

# Ecotourism in the Age of Climate Change: A Comprehensive Analysis of Stakeholder Perspectives and Industry Adaptation

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## ABSTRACT

The present study tends to identify the dynamics of ecotourism in global climate change, focusing on stakeholders' perceptions and industry adaptation strategies. Climate change is currently challenging the tourism sector, especially at the level of ecotourism; hence, it becomes imperative to note how different stakeholders perceive these impacts and how the industry responds to them. This research looks into the potential implications of climate change in three areas: operation and profitability of tourist spots, changes in tourist demand, and socio-economic implications. In this regard, the researchers utilized the survey results on stakeholders: tourists, business operators, and local communities. For example, according to the results, all respondents perceived climate change's impact to be moderate. Specifically, moderate effects at operational and financial levels on tourist spots, shifting tourist demand, and broader socio-economic conditions are recognized. The results underline the need for targeted adaptation strategies to enhance business resilience to the changing climatic conditions, adapting to changing tourist preferences, and answering socio-economic challenges. The paper highlights the need for proactive steps toward the sustainability of ecotourism in the face of continuing change. Hence, it delivers actionable insight into what stakeholders would do to enable such navigation of the complexities of climate change.

**Keywords:** Ecotourism. Climate Change, Perspectives, Adaptation

## INTRODUCTION

For a niche in tourism like ecotourism, the accelerated state of climate change poses extraordinary challenges and opportunities for the global tourism industry. It is expected that ecotourism can be aligned with features of sustainable tourism. Because of its deep association with the natural environment, it is well-positioned to mitigate and adapt to the environmental shifts that have become more apparent.

Climate change is making the tourism industry worldwide face defining moments. Ecotourism, often billed as responsible and sustainable travel, stands at the vanguard of transformation. It is quite challenging to strike a dualistic balance: supporting environmental conservation while catering to increased demands for nature-based experiences.

This paper, "Ecotourism in the Age of Climate Change: A Comprehensive Analysis of Stakeholder Perspectives and Industry Adaptation," details the intricacies of this balance by analyzing the different perspectives of stakeholders in the value chain of ecotourism. From the Indigenous communities protecting their culture through government agencies making policies on sustainable tourism to businesses

willing to innovate and reduce their carbon footprint, this paper justifies multi-faceted responses to climate-induced challenges.

The research also examines the shifts in industry practices toward discovering the principles of sustainability and resilience. It will explore ecotourism operators' strategies to mitigate environmental impacts, adapt to shifting ecological conditions, and maintain economic viability. Concerning the input from stakeholders and industry trends, this paper seeks to add its voice to the discussion of how ecotourism can survive and thrive in climate change by providing a roadmap for the other tourism subsectors.

## LITERATURE REVIEW

The literature and previous research relevant to the topic were investigated so that the current study could have a firm basis upon which it was founded. This section presented the aforementioned studies and works of literature. A broad understanding of South Asian nations and ecotourism was essential in the Introduction. The lush rainforests of Sri Lanka, the breathtaking mountain vistas of Nepal and Bhutan, and the diversified animals of India make up South Asia's various ecosystems. Due to its stunning natural beauty, this area drew people worldwide. South Asia has long recognized ecotourism's promise as a sustainable revenue source for local people and national economies. The natural balance needed for ecotourism had been threatened by growing industrialization and urbanization in certain places (Huda et al. 2021). Thus, examining India, Sri Lanka, Nepal, Bhutan, and others' ecotourism potential and climate change challenges was crucial. The environmental relevance of South Asia's ecosystems was also stressed in the introduction. Many of these locations regulated climate, preserved biodiversity, and provided clean water. The "Third Pole" Himalayan glaciers offered fresh water to the area. Climate change affected ecotourism and the global environment by degrading these habitats. Case studies and data from South Asian nations had to be examined in the Literature Review. This might include ecotourism site visitor numbers, economic benefits, and environmental hazards. South Asian ecological, government, and academic studies also helped clarify the situation. International papers and organizations that emphasized South Asian ecotourism's global relevance and climate change vulnerability were included in the Literature Review. This underscored the issue's global relevance and interdependence. The study helped readers grasp the depth of the problem and the necessity for the research by offering a detailed context and outlining South Asian ecotourism's specific qualities and difficulties. This strengthened the study's rationale, relevance, and effect.

