

Impact of sustainable mountain tourism on economic development: A systematic review

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Abstract

Sustainable mountain tourism focuses on economic, social, cultural, and environmental empowering tools that help to improve the well-being of the mountain community. This study examines the impact of sustainable mountain tourism on economic development using a systematic literature review. The research is based on a review of systematically selected empirical research papers. The Google Scholar search engine was applied using the keywords "tourism policy" and "sustainable mountain tourism". All papers that were published from January 2018 to February 2025 have been checked for the study and 29 research papers were selected for this study using the PRISMA framework. The study find effective governance mechanism and stakeholder engagement are essential factors of sustainable tourism development. The role of governments and stakeholders is crucial in developing and implementing sustainable mountain tourism. Sustainable mountain tourism practices ensure economic stability, empower the local economy and foster livelihood of mountain community. Government and policymakers may introduce economic, social and environmental initiatives to align sustainable mountain tourism practices with the economic interests of the local community.

Keywords: economic development, mountain people, sustainable mountain tourism

Introduction

Sustainable mountain tourism is a priority agenda around the world. It contributes to fostering economic growth while maintaining fragile ecosystems and empowering local communities. Mountain region is rich in terms of natural beauty and cultural heritage that attracts large number of tourists for mountain adventure (Nepal & Chipeniuk, 2005). Mountain people can get benefits from the mountain tourism by leveraging natural and cultural heritage. They may involve in different mountain-based tourism activities and generate jobs, create income, and expand local economies. Sustainable tourism adopts environment friendly practices, promote ecosystems, preserve mountain culture and improve livelihoods of mountain people (Baloch et al., 2023). A global concern for biodiversity and cultural conservation is connected to the growth of sustainable mountain economies through mountain tourism (Ali, 2023; Shokirov et al., 2014).

Mountain region consists of almost 27% of total global land and 54% of the global mountainous part is situated in developing countries. Mountain tourism occupies almost 20% of global tourism and plays a critical role in advancement of global tourism (UNWTO, 2024). Mountainous regions are valuable but vulnerable clusters of biodiversity. Excessive flow of tourists and high economic engagement in mountain tourism is necessary to regulate by governments due to protection of mountain ecosystems and nature conservation. Building

sustainable mountain tourism has induced high concern about protecting heritage and nature through execution of environmental laws (Immerzeel et al., 2020).

Sustainable mountain tourism transforms the people living in rural and mountain region. Mountain people often suffer from low income, unemployment, poverty, limited opportunities, and lack of basic infrastructure. Sustainable tourism enterprises such as homestay, local handicraft, trekking, and other tourism related businesses empower mountain people for their livelihood improvement (Pandiya, 2024). The people living in the mountain region engage in tourism related economic activities and their livelihood status increases. Several studies found a nexus between tourism and economic growth (Brida et al., 2020; Dhungana, 2023; Wu et al., 2022). Development of mountain tourism adheres to sustainability norms, reducing effects on biological resources and ecosystem diversity, supporting the preservation of mountain cultures, and enhancing the welfare of mountain peoples (Boudjemaa, 2023; Nepal, 2002).

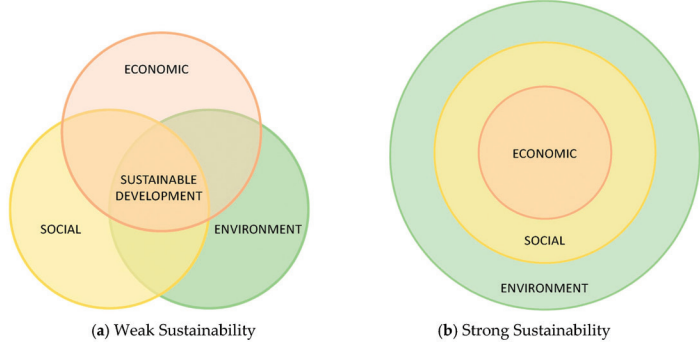
Sustainable tourism initiatives help to expand infrastructure in the mountain region. The better road and trekking route, digital transformation, tourist safety, and environmental, social and governance (ESG) practices strengthen mountain tourism. As a result, it promotes the mountain tourism and improves the livelihoods of the people living in the mountain area (Gherdan et al., 2025). It increases growth of tourism based small and medium enterprises (SMEs) that help for the sustained economic growth of mountain regions. The SMEs are related to homestays, eco-lodges, food producers, organic farming, artisans, local tour operators, and other economic activities. Mountain people can be benefited from tourism-based revenue and strengthen local economy. Mountain communities can get economic benefits through community and individual based tourism enterprises that foster to improve local people's livelihoods (Suntikul & Dorji, 2016).

