

# Mountain Route Tourism and Sustainability: A Systematic Literature Review

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## ABSTRACT

Mountain tourism is mostly linked to adventure and sports travel, and because of its rapid growth, it contributes to the tourism industry's economic output. This study aims to assess mountain route tourism and sustainability. The research is based on a review of empirical studies, reports, and policy documents. The Google Scholar search engine was used to locate research publications on mountain route tourism and sustainability. The Google Scholar open database was applied to find the publications using the keywords "mountain tourism" and "sustainability". All papers were checked from January 2018 to February 2024 for the study and finally selected 21 research papers after using inclusion and exclusion criteria. Mountain tourism encompasses a broad range of outdoor recreational and sporting activities. Because of the socio-cultural setting and attributes associated with mountains, potential travelers find mountain tourism more alluring. The unique natural environments of mountains, pure air, and landscapes encourage tourists to "get closer to nature" and seek destinations that put health first. Mountain tourism has developed into an important source of income and economic development in underdeveloped countries; yet, environmental concerns have become a critical issue in the context of mountain tourism. Protecting the environment, preserving cultural traditions, and enforcing environmental laws are all necessary for sustainable mountain tourism. A key factor in the success of sustainable tourism is the active participation of local communities and stakeholders. The evolution of mountain tourism can be attributed to several things, including changing demands and behaviors from tourists, changing perspectives of the natural world and its resources, and a transition from mass tourism to more responsible travel. As mountain tourist destinations expand and enhance their offerings, they should consider how they could adjust to the ever-changing market, social, and environmental conditions. In order to protect a significant amount of the natural environment and provide economic benefits to neighboring communities, mountain tourism planning, and development should be ecological. A sustainable mountain tourist policy may be adopted by the government and policymakers in order to optimize the application of economic, environmental, and social values.

**Keywords:** Mountain route tourism, sustainable tourism, tourism industry, tourism policy.

**JEL classification:** L83, L88, Q56, Z32, Z38

## 1. Introduction

Mountain tourism contributes to the economic output of the tourism industry and is primarily associated with adventure and sports travel due to its rapid expansion. Approximately 27% of the world's surface area is made up of mountain regions, and 54% of these regions are found in developing nations (Romeo, 2023). Mountain tourism accounts for around 20% of the global tourism industry and is crucial to the growth of the tourism sector (World Tourism Statistics, 2023; Zeng et al., 2022). Mountain communities are proactively promoting tourism as a major economic driver in their areas (Debarbieux et al., 2014). Mountain tourism complements other economic activity,

creates jobs, contributes to GDP, and can drive social transformation and local economic progress (Manzoor et al., 2019). An important global driver of sustainable socio-economic growth is the tourism sector (Goffi et al., 2019; Uyar et al., 2021).

In remote mountain communities that frequently face significant economic, social, and environmental constraints, mountain tourism may play a crucial role in promoting rural development (Melnykovich et al., 2018). As a result, initiatives for retail commerce, transportation, and communication should concentrate on more efficiently protecting natural and cultural resources. Additionally, since developing mountain tourism areas offer more job prospects, the local people must be sufficiently employable (Ashley et al., 2007; Neto, 2003). Several empirical evidence show that there is a nexus between tourism and economic growth (Badulescu et al., 2020; Dhungana, 2023; Tugcu, 2014). The growth of mountain-based tourism and its potential advantages for the local population, such as upgrades to access and communication infrastructure and the creation of jobs and businesses, depend on ecological sustainability, sustainable economic development, and environmental protection (Cao et al., 2022; Firoiu et al., 2019; Zeng et al., 2022).