### *The potential of the Ecotourism Industry*

Ecotourism was a unique subset of tourism that did not involve staying in excellent accommodations, indulging in delicious cuisine, or engaging in exciting outdoor activities. People who had a propensity to live in more excellent proximity to the natural environment and desire to enjoy naturally preserved scenery were likely to be drawn to this type of tourism. According to Daniere et al. (2019), neither man-made structures nor interferences were permitted in this tourism category. The most significant influence in the formation of these locations was played by nature. For example, in Malaysia, sites such as Batu Caves and Cameron Highlands provide visitors with views of dense vegetation and a natural setting. The picturesque scene that could be seen at such a location was indeed a feast for the eyes to take in. Every time someone came to visit, they were treated to an enchanting vista and atmosphere, thanks to the natural greens. However, because of human interference in the course of natural growth and the expansion of vegetation, future generations were unlikely to have access to similar vistas. According to Hoang (2019), human invasion and greed were among the most significant factors that constituted one of the most important

culprits that represented extreme threats to the existence of such locations in the future. The most significant dangers were the result of entrepreneurial efforts to broaden its scope of operations and gratify its members' requirements and luxuries. It was common knowledge that economic development in many parts of the world came at a price. Loss of the natural equilibrium within the ecosystem was typically the cost.

The growth of the entrepreneurial race was the factor that was responsible for the considerable threat that was posed to the existence of eco-tourism, and the negative impacts of this trend tended to reduce the amount of eco-tourism that occurred in the South Asian region. The decline of entrepreneurial spirit in South Asia harmed the region's ecotourism industry. In all seriousness, business owners ought to center their efforts on accomplishing the goals of society and individuals by preserving natural harmony and balance. Their activity toward civilization must not interfere with other natural phenomena or the natural occurrences themselves (Persoon, 2020).

### ***Effects of Climate Change on the Ecotourism Industry***

The practice of entrepreneurship experienced explosive growth worldwide, and the South Asian region was no exception. In the vicinity of popular ecotourism destinations, commercial enterprises such as hotels did not correctly manage garbage disposal according to the procedures that had been prescribed. According to the findings of the studies that Abas et al. (2021) provided, the extraction of resources and the further processing of those resources invited many changes in the environment that were not beneficial to the well-being of the environment or its continued existence. In most cases, the water flows got obstructed due to the open dumping of wastewater from hotels, which in turn caused the water bodies to alter their paths. Alterations to the network of water bodies threatened the existence of life and the vegetation that supported it. This was one of the early warning indicators that indicated the ecosystem of a particular geographical place was in danger of being destroyed. The effects of climate change on ecotourism were not all positive. This was because climate change had an impact on both the economic viability and aesthetic appeal of an area. As a result of unexpected shifts in climate, many animals no longer went out of their natural habitats.

One of the critical causes of climate change, which led to a decrease in precipitation, a change in sea level, and temperature change, was deforestation and uncontrolled building or development of areas. The management of hotels has, in some way or another, been a significant contributor to the decline of ecotourism in the South Asian region. According to Nesha Dushani and her colleagues' research from 2023, climate change could be caused when hotel administrations and rules on garbage generation and disposal in adjacent areas were ineffective. A rise in average temperatures and a reduction in the amount of precipitation that falls from the sky were the direct result of human activities such as building and cutting down trees. These actions frequently led to the onset of several natural catastrophes and calamities. The wild greens and other natural ecosystems could not sustain life due to the rising temperatures and decreasing rainfall. To facilitate its growth while mitigating the effects of climate change, the ecotourism industry must implement effective resilience techniques. In addition, receiving financial backing from the relevant governmental bodies was the most effective way to preserve ecotourism while overcoming the obstacles now associated with it. The ecotourism industry needed to emphasize resiliency methods to lessen the adverse effects on the environment, and concerns regarding climate change required careful consideration.

The transportation rate was slowed down due to deforestation, which had an immediate and direct impact on the process of cloud formation in the area, which led to soil erosion and reduced vegetation in the

surrounding area. The maintenance of ecotourism was critically dependent on the presence of vegetation. According to Mcmillan (2022), the findings of the studies led him to conclude that ecotourism industry dependents also had to suffer due to entrepreneurial activities. This was because many people lost their jobs due to the declining interest and number of tourist destinations in particular locations. According to the findings of their research, Li et al. (2022) concluded that a decrease in precipitation caused an increase in the average temperature, which in turn caused a rise in sea level due to the melting of ice caps and icebergs.