Stakeholders such as local government can promote sustainable mountain tourism activities by empowering local people through sustainable literacy programs in the region. The active engagement of stakeholders such as local community, local level government, local leader, local tourism entrepreneurs, and other stakeholders is crucial for the sustainability of mountain tourism (Purnomo & Purwandari, 2025). The collaboration among the government, tourism entrepreneurs, and local communities is critical to promote sustainable practices and ensure equitable benefits for mountain people (Jamal & Stronza, 2009). Sustainable mountain tourism can be an important tool for inclusive and resilient economic development to empower mountain people.

A sustainability framework of mountain tourism includes economic, social, and environmental magnitude. These approaches focus on the interconnection and balance essential for achieving sustainable development. Economic sustainability includes stable and rational economic growth that foster resource efficacy and innovation to tackle environmental issues in mountain region. Likewise, social sustainability focuses on social unity, empowerment, and cultural preservation to empower local community for their active engagement. Finally, environmental sustainability emphasizes protection of natural resources, ecosystem, and biodiversity and adopts the practices of mitigating environmental degradation and preserving ecosystems through stakeholders' awareness and engagement. Figure 1 shows weak and strong form of sustainability.

Figure 1

Weak and strong form of sustainability



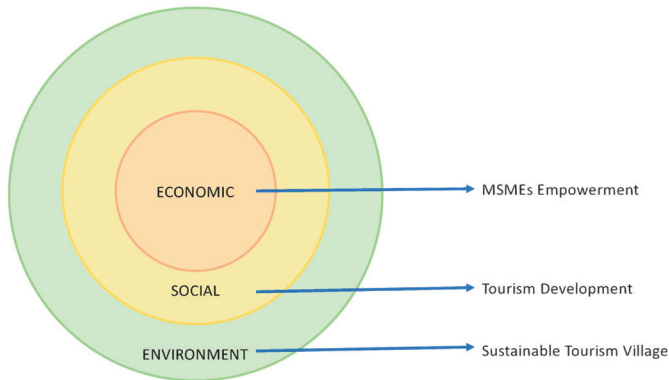
Source: Purnomo and Purwandari (2025).

There are two models of sustainability: weak and strong. Economic, social and environmental parts are highly separated and few overlapping. It indicates that nature-based capital (environmental factors) can be replaced with human generated capital (economic and social factors). Strong form of sustainability focuses on nestled order in which economy directs within society that survives within the environment. This form of sustainability gives higher priority for environmental protection and social well-being while engaging on economic activities.

Figure 2 reflects the integrated form of sustainability in tourism development that connects economic, social and environmental factors. This model focuses on empowering micro, small and medium enterprises (MSMEs) required for sustained economic growth and resilience. The role of tourism sector is to foster cultural and heritage preservation, empowering local community, enhancing social inclusion, and improving livelihood status of the mountain people. This model integrates economic outcomes as a MSME empowerment, social outcomes as a tourism development, and environmental outcomes as a building sustainable tourism village, highlighted in Figure 2.

Figure 2

Sustainable tourism development framework



Source: Purnomo and Purwandari (2025).

