes community-based tourism as a means for inclusive growth and reducing poverty. Using examples from rural Asia and Africa, it highlights the need to empower local communities via capacity building, benefit-sharing, and participatory planning, ensuring that tourism development results in real social and economic benefits.

Chapter 4 examines how policy and regulatory frameworks influence sustainable tourism, especially regarding environmental conservation. By comparing various countries’ strategies, it highlights successful practices and ongoing gaps, emphasizing the importance of harmonized and adaptable policies to promote responsible tourism development.

Chapter 5 provides an in-depth overview of how education and training promote sustainable and regenerative tourism. It examines curricula advancements, professional development initiatives, and collaboration models between universities and industry, emphasizing educational reform as essential for sustained transformation in the tourism sector.

Chapter 6 examines how technology contributes to sustainable tourism by highlighting the use of immersive and smart tools to enrich tourist experiences and minimize environmental harm. It also critically assesses both the opportunities and challenges of digital innovations such as VR, AR, and blockchain in fostering community engagement and environmental responsibility.

Chapter 7 examines the emergence of staycations as a sustainable tourism approach in the era of technological progress. The authors show how the use of robotics, AI, and virtual reality

alongside localized travel can decrease overtourism pressures, encourage responsible consumption, and foster new economic opportunities for local communities.

Chapter 8 explores how green innovation affects the financial stability of tourism companies in Japan. It shows how sustainable practices can help manage risks related to seasonal attractions, providing valuable insights for investors, managers, and policymakers aiming to combine environmental innovation with economic resilience.

Chapter 9 offers both a theoretical and practical view on entrepreneurial policies in regenerative tourism, emphasizing the integration of artificial intelligence and early warning systems. Using case studies and quantitative analysis, the chapter demonstrates how AI-based decision support can improve sustainability, enhance risk management, and promote innovation in the tourism sector.

This book offers a timely and thorough addition to the ongoing discussion on tourism development. By emphasizing responsible and regenerative methods in every chapter, it encourages readers to reconsider tourism's role, viewing it not only as a driver of economic growth but also as a means for social justice and ecological renewal.

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CHAPTER 1

Active Aging and Enjoyment: Exploring Seniors' Virtual Travel Experiences with Augmented/Virtual Reality

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Abstract: Although augmented reality (AR) and virtual reality (VR) technologies have extensive promise in tourism research, there is still limited scholarly focus on how older adults perceive and make decisions in virtual tourism settings. This conceptual study proposes an integrative theoretical framework to explain the impact of the AR/VR tourism experience on the travel intentions and destination attachment of elderly individuals. The framework integrates the stimulus–organism–response (S-O-R) model, the technology acceptance model (TAM), and flow theory. This study argues that the AR/VR experience can promote elderly individuals' positive behavioral response and decision-making tendency by activating key cognitive mechanisms such as perceived usefulness, perceived ease of use, perceived enjoyment, flow, and affective engagement. This study investigates and explores how the fundamental attributes of AR/VR technology—presence, immersion, interaction, vividness, and novelty—collectively influence the virtual tourism experience of elderly individuals. This study advances the theoretical application of the S-O-R framework in virtual tourism and provides practical guidance for creating immersive tourism platforms and experiences that cater to older adults' requirements. Additionally, future research directions and management recommendations are proposed.

Keywords: Augmented reality, Elderly, Stimulus-organism-response, Technology acceptance model, Travel intention, Virtual travel, Virtual reality.

INTRODUCTION

The ongoing trend in population aging in recent years has continued to emphasize senior populations as a new and profitable niche in tourism markets (Jang *et al.*, 2007). In line with a new report produced by the World Population Prospects 2022 (DESA, 2022), 2018 actually created a crucial turning point in world demo-

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graphic history, with the first time that the population aged 65 years and above exceeded the number of children aged 5 years and younger in population terms. The report revealed that there were 771 million people 65 and over in 2022, a threefold increase from 1980. This number will double in 2050. With continual changes in demographics, healthy aging has become an important challenge in society worldwide. This trend has also spurred intensive research in several fields, *e.g.*, psychology (Jiang *et al.*, 2024), sociology (Savaş *et al.*, 2024), hotel administration and tourism (Buzulukova & Lobova, 2023; TALOŞ *et al.*, 2021; Wang *et al.*, 2023). The United Nations, an international body, declared 2020-2030 the Decade of Healthy Ageing and initiated an in-depth research programme to facilitate the standard of living and general welfare among aged people (Keating, 2022). With the increasing trend of population aging, a variety of products and services to fulfil the sense of emotional health and pleasure needs among aged people may have more noticeable growth prospects.

As digital and communication technology has continuously made significant progress over the years, especially with the invention of VR and AR, the approaches to promoting destinations and tourist experiences have changed dramatically. In addition, technologies have significantly redefined the inherent worth and connotations of travelling and undertaking various recreational activities (Lee & Oh, 2022). With age, the physical capacities of aged people continuously deteriorate, and their travel ability becomes limited. Virtual tourism leverages technologies such as VR and AR to deliver immersive travel experiences, offering a viable alternative for overcoming the physical limitations faced by elderly individuals with restricted mobility (Yu *et al.*, 2024). These technologies facilitate the development of profoundly immersive settings and enhance realism, interactivity, and user engagement, thereby providing more compelling and accessible tourism experiences (Flavián *et al.*, 2019). The utilization of AR and VR technologies in the tourism sector has significantly increased destination appeal and has received considerable momentum to further increase growth and advancement within the industry (Ozdemir, 2021). Technologies have built a travel experience framework for elderly travel enthusiasts that combines beauty, convenience, and uniqueness, allowing them to explore rich, colorful, and profound historical culture in detail during their exploration journey, comprehend the deep meaning of life's journey, and thus gain a richer and deeper experience at the spiritual level.

Many prior studies have concentrated on the acceptance and behavioral responses of younger cohorts, particularly Generation Z, toward AR/VR-based tourism experiences (Schwarz, 2022), whereas empirical investigations targeting older adults remain comparatively limited. Given the increasing tourism preferences of elderly people and the potential of AR/VR technologies to facilitate barrier-free

travel experiences, this domain warrants urgent and in-depth scholarly investigation. Furthermore, the majority of existing research adopts the TAM, focusing predominantly on the influence of perceived ease of use and perceived usefulness on users' behavioral intentions (He & Li, 2023; Limna *et al.*, 2023; Martín-García *et al.*, 2022). However, this approach often neglects more subjective perceptual factors—such as emotional engagement, enjoyment, and flow—which may play a particularly vital role in shaping immersive experiences for older adults. Moreover, the technology characteristics of AR/VR have been found to be crucial determinants of user experience (Yu *et al.*, 2024), yet the psychological processes through which such aspects have behavioural outcomes remain limited and uninvestigated at present. This work introduces an integrated conceptual model in which the S-O-R model is integrated with the theory of TAM to address such gaps. The aim here is to clarify how specific AR/VR capabilities influence the cognitive and emotional perceptions of seniors and how such perceptions later impact their behavioural intentions, actual behaviours, and attachment to travel sites. These outcomes should provide valuable insights for marketers of travel, along with travel destination management organizations (DMOs) and technology developers, given that the latter should find the former's work useful in the creation of AR/VR experiences, which better match the likes and emotional requirements of seniors and hence support inclusivity and accessibility on the digital travel front.