Only 1% of the world's freshwater that could be used for human use came from icebergs. The danger of rising sea levels to landlocked communities was exacerbated because many communities were already close to the water. This significantly increased the likelihood of such areas becoming submerged in the future. After rising sea levels continue, there will be a significant loss of human life, property, and infrastructure (Cheung et al. 2021). The aforementioned considerations were sufficient to cause ecotourism to decline drastically and vanish shortly. A decrease in the precipitation rate, an increase in the sea level, and temperature changes actively constrained the growing potential pace of greens. It affected the life of flora and fauna. Both animals and birds were essential to the development of successful ecotourism. The effects of business activities that increased the risk of natural disasters endangered not only the lives of people but also the natural areas in which they lived.

### **Research Problem**

This study aimed to comprehensively analyze and understand the multifaceted impact of climate change on ecotourism, encompassing the perspectives of tourists, the operational dynamics of the tourism industry, and the responses of tourist spot owners.

Specifically, it sought to answer the following questions:

1. What are tourists' insights on the impact of climate change on ecotourism sites in terms of site management?
2. What are the effects of climate change on the tourism industry in tourist spots (business) operation and profitability, tourist demands, and socio-economic aspects?

### **METHODOLOGY**

A descriptive research design was used in this study to thoroughly investigate and report on numerous climate change concerns affecting ecotourism in South Asian locations. A descriptive research approach seeks to find patterns and correlations among variables by thoroughly describing a situation or phenomenon. This design is especially well-suited for assessing the present state of affairs, which incorporates several sectors of the ecotourism business that have been impacted by climate change.

To transmit the survey questionnaire that was designed to gather information on eco-tourism enterprises in the South Asian regions, the researcher selected a variety of online tools from which to send the questionnaire. Additionally, using the online method enabled the researcher to send just a single e-mail to all individuals who volunteered to participate in the research. This took a substantially smaller amount of time compared to the traditional method of conducting surveys manually. The online method not only ensured that the survey correspondents could supply the required information concerning the tourism companies, but it also ensured that the survey correspondents could provide information regarding the various steps that each specific organization took to capture the attention of eco-tourists. It is possible to infer, following the assertions made by Sorensen, Chen, and Mussalli (2021), that the online premise also provided the anonymity of the individual identities of the research respondents, in addition to the

confidential nature of the primary data, which could prevent it from falling into the hands of competing businesses.

The researcher designed the survey questions in such a way that they were predicated on the various dependent and independent variables chosen by the researcher to play an essential role in the investigation. Additionally, for the respondents to be able to move on to the following question, they needed to be sure that they provided accurate information on each topic. In addition, the questions were prepared based on the related studies undertaken by previous researchers and generated appropriate results when applied to the completion state. The researcher also sent out sets of questionnaires to each of the 320 people who agreed to participate in the research. These people made up an essential component of the sample size for this initial investigation. Because of this, the researcher also retrieved all 320 response sets transmitted through Google Forms, an online tool that facilitated the smooth gathering of data and responses. Therefore, the privacy of respondents and the confidentiality of the information were adequately protected while dealing with information for ecotourism businesses in South Asia. Additionally, the researcher created an Excel file that contained every response that was provided by the respondents, and he subsequently coded these responses into a variety of different numerical representations. In the future, this numerical data set may be utilized in several statistical studies with the expectation of deducing satisfactory conclusions.

The researcher took precautions to ensure that the information provided by the participants in the research would not be utilized by other organizations working in the ecotourism industry. The researcher also requested aid from various statistical programs, such as SPSS, to conduct an accurate analysis of the survey data.

## RESULTS

### 1. Insights of Tourists on the Impact of Climate Change on Ecotourism

Tourist perceptions regarding the impact of climate change on ecotourism are explored through the lens of site management and the broader effects of climate change. Table 1 provides a detailed view of these perceptions, focusing on how site management practices are influenced by climate-related factors.

In particular, the table highlights the tourists' views on-site management practices, including the administration of tourist spots, infrastructure design, and expansion efforts. By examining these insights, we gain a clearer understanding of how climate change is perceived to affect the effectiveness of site management in the context of ecotourism.

**Table 1 Respondent’s Response on Site Management**

<i>INDICATORS</i>	<i>Weighted Mean</i>	<i>Verbal Description</i>
Tourist Spots Administration	2.87	Moderate Impact
Infrastructure Design	2.81	Moderate Impact
Expansion	2.85	Moderate Impact
<b>GRAND MEAN</b>	2.86	Moderate Impact

*Legend: 3.25-4.00: High Impact (HI); 2.50-3.24: Moderate Impact (MI); 1.75-2.49: Somewhat Impact (SI); 1.00-1.74: No Impact at All (NI)*

Table 1 provides a comprehensive view of respondents' perceptions regarding the impact of site management on ecotourism, focusing on three key indicators: Tourist spot administration, Infrastructure



Design, and Expansion. The results show that all three indicators fall within the "Moderate Impact" range, with mean scores of 2.87, 2.81, and 2.85, respectively. This consistent moderate rating suggests that respondents view the current site management practices as having a meaningful, but not particularly strong, influence on the effectiveness and appeal of the ecotourism sites.

