Sustainable development strategies for adventure tourism in Hindukush Karakoram and Himalaya region in Pakistan

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FACULTY OF BIOLOGICAL SCIENCES

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Certificate of Approval

This is to certify that the research work presented in this Thesis, entitled **"Sustainable development strategies for adventure tourism in Hindukush Karakoram and Himalaya region in Pakistan"** was conducted by **Hussain Ahmed (Reg. No. 02312113013)** under the supervision of **Dr. Abida Farooqi**. No part of this thesis has been submitted elsewhere for any other degree. This thesis is submitted to the **Department of Environmental Sciences,** in partial fulfillment of the requirements for the degree of **Master of Philosophy** in the field of Environmental Science, Quaid-i-Azam University, Islamabad, Pakistan.

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Author's Declaration

I **"Hussain Ahmed (Reg. No. 02312113013)"** hereby state that my M.Phil. thesis titled **"Sustainable development strategies for adventure tourism in Hindukush Karakoram and Himalaya region in Pakistan"** was carried out by me in the Hydro-geochemistry Laboratory, Department of Environmental Sciences, Quaid-i-Azam University, Islamabad. The results, findings, conclusions, and investigations of this research has not been previously presented and published as research work in any other university.

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Hussain Ahmed

In honor of the ones who granted me existence,

and the one who granted me wings to soar.

Acknowledgment

In the name of ALLAH Almighty, the Most Merciful and Beneficent, the One who has bestowed upon me His boundless blessings and granted me the strength to successfully complete this endeavor. Peace and blessings be upon the Prophet Muhammad (PBUH), the illuminator of humanity's path from darkness to light.

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List of Abbreviations

AS - Attractiveness Score

EFAS - External Factor Matrix

FAS - Final Attractive Score

HKHK - Hindukush Karakoram and Himalaya Region

IFAS - Internal Factor Matrix

QSPM - Quantitative Strategic Planning Matrix

SWOT - Strengths, Weaknesses, Opportunities, Threats

TAS - Total Attractiveness Score

TOWS - Threats, Opportunities, Weaknesses, Strengths

Abstract

The Hindukush Karakoram and Himalaya (HKHK) region in Pakistan boasts unparalleled natural beauty and is rich in adventure tourism opportunities, making it a promising destination for travelers seeking thrilling experiences. However, the potential for adventure tourism in this region comes with the responsibility to develop it sustainably and responsibly. The challenge lies in harnessing this potential without causing environmental degradation or negatively impacting local communities. Therefore, there is a pressing need to formulate and implement sustainable development strategies for adventure tourism in the HKHK region. In this study, we conduct a comprehensive SWOT analysis to identify key factors, utilize the TOWS matrix to form strategies, and prioritize them using the QSPM method. The study area is located in the Hindukush, Karakoram, and Himalaya Mountain ranges, stretching from Gilgit Baltistan to Chitral. The participants of this study comprise experts such as the management in government agencies, tourists such as mountaineers who have visited the region in the past years, and local residents who were well aware of adventure tourism in the region. The purposeful sampling method was used to ensure that participants with adequate knowledge and understanding of tourism in this region were included in the study. Questionnaires were used to collect data from study participants in two phases. In the first phase, the data extracted from the questionnaires was used to identify strengths, weaknesses, opportunities, and threats, i.e., the SWOT factors of the adventure tourism sector in the high mountain regions of Pakistan. Subsequently, in the second phase, seven experts were selected to rank the factors identified through the first phase based on their importance and relevance to the sustainable development of adventure tourism in our selected region. The data collected was then used to formulate strategies and identify the ones with the highest priority. The selected strategies encompass a range of initiatives, including forging collaborations for infrastructure development through public-private partnerships, fortifying climate resilience, fostering community-centric growth models, emphasizing the education of tourists, and promoting active international participation in the region's adventure tourism offerings. This research contributes a comprehensive framework that not only unlocks the potential for sustainable adventure tourism in Pakistan's mountainous terrains but also underscores the imperative of responsible practices, ensuring that economic growth harmonizes with environmental conservation and the well-being of local communities.