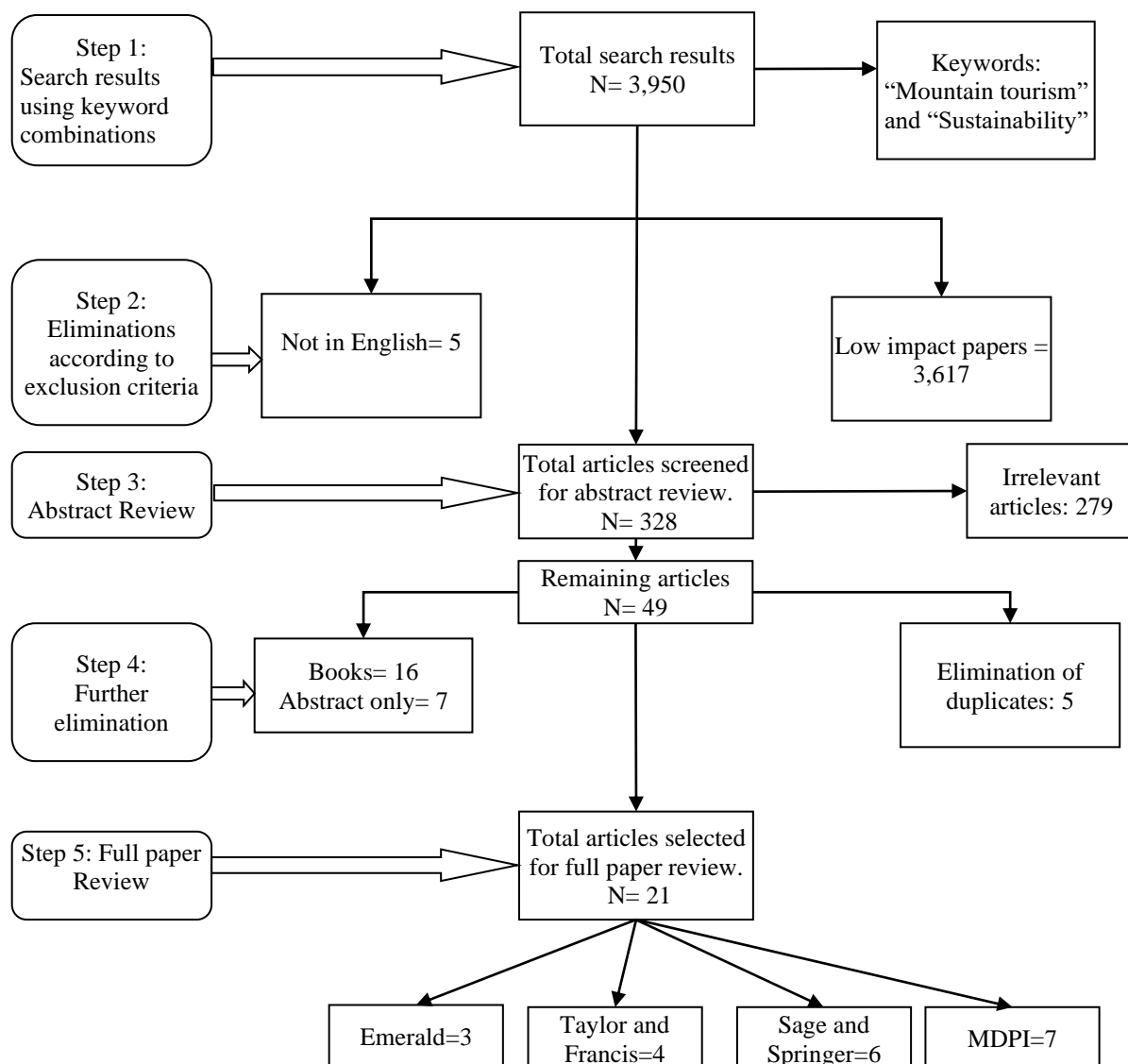
The concept of sustainable tourism is to go to destinations without endangering the environment or the local population while simultaneously making positive contributions to the nation's economy, society, or environment (Murphy & Price, 2012; Neto, 2003). Mountain management must be sustainable since they are essential to both the environment and recreation (Eriksson et al., 2023; Maroudas et al., 2004). Development of mountain-based tourism and its potential benefits to the local population, including the creation of jobs and businesses and improvements to access and communication infrastructure, depend on ecological sustainability, sustainable economic development, and environmental protection (Kuščer et al., 2017; Zeng et al., 2022).

Mountains must be handled responsibly because they are vital to the environment and to recreation (Buckley & Underdahl, 2023; Butler, 1991). Regarding its effects on the natural and cultural ecosystems as well as the enforcement of environmental regulations, sustainable mountain tourism has drawn a lot of concern around the world. The purpose of this study is to investigate mountain route tourism and sustainability from the standpoints of systematic literature. The research's findings support the adoption of sustainable mountain route tourism by governments and policymakers. The following questions may be used to investigate the sustainability of mountain route tourism:

- What were the major studies on the sustainability of mountain route tourism?
- What approaches were adopted toward building sustainability of mountain route tourism?
- What are the key strategies for the sustainability of mountain route tourism in developing countries like Nepal?