LITERATURE REVIEW

Augmented/Virtual Reality in Tourism

AR/VR is the term used to define technologies that create a very immersive feeling in users by offering them experiences that are more real, interactive, and engaging (Flavián *et al.*, 2019). It offers tourists an enhanced degree of interactivity through the merger of virtual objects and the real world through the supply of AR. Tourists can experience stronger physical interaction and psychological presence, facilitated by the creation of a fully virtual simulated environment (Fan *et al.*, 2022). The use of AR and VR technologies in tourism is gaining increasing frequency. Thus, enhancing the tourist experience, streamlining service planning, and promoting the development of products in tourism are becoming central (Katkuri *et al.*, 2019). The combination of AR and VR technologies in the tourism experience has strongly enhanced tourists' sense of interactivity, immersion, and emotive attachment, thus having transformative effects on the tourism sector (Fan *et al.*, 2022). These technologies supplement the tourist experience primarily by delivering customized and interactive content. Specifically, for sightseeing, cultural heritage, and education areas, AR and VR offer rich historical backgrounds, cultural knowledge, and rich site-related

CHAPTER 2

Overtourism and Pollution Scenario of an Unplanned Destination

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Abstract: This chapter undertakes a comprehensive examination of the phenomenon of overtourism, with a specific focus on its detrimental impacts on unplanned destinations globally. The analysis delves into the multifaceted crisis precipitated by excessive tourist arrivals, which severely strains a destination's physical, ecological, social, and cultural carrying capacity. It is observed that overtourism leads to environmental degradation, including pollution and resource depletion, and triggers socio-cultural disruptions such as community displacement and the erosion of local identity. The study argues that the root causes of this issue are deeply embedded in governance failures, unregulated market-driven growth, and the proliferation of short-term rental platforms. Furthermore, the chapter critically evaluates existing theoretical frameworks, including Butler's Tourism Area Life Cycle and Doxey's Irridex Model, to contextualize the evolution of resident antagonism and destination decline. In response to these challenges, the authors propose a paradigm shift towards sustainable management strategies. These encompass the enforcement of carrying capacities, the promotion of degrowth and regenerative tourism models, the implementation of community-benefit agreements, and the intelligent dispersion of visitors. The chapter concludes that a fundamental reorientation of tourism governance, one that prioritizes the well-being of residents and ecological integrity over mere economic expansion, is imperative to mitigate the adverse effects of overtourism and ensure the long-term sustainability of host communities.

Keywords: Carrying capacity, Destination governance, Overtourism, Resident well-being, Sustainable tourism.

INTRODUCTION

Overtourism refers to a situation in a destination, or parts of it, where an excessive number of tourists negatively impacts the quality of life for citizens and the quality of the visitors' own experiences (UNWTO, 2018). On the other hand, the European Parliament (2018) has described overtourism as the situation where the

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negative impacts of tourism, at a specific time and place, exceed the acceptable limits of its physical, ecological, social, economic, psychological, and political capacity.

Reports indicate that major cities across the world are experiencing this issue, including Berlin, Prague, Santa Monica, Hong Kong, Belfast, Venice, Rio de Janeiro, Barcelona, Shanghai, Amsterdam, Palma de Mallorca, Lisbon, Reykjavik, and Dubrovnik (Vagena, A., 2021). From the perspective of responsible tourism, overtourism is simply not acceptable. It is essentially a new buzzword for existing concepts like 'tourism carrying capacity'. This carrying capacity is a crucial factor for any destination, as it considers both quantitative and qualitative indicators. It helps us understand the potential impact on the destination and its residents. This factor also gives us an idea about the future attitudes of the local community towards tourism and their willingness to engage with it. A well-planned distribution of tourism can create a city experience where visitors and locals can successfully meet and integrate.

The twin forces of growing urbanization and the rise in tourism to urban areas have significantly increased the demand for city breaks. The increasing ease of global travel for tourists is a major contributor to overtourism. The complex socio-economic interactions in popular cities create further issues. This is why it has now become necessary for everyone to rethink the growth patterns and operational models of the tourism industry. Researchers have explained the negative impacts of overtourism in European destinations and how the sheer volume of international tourist arrivals creates these negative experiences (Taiminen, 2018). A clear example is Thailand, which had to shut down one of its islands because it was being harmed by excessive visitors (Livadeas and Smith, 2018).

Furthermore, two key capacities play a major role in overtourism: the 'pulling capacity' of the destination itself and the 'pushing capacity' of the tourists' places of origin. As the limits of cities are strained, degrading the quality of city life, it ironically also creates new kinds of tourism demand. All the factors mentioned above contribute to the overall losses caused by overtourism.

RESEARCH AGENDA

There is no doubt that the destination is the most complex element in the entire tourism system. Because of this, it becomes absolutely crucial to protect it from any crisis at all costs and to focus on increasing its lifespan for as long as possible. We have to remember that overtourism pollutes a destination in multiple ways, and natural spots are particularly vulnerable to this damage. This is precisely why conducting thorough research on a destination location is vital before finalising any major plans. This research needs to cover several key areas, right from

deciding the correct investment methods and development policies to determining the destination's carrying capacity and the right level of promotion. It should also look into effectively applying the push-pull theory, understanding the lifestyle of the local community, being sensitive to their culture, and managing environmental pollution. If we fail to carry out this groundwork successfully, it will become extremely difficult to shield the destination from the negative impacts of overtourism. Above all, one must be mindful to consciously apply Butler's TALC (Tourism Area Life Cycle) theory to manage the destination effectively throughout its entire life.

PROBLEM STATEMENT

Overtourism makes destinations uncomfortable, where both guests and local people feel unhappy because of the excessive number of visitors. This ends up hampering the quality of life in the area. This phenomenon creates negative experiences for everyone and spoils daily life as well as the best practices of tourism. Overtourism also has several detrimental effects. It leads to problems like pollution, littering, and damage to important tourism assets. It also puts the cultural ecology and local customs of a society in danger. As highlighted by Capocchi *et al.* (2020), the problems in some unplanned destinations due to increasing tourism growth have resulted in a negative impact. Even the economic benefits of tourism are viewed negatively when it leads to constant urban reconstruction and regeneration (McCarthy, 2003). The sheer number of tourists and crowds puts a lot of pressure on city services, limiting their proper functioning. We see that locals have raised major complaints, as they witness the negative impact of tourism, mainly due to overcrowding. What happens is that overtourism creates a serious social and cultural crisis at the destination. The focus is also on restructuring the labor market, often pushing it towards a more vulnerable economy. So ultimately, both tourists and locals end up experiencing bad living conditions in a deteriorating environment.

SIGNIFICANCE OF THE ISSUE

The idea of overtourism actually started from meditation retreats and European tourist spots. But now, the problem of overtourism has spread far beyond these places. According to the UNWTO (2018a), the growth was 8% in Africa, 6% in Asia and the Pacific, 5% in the Middle East, and 3% in the Americas. So, what is causing this tourism growth that leads to overtourism? Firstly, the cost of air travel is becoming cheaper. Because of this, many passengers are now taking more than one short-haul flight. Secondly, tourists have a lot of choices now, with various types of hotels and other accommodations like homestays easily available at low prices (Goodwin, 2017).