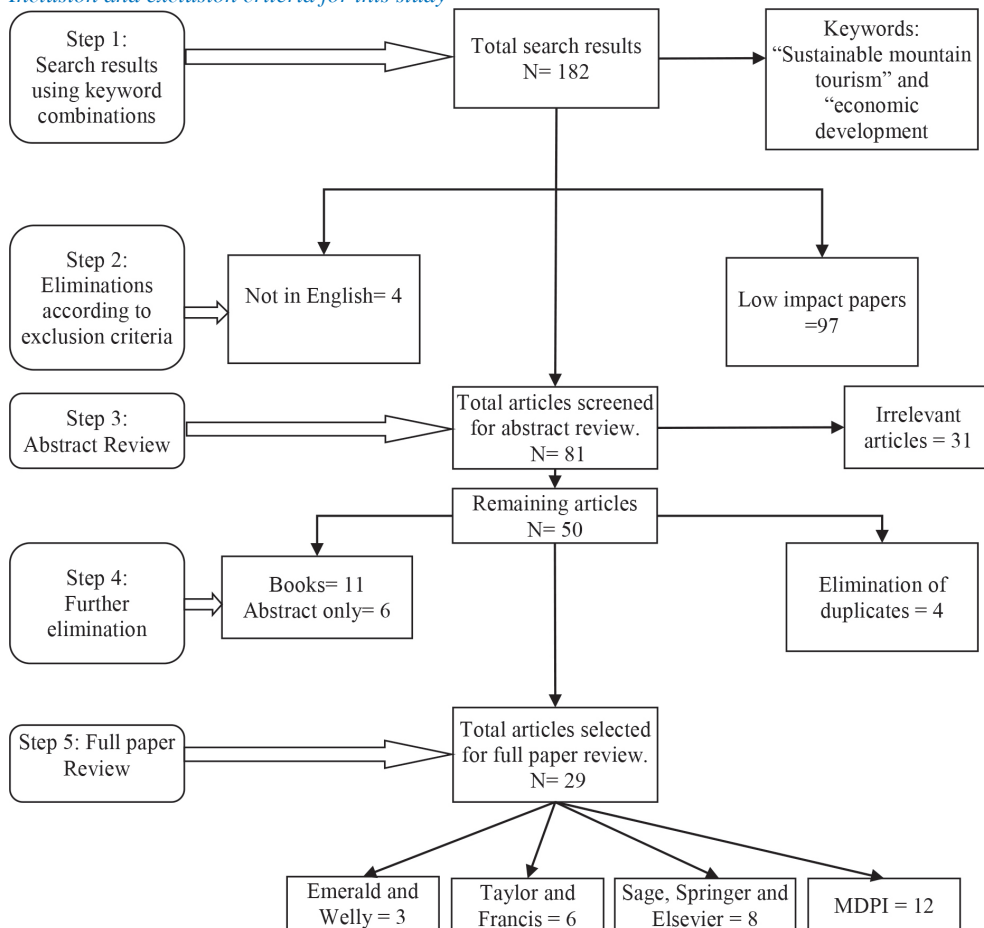
Figure 2 depicts a strong form of sustainability used in developing sustainable tourism with the integration of economic, social and environmental indicators. Economic indicators are related to MSMEs empowerment that encourages local tourism enterprises useful for the livelihood improvement of mountain people. The social indicators, as tourism development factors, are related to community engagement, empowerment, inclusion, cultural and heritage preservation, and benefits to local people. Environmental indicators work as a building effort toward sustainable tourism village that fosters for maintaining ecological health. Sustainable tourism model is viable when it empowers local economies, confirms vibrant social systems, and extends a healthy environment. Integrated policies and stakeholder collaboration is useful to balance economic growth with sustainability in tourism sector.

Sustainable mountain tourism is guided by several theories that support to balance economic, social and environmental integration (Krasnokutska et al., 2024). Triple bottom line (TBL), ecotourism principles, stakeholder theory, environmental justice theory, resilience theory, sustainable livelihood approach, and community-based tourism are the key theories related to the sustainability for mountain tourism (Byrd, 2007; Hall, 2018; Lee & Jamal, 2008; Pforr, 2001; Shen et al., 2008; Stoddard et al., 2012). These theories are critical for promoting mountain tourism and empowering local community through active engagement of stakeholders in sustainable practices.

The primary objective of this study is to investigate the impact of sustainable mountain tourism on economic development. This paper examines the impact of sustainable tourism practices (eco-tourism, stakeholders' engagement, climate resilience, and policy interventions) on economic development (infrastructure development, job creation, revenue generation, and GDP contribution) in mountain regions. The finding of this study shows sustainable tourism influences job creation, income generation, infrastructure development, and national economic strengthening while addressing the issue of sustainable mountain tourism development. This research is expected to contribute valuable insights to the government, policymakers, and tourism practitioners for promoting sustainable mountain tourism and benefiting long-term economic development.