## 2. Methodology

This study aims to assess mountain route tourism and sustainability. The research is based on a review of empirical studies, reports, and policy documents. The Google Scholar search engine was used to locate research publications on mountain route tourism and sustainability. The Google Scholar open database was applied to find the publications using the keywords "mountain tourism" and "sustainability". All papers were checked from January 2018 to February 2024 for the study and found 3,950 documents during the initial inquiry. We selected 21 research papers after using inclusion and exclusion criteria for this research, as mentioned in Figure 1:

**Figure 1***Inclusion and Exclusion Criteria for this Research*

### 3. Results and Discussion

#### 3.1 Major Studies on Mountain Route Tourism and Sustainability

The discourse analysis revealed that the majority of studies on mountain-route tourism focus on the nature and marketing of mountain tourism as well as the effects of tourism on mountains (Mutana & Mukwada, 2018). Because of its complementarity with other economic activities, GDP contribution, and job creation, mountain tourism can spur social change and local economic prosperity. However, the ecology may suffer as a result of mountain tourism's growing popularity (Zeng et al., 2022). From traditional to sustainable tourism, the tourism paradigm has changed (Jeelani et al., 2023). The economic, social, cultural, environmental, and tourist satisfaction indicators were the five indicators used to analyze the level of development of sustainable tourism (Milićević et al., 2021). Excessive use of tourism resources is the result of unchecked growth in the number of tourists (Bošković et al., 2020).

The fundamental characteristics of mountain tourism include ecological performance, the "uniqueness" of mountain environments, which includes cultural landscapes, a basis in natural and cultural assets, and the active

participation of local stakeholders and actors (Dax & Tamme, 2023). There is a lot of room for local growth because mountain forests are valuable for recreation (Tampakis et al., 2019). The amount of visitors has a direct impact on the environment and fauna, as well as a more subtle one through continual infrastructure development and changes to important geomorphic processes (Chakraborty, 2020). Because of possible natural catastrophes, socioeconomic problems, the management of scenic areas, and visitor behavior, mountainous regions may present more tourism risks than plain ones (Zhang et al., 2023).

Tourism sustainability and success depend heavily on the quality of the impression that visitors have of high-quality mountain scenic sites. The tourism environment, tourism supporting facilities, tourism experience, tourism price, tourism service, and tourism safety are the six components that make up the cognitive picture (Li et al., 2023). A key factor in maintaining the development and economic prosperity of underprivileged mountain communities is the tourism industry's economic growth (Cristache et al., 2022). The sustainability of tourist attractions and the preservation of the environment depend on the actions of visitors (Wu et al., 2022). The utilization of social media in the tourism industry has consequences for the sustainable development of the area and creates job possibilities for locals (Hussain et al., 2019).

Since all mountain regions have a rich biological and cultural legacy that needs to be valued while simultaneously being conserved for future generations, the topic of sustainable development is crucial (Firoiu et al., 2019). The advancement of sustainable mountain tourism is greatly aided by the presence of female entrepreneurs (Martini et al., 2020). Mountain-based tourism offers visitors a single product or experience that incorporates sightseeing, recreational pursuits, fitness, entertainment, education, and sports. With the rise of "alpine wellness," mountain-based tourism has progressively grown to emphasize its benefits to health and other specialized, unique products; in fact, tourism research has found that mountainous regions are attractive destinations for health and wellness tourism. The popularity of health and wellness tourism centered around mountains has increased among both urban and rural residents (Zeng et al., 2021).

### **3.2 Approaches for Mountain Route Tourism and Sustainability**

Mutana and Mukwada (2018) find mountain tourism research should focus on (1) the use of universally applicable indicators of tourism sustainability in mountainous routes and destinations, (2) approaches for local community involvement in planning mountain route tourism, as well as (3) ways of using mountain route tourism as a tool for poverty reduction. In order to encourage sustainable global mountain tourism development, the national government and other agencies have developed a competition framework, balanced the connection between competition and cooperation, and sped the network popularization of mountain tourism regions (Zeng et al., 2022). Sustainable tourism growth is supported by the local community (Jeelani et al., 2023).