The grand mean of 2.86, which aggregates the scores for all indicators, supports this moderate perception, reflecting an overall view that site management has a moderate level of impact. This indicates that while site management is recognized for shaping the experience and effectiveness of ecotourism sites, there is a significant opportunity for enhancement.

## 2. Effects of climate change on the tourism industry

The effects of climate change on the tourism industry have been described using the variables of tourist spots, tourist demands, and socio-economic aspects.

**Table 2 Perceived Effect of Climate Change on the Tourism Industry**

<i>INDICATORS</i>	<i>Weighted Mean</i>	<i>Verbal Description</i>
Tourist Spots (Business) Operation and Profitability	2.87	Moderate Impact
Tourist demand	2.85	Moderate Impact
Socio-economic aspects	2.87	Moderate Impact
<b>GRAND MEAN</b>	2.86	Moderate Impact

*Legend: 3.25-4.00: High Impact (HI); 2.50-3.24: Moderate Impact (MI); 1.75-2.49: Somewhat Impact (SI); 1.00-1.74: No Impact at All (NI)*

Table 2 provides insights into how climate change is perceived to impact the tourism industry across three key areas: Tourist Spots (Business) Operation and Profitability, Tourist Demand, and Socio-economic Aspects. Each aspect has a moderate impact, with mean scores of 2.87, 2.85, and 2.87, respectively. The grand mean of 2.86 further confirms this moderate perception overall.

Respondents believe that climate change affects the operation and profitability of tourist spots, influences tourist demand, and impacts socio-economic aspects related to tourism to a moderate extent. The consistent moderate scores across all variables suggest that while climate change is recognized as a significant factor affecting the tourism industry, its impact is not considered overwhelming. This moderate impact indicates a need for strategic interventions to address these effects. Improved resilience of tourist operations will help reduce the identified impacts, as will adaptation to changing tourist demand and socio-economic management.

While the moderate impact scores indicate that tourism is not yet severe in facing its consequences in terms of climate change, it underlines the case for continued efforts in adaptation and mitigation. Proactive measures could reduce the possibility of future impacts while ensuring tourism as a sector remains strong and can adapt to continued environmental changes.

## DISCUSSION

The moderate scores on all indicators suggest that current practices in tourist spot administration, infrastructure design, and expansion do not quite meet the expectations or the respondents' needs. Improvements in this regard could raise the perceived impact of site management. For example, improving

administrative procedures, refinement of infrastructure design, and strategic planning for expansion could plug the gaps highlighted by respondents and translate into increased perceived effectiveness of site management in ecotourism. Overall, results show great scope for improvement in site management practices to achieve a more significant impact.

This perception of moderate impact identifies a crucial opportunity for ecotourism operators and local authorities to strengthen their adaptive strategies before these issues escalate into major problems. Only by addressing these concerns in good time will site managers ensure sustainability in ecotourism while visitors continue to have enriching experiences despite climate change. This proactive stance will help conserve natural and cultural assets that attract visitors and increase the resilience of the ecotourism industry to continuing environmental changes.

The interactions of climate change with ecotourism and how the strategies of site management work toward making adjustments to the changes have been well documented. Jamaliah et al. (2021) looked into the constraints on adaptation to climate change within the systems of ecotourism. As stated, a practical management framework in a biosphere reserve holds the key to adapting to such change. Wabnitz et al. (2018) reviewed complex interactions among ecotourism, climate change, and the consumption of reef fish in Palau, stressing the urgency of implementing well-designed adaptation strategies. Tiwari et al. (2021) reviewed ecotourism development in the Himalayan region and indicated it as a potential framework for enhancing rural livelihoods while adapting to climate change. Amunugoda (2022) looked at the role of international agreements and modern forest technologies that have added further importance to innovative approaches because of climate change. Cabello Torres et al. (2023) went into issues and opportunities of collaborative management for adapting to climate change within ecotourism communities, requiring inclusive participatory approaches. Ashok et al. (2022) built a model of maximizing ecotourism sustainability as the benchmark for mitigating climate change in the Indian Himalayas. Sutanto et al. (2022) highlighted the importance of sustainable mangrove management as mitigation and adaptation strategies in response to climate change. Trang and Loc, 2022 presented ecogritourism insights as an effective ecosystem-based adaptation strategy against the impacts of climate change in the Vietnamese Mekong Delta. Lastly, Agyeman (2019) identified how ecotourism could work as a climate change adaptation strategy to reduce the vulnerability of local communities living around protected areas. These studies demonstrate the use of sustainable practices, community involvement, and innovative adaptation strategies in ecotourism, concluding the path to effectively handle the challenges posed by climate change.