CHAPTER 3

From Overtourism to Regeneration: Mapping AI Potential, Intangible Heritage, and Community Practices in Sikkim's Mountain Tourism

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Abstract: Sikkim, located in the Eastern Himalayas, has emerged as a culturally vibrant and ecologically sensitive destination facing intensifying overtourism pressures. This chapter discusses how the region is transitioning towards regenerative tourism by integrating community-based practices, preserving intangible heritage, and unleashing the potential of digital innovations, particularly Artificial Intelligence (AI). Although AI has yet to be generally applied in Sikkim's tourism management, the chapter critically analyzes how new innovative tourism technologies might enhance ecological surveillance, visitor movement control, and cultural narration in the future. Embedded in this transformation are bottom-up initiatives such as women-led homestays, village tourism committees, and sustaining sacred art practices such as Thangka painting. Such activities provide authentic, experiential experiences for travelers and allow communities to reclaim ownership over tourism development. The chapter also recognizes how Sikkim's values align with global models such as the United Nations Sustainable Development Goals (SDGs), particularly in promoting cultural inclusion, climate resilience, and responsible tourism. Merging global regenerative tourism paradigms with rooted local practices, the chapter presents Sikkim as a thoughtful example for other mountain destinations. It offers a reflective and positive narrative based on lived experience and community knowledge, inviting readers to reimagine tourism as a holy exchange between people, place, and planet.

Keywords: Community-based tourism, Intangible cultural heritage, Overtourism, Regenerative tourism, Sikkim, Smart tourism governance.

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INTRODUCTION

Sikkim, situated in the Eastern Indian Himalayas, uniquely blends spiritual sanctity, ecological vulnerability, and cultural vibrancy. Formerly an insular Himalayan kingdom, today it faces the opposing consequences of becoming a popular tourism destination. Increased visitors have brought economic returns and infrastructural expansion, but simultaneously posed grave dangers to its weak ecosystems, cultural practices, and community well-being (Singh, 2020; Rawat, Sharma, & Thapliyal, 2021). Sikkim tourism is not just a source of income; it is a contested terrain where the drive towards development is entangled with the need for conservation. Resolving this tension without compromising the region's unique ecological, cultural, and spiritual character is challenging (Bhutia & Sharma, 2018). Most frequently visited locations like Tsomgo Lake, Nathula Pass, and North Sikkim experience enormous seasonal pressure, while less-visited locations remain underutilized. This skewed growth creates pressure on infrastructure and waste management, and increases community resentment, particularly if local opinion is ignored in tourism planning (Bhutia & Konar, 2025a; Bhutia & Konar, 2025b). Tsomgo Lake, a glacial lake at high altitude and one of the most visited destinations in Sikkim, captures the paradox of overtourism. To control the flow of tourists, the state has established a permit system by day, restricted entries, and shut down entry once the number is exhausted. A managed monitoring system is employed at Tsomgo Lake, where tourist access is restricted *via* a permit system to prevent over-saturation and ensure the site's ecological health. Such a form of analog crowd-control planning suggests Sikkim's intention to enact more advanced, predictive models in the future. While enforced by hand, the system betrays a structural receptivity to move towards more creative, data-driven forms of tourism governance. Concurrently, most local stakeholders, such as women entrepreneurs, youth organizations, and custodians of culture, proactively seek to remake tourism on their terms. Their actions reflect a broader shift: tourism is no longer controlled as an external imposition but as a place of cultural renewal, intergenerational learning, and regenerative growth. These shifts are subtle but profound, based on ordinary practice and the moral worldview passed down over millennia.

This chapter explores how Sikkim is transitioning from overtourism to regeneration. Unlike conventional sustainable tourism, which focuses on mitigating damage, regenerative tourism aspires to heal and rejuvenate the ecologically, culturally, and socially compromised (Bui *et al.*, 2020). This regenerative vision is developing at the grassroots level in Sikkim, particularly through women's homestays (Pasanchay & Schott, 2021). These changes help revive sacred traditions, such as Thangka painting skills (Bhutia & Sharma, 2018). However, the region is slowly embracing digital innovation (Islam, 2023).

While AI has yet to be completely integrated into tourism policies or practices, the area has the potential to explore how it might eventually bolster ecological resilience and cultural sustainability. Furthermore, this chapter refrains from overstating digital utopias, instead grounding this analysis in the real-life experiences of communities and the sacred cultural landscapes. It offers a nuanced perspective on Sikkim's tourism practices, highlighting how traditions shape innovations, how communities drive conservation efforts, and how the future application of AI in tourism should be context-aware and collaboratively designed with those it seeks to benefit. This discussion unfolds through four key themes: innovative and responsible visitor management; preservation of intangible heritage; community-led regeneration; and adherence to the Sustainable Development Goals (UNDP, 2020).

REGENERATIVE TOURISM

Sikkim tourism is gradually transforming from an extractive economic enterprise into a force of regeneration that heals, improves, and reconciles. This is regenerative tourism, an ethic that goes beyond the boundaries of sustainability. Sustainability prompts us to wonder, "How can we do less harm?" while regeneration asks how we can create something better than what currently exists (Bui *et al.*, 2020). In Sikkim, the values of regenerative tourism align with Indigenous cosmologies. The area's philosophical beliefs, especially those of Mahayana Buddhism, center on harmony, compassion, impermanence, and interdependence (Bhutia *et al.*, 2025b). Furthermore, people use these beliefs to relate to nature not as a commodity to be consumed, but as a sacred entity to be honored (Kumar, Shagirbasha, & Konar, 2023). Compared to conventional tourism paradigms focused on arrivals and income increases, regeneration advocates for holistic measures of success: clean rivers, thriving rituals, youth remaining in villages, and flourishing biodiversity (Konar *et al.*, 2025). Additionally, Sikkim's shift toward organic farming, zero waste, and green infrastructure represents a holistic approach to tourism that seeks to benefit both the land and its people (Kumar, Singh, & Sharma, 2018). The transformation to regenerative thinking within the region can also be seen in Sikkim's policies. Early frameworks for eco-tourism in the state relied predominantly on conservation and campaigns promoting environmental sensitivity. Recently, however, newer models have been adopted that incorporate cultural preservation, social justice, and Indigenous leadership into the very foundation of tourism development. This reflects the envisioned approach towards tourism within the state and resonates deeply with intergenerational well-being. Tourism becomes a force for cultural continuity and social renewal. Tourists are welcomed into homes, rituals, and discussions not as outsiders but as learners (Scheyvens & Biddulph, 2018). This co-created experience fosters empathy, respect, and pride.