1. Introduction

Sustainable tourism encompasses a comprehensive consideration of both its immediate and long-term economic, societal, and environmental consequences, while also catering to the requirements of tourists, the industry, the natural environment, and the local communities (UNWTO, 2023). Mountain regions around the world, including the Himalaya, Hindu Kush, and Karakoram ranges (HKHK) of Pakistan, have been experiencing an increased level of tourist activity since the mid-twentieth century. Adventure tourism in high mountain areas, which involves hiking, trekking, and mountain climbing, is rapidly becoming popular. Due to diversification, commodification, and commercialization, mountain tourism is becoming more of a mass tourism activity than an elite one. The threat from mass tourism is due to frequent visits to relatively small areas, which are generally of great ecological importance. High-mountain regions in developing countries are examples of such areas. Millions of mountaineers and adventure tourists may generate a threat to every component (land relief, water, soil, vegetation, fauna, and landscape) of the delicate and fragile mountain environment in both a direct and indirect way (Apollo, 2017).

Some characteristics of mountain regions that make them fragile and sensitive are their poor biotic geosystem, harsh climate, and unfriendly topography. A geosystem with poor biotic components are much more susceptible to change from externally generated impacts. Another reason for their sensitivity is their large altitude differences and the resulting terrain (relief) energy, convection, and active exchange of air masses (supply of heat from below, flow of cold air downwards), which create a high dynamism of geological, geomorphological, hydrological, and climatic processes (Huddart & Stott, 2020).

The unchecked and unbridled development of adventure tourism may cause disruption in fragile mountain environments. However, sustainable adventure tourism can bring economic prosperity to the Himalaya, Hindu Kush, and Karakoram (HKHK) region of Pakistan and help mountain communities thrive. With a planned and systematic approach, adventure tourism in the region can be a key contributor to promoting overall improvement in the quality of life of local residents through initiatives in economic development and environmental conservation. The high mountains

of the HKHK region are inhabited by some of the poorest people on earth, who are marginalized politically and economically by national and local administrations. Thus, sustainable mountain tourism might be key to combating inequality and promoting economic prosperity in Pakistan's mountain regions (Miller & Mair, 2020).

The government and policymakers in Pakistan have now begun to recognize the importance of developing tourism in the northern mountains by including adventure tourism in their action plan to promote tourism in the country (ICIMOD, 2021). However, despite the potential of sustainable adventure tourism to promote economic growth and environmental conservation in high mountain regions of Pakistan, there is a lack of research that addresses the specific challenges and opportunities of sustainable adventure tourism development in these areas. While some studies have examined the potential of tourism in the mountain regions of Pakistan, they tend to focus on general tourism rather than sustainable adventure tourism (Amin *et al*., 2021;. Dewan & Kim, 2020; Ali, 2020). Therefore, in this study, we will attempt to identify strategies to promote sustainable adventure tourism in the high mountain regions of Pakistan, specifically the HKHK region.

1.1 The Potential of Adventure Tourism in the High Mountain Regions of Pakistan

The high mountains of Pakistan offer a vast potential for adventure tourism, particularly for mountaineering. Pakistan is home to some of the highest and most challenging peaks in the world. These peaks attract thousands of climbers from around the world each year. The Karakoram Range, which spans across northern Pakistan, is known for its rugged and dramatic landscapes. It is home to some of the world's most iconic peaks, including K2, Gasherbrum I and II, Broad Peak, and Masherbrum. The Himalayan Range, which borders Pakistan to the east, also offers significant potential for adventure tourism. This range includes several high peaks, including Nanga Parbat, the ninth-highest mountain in the world. The region is also known for its stunning natural beauty, with deep valleys, rushing rivers, and dense forests (Baloch & Rehman, 2015).