The respondents believe climate change has a meaningful but not severe impact on tourism. These moderate scores across the three areas mean that while climate change is first considered to be influencing several fields of tourism, this relation is generally mastered rather than critical. For example, the moderate impact of business operation and profitability implies that tourism businesses may suffer to some extent due to climate change but are not under appalling conditions. At the same time, a moderate impact on tourist demand means that while climate may cause a change in tourist visits, this is not at all leading to dramatic slumps in visitor numbers. This shows an appreciation that climate change impacts broader economic and socio-economic conditions relating to tourism, although these impacts are not considered overwhelming.

The consistent moderate scores in impact point to an opportunity for proactive action by the tourism sector facing the challenge of climate change. Business resilience strategies could focus on investment in sustainable practices and building improvements. Adjustments to tourist demands may call for

diversifying and innovating new attractions relevant to the changing market. Attention to socio-economic issues will require cooperation at the local community and policy level to ensure that the broader impacts of climate change are dealt with effectively.

Our findings on the impact of climate change on the operation and profitability of tourist spots are corroborated by several studies that go into detail concerning sub-issues on this subject. On integrating climate change impacts in the environmental impact assessment process, Taylor & Grey, 2021, explicitly considered the Negril tourism industry in Jamaica. Their work brings out the dimensioning of climate change concerning tourism operations. A 2023 study on the impacts of climate change on the tourism industry in Georgia details how changing environmental conditions affect tourism businesses differently in various geographical contexts. "Climate change impacts on the tourism industry in Georgia," 2023. Semenza & Ebi (2019) have studied the broader exposure of climate change to mobility, travel destinations, and tourism. It has a far-reaching impact on tourist behavior and industry operations. Gu (2023) discussed the impact of increasing forest loss areas on global temperature and the tourism industry, linking environmental degradation with broader climatic changes and their subsequent impact on tourism. Jasrotia & Sharma (2020) conducted a case study in Nainital, Uttarakhand, India, focusing on climate change's impact on tourism-based livelihoods and related youth migration, thus connecting climate change with socio-economic outcomes in tourism. Haldane et al. (2023) provided an overview of sustainable tourism in the face of climate change, using Prince Edward Island as a case study. This research underscores the importance of sustainability in maintaining tourism operations amidst changing climatic conditions. Bethel et al. (2022) employed a fuzzy comprehensive evaluation to assess the impact of climate change on the Xiamen tourism industry, offering a methodological approach to understanding these impacts. In particular, the research by Ye (2023) focused on the implications of climate change on coastal tourism, which is closely related to the moderate effect of climate change on coastal tourist spots. Aliyev et al. (2023) discussed water resources protection for sustainable tourism under climate change in the South Caucasus, which brought into bold relief the need for urgent natural resource management to ensure the sustainability of tourism. Last but not least, Mihigo & Lukenangula (2023), assess smart tourism as a managerial plan mitigating the impact of climate change on the African tourism industry and tourism development, providing innovative methods for adaptation and mitigation. These studies underline the complex effects of climate change on the tourism industry at both operational and strategic levels, requiring sustainable practices and innovative solutions for resilience.

Literature examining tourist preferences in the context of climate change supports the shift in tourist demand towards eco-friendly and sustainable tourism options. Siwi (2023) relates to the use of educational environmental tourism whereby it is put forward that there has been an increased interest of tourists to engage and learn about issues related to the environment. This is also instigated by tourists' propensity for further education on climate change and experiencing the phenomena firsthand. Córdoba Azcárate (2019) explores the neglect of ecotourism in tourist cities, using a case study on Cancun, Mexico. The research emphasizes that tourism is unsustainable and growth is in high demand, urging new forms of responsible tourism within the context of new scenarios. Mooser et al. (2022) inform about the characterization and sensitivity of scenic sites to natural and human factors along the Bulgarian Black Sea coast, reflecting a growing tourist preference for destinations less affected by climate change.