Materials and methods

This study aims to assess the impact of sustainable mountain tourism on economic development. The research is based on a review of empirical studies, reports, and policy documents. The Google Scholar search engine has been used to find research publications on sustainable mountain tourism and economic development. The search keywords are "sustainable mountain tourism" and "economic development" under the domain of the Google Scholar Open Database. All papers that were published from January 2018 to February 2025 have been checked for the study. 182 documents were discovered during the initial inquiry. We removed 97 low-impact articles (beyond Scopus and Web of Sciences) and 4 not in English. Out of 81 documents for abstract review, we further removed 31 irrelevant articles, 11 books, 6 abstracts only, and 4 duplicates. Finally, 29 research papers were selected for this study using a systematic literature review. The inclusion and exclusion criteria for this research are mentioned in Figure 3.

Figure 3*Inclusion and exclusion criteria for this study*

Note:

Adopted a preferred reporting items for systematic reviews and meta-analyses (PRISMA) framework.

Results

Requisites for sustainable tourism and factors attracting mountain tourism

Sustainable tourism is adopting to reduce the environmental influence and to expand the socio-economic benefits. It considers both the promotion and conservation of the tourism industry. Tourism actions are required to be carefully projected, supervised, and observed in a long-term sustainable approach (Kişi, 2019). Sustainable tourism integrates sustainability practices that helps to lowering negative environmental effects and foster the conservation of local and traditional values. For this, stakeholders should encourage innovation and quality standards, emphasis on sustainable accountability, improve skills, encourage sustainable and viable services to the tourists (Roblek et al., 2021). Sustainable mountain tourism requires three key elements- preservation of natural resources, enhancement of living standard of mountain community, and the enrichment of tourist satisfaction (Mutana & Mukwada, 2020).

Mountain tourism is substantially dependent on natural sources and values that are sensitive to climatic changes. It attracts large number of distinct year-round tourists through a wide range of recreational activities such as hiking, mountaineering, biking, rock climbing, and snow sports activities (Steiger et al., 2024). Mountain based characteristics and socio-cultural factors motivate large number of tourists in the mountain region. The landscapes, beautiful and natural scene, fresh air, natural environment, and adventure opportunities attract tourists to observe the mountain closely. Mountain tourism extends a prospect for tourists to pursue wellness especially health-conscious tourist. They may involve themselves in different recreation activities such as trekking, climbing, cycling, adventuring, sightseeing, spa, and relaxing with amazing nature (Zeng et al., 2022).

The requisite for mountain tourism is guided by ecological performance including heritage and cultural landscapes, natural foundation, uniqueness of mountain settings, and active engagement of stakeholders (Dax & Tamme, 2023). Attractiveness toward mountain tourism largely depends on local level factors including monuments, nature, traditions, cultures, local foods, apple and organic farming, quality of foods, reasonable prices that foster tourist high degree of satisfaction (Zeraib et al., 2022). Mountainous rural communities and livelihood improvement is a researchable issue worldwide due to unique mountainous requirements, climatic condition, livelihood improvement, environmental factors, and regional culture (Yang et al., 2024).

Mountain community and sustainable mountain tourism

Mountain community, mostly in developing countries, is facing hurdles due to poor ability to cope with climatic effects. They are highly vulnerable to growing hazards such as landslides, snow falls, rain-on-snow floods, and rock falls. Mountain ecosystems are essential for livelihood improvement, food safety, welfare of mountain community and cultural and heritage protection but confronting rising climate hazards and affected mountain community with a substantial adaptation challenge (Steiger et al., 2024). Basic infrastructure, road facilities and destination accessibility are necessary for tourism industry. However, risks to mountain community from the transport development such as road may result in the loss of business, destroy the ecosystem and affect originality of mountain surroundings (Apollo, 2025).