Maintaining natural resources and providing high-quality services are two important factors that determine the sustainability of mountain tourism (M. Xu et al., 2023). Preventing the excessive and uncontrolled use of tourism resources and attractions led to the emergence of sustainable tourism, which is now a crucial component of sustainable development (Bošković et al., 2020). The local population appears eager to support initiatives aimed at bolstering the mountain tourism sector (Tampakis et al., 2019). Both Taoists and Buddhists believe that the well-known mountains are home to the gods, and they have ascended the mountains to pray at the temples dedicated to the gods (H. Xu & Li, 2023). A static and risk-averse approach to landscape management has been encouraged by the growth of tourism, and this has led to the blocking or modification of important landscape-level processes (Chakraborty, 2020).

To assess the level of intensive land usage for tourism construction, it is crucial to consider the advantages to society, the economy, and the environment (Huang et al., 2023). The four components of risk—exposure, susceptibility, disaster prevention, and mitigation capacity—exhibited notable regional variation based on the variations in natural resources and the quantity of each in various locations (Zhang et al., 2023). To enhance the general perception of mountainous scenic spots and make a significant contribution to the sustainable growth of mountain tourism, a multidimensional approach is necessary for examining the tourism industry (Li et al., 2023). It was possible to bring together business owners in these areas who are interested in defining the framework, approaches, and actions that can be taken to remove barriers relating to the absence of infrastructure or a clear

vision for the field's development and consolidation, respectively, and the establishment of a long-lasting relationship for the area's benefit (Cristache et al., 2022). As they immerse themselves in the mountainous surroundings, travelers show concern for environmental issues and educate themselves about environmental protection (Wu et al., 2022). The natural environment and a feeling of belonging are the determining aspects of mountain tourism (Liu et al., 2022).

The sustainable development of rural mountain regions and the intentions of tourists to visit them are positively correlated (Hussain et al., 2019). The quality of the price, which satisfied most visitors, is also a feature of the destination's appeal. Other local elements include nature, landmarks, traditional food, and apple purchases (Zeraib et al., 2022). The mountainous regions have benefited greatly from the increasing significance of tourism to the local worldwide economy (Firoiu et al., 2019). Research has demonstrated that female entrepreneurship is characterized by elements of authenticity, experientiality, and inventiveness. Additionally, women are more likely to establish and cultivate local stakeholder networks that are either directly or indirectly related to their own firms (Martini et al., 2020).

Improved disaster risk management is desperately needed as mountain tourism quickly spreads throughout isolated areas. This is to protect industry workers and visitors alike, preserve infrastructure built to support tourism and service sectors (like transportation) and preserve local economies that have grown dependent on tourism income (Ziegler et al., 2021). Tourist happiness and behavioural intentions have a direct impact on a destination's ability to compete. Positive behavior can also consistently raise the standard of living for locals and help other stakeholders in the destination. The market for tourist sites is extremely complicated and competitive, particularly for those that cater to nature-based tourism (Zeng et al., 2021).

### 3.3 Observation and Analysis of Mountain Trek Tourism in Nepal

The features that caused mountain tourist attractions, as revealed by the literature review, were further observed and analyzed in Table 1, taking the case of Nepal.

**Table 1**

*Sample treks, their feature observed, average number of tourists from 2013-2023*

Trek	Maximum Elevation	Duration	Challenging	Accommodation Type	Spring (March to May), Autumn (September to November)	Trek Restriction	Required Permits	Highlights
Rara Lake Trek	3,040 meters (9,974 feet)	7-10 days	Easy	Teahouses	Spring (March to May), Autumn (September to November)	None	TIMS, Rara National Park Permit	Rara Lake has serene surroundings, Unique flora and fauna