In addition, the Hindu Kush range is home to several high peaks, including Tirich Mir, which is the highest peak in the range. The region also has several popular trekking routes, such as the Chitral-Gilgit Trail and the Wakhan Corridor Trek. The Chitral-Gilgit Trail is a challenging trek that traverses across the Hindu Kush range, offering stunning views of snow-capped peaks, alpine meadows, and pristine valleys. The trek takes about two weeks to complete and requires a high level of fitness and mountaineering skills. The Wakhan Corridor Trek is another popular trek in the Hindu Kush region, which crosses the border between Pakistan and Afghanistan. The trek offers a unique cultural experience, as it passes through several remote villages where travelers can interact with locals and learn about their way of life. Apart from mountaineering, the high mountains of Pakistan also offer opportunities for other adventure activities such as trekking, rock climbing, and skiing (Baloch, 2007).

1.2 Importance of Sustainable Development of Adventure Tourism for Pakistan

The mountains, with their natural beauty and cultural heritage, are an important asset to the tourism industry and are the second most popular tourist destinations after coastal regions. The mountain tourism adventure and recreation market are expanding rapidly, with the demand for trekking, hiking, camping, mountaineering, rock climbing, mountain biking, wildlife viewing, and other forms of non-consumptive mountain tourism activities increasing. It is estimated that over 50 million people visit mountains each year, and the overall value of the international mountain tourism market is between USD 140 and 188 billion per year, employing between 25 and 47 million people (ICIMOD, 2011).

Tourism holds special significance for countries like Pakistan, with earnings comprising around 2.7% of GDP in 2019. However, the impacts of tourism on mountain ecosystems and biological resources are of concern because of the high fragility and environmental sensitivity of the HKH. Cultural identities and diversity in the mountains are also threatened by the expansion of unplanned economic activities, and the cultural and environmental consequences of mountain tourism have been largely negative. Globally, about 15–20% of tourists visit mountain destinations in the region. In Pakistan, tourist towns and trekking routes have suffered the impact of this resource-intensive industry, with over-construction of resorts and other tourist facilities. Further, the mountain

landscapes have had the unintended effect of rendering people living there invisible. They have largely ended up working as menials or porters, while the overwhelming share of the tourism revenue flows to interests outside the region. Tourism holds the potential to contribute to economic development in the HKHK region, including in Pakistan, but its expansion cannot be at the cost of undesired consequences on the environment, local cultures, and livelihoods. Mountain tourism in the HKHK is still in its early stages in Pakistan, but the country has a significant potential for growth in this sector (Sharma et al., 2019).

1.3 Challenges for the sustainable development of adventure tourism in the high mountain regions of Pakistan

The predominant form of adventure tourism in the high mountain regions of Pakistan is mountaineering. However, mountaineering exerts various environmental impacts throughout its different stages. These impacts manifest during each phase of mountain activities, including the journey from a developed city to the last accessible village by road (the first stage), the trek from the last village to the base camp (the second stage), and the expedition from the base camp to the ultimate mountaineering goal (the third stage). The most significant environmental changes tend to occur during the second and third stages of this process (Apollo, 2017).

In order to accurately identify the zones in which mountaineering has an impact on the environment, it's essential to have a comprehensive understanding of the nature of mountaineering itself. Mountaineering can be precisely categorized into hiking, trekking, and climbing activities within mountainous regions:

- Hiking involves traversing exposed and potentially perilous terrain without requiring the use of hands, usually along well-established routes, both in terms of logistics and infrastructure.
- Trekking encompasses similar exposed-to-danger hiking activities, occasionally necessitating the use of hands, especially in alpine areas lacking tourist facilities.
- Climbing entails exposed-to-danger journeys through demanding terrain, involving both hand and foot movements, typically at elevations above the forested zones.

Based on this classification, the environmental impact of mountaineering can be evaluated across three zones (hiking, trekking, and climbing) and four specific areas (the last settlement, base camp, advanced base camp, and the summit area). Each of these zones and areas is constantly influenced by mountaineering activities, leading to specific impacts on various aspects of the natural environment (Attarian & Keith, 2008).