CHAPTER 4**Centring Women in Regenerative Tourism: Introducing a Gendered Framework for Transformation****B. Anne Kanchana M. Mendis^{1,*}**¹ *Department of Social Sciences, University Of Waikato, Hamilton, New Zealand*

Abstract: This chapter introduces the Gendered Regenerative Tourism (GRT) Model. This transformative framework integrates insights from Feminist Political Economy (FPE) and regenerative development to address the intertwined challenges of gender inequality and ecological degradation within tourism economies. Grounded in the Sri Lankan context, the chapter critically evaluates conventional and sustainability-oriented tourism models, arguing that they have largely failed to recognise and value women's unpaid care work, informal labour, and cultural stewardship, which remain structurally marginalised despite sustaining the industry. Drawing on a qualitative case study of a women-led regenerative tourism initiative in Sri Lanka's central highlands, where artisans creatively combine traditional weaving, storytelling, and digital innovation, the chapter illustrates how grassroots ecofeminist practices can reposition women as knowledge holders, ecological guardians, and decision-makers. The GRT Model is built upon five interrelated pillars: (1) women as regenerative agents, (2) recognition and redistribution of labour, (3) place-based leadership, (4) ecofeminist values, and (5) healing through heritage. Findings reveal that when tourism development is approached through a gender-responsive and regenerative lens, it fosters economic resilience, cultural revitalisation, and ecological sustainability while simultaneously challenging patriarchal power structures. By bridging critical feminist theory with practical strategies for regeneration, the chapter contributes to the fields of tourism and gender studies and provides policymakers and practitioners with a framework for equitable resource distribution, inclusive governance, and community-led development aligned with the United Nations Sustainable Development Goals (SDGs). Ultimately, it argues that transforming tourism requires dismantling extractive paradigms and centring women's agency, intergenerational knowledge, and ethics of care as foundations for socio-ecological regeneration.

Keywords: Community-led tourism, Ecofeminism, Feminist political economy, Gendered regenerative tourism, Gender equity, Intersectional justice, Regenerative development, Sri Lankan tourism, Sustainable Development Goals (SDGs), Women's empowerment.

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INTRODUCTION

Sri Lanka, a radiant island in the Indian Ocean, has captivated travellers for centuries with its natural beauty, cultural richness, and strategic location along ancient maritime routes. Tourism has become one of the nation's key economic pillars over the decades, contributing significantly to foreign exchange earnings, employment creation, and regional development (SLTDA, 2023). Nevertheless, despite these achievements, the dividends of tourism have not been evenly shared. Persistent gender disparities continue to shape who benefits from, and who remains excluded from, the growth of this vital sector.

Through the lens of Feminist Political Economy (FPE), these disparities reflect the enduring influence of power relations, institutional hierarchies, and cultural norms. Women's economic contributions, particularly in informal, part-time, or precarious forms of work, are often undervalued or rendered invisible within mainstream economic accounting (True, 2012; Elias & Roberts, 2016). Although Sri Lankan women now attain higher levels of secondary and tertiary education than men, these educational gains have not translated into equitable labour-market outcomes. According to the Labour Force Survey of Sri Lanka 2023, women's participation in the labour force remains at a modest 31%. Within tourism, most are concentrated in low-wage, informal roles with limited prospects for advancement. Their under-representation in managerial, decision-making, and entrepreneurial positions continues to hinder the sector's potential to serve as a genuine engine of women's empowerment (Weerathunga *et al.*, 2020).

Gendered patterns of exclusion are particularly pronounced in rural and underserved communities, where women face overlapping structural barriers to participation. Restricted access to finance, limited training opportunities, and weak market linkages constrain their capacity to enter or expand within the tourism economy (Chant & Sweetman, 2012). At the same time, prevailing social expectations that prioritise domestic and caregiving responsibilities over economic engagement further limit women's agency and entrepreneurial ambition (Kabeer, 2008). The Feminist Political Economy perspective reveals that these constraints are not accidental but embedded within institutional and policy frameworks that systematically devalue women's reproductive and community-based labour even though such labour underpins the very industries that sustain national development (Elson, 1999; Bakker & Gill, 2003).

In this context, the concept of regenerative development offers a transformative and complementary lens. Moving beyond the "do-less-harm" ethos of conventional sustainability, regenerative development advocates for the active revitalisation of socio-ecological systems. It emphasises reciprocity, community

agency, and place-based knowledge as the foundations for thriving societies (Mang & Reed, 2012). Applied to tourism, this paradigm re-envisioning the sector as a participatory and co-creative process that centres on the well-being of both people and ecosystems.

When viewed from a gendered perspective, regenerative tourism resonates deeply with women's traditional, however often undervalued, roles as caregivers, cultural custodians, and community leaders. Recognising and amplifying these roles provides a pathway to more inclusive, resilient, and equitable tourism economies. Women's life experiences, local knowledge, and relational practices can become central to a new tourism ethos, one that regenerates rather than merely exploits, and that empowers rather than marginalises.

This chapter, therefore, explores the potential of regenerative and sustainable tourism to uplift women's initiatives in Sri Lanka. It adopts a holistic perspective that captures not only women's participation in tourism but also the vertical structures that limit their economic mobility. By drawing on the intersecting frameworks of Regenerative Development and Feminist Political Economy, the chapter builds a case for re-imagining tourism as a site of transformation where economic inclusion, social justice, and ecological regeneration converge to create a genuinely equitable model of development.

THE ROLE OF WOMEN IN SRI LANKA'S HOSPITALITY SECTOR

Women in Sri Lanka occupy a paradoxical position within the tourism sector, where their contributions are indispensable, however systematically undervalued and marginalised (Silva & Mendis, 2017). While they sustain the industry's cultural vitality and operational continuity, women remain largely excluded from positions of decision-making, leadership, and economic recognition. This paradox is not unique to Sri Lanka but reflects a broader global phenomenon in which women's labour. However, central to the tourism economy is rendered invisible within dominant economic and policy frameworks. The Feminist Political Economy (FPE) perspective offers a valuable lens through which to interpret this contradiction, exposing how labour markets, policy regimes, and development strategies consistently devalue women's work, particularly unpaid, informal, and care-based forms of labour that fall outside conventional metrics of productivity (Elson, 1999; Bakker & Gill, 2003).

Globally, women comprise a significant proportion of the tourism workforce; however, they are disproportionately represented in precarious, low-wage, and feminised occupations such as housekeeping, waitressing, and informal vending (United Nations World Tourism Organisation [UNWTO], 2019). Limited social protection, weak labour rights, and minimal prospects for upward mobility

CHAPTER 5

Regeneration of Malaysian World Heritage Sites (WHS): The Crucial Role of Domestic Tourists

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Abstract: World Heritage Sites (WHS) are cultural and natural treasures that are significant economic drivers globally, fuelling the heritage tourism industry. There are 1223 WHS globally; among these, 56 sites are in danger of losing their coveted 'World Heritage Site' status due to substantial loss in their Outstanding Universal Value (OUV). This chapter discusses the important role of domestic tourists with a particular focus on Malaysia's six WHS, which are George Town, Malacca, Kinabalu Park, Gunung Mulu National Park, Archaeological Heritage in Lenggong Valley, and the recently designated Niah Caves. Generally, the role of domestic tourists in heritage regeneration was understudied, as most literature focused on local communities' sustainability behaviour. Therefore, this study examined the influence of value on regeneration on attitude, internal and external norms, and moral obligation of domestic tourists, as they are the WHS's primary stakeholders and stewards. The study's findings were gathered through quantitative analysis and informal discussions with domestic tourists, providing insights into the use of the purposive sampling method. Subsequently, PLS-SEM was used to analyse the data. The results found that the value of regeneration significantly influenced the attitude, norms, and moral obligations of domestic tourists. Through a vital bottom-up approach, social and subjective norms were not merely beneficial but essential for ensuring the longevity of these heritage sites for future generations. This book chapter presents a robust theoretical model in behavioural research, which will serve as a solid foundation for further exploration in this field.

