

## Assessing the Potential of Adventure Sports Tourism in Ladakh

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### Abstract

**Background:** Adventure sports tourism is expanding globally, and Ladakh holds significant potential due to its high-altitude landscapes and diverse natural resources.

**Purpose:** To explore the potential for adventure sports tourism within the Ladakh region.

**Methodology:** This qualitative study employed purposive sampling and conducted interviews with 35 stakeholders, including government officials and tourism sector actors across Ladakh. Data were analysed through qualitative content analysis, supported by NVivo word-frequency queries.

**Results:** The study reveals that stakeholders primarily framed the potential of adventure tourism around natural landscapes and specific sub-regions, such as Suru, Zaskar, Nubra, and Drass, indicating a micro-destination perspective rather than a broad regional view. Key activities identified include trekking, mountaineering, rafting, skiing, and paragliding, with winter activities like Chadar trekking suggesting year-round potential. However, limited emphasis on infrastructure and services highlights a gap between natural resources and development readiness.

**Conclusion:** The study concludes that Ladakh's adventure tourism potential can be enhanced through integrated, place-specific planning focused on improving access, safety regulations, capacity building, and infrastructure development.

**Keywords:** Adventure; sports tourism; potential; Ladakh

### Introduction

Adventure tourism has become one of the fastest-growing sectors in the global tourism industry, experiencing remarkable growth over the past twenty years and marking a significant shift from niche-market activities to a major economic contributor (Esther Wambui Makunyi et al., 2023; Ross Cloutier, 2003). This change has led to the development of systematic methods for evaluating adventure sports tourism destinations, as stakeholders increasingly recognise the sector's potential to boost economic development by attracting tourists, creating jobs, and supporting local businesses (Angad Brar et al., 2025).

The assessment of adventure tourism potential requires comprehensive evaluation frameworks that consider multiple dimensions. The NIRVANA framework, for instance, emphasises the importance of analysing natural resources and geography, infrastructure and accessibility, risk

management and regulation, visitor experience management, community engagement, and sustainability considerations (Nitin Vyas et al., 2024). Similarly, SWOT analysis has proven effective in evaluating current constraints and identifying development opportunities in various regional contexts (Esther Wambui Makunyi et al., 2023).

Geographic diversity and natural resource endowments are crucial factors influencing adventure tourism potential. Studies across various landscapes reveal how different topographical features support a range of adventure activities, from air-based sports like paragliding and hang gliding in Himachal Pradesh (Dr Ramesh Chand et al., 2024) to mountaineering and rock climbing in the Mt. Kenya region (Esther Wambui Makunyi et al., 2023), and water-based activities in areas with suitable geological conditions (H. Purwanto et al., 2020). The Kashmir Valley illustrates how high slopes, vast meadows, calm lake waters, and diverse terrain enable multiple adventure sports (Dr Afsana Rashid et al., 2018; Hafizullah Dar et al., 2014).

An economic assessment indicates that adventure tourism has strong potential to boost regional development, particularly in mountainous and remote areas where traditional economic activities are limited (David N. Zurick et al., 1992). However, assessment processes must also consider challenges such as infrastructure gaps, regulatory uncertainties, risk management requirements, and the need for specialised human resources and marketing strategies (Angad Brar et al., 2025; Damian Morgan et al., 2000).

Therefore, systematically assessing the potential of adventure sports tourism is essential for supporting evidence-based decision-making and sustainable destination planning. This approach helps maximise socio-economic benefits while reducing environmental pressures and safety risks linked to adventure activities. In this context, the current study evaluates the potential of adventure sports tourism in Ladakh. The research focuses on the following question: Which locations in Ladakh are most suitable for adventure sports tourism? To answer this, qualitative interviews were conducted with tourism and sports officials as well as other relevant regional stakeholders.

## **Material and Methods**

### *Data Collection*

We adopted a purposive sampling approach. Participants were chosen for their expertise in sports and tourism. Interviews were conducted with 35 experts. These included individuals from the Department of Sports and Tourism, as well as tourism stakeholders such as travel agency staff, taxi drivers, and hotel managers from various parts of the Ladakh region, all familiar with Ladakh tourism. Additionally, with respect to gender, there were 5 females and 30 males.