These impacts manifest in the following ways:

- Alterations in the topography of the land, including effects like trampling, the creation of pathways, anthropogenic formations on rocks, and the triggering or acceleration of mass movements.
- Changes in the composition of vegetation and soil cover, such as trampling, the introduction of non-native plant species, and modifications to the soil.
- Shifts in the local faunal population, including disturbances or attractions to animals due to tourist activities.
- Pollution of the environment, which can encompass air, water, soil, and landscape contamination (e.g., pollution resulting from mountaineering-related activities).

Apart from the negative environmental impacts that occur at each zone of mountaineering activity, mountaineering sport and other adventure tourism activities have some overarching challenges.

The following describes some of these challenges:

1.3.1 Waste Management Challenges in Mountain Tourism

Visitor activity concentrated in mountain areas can result in a substantial amount of solid waste and wastewater that can contaminate groundwater, streams, lakes, and soil if not properly stored and disposed of. For example, waste generated from food and beverage consumption, as well as used packaging, supplies, and equipment, can accumulate as solid waste. Dangerous chemicals

found in certain types of waste, such as pharmaceuticals, batteries, personal and cleaning products, can also harm the local environment, wildlife, and humans. The use of motorized transportation, such as snowmobiles, contributes to climate change and pollutes the clean mountain air. Sewage and wastewater from facilities, watercraft, and pack animals can further contaminate freshwater resources, as waste and chemicals degrade more slowly in mountain areas (Crawford et al., 2017).

The amount and type of waste produced are typically determined by the practices of businesses in the tourist industry and the behavior of tourists themselves. Even remote areas can be affected by higher amounts of waste, including plastics, metals, and other non-biodegradable materials, which previously did not reach these areas. Developing countries often lack sufficient waste management systems to address this issue. The absence of formal institutional waste management systems, especially in remote areas, can result in informal methods of disposal that can harm human and environmental health by causing water pollution. Furthermore, mountain tour operations can consume significant amounts of natural resources and energy, which can place additional pressure on mountain ecosystems (Crawford, Mathur and Gerritsen, 2017).

1.3.2 Impacts of Climate Change on Global Mountain Tourism

Mountain ranges across the world, such as the Himalayas, Alps, Rocky Mountains, southern Andes, and isolated peaks like Kilimanjaro in Africa, are experiencing severe glacial loss due to global warming. The United Nations World Tourism Organization (UNWTO), United Nations Environment Program (UNEP), and World Meteorological Organization (WMO) report that climate change will have significant implications for the sustainability, competitiveness, and development of tourism destinations. These impacts include changes in the length and quality of climate-dependent tourism seasons, which can affect destination competitiveness, as well as environmental changes such as water availability, loss of biodiversity, and infrastructure damage. Natural hazards such as landslides, avalanches, flooding, and river discharge are expected to occur more frequently and with greater intensity due to climate change, leading to dramatic consequences for tourist destinations. Climate change mitigation policies aimed at reducing greenhouse gas (GHG) emissions may affect tourism mobility, leading to increased transport costs and changes in travel patterns of tourists. Finally, climate change-related economic and political

instability may lead to changes in travel choices, particularly for international visitors (Berard-Chenu & Guillemard, 2023).

1.3.1.1 Sociocultural Complexities of Mountain Tourism

Tourism activities in mountain areas can have significant sociocultural effects on local populations. Such impacts can be negative and may relate to issues such as cultural authenticity and disruption of local communities. Tourism development in mountain areas can lead to severe consequences, including dispossessed lands of indigenous peoples, changes in values and lifestyles, loss of identity, and a lack of respect for religious sites by visitors. However, tourists often come to the mountains to experience the traditional ways of life, which may conflict with the aspirations of local people for modernization, particularly the younger generations. With the advent of digitalization and increasing tourist arrivals, the tension between preserving cultural heritage and promoting economic development may become more frequent. Inadequate management of tourism can also lead to negative social impacts, such as reduced access to scarce shared resources like fuel, wood, fish, and freshwater. Rural, traditional, and indigenous communities may not be willing to share their culture with tourists or acknowledge the interest visitors have in their way of life. However, such communities may find it challenging to isolate themselves from visitors and the cultural impacts they bring (Gogitidze et al., 2023).