Keywords: Domestic tourism, Heritage, Moral obligation, Norms, Regeneration, WHS.

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INTRODUCTION

The United Nations Sustainable Development Goals (UN SDG) on Agenda 11, specifically Target 11.4, aims to ‘Strengthen Efforts to Sustain the World’s Cultural and Natural Heritage’ whereby it recognises the need to protect these WHS from potential threats and challenges. This target notes the immeasurable value of the WHS, which covers over 360 million hectares of land and sea across the globe and in all ecosystems (UN-Habitat, 2023). This UN report indicated that the progress of this SDG was slow, and numerous efforts were becoming progressively worse. It further stated that there are five biggest bottlenecks in achieving Target 11.4. In essence, there is a lack of comprehensive and sustainable management frameworks, eventually leading to these sites’ deterioration over time. Moreover, a lack of public understanding regarding the significance of WHS hinders collective efforts to safeguard them. Rapid urbanisation and gentrification often encroach upon WHS, threatening their integrity and authenticity. Poor implementation of legal frameworks, coupled with insufficient funding and resources, limits the ability to safeguard these sites effectively. Other important risk factors are rising global temperatures, extreme weather events, and geological hazards, which pose significant risks to these sites (El Faouri & Sibley, 2024). In order to address these challenges, the World Heritage Convention, known as the Convention Concerning the Protection of the World Cultural and Natural Heritage, champions numerous regeneration and sustainability projects (Jang & Mennis, 2021).

It is noted that heritage tourism is identified as one of the key sectors supporting global economic growth (Hosseini *et al.*, 2021). The anticipated revenue from this industry is expected to grow from USD 586,599.90 million in 2023 to USD 778,071.60 million by 2030 (Grand View Research, 2024). Heritage tourism, beyond its economic benefits, undoubtedly plays a crucial role in preserving cultural identity (Roslan *et al.*, 2021). This tourism category is usually related to travel activities designed to explore and experience locations, events, and artifacts that authentically represent people’s past and present lives and stories. In most instances, activities and services related to heritage tourism allow tourists to comprehend, experience, and get pleasure from the distinctiveness of natural, indigenous, and heritage aspects (Brooks *et al.*, 2023). Therefore, the regeneration and sustainability of historic buildings and landscapes are crucial because they give current and future generations a sense of identity in a world that is changing quickly. In essence, heritage sites symbolise a country’s history and culture (Bindhu & Panakaje, 2023). Heritage tourism can uplift impoverished regions and contribute to more equitable wealth distribution by generating income, creating jobs, and supporting businesses. Thus, the challenges at these sites collectively

highlight the urgent need for regeneration, sustainable management, and international cooperation.

This study addressed individuals' motivations on a deeper level by examining their attitudes, norms, and moral obligations specific to heritage regeneration using the Value-Attitude-Behaviour (VAB) model. It is important to note that academics, researchers, and policymakers play a vital role in this process. This study acknowledges that a growing body of research examines the psychological characteristics of individuals in the heritage tourism industry (Li *et al.*, 2024). Previous literature mainly addressed the conservation and preservation of WHS and focused on local communities that lived near these sites (Abdul Aziz *et al.*, 2023; Ibrahim *et al.*, 2023). It was further found that limited research was done on Malaysians, explicitly targeting Agenda 11 and Target 11.4, whereby this study intends to fill these literature gaps. In the following sections, the literature review of this research with a focus on heritage regeneration will be discussed together with the conceptual framework. This includes research methodology and data collection methods. Next, the data analysis and results will be examined in detail. Finally, this chapter will conclude with a discussion of the study's findings and conclusions.

LITERATURE REVIEW

Heritage Regeneration

The process of restoring and reusing old structures, neighbourhoods, or cultural landscapes while preserving their architectural, cultural, and historical integrity is known as heritage regeneration (Amado & Rodrigues, 2019). WHS regeneration entails a methodical approach to maintaining the sites' architectural, historical, and cultural significance while incorporating contemporary uses or infrastructure upgrades (El Faouri & Sibley, 2024). The goal of regeneration initiatives is to revitalise the locations without sacrificing their OUV. The medieval city of Florence, Italy, is a well-known example of heritage regeneration (Salerno, 2022). The key goals of its revitalisation initiatives are preserving the city's Renaissance architecture and enhancing amenities for both residents and tourists. Without sacrificing the city's traditional charm, initiatives like pedestrianising streets, renovating old buildings, and modernising public areas have made it livelier and more approachable (Dastgerdi *et al.*, 2021). Comparably, conservation initiatives have been put in place to repair and protect the Great Wall of China from additional deterioration brought on by weathering and human activities. In order to assure authenticity, these efforts frequently entail rebuilding specific pieces and strengthening damaged areas using conventional materials and techniques (Zhu & González Martínez, 2022). Thus, heritage regeneration encompasses the

CHAPTER 6

The Role of Technology in Sustainable Tourism**Nilesh Kharche^{1,*}**¹ *Department of Operations & Supply Chain Management, Balaji Institute of Technology & Management, Sri Balaji University, Pune, Maharashtra, India*

Abstract: The rapid expansion of tourism has led to environmental, social, and economic challenges. Technology plays an essential role in promoting sustainable tourism practices, mitigating detrimental effects, and maximizing beneficial impacts. Innovative technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), and big data analytics enable optimal resource use, customized travel experiences, and data-driven decision-making. Renewable energy systems, green infrastructure, and digital platforms encourage eco-friendly behaviour and empower local communities. Immersive technologies like Virtual Reality (VR) and Augmented Reality (AR) enhance cultural heritage preservation and reduce the need for physical travel. However, challenges such as digital divide, high investment costs, data privacy concerns, and ecological footprint remain. These can be addressed through strategies that promote accessibility, education, and collaborative frameworks. This chapter concludes by identifying future directions for technology in sustainable tourism, advocating for inclusive policies, sustainable technological development, and capacity.

Keywords: Challenges, Immersive technologies, Smart tourism technologies, Strategies, Sustainable technological innovation.

INTRODUCTION

The tourism industry has long been recognized as a vital contributor to global economies and cultural exchange. However, its rapid growth has introduced environmental, social, and economic challenges, necessitating a shift towards sustainable practices. Technology plays a critical role in this transition, offering tools and solutions to mitigate tourism's adverse impacts while enhancing its positive contributions. This chapter explores the diverse applications of technology in advancing sustainable tourism. It examines how technological innovations can optimize resource utilization, reduce environmental footprints, and facilitate community empowerment. As a global phenomenon, tourism significantly contributes to economic growth, cross-cultural exchange, and social

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cohesion. Yet, unmanaged expansion has resulted in adverse effects such as environmental degradation, over-tourism, biodiversity loss, and socio-economic disparities. This imperative has led to the evolution of more sustainable tourism models that balance economic benefits with ecological integrity and social equity (Kusumawardhani *et al.*, 2024). In this context, technology serves as a transformative force, providing novel solutions to manage the complexities of sustainable tourism.

Technology has revolutionized how individuals travel, from planning and booking trips to experiencing destinations. Beyond improving convenience and connectivity, technological innovation is now central to fostering sustainability in the sector. Smart technologies, renewable energy systems, and digital platforms (Bratic *et al.*, 2025). are helping the industry reduce its environmental footprint, maximize resource efficiency, and engage local communities. For instance, Big Data analytics and Artificial Intelligence (AI) provide insights into tourist behavior, enabling stakeholders to make informed decisions that curb over-tourism and minimize ecological impacts.