### *Ethical Report*

Ethical issues observed in this study include obtaining informed consent from participants; recording all interviews with participants' permission and explaining the study's objectives and the rationale for recording; keeping interview files secure; accurately transcribing interview transcripts; maintaining confidentiality; and respecting participants' opinions, even when they

request to withdraw from the study. The timing and location of the interviews were agreed upon by the participants.

### *Analysis*

Interview data were analysed using qualitative content analysis, with word frequency queries conducted in NVivo to identify dominant concepts and patterns.

## **Results**

Table 1: Analysis of Word Frequency with Lengths and Counts

<b>Word</b>	<b>Length</b>	<b>Count</b>	<b>Word</b>	<b>Length</b>	<b>Count</b>
Valley	6	41	Dunes	5	3
River	5	29	Hockey	6	3
Suru	4	28	Including	9	3
Mountaineering	14	27	Indus	5	3
Zanskar	7	23	Main	4	3
Rafting	7	21	Ride	4	3
Trekking	8	21	Sindh	5	3
Drass	5	19	Water	5	3
Skiing	6	17	White	5	3
Adventure	9	16	World	5	3
Paragliding	11	13	Agency	6	2
Snow	4	12	Become	6	2
Offers	6	10	Best	4	2
Trek	4	10	Hunder	6	2
Sports	6	8	Ideal	5	2
Tourism	7	8	Kangri	6	2
Activities	10	7	Kayaking	8	2
Kargil	6	7	Khardungla	10	2
Chadar	6	6	Marathon	8	2
Frozen	6	6	Range	5	2
Lake	4	6	Safaris	7	2
Nubra	5	6	Stok	4	2
Nunkun	6	6	Suited	6	2
Sangam	6	6	Taxi	4	2
Peaks	5	5	Tourists	8	2
Potential	9	5	Track	5	2
Sakti	5	5	Another	7	1
Sankoo	6	5	Attract	7	1

Winter	6	5	Available	9	1
Area	4	4	Bactrian	8	1
Biking	6	4	Breathtaking	12	1
Camel	5	4	Catering	8	1
Opportunities	13	4	Challenging	11	1
Pangong	7	4	Class	5	1
Suitable	8	4	Different	9	1
Beautiful	9	3	Even	4	1
Camping	7	3	Exciting	8	1
Destination	11	3	Nimu	4	1

A qualitative word-frequency analysis was conducted in NVivo 15 on the interview transcripts to identify the main themes in stakeholders' perceptions of adventure sports tourism in Ladakh. The analysis used word occurrence counts and weighted percentage scores to highlight the most important concepts emphasised by participants. This method, commonly used in qualitative tourism research, helps to reveal underlying thematic patterns and interpretive structures in textual data (Braun & Clarke, 2006).

The highest-frequency terms identified in the analysis included 'valley' (7.01%), 'river' (4.96%), 'Suru' (4.79%), 'mountaineering' (4.62%), and 'Zaskar' (3.93%). This pattern shows that participants mainly conceptualised the potential of adventure sports tourism related to natural landscapes and region-specific geographical identities. The frequent references to valleys, rivers, and mountainous terrains emphasise the vital role of natural capital in shaping and attracting adventure tourism destinations (Buckley, 2006). Notably, the Nubra Valley, Suru Valley, and Zaskar Valley are among the most popular destinations for adventure activities. In addition, several location-specific identifiers—such as Drass, Nubra, Sankoo, Sakti, Pangong, Stok, Nimu, and Zaskar—were frequently mentioned, indicating that stakeholders perceive the potential for adventure tourism as unevenly distributed across Ladakh rather than uniform. This spatial variation reflects differences in local resource endowments and aligns with the existing literature highlighting the importance of place-based and context-specific planning in adventure tourism development (Hall & Page, 2014).

Activity-related terminology emerged as a second prominent theme within the analysis. Frequently occurring terms such as mountaineering (4.62%), rafting (3.59%), trekking (3.59%), skiing (2.91%), paragliding (2.22%), biking (0.68%), and kayaking (0.34%) highlight the wide range of adventure sports activities perceived as feasible in the region. The notable presence of winter-oriented terms—including snow (2.05%), frozen (1.03%), winter (0.85%), and Chadar (1.03%)—further emphasises Ladakh's unique cold-climate and high-altitude adventure tourism identity, positioning it within a specialized niche that is gaining prominence in global adventure tourism markets (Pomfret, 2011).