1.3.2 Economic Dynamics of Mountain Tourism

The economic issues in mountain areas include seasonality, the creation of stable and decent work, inclusiveness in the distribution of economic benefits among communities and destinations. Seasonality is a significant economic issue in mountain areas, as tourism tends to fluctuate throughout the year. Many mountain destinations experience seasonal tourism patterns that are influenced by factors such as latitude, climate, and infrastructure. For example, in destinations with ski lifts and facilities for winter sports, there are typically two tourist seasons: the winter season and the summer season. However, extreme winter conditions in some mountain areas may make it almost impossible to conduct any activity above a certain altitude, which can significantly impact tourism (Apollo & Andreychouk, 2022).

Leakage is another important economic aspect to consider in mountain tourism. Economic leakage occurs when revenues generated by tourism activities are not available for reinvestment or consumption of goods and services within the same destination. This often occurs when tourism companies are foreign-owned and/or based in another country, leading to a significant loss of revenue for the local economy. Leakage is particularly evident in developing countries, where working conditions may be poor, employment is seasonal and short-term, and there is insufficient investment in skill-building or capacity development of local people (Lukuaka, 2023).

1.4 Methods for Selecting Sustainable Development Strategies

The SWOT (strengths, weaknesses, opportunities, and threats) analysis is a well-established approach for strategic planning. Although the SWOT analysis was originally used for business management, many experts are now applying it to develop strategies for tourism and sustainability research. Chandra & Kumar (2021) used the SWOT analysis to develop sustainable tourism strategies for the Northern Himalayan region of India. Ghorbani et al. (2015) used the SWOT analysis to identify sustainable management strategies for ecotourism development in the Kaji Namazkar Wetland in Southern Iran. Both studies used questionnaires and interviews of experts, locals, and tourists in the region and classified them into the SWOT analysis matrix. After that, both studies used the QSPM (Quantitative Strategic Planning Matrix) analysis to select the most feasible and relevant strategies.

With a similar approach, Zhu et al. (2023) used exploratory mixed methods (interviews and questionnaires followed by the SWOT analysis to identify factors for the development of ecotourism in West Lake, Hangzhou City. Fan et al. (2023) also used interviews and questionnaires from experts, tourists, tourism professionals, and university faculty members followed by SWOT analysis for sustainable tourism development in the Changbai mountain. The strategies identified by the SWOT analysis were then ranked using the QSPM and AHP (analytical hierarchy process) to select the most significant and relevant strategies.

1.5 Problem statement

The Hindukush Karakoram and Himalaya (HKHK) region in Pakistan boasts unparalleled natural beauty and is rich in adventure tourism opportunities, making it a promising destination for

travelers seeking thrilling experiences. However, the potential for adventure tourism in this region comes with the responsibility to develop it sustainably and responsibly. The challenge lies in harnessing this potential without causing environmental degradation or negatively impacting local communities. Therefore, there is a pressing need to formulate and implement sustainable development strategies for adventure tourism in the HKHK region, ensuring that tourism growth aligns with conservation efforts and the well-being of the region's inhabitants.

1.6 Objectives

1 Conduct a Comprehensive SWOT Analysis of Adventure Tourism in the HKHK Region.
2 Formulate Sustainable Development Strategies for Adventure Tourism.
3 Prioritize Strategies using QSPM to select the most impactful strategies.

1.7 Significance of study

The significance of this study lies in the fact that despite the immense potential of the Hindukush Karakoram and Himalaya (HKKH) region for adventure tourism, there is a notable absence of comprehensive research and sustainable development strategies specific to this unique geographical area in Pakistan. By addressing this research gap, the study aims to contribute valuable insights to the field of adventure tourism, particularly in the HKKH region, which is known for its breathtaking landscapes, diverse cultural heritage, and vast untapped tourism opportunities.