Augmented Reality (AR) facilitates virtual tours of fragile environments and archaeological sites, reducing physical pressure on these locations while enhancing awareness and education (Ercan *et al.*, 2025). Digital platforms and blockchain technology empower local service providers and artisans by ensuring fair economic benefits and transparent supply chains (Ionescu & Sarbu, 2024).

The role of New-age technologies (Fig. 1) has been instrumental in supporting the sustainable growth of tourism in the post-COVID-19 era. Virtual Reality (VR) offers a fully immersive, interactive experience in virtual 3D environments, allowing users to explore settings and interact with 3D objects. This interaction can trigger various responses, including multimedia playback, voice, text visualization, and animation. Such technology is highly relevant to tourism, enabling new applications like virtual tours, museum visits, and destination exploration. Conversely, AR superimposes multimedia and dynamic 3D objects onto real-world images captured by a camera stream (Ionescu & Sarbu, 2024). This enables intriguing use cases such as self-guided sightseeing and 3D historical reconstruction, allowing users to relive the past at historical sites—a feature particularly crucial for post-COVID tourism (Gössling & Hall, 2019).

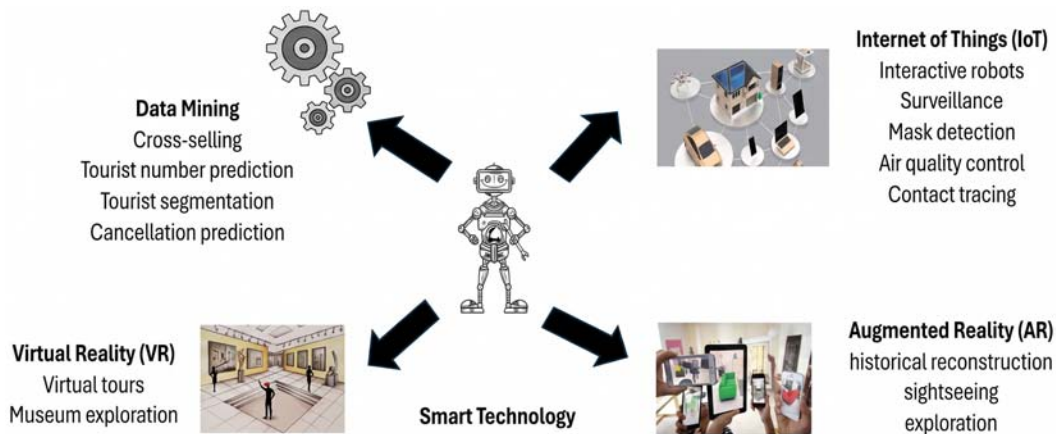


Fig. (1). Role of new age technologies for sustainable tourism.
(Source: Researcher).

Finally, the Internet of Things (IoT) comprises a network of small, low-power devices, ranging from sensors and smart tags to affordable, credit-card-sized microcomputers. Beyond enhancing the visitor experience, IoT is vital in the post-COVID context, as these devices support functions like mask detection, contact tracing, and air quality monitoring to help slow virus transmission. Additionally, assistive robots built on low-cost IoT platforms can be employed for various tasks, such as interacting with visitors or monitoring landmarks and museums (Bratic *et al.*, 2025).

Data mining aims to extract knowledge and patterns from vast datasets about users, significant events, and their relationships with the environment and other people. Common applications include using clustering to segment tourists, regression to forecast visitor numbers, association rule mining to cross-sell excursions and services, and classification techniques to predict booking cancellations.

This chapter investigates how new technologies, namely blockchain, AI, big data analytics, IoT, and VR, are transforming travel in a sustainable manner (Buhalis & Amaranggana, 2016). These technologies address key challenges like over-tourism, ecological degradation, and community displacement by improving resource management, lowering carbon footprints, and fostering responsible tourist behavior (Zhang & Yang, 2020).

The chapter explores the role of technology in sustainable, responsible, and regenerative tourism, highlighting its relevance across various tourism dimensions, challenges, and opportunities.

CHAPTER 7

Staycations in the Age of Technology: A Sustainable Tourism Strategy

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Abstract: Sustainable tourism has been a mainstream academic discourse in the tourism industry for decades due to overtourism. This chapter examines how robotics, artificial intelligence, virtual reality, augmented reality, and the Metaverse are implemented in the hospitality and tourism industry through staycations to achieve sustainable tourism. Extensive literature has discussed the importance of sustainable tourism. However, little research has explored the strategy for successful sustainable tourism, as well as the appropriate delivery of services to tourists. This chapter offers suggestions for addressing overtourism in the post-COVID period. They include the use of cutting-edge technologies and staycations in conjunction with technological advancements. Besides, as alternatives to conventional tourism, staycations encourage a shift towards responsible consumption, reducing the demand for resources typically consumed by large-scale travel industries. In conclusion, staycations in the context of rapid technological progress offer a promising path toward more sustainable tourism. They strike a balance between convenience, eco-consciousness, and local economic support while mitigating the negative influence of traditional tourism practices.

Keywords: Overtourism, Staycation, Sustainable tourism, Technological innovations, Technological integration.

INTRODUCTION

In the past five decades, the global tourism sector has experienced significant expansion. Foreign travelers and visitors increased from 165 million in 1970 to 1.4 billion in 2018 (Mahendru *et al.*, 2024), substantially enhancing global revenue generation. The swift and unparalleled expansion produced both economic advantages and detrimental impacts on the hosts' environment and the destination itself. The environmental influence of tourism has necessitated a reassessment of strategies for enhancing tourist sustainability (Purnamawati & Yuniarta, 2024). In the wake of the COVID-19 pandemic, nations and industries

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are increasingly prioritizing sustainable tourism practices that balance economic, social, and environmental factors.

Sustainable tourism has been a predominant focus in the tourism sector for decades, primarily due to overtourism and environmental issues (Cheung & Li, 2019; Higgins, 2020; Mandić *et al.*, 2023). Scholars underscore the need to mitigate the adverse effects of tourism (Purnamawati & Yuniarta, 2024; Necati Çelik & Çevirgen, 2024; Cheung & Li, 2019) while offering greater benefits for local economies and communities (Schubert & Schamel, 2020). However, although much research has concentrated on the theoretical foundations and policy frameworks for sustainable tourism (Mihalic, 2020; Jover & Díaz-Parra, 2022; Blancas & Lozano-Oyola, 2022), few studies have analyzed practical, implementable strategies that can bring about substantial change. The swift progression of emerging technologies, especially in the digital domain, has generated both opportunities and challenges for tourism operators who seek to adopt sustainable practices (Rafael *et al.*, 2023; Talwar *et al.*, 2023; Bekele & Raj, 2025). Staycations emerged amid rising green awareness and COVID-19-related limitations, and this new travel model has shifted the discussion on sustainable tourism (Martseniuk *et al.*, 2024; Pichierri *et al.*, 2022; Hung & Huan, 2024). Staycations refer to recreational breaks or vacations spent at home or in a nearby location, without requiring overnight accommodations and involving shorter travel distances and greater sustainability (Kou *et al.*, 2024; Lin *et al.*, 2021). However, the contributions of staycations to sustainable tourism remain to be deeply explored.