Mountain tourism suffers from the inadequate transportation system and basic infrastructure. As expansion of transportation and infrastructure in the mountain region, mountain tourism restructured to accessible system of leisure activity that attracts large number of tourists looking for nature-based experiences (Chakraborty & Ghosal, 2024). Women entrepreneurs show a critical role in the extension of sustainable mountain tourism. They have propensity to establish and adopt local stakeholder networks due to high level of authenticity, patience, commitment which are associated to their own ventures (Martini et al., 2020). Young entrepreneurs are engaged in sustainable mountain tourism and align to economic, social, and environment (Ivasciuc & Ispas, 2023). The indicators of sustainable tourism support in shaping tourism intervention strategies with the policy-applicable framework for integrating sustainability into planning and policymaking with the involvement of stakeholders (Jeelani et al., 2023).

Mountain community and livelihood improvement

Cultural, environmental and economic perspective are critical elements for sustainable

mountain tourism that foster local identity, guide behaviours and influence the destination's tourism model (Muchenje et al., 2025). Mountain community often has low income and limited opportunities, mountain tourism provides bundles of opportunity for economic diversification, employment generation and economic transformation of local people (Steiger et al., 2024). With the development of tourism activities in rural areas, it increases employment opportunities and fosters alternative sources to agricultural activities. There is a nexus between tourism development and livelihood improvement of the mountain community (Muresan et al., 2021).

International tourism has a great concern for mountain tourism. The tendencies of tourists have increasingly shifted from sightseeing to mountain outdoor movements such as sports and adventure (Liu et al., 2022). Sustainable tourism development balances economic, social, and ecological expansion to confirm prosper situation for future generations (Wagenseil et al., 2024). The economic aspect of mountain tourism examines the financial sustainability of operations that consists of revenue creation, employment prospects, and local economic growth (Xu et al., 2023). Sustainable tourism ensures to achieve five key indicators: economic, social, cultural, environmental and tourist satisfaction (Milićević et al., 2021).

Sustainable tourism practices and economic development

Economic building is not possible only with the development of the tourism industry, but also strategic initiatives are needed to succeed sustainable tourism ((Kişi, 2019). Mountain route tourism gains economic benefits to the mountain community through sustainable tourism principles (Mutana & Mukwada, 2018). The attitude of the local community and their active engagement towards sustainable tourism support greatly to the expansion of tourism development and long-term sustainability (Muresan et al., 2021). Mountain tourism is significant for the economic growth of mountainous regions (Ali, 2023). The conservation of heritage is crucial for appealing tourists and promoting economic growth. Sustainable tourism policy and its effective implementation balances revenue expansion and cultural preservation (Martins et al., 2025). Sustainable tourism development is significant not only for conserving natural resources and environment, but also for economic empowerment of local community (Bošković et al., 2020; Malec et al., 2024).

Mountain tourism consists of a wide range of natural resources and the sustainability of mountain tourism fosters economic empowerment through tourism-based enterprises. Mountain tourism enterprises can be viable in the long run when they adopt sustainable and integrated strategy (Cristache et al., 2022). Tourism development should support the mountain economy, not damaging natural resources. For this, a sustainable development approach may guide to gain a competitive advantage in the sector (Gajdošíková et al., 2018). Balancing livelihood of mountain community and environmental protection is a crucial task for sustainable mountain tourism. Community driven tourism enterprises can economically empower rural communities (Martins et al., 2025). Tourism entrepreneurship is critical to inspiring household income and promoting gender equality (Ali et al., 2024). Sustainable tourism promotes a sustainable economic model capable of proposing future generations (Simeanu et al., 2025).

Key issues of sustainable mountain tourism

Most developing countries are facing a problem of haphazard development in the mountain region that impacts negatively on local community and the surrounding environment (Mutana

& Mukwada, 2020). Mountain tourism has huge opportunity to promote local economy in terms of job creation, livelihood improvement, and empowering mountain community that may provide substantial benefits. However, raising popularity of mountain tourism can harm nature and ecosystems. Overcrowded tourists in the mountain and only thinking to exploit economic benefits of tourism professionals negatively impact on sustainable mountain tourism (Zeng et al., 2022).