Additionally, experiential and aesthetic descriptors such as beautiful, breathtaking, exciting, and challenging, although used less frequently, help portray adventure tourism as an

experience-centred form of engagement, aligning with established experiential tourism frameworks (Pine & Gilmore, 1999). The repeated use of evaluative terms, including potential, opportunities, suitable, and ideal, also indicates a generally positive stakeholder perception of the prospects for future development of adventure sports tourism in Ladakh.

Conversely, terms related to infrastructure and services, such as agency, taxi, catering, and tourists, were less prominent, indicating that stakeholders placed less emphasis on institutional and support systems within interview narratives.

### **Discussion**

The findings indicate that stakeholders primarily view the potential of adventure sports tourism in Ladakh through natural landscapes and environmental features, with less emphasis on built infrastructure or organisational capacity. This perspective aligns with established adventure tourism theory, which considers natural environments as the primary resource supporting adventure-based experiences (Buckley, 2006). In Ladakh, high-altitude terrain, river systems, snow-covered landscapes, and mountainous topography are the primary factors determining the destination's attractiveness.

Furthermore, frequent references to specific sub-regions, such as the Suru Valley, Zaskar, Drass, and Nubra Valley, highlight the geographically diverse potential for adventure tourism in Ladakh. Rather than viewing the region as a single tourism area, stakeholders regard it as a collection of distinct micro-destinations, each with unique environmental features and adventure-sport opportunities. This perspective supports the view of Hall and Page (2014), who advocate for spatially detailed, locally focused planning approaches for peripheral and environmentally sensitive destinations.

### **Diversity of Activity and Seasonal Differentiation**

The repeated mention of both summer- and winter-based adventure activities demonstrates that Ladakh has significant potential for year-round adventure tourism, which is vital for the destination's long-term sustainability. The focus on activities like trekking, mountaineering, rafting, and skiing aligns with global adventure tourism trends that highlight physically challenging, nature-centred experiences (UNWTO, 2014).

Moreover, the prominence of winter-specific pursuits, particularly Chadar trekking and snow-dependent sports, positions Ladakh within a specialised niche of extreme and endurance-focused adventure tourism during winter. This segment has been recognised as an emerging market among highly involved and experience-seeking tourists (Pomfret, 2011). Such seasonal diversification enhances Ladakh's competitive advantage relative to destinations where tourism offerings are limited to a single operational season.

### **Perceived Potential in Relation to Development Readiness**

Despite respondents' frequent mention of potential and opportunities, the relatively limited focus on infrastructure- and service-related components suggests a perceived gap between the abundance of natural resources and the destination's readiness. This imbalance is a common trait of emerging adventure tourism destinations, where rich environmental assets exist with underdeveloped institutional and operational systems (Buckley, 2010).

Furthermore, the low frequency of terms related to transportation systems, professional service providers, and organised tourism facilities suggests that stakeholders might see adventure sports tourism in Ladakh as being in a pre-development or transitional phase. Addressing this gap will require targeted policy measures, enhanced safety and regulatory frameworks, and systematic capacity-building efforts to effectively turn natural potential into sustainable, organised tourism growth.

### Conclusion

From a sports tourism development perspective, the findings highlight the need for an integrated planning framework that balances the use of natural resources with the development of supporting infrastructure and effective governance arrangements. Strategic investment in transportation and access infrastructure, standardised adventure-sport facilities, skilled human resources, and strong safety and risk management protocols is essential to enhancing Ladakh's competitive edge as an adventure-sports tourism destination (Weed & Bull, 2012). The study identified several key adventure activities, including mountaineering, rafting, trekking, skiing, paragliding, biking, and kayaking.

Moreover, the concentrated geographic distribution of perceived adventure tourism potential emphasises the need for place-specific development strategies. Destinations such as Zaskar, Suru Valley, Sangam, Sakti, and Nubra Valley require effective policy measures that align tourism initiatives with their unique environmental conditions and sociocultural characteristics, thereby encouraging context-aware, sustainable destination development.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

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