The research questions are as follows: How can new technologies be integrated into staycations? How can they be combined to advance sustainable tourism? The findings are expected to practically inform tourism practitioners in their efforts to provide excellent services by combining new technologies and staycations.

OVERTOURISM AND SUSTAINABLE TOURISM

Negative Impact of Overtourism

The term “overtourism” has been in use only for a few years, but since the mid-1960s, its origins have been widely discussed in tourism research (Mihalic, 2020). Overtourism, known as a form of unsustainable tourism, has aroused significant academic and professional concern in the field of tourism. Goodwin (2017) characterized it as a destination “where hosts or guests, locals or visitors, feel that there are too many visitors and that the quality of life in the area, or the quality of the experience has deteriorated unacceptably.” In other words, overtourism is the expansion of tourism caused by the excessive number of tourists beyond the carrying capacity of the visited place during a certain period of time (Rafael *et al.*,

2023). Overtourism, as well as other similar phenomena, is attributed to the rapid development of tourism demand and supply, the utilization of the natural resources of visited destinations, the damage to cultural heritage, and the adverse effects on their social and economic landscapes (Mihalic, 2020).

One of the most significant and adverse impacts of overtourism is the damage inflicted upon local natural resources (Capocchi *et al.*, 2019; Utama *et al.*, 2024). When the influx of visitors exceeds the largest carrying capacity of the destination, severe consequences will occur, such as environmental degradation, like natural resource depletion and environmental pollution. In certain scenic hotspots, like Bali, the substantial number of visitors has given rise to tremendous ecological harm (Purnamawati & Yuniarta, 2024).

Besides, overtourism has also had a huge impact on the daily lives of local residents. As the tourism industry continues to grow, it has become an essential driver of the economies of many tourist destinations. In this context, the daily needs of residents in tourist destinations may be overshadowed by those of tourists. When the tourist carrying capacity reaches its limit, and the perceived life quality comes to decline, residents' initial satisfaction with rising visitor numbers and economic gains gradually shifts to dissatisfaction and irritation as tourism's impacts intensify (Navarro Jurado *et al.*, 2019), leading to social disharmony (Jover & Díaz-Parra, 2022; Cheung & Li, 2019). In addition, to cater to tourists, local residents will change their lifestyles and traditions to some extent, thereby compromising their cultural identity (Remenyik *et al.*, 2021). Furthermore, traffic congestion and insufficient services caused by overtourism may also reduce the quality of life of local residents (Dodds & Butler, 2019; Koens *et al.*, 2018).

Although tourism generates significant economic advantages, the consequences of overtourism have raised questions about the long-term sustainability of tourism in many regions (Goodwin, 2021; Żemła, 2024). In response, relevant authorities should embrace responsible and sustainable tourism practices, with priority given to local environmental quality and people's well-being (Maingi, 2019; Gowreesunkar & Seraphin, 2019).

Sustainable Tourism

Sustainable tourism has stood out as an important solution to the rising social, economic, and environmental challenges attributable to traditional and outdated tourism patterns. According to the United Nations World Tourism Organization (UNWTO), sustainable tourism "takes full account of its current and future economic, social, and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities," (UNWTO, 2004), with the objective of striking a balance among natural and cultural resource conservation,

CHAPTER 8

Assessing the Effect of Green Innovation on the Variability of Stock Return in Japan's Tourism: Moderating Effects of Seasonal Attractions

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Abstract: The study analyzes the impact of Green Innovation (GI) on tourism firms in Japan from 2015 to 2022. Using panel data from 106 tourism-related firms across 12 prefectures over an eight-year period, we documented consistent improvements in GI performance nationwide. GI was found to have a dual effect on stock return volatility, particularly within the recreational, hospitality, and travel service sectors. Further analysis reveals that enhanced GI is associated with reduced volatility in conjunction with rising tourist inflows, extended autumn foliage coloration periods, prolonged maple leaf-falling seasons, and lengthened cherry blossom flowering and full-blooming phases. The findings suggest that superior GI performance contributes to financial stability in tourism firms, especially during peak seasonal attractions such as cherry blossom events.

Keywords: Environmental efficiency, Green innovation, Stock return volatility, Seasonal attractions, Tourism firm risk.

INTRODUCTION

Japan's tourism industry plays a pivotal role in the national economy, drawing millions of domestic and international travelers annually through its cultural richness, picturesque landscapes, and distinctive seasonal experiences. Seasonal attractions like springtime cherry blossom (sakura) viewing and autumn foliage are especially influential in stimulating tourism demand. In 2019, Japan welcomed approximately 31.88 million international tourists, contributing ¥28.4 trillion to the nation's GDP and supporting 4.5 million jobs. Yet, climate change has rendered the timing and intensity of these seasonal events increasingly erratic,

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leading to fluctuations in tourist arrivals and heightened financial uncertainty for tourism-dependent businesses. In parallel, Green Innovation (GI)—encompassing sustainable technologies, energy efficiency improvements, and eco-friendly practices—has gained traction as a strategic response to both ecological and financial challenges. While GI is generally associated with long-term operational and reputational benefits, its relationship with short-term stock return volatility, particularly in sectors highly influenced by seasonal patterns, remains underexplored. This study investigates how regional GI levels affect the stock return volatility of tourism firms in Japan, and whether seasonal attractions like cherry blossoms and foliage serve as moderating factors. The findings aim to guide policymakers, investors, and regulators in formulating strategies that simultaneously promote sustainability and enhance financial resilience in a seasonally driven market context.

Despite its economic significance, the tourism sector faces increasing financial uncertainty, particularly in terms of stock return volatility. This volatility is driven by a combination of market fluctuations, evolving environmental dynamics, and the growing emphasis on innovation and sustainability. Seasonal attractions—one of the primary draws for visitors—have become unpredictable due to climate change, which alters the timing and duration of key natural events. For example, earlier or delayed cherry blossom blooms and extended autumn leaf-fall periods can influence travel decisions and, consequently, affect business performance across the tourism value chain.

Amidst these challenges, GI has emerged as a strategic response adopted by tourism enterprises to mitigate environmental degradation while maintaining competitiveness. GI encompasses environmentally friendly technologies and practices aimed at conserving energy, reducing emissions, recycling waste, and promoting sustainable development. Japan's environmental performance has improved significantly in recent years, with its Environmental Performance Index (EPI) rising from 3.20 in 2010 to 57.20 in 2023. This upward trend reflects a growing commitment to integrating sustainable innovation into economic activities, particularly within the tourism sector.

Corporate adoption of GI is typically driven by regulatory pressure, competitive advantages, technological progress, managerial commitment, and increasing consumer demand for sustainability. Firms investing in GI may achieve economic benefits through enhanced resource efficiency, improved brand reputation, increased sales, and long-term cost savings. Furthermore, GI can bolster stakeholder support and attract environmentally conscious investors, potentially stabilizing stock performance.

Nevertheless, the link between eco-innovation and economic outcomes is not always positive. Some studies suggest that the substantial costs associated with GI—such as R&D investments, employee training, and system upgrades—can strain financial resources and increase corporate financial risk (CFR), particularly in the short term or in developing markets (Duque-Grisales *et al.* 2020). Lin *et al.* (2019) have reported a significant positive relationship between GI and CFP. These mixed findings indicate that GI's impact on financial metrics, including stock return volatility, remains ambiguous and context dependent.