Upper Dolpo Trek	5,190 meters (17,027 feet)	18-24 days	Challenging	Teahouses and Tented Camps	Spring (March to May), Autumn (September to November)	Restricted Area (Special Permits required)	TIMS, ACAP, Upper Dolpo Restricted Permit	Shey Phoksundo Lake, Ancient monasteries, Unique culture
Manaslu Circuit Trek	5,106 meters (16,752 feet)	14-18 days	Challenging	Teahouses and Lodges	Spring (March to May), Autumn (September to November)	Restricted Area (Special Permits required)	TIMS, MCAP, ACAP, Manaslu Restricted Permit	Mount Manaslu, Larkya La Pass, Buddhist monasteries
Nar Phu Valley Trek	5,320 meters (17,454 feet)	10-15 days	Challenging	Teahouses and Tented Camps	Spring (March to May), Autumn (September to November)	Restricted Area (Special Permits required)	TIMS, ACAP, Nar Phu Restricted Permit	Nar and Phu villages, Remote landscapes, Tibetan culture
Tsum Valley Trek	3,870 meters (12,697 feet)	15-20 days	Challenging	Teahouses and Lodges	Spring (March to May), Autumn (September to November)	Restricted Area (Special Permits required)	TIMS, MCAP, ACAP, Tsum Valley Restricted Permit	Tsum Valley, Mu Gompa, Tibetan Buddhist culture
Upper Mustang Trek	3,840 meters (12,598 feet)	12-17 days	Moderate to Challenging	Teahouses and Tented Camps	Spring (March to May), Autumn (September to November)	Restricted Area (Special Permits required)	TIMS, ACAP, Upper Mustang Restricted Permit	Ancient caves, Lo Manthang, Tibetan culture
Kanchenjunga North Base Camp Trek	5,143 meters (16,873 feet)	18-25 days	Challenging	Teahouses and Tented Camps	Spring (March to May), Autumn (September to November)	Restricted Area (Special Permits required)	TIMS, Kanchenjunga Restricted Permit	North Face of Kanchenjunga, Remote landscapes



Kanchenjunga Base Camp Trek	5,160 meters (16,929 feet)	20-25 days	Challenging	Teahouses & Tented Camp	Spring (March to May), Autumn (September to November)	Restricted Area (Special Permits required)	TIMS, Kanchenjunga Restricted Permit	Third-highest peak in the world, Kanchenjunga Conservation Area
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Source: Nepal Tourism Statistics, 2023.

From Table 1, it can be revealed that the maximum number of tourists are attracted and visited at Rara Lake Trek. Its features are (1) Rara Lake, (2) Serene surroundings, (3) Unique flora and fauna, (4) easy trekking, and (5) non-restricted trekking. Upper Dolpo Trek follows this trek. Its features are (1) Shey-Phoksundo Lake, trans-Himalayan National Park, (2) Ancient monasteries, and (3) Unique culture. From April 1, 2023, the Government of Nepal has made it compulsory for solo or free independent trekkers to hire a guide or a porter before setting off to Nepal's mountains.

### 3.4 Key Strategies for Sustainability of Mountain Route Tourism

As per Mutana and Mukwada (2018), impoverished communities are found in mountainous areas. The economic opportunities for mountain villages are restricted, and their agricultural activities are impacted by the severe weather. A sense of pride and the preservation of a distinct culture are fostered by the opportunity that mountainous areas provide local people to utilize tourism to promote and preserve their culture. Research on using sustainable tourism indicators in mountain routes is few. Three primary concerns were suggested by Zeng et al. (2022): (i) tourists are increasingly choosing mountain destinations over other types of tourism because they are safer, and offer plenty of natural resources, (ii) the importance of maintaining a natural environment has diminished due to the rising popularity of mountain tourism, and (iii) in order to mitigate these negative externalities, the competitive market was unable to adequately allocate resources. Sustainable tourism development requires the acceptance and tolerance of tourists by the local population (Jeelani et al., 2023).

Expanding tourism options and improving the surrounding infrastructure should be the government's top priorities (M. Xu et al., 2023). The growth of ecotourism would improve the environmental aspect of sustainable tourism. The development of various types of tourism, including eco-tourism, rural tourism, excursion tourism, event tourism, sports tourism, and adventure tourism, is facilitated by the availability of resources, the establishment of the destination as a unique brand, and the availability of tourist facilities (Bošković et al., 2020). To encourage sustainable mountain tourism, a balance between preservation, excellent ecological performance, and the prudent use of mountain area facilities is needed (Dax & Tamme, 2023). To enable urbanites to access nature, infrastructure is required (H. Xu & Li, 2023).