Mountain tourism suffers a wide range of problems such as inadequate infrastructure, poor livelihood status of mountain people, high degree of ageing population, huge number of unemployment, low level of capitalization, and inadequate government support (Cristache et al., 2022). The tourism infrastructure and quality of service strengthens mountain tourism and broadens tourism contributions (Saleem Wani et al., 2023). The interest in economic enhancement through tourism activities can potentially interrupt preservation efforts and conventional livelihoods. The growing tourism industry toward economic development, the necessity for sustainable practices becomes dominant. Expanding roads, managing accommodations, and developing other basic facilities can damage habitats, affect deforestation, and lead to soil erosion. The importance of economic, social and environmental initiatives should be aligned with the mountain tourism activities (Martins et al., 2025).

Strategy for promoting sustainable mountain tourism and livelihood improvement

Sustainable tourism practices are concentrated on product diversification and event management, destination development, promotion and branding strategies, sustainable tourist management system, collaborations, and cooperation with stakeholders (Kişi, 2019). Government organizations and mountain tourism destination executives align sustainable mountain tourism practices with livelihood improvement and local economy empowerment considering natural landscape management and environment protection. Access to transportation is essential in the mountainous region, however transportation policymakers must think about the impact of transportation on the ecological environment (Zeng et al., 2022).

The role of the state (local, provincial, and central) is critical to enhance tourism sustainability and governance in mountain regions. The design of regulations is necessary to align with empowerment of mountain community and ecological protection (Mutana & Mukwada, 2020). To enhance the mountain tourism activities, the role of government and local authority is significant to develop mountain tourism strategies. These strategies include empowering the local community to maintain sustainable practices in the region. For this, active stakeholders' engagement is crucial for raising economic, social and environmental awareness and aligning with the economic interests of the local community. A national strategy is critical to promote mountain tourism through managing and developing basic infrastructure in the region that attracts to engage in tourism activities (Zeraib et al., 2022).

Discussion

Sustainable mountain tourism contributes to fostering economic growth in mountain regions (Zeng et al., 2022). Sustainably managed tourism activities help to increase job opportunities, create employment opportunities and increase income along with conservation of heritage, protection of nature and environment, and promote local culture (Chong & Balasingam, 2019). Sustainable tourism initiatives create economic opportunities and empower the local community. It also fosters tourism-based enterprises including tourism and hospitality,

handicraft and local products, and organic farming (Cole, 2006). Engaging in diverse economic activities empower local people to sustain their livelihood and develop a capacity to adjust for external shocks due to climate change and other vulnerability (Dushkova & Ivlieva, 2024).

Active involvement of the mountain community is crucial for sustained economic growth (Williams & Fennell, 2002). Sustainable mountain tourism behaviour of community ensures economic development in the mountain region (Martins et al., 2025). There is a nexus between sustainability and economic development in the tourism sector (Dhungana, 2023). The role of government and policymakers is crucial in maintaining sustainable practices in the mountain region for sustained economic growth and livelihood at local level (Dhungana, 2024; KC. et al., 2021). Adopting sustainable practices and policies ensures to achieve both environmental and economic outcomes in the mountain region (Brătucu et al., 2017).

Conclusion

Sustainable mountain tourism can work as an economic, social, cultural, and environmental empowering tool that helps to improve the well-being of mountain community. Mountain tourism is progressively striking worldwide due to a wide scale of tourism development strengths due to attraction in snow, natural beauty, diversity of heritage and traditions, rich in mineral and hot springs, and availability of variety of fauna and flora. It attracts a wide range of tourists, and empowers the local economy, however maintaining ecosystems and adopting sustainable practices is a great concern today. Effective governance mechanism and stakeholder engagement are essential factors of sustainable tourism development. The role of governments and stakeholders is crucial in developing and implementing a sustainable framework for sustainable mountain tourism. Building sustainable mountain tourism needs a high degree of commitment and effort from the government and stakeholders. The active engagement of stakeholders for sustainable practices in mountain tourism such as managing sustainable infrastructure, reducing the effect of global warming, adopting long-term viability of tourism businesses, minimizing pollution, empowering mountain community, and collaborating cross-border relationships are crucial. Sustainable mountain tourism practices ensure economic stability, empower the local economy and foster livelihood of mountain community. Government and policymakers may introduce economic, social and environmental initiatives to align sustainable mountain tourism practices with the economic interests of the local community.

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