Aliyev et al. (2023) highlight the protection of water resources for sustainable tourism in the South Caucasus under climate change conditions by focusing on the sustainable management of resources within tourism destinations. Ohnmacht et al. (2018a, 2018b) consider climate change, sustainable tourism



consumption, and destination competitiveness, determining the changes in tourist demand dynamics in the event of environmental changes. Mohd Shariff (2022) focuses on the adaptation strategies for the impact of climate change on sustainable tourism in Malaysia, in which practical details of how destinations could adapt to changing tourist preferences are provided. Scott (2021) argues about sustainable tourism and the grand challenge of climate change, focusing on how the tourism sector should respond to these developing trends. Ivanović et al. (2023) consider the possibilities for applying the e-mobility concept in the sustainable tourism development model, presenting creative ways to meet increasing demand for sustainable tourism experiences. These studies underline the fact that the preferences of tourists are fast shifting towards sustainability and eco-friendliness, which is precipitated by the increasing awareness of the effects of climate change. They signal that to keep pace with such shifts in preference, the tourism sector must be at the frontline in offering more sustainable and environmentally responsible options. Our findings on the socio-economic impact of climate change on tourism are reflected in studies targeted at these various dimensions of the issue.

Sokolickova et al. (2022) traced the interrelated socio-economic and environmental changes in remote Arctic settlements, focusing on the complex interaction of climate change within the local economy in tourism-dependent areas. Arabadzhyan et al. (2021) did an in-depth literature review regarding climate change, coastal tourism, and impact chains, elucidating the multidimensional effects of climate change on coastal tourism economies. Wu et al. (2022) examined the change of the Universal Thermal Climate Index (UTCI) in western China and its impact on tourism, considering climate change in light of tourist comfort and destination attractiveness. Unurlu (2021) gives comments on sustainable tourism and socio-economic development, underlining that sustainability practices in tourism will be needed to mitigate socio-economic impacts arising from climate change. Le et al. (2023) presented a case of the green economic model adapting to climate change and disaster prevention in the Bach Long Vi island district, which was forced to implement sustainable economic strategies because of the impact of climate change on one of its tourism areas. Pouye et al. (2023) estimated the financial effect of coastal erosion in the Dakar region, directly highlighting how climate change economically impacts the tourism area by the coast. Hidayat et al. (2021) examined the socio-economic vulnerability and sustainability of village communities concerning tourism development in the Kepulauan Anambas Regency, highlighting the vulnerability of the local community to the impacts of tourism and climate change. In 2023, Giang & Khanal estimated the management of the marine ecosystem in Vietnam to a coastal economy plagued by climate change and its policy implications, thus relating environmental management with socio-economic outcomes at the coastal areas of tourism. Periasamy, in 2023, surveyed the effects of coastal erosion as an impact of climate change on fishermen communities in Tamil Nadu and thereby provided a perspective on how climate change impacts traditional livelihoods in the coastal zones of Tamil Nadu. Seetanah & Fauzel (2019) examined the effect of climate change on tourism in island economies; evidence available showed that environmental changes had significant implications for tourism-dependent economies. The studies all underline the great socioeconomic effects of climate change to tourism, including job losses and economic vulnerabilities, shifting government policies, and community adaptations—thereby underscoring the importance of sustainable and adaptive strategies in the tourism sector.

## CONCLUSIONS AND RECOMMENDATIONS

This research concludes that the effect of climate change on ecotourism is at a medium level concerning different parameters of ecotourism, including operational and profitability aspects of tourist spots, tourist

demand, and socio-economic conditions. Though their impact is significant, they are not perceived to be overwhelming in nature, indicating that challenges from climate change could be managed through proper strategy.

The following recommendations are made to address these challenges: first, building resilience for ecotourism companies through more significant investment in sustainable practices and more resilient infrastructure to mitigate the emergence of climate-related disruptions; second, businesses need to adapt to changing tourist preferences through means of diversification and innovation in developing new eco-friendly attractions; and third, socio-economic support from broader stakeholder groups through mitigation of wider impacts and delivery of community adaptation by local communities and policymakers. Moreover, tourists and other stakeholders can be made aware of climate change and the need for sustainable ways of life. The last on the list is an adaptive management strategy, which will involve monitoring constantly and changing according to what those monitors indicate. Adopting such measures will enable the ecotourism sector to better cope with the effects of climate change and hence be assured of the long-term sustainability and resilience of the industry.

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