Understanding, appreciating, and actively protecting the biophysical mechanisms of mountain landscapes remains the primary issue for sustainably managing tourism since these environments are extremely dynamic and their evolution and resilience features are particularly location-specific (Chakraborty, 2020). To promote sustainable regional development, land use restructuring should also emphasize the benefits that land use has to provide on an ecological, social, and economic level (Huang et al., 2023). The goal of tourism planning in underserved mountain communities should be to ensure sustainable development that boosts entrepreneurial endeavors by diversifying and guaranteeing the complementarity of tourism offerings that are tailored to visitors' needs and updated to address emerging social issues (Cristache et al., 2022).

Mountain landscapes can be planned with entertainment experiences, aesthetics, leisure atmosphere, and educational purposes in mind. This will encourage visitors to become environmentally conscious and actively involved in environmental protection initiatives (Wu et al., 2022). In order to build a tourist destination that can provide a competitive edge, the state should invest in the development of basic tourism amenities and pay attention to visitor satisfaction in order to achieve sustainable tourism development in this mountainous area (Lamichhane

et al., 2024; Zeraib et al., 2022). Wellbeing and health mountain-based tourism should be the main focus since, according to culture, some places and behaviors that are defined by a particular microclimate may promote lifespan and good health. The ability to preserve the environment and have social relevance should be reflected in a destination's competitiveness (Ghimire et al., 2024; Zeng et al., 2021).

Extreme seasonality, inadequate planning and infrastructure, interference with delicate ecosystems and protected areas, and mountain tourism are all contributing to environmental concerns in emerging nations. Mountains have long been valued as popular tourism locations because they offer amazing scenery, a wide variety of flora and fauna, and chances for outdoor activities (Geneletti & Dawa, 2009). Unique to mountainous regions, mountain-specific resource attributes like fragility, niche, diversity, marginality, and aesthetics have particular consequences for the development of mountain tourism and recreation (Nepal & Chipeniuk, 2005). The growth of the tourism industry in mountainous areas has been seen as a way to combat the risks of marginalization, give locals better access to modern lifestyles, and increase their incomes (Ciolac et al., 2020). The fragile ecosystems and resources must be preserved through the sustainable growth of mountain tourism.

The sustainable tourism framework aims to achieve the following: economic viability, local prosperity, quality of employment, social equity, visitor fulfillment, local control, community well-being, cultural richness, physical integrity, biological diversity, resource efficiency, and environmental purity, according to the United Nations Environment Programme (Dhungana, 2024; Shokirov et al., 2014). The tourism sector is now mentioned in three of the Sustainable Development Goals (SDGs) main objectives: (i) developing and implementing policies that support local products and culture and create jobs; (ii) creating and implementing tools to track the effects of sustainable development; and (iii) conserving sustainable resource use (Mowforth & Munt, 2015).

## 4. Conclusion and Suggestions

Mountain tourism is mostly linked to adventure and sports travel, and because of its rapid growth, it contributes to the tourism industry's economic output. A wide variety of outdoor leisure and sports activities are included in mountain tourism. Prospective tourists find mountain tourism more appealing due to mountain-related qualities and the socio-cultural context. The distinct natural surroundings of mountains, clean air, and landscapes inspire travelers to "get closer to nature" and look for travel places that prioritize health. In developing nations, mountain tourism has grown to be a substantial source of revenue and has contributed significantly to the region's economic development however, environmental concerns have become a critical issue in the context of mountain tourism. Sustainable mountain tourism demands the protection of the environment, and culture, and the implementation of environmental regulations. The active involvement of various stakeholders and local communities plays a crucial role in the success of sustainable tourism. Climate change, shifting tourist requirements and behaviors, changing perceptions of natural and environmental resources, and a move away from mass tourism toward more responsible tourism are all contributing factors to the evolution of mountain tourism. As mountain tourism locations grow and improve their offers, they should think about how they might adapt to the shifting market, environmental, and social situations. Planning and development of mountain tourism should be ecological in order to preserve a high degree of natural features and benefit nearby communities economically. To maximize the application of economic, environmental, and social values, the government and policymakers may adopt a sustainable mountain tourism policy.

## Additional Information and Declaration

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