Despite a growing body of research examining the relationship between GI and CFP—including metrics like return on assets, revenue growth, and earnings per share—few studies have investigated their influence on stock return volatility, a critical indicator of financial risk and investor confidence. Stock return volatility reflects the variability in a firm's market value over time, which can influence both investment decisions and firm valuation. Wang *et al.* (2021), using panel data from 642 industrial firms in China, found that environmental performance is a key driver of green innovation (GI) that can enhance corporate financial performance (CFP) in China. Similarly, Farza *et al.* (2021) observed this effect in Germany; however, the integration of environmental practices into production and operations often occurs with a delay, potentially causing lagged effects on overall CFP (Zhang *et al.*, 2019). Rezende *et al.* (2019) reported that there was no short-term improvement in CFP from green patents, but a positive long-term correlation.

The relationship between environmental innovation and a company's operational and financial results holds considerable importance for corporate finance research and practice. Firstly, effective GI can enhance firm value by optimizing resource efficiency (Farza *et al.* 2021). Secondly, firms that pursue GI often enjoy a stronger ecological image, which can improve market competitiveness (Farza *et al.*, 2021) and attract premium pricing, stronger sales, and broader social support. Thirdly, GI helps reduce environmental liabilities, thereby securing long-term profitability. Fourthly, through innovations in recycling and pollution control, GI can lower operating costs. A fifth advantage is the ability for firms to obtain greater support from key stakeholders, which unlocks valuable resources and opportunities.

Lastly, a positive reputation from GI can enhance investor and customer trust, stabilizing stock returns by reducing perceived financial uncertainty.

On the other hand, GI can also introduce risks. Yao *et al.* (2021) found that some Chinese manufacturing firms experienced a decline in firm value due to weak intellectual property protections, a lack of environmental expertise, high product

CHAPTER 9

Entrepreneurial Policy in Regenerative Tourism: New Perspectives

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Abstract: The precise definition and content analysis of entrepreneurial policies in regenerative tourism remain an under-represented area in the literature. Furthermore, the integration of AI-based technologies and decision-support systems, as well as their effectiveness assessment in regenerative tourism enterprises, is also lacking, particularly in predictive analytics and alternative Early Warning Systems (EWS). This research aims to identify the key content elements of entrepreneurial policies in regenerative tourism, explore the possibilities of integrating AI-based systems, and uncover the economic and sustainability benefits of AI-driven decision support and EWS for businesses engaged in regenerative tourism. As a global trend, regenerative tourism offers a new direction for sustainable tourism development, minimising environmental damage while actively contributing to the renewal of ecosystems and local communities. AI-based technologies, such as predictive analytics and EWS, have the potential to revolutionise decision-making processes by enabling businesses to manage risks more accurately and optimise their sustainability goals. The opportunities provided by AI are particularly relevant amid the rapidly changing economic and environmental challenges of regenerative tourism. The content analysis of entrepreneurial policies in regenerative tourism highlights a clear research need: the integration of AI deserves special attention. This study emphasises the role of AI-based systems, such as predictive analytics and EWS, in optimising policies for regenerative tourism, particularly by minimising economic risks, managing market shifts effectively, and enhancing sustainability. By applying AI-driven decision-support systems, businesses can make more precise and efficient decisions, thereby supporting the implementation of regenerative tourism principles. Further research on the entrepreneurial policies of regenerative tourism and the integration of AI-based systems is necessary to develop well-founded strategies for implementing circular economic models that go beyond sustainability and for reducing economic risks.

Keywords: Early warning system, Regenerative tourism, Sustainable management.

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INTRODUCTION

In today's world, regenerative tourism presents a vital response to global environmental and social challenges. This concept goes a step beyond traditional sustainable development models: it not only focuses on minimising environmental damage and maintaining economic stability, but also on restoring natural and social systems. Following the turn of the millennium, climate change, the excessive exploitation of ecological resources, and increasing social inequalities have made it clear that traditional economic models of tourism are no longer sustainable.

The theoretical foundations of regenerative tourism are based on the collaborative development of ecosystems and local communities, in which sustainable economic models not only preserve natural resources but also ensure their renewal.

Regenerative tourism represents a new mindset, emerging from sustainable tourism. It seeks to minimise environmental impacts but also actively contributes to the renewal of natural systems and communities (Hui *et al.*, 2023). According to Bellato *et al.* (2023), regenerative tourism is a new paradigm that goes beyond the traditional sustainability framework, aiming to actively restore communities and ecosystems. Artificial Intelligence (AI) technologies, such as predictive analytics and Early Warning Systems (EWS), can revolutionise entrepreneurial policies related to regenerative tourism, facilitating the implementation of sustainable and circular economic models (Nishant *et al.*, 2020).

In recent years, technological advancements – particularly AI, the Internet of Things (IoT), and predictive analytics – have opened new opportunities for more efficiently achieving regenerative tourism objectives. The integration of 4th-generation AI-based EWS systems enables tourism enterprises to collect and analyse real-time data, allowing them to manage economic, environmental, and social risks proactively. 4th-generation EWS is an AI-driven system that is capable of extracting, synthesising, and interpreting structured and unstructured data in real time using machine learning (Morr *et al.*, 2024), big data analysis (Samara *et al.*, 2020), Artificial Neural Network (ANN) (Kim *et al.*, 2004), and Natural Language Processing (NLP).

At the same time, the role of community decision-making is becoming increasingly significant. Involving local communities in tourism planning processes strengthens social acceptance but also provides an opportunity to address location-specific challenges. In entrepreneurial policy development, AI and IoT systems, along with advances in EWS technology, contribute to optimising

decision-making processes, ensuring sustainable resource management, and securing long-term economic stability.

This study aims to:

- Present entrepreneurial policies related to regenerative tourism and their key elements.
- Examine the effectiveness of AI-based technologies, particularly predictive analytics and alternative EWS systems, in regenerative tourism.
- Explore the challenges and opportunities of implementing technological innovations for the future of regenerative tourism.

The research seeks to answer the following questions:

- How can entrepreneurial policies in regenerative tourism be defined and developed?
- How can AI-based technologies support the economic and sustainability goals of regenerative tourism?
- What impact do AI-based systems have on decision-making and risk management in businesses engaged in regenerative tourism?

We hypothesise that integrating AI-based technologies enhances the effectiveness of entrepreneurial policies in regenerative tourism, enabling more accurate decision-making and minimising economic risks.

As research on entrepreneurial policies in regenerative tourism – particularly the role of AI-based technologies – becomes increasingly relevant amid global economic and environmental challenges, AI integration supports sustainability goals. It optimises business decision-making, offering new perspectives on transforming the tourism industry.

MATERIALS AND METHODS

The research employs a multidimensional approach that combines quantitative and qualitative methodologies to comprehensively examine the economic and sustainability impacts of 4th-generation EWS systems in regenerative tourism. The analysis is based on three pillars:

Literature review

A content analysis of relevant literature sources and case studies maps the possibilities of AI integration in the context of regenerative tourism. The literature review defines the conceptual framework of regenerative tourism, explores the

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