The study's importance stems from the urgent need to promote adventure tourism in a manner that is responsible, environmentally sustainable, and considerate of the well-being of local communities. As tourism continues to grow as a global industry, there is a growing recognition of the potential negative impacts it can have on the environment, culture, and society of host regions. The HKKH region's ecological sensitivity and cultural significance make it crucial to develop sustainable tourism practices that preserve its natural beauty, protect biodiversity, and respect the local culture.

2. Materials and Methods

In this section, we describe the research design, data collection methods, and analysis techniques used to identify crucial strategies for the sustainable development of adventure tourism in Pakistan's high mountain regions.

2.1 The Study Area

The study area is located in the Hindukush, Karakoram, and Himalaya mountain ranges, stretching from Gilgit Baltistan to Chitral. It is renowned worldwide for its majestic mountain ranges, including the Hindukush, Karakoram, and Himalayas, which are home to some of the highest peaks on Earth, such as K2 and Nanga Parbat (Fig, 1). This region's rugged terrain, glacial valleys, alpine meadows, and rich biodiversity make it an ideal destination for adventure tourism (Khan & Baig, 2020).

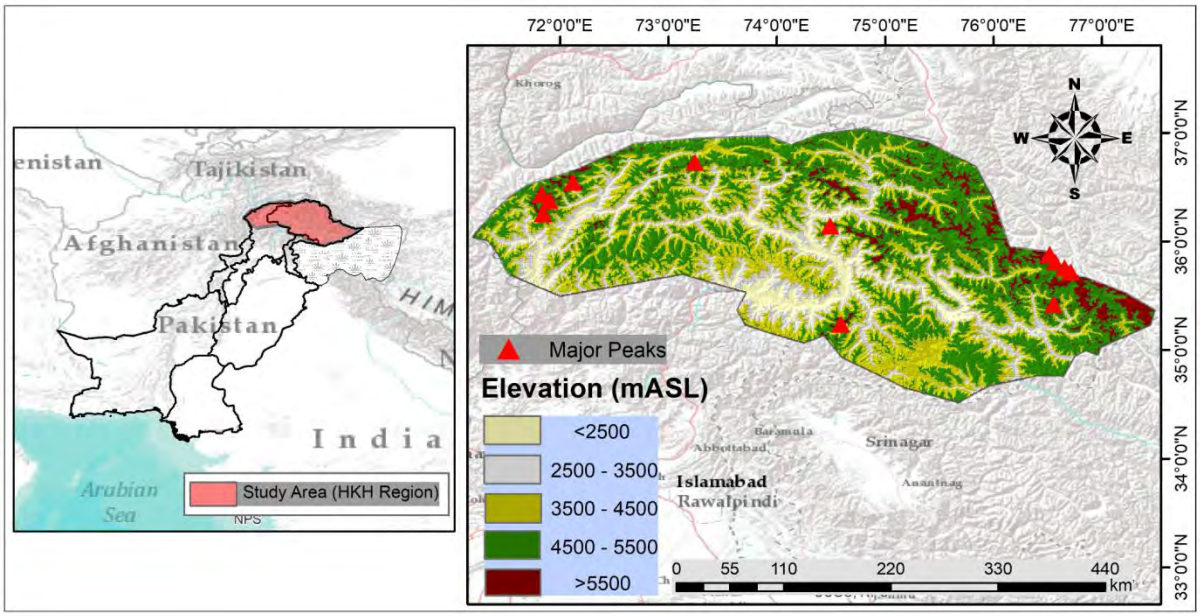

Fig 1. Map of the study area

2.2 Sampling and Data Collection

The participants of this study comprise experts such as the management in government agencies, tourists such as mountaineers who have visited the region in the past years, and local residents who were well aware of adventure tourism in the region. The purposeful sampling method (Guba & Lincoln, 1982) was used to ensure that participants with adequate knowledge and understanding of tourism in this region are included in the study. Questionnaires were used to collect data from study participants in two phases.

In the first phase, the data extracted from the questionnaires was used to identify strengths, weaknesses, opportunities, and threats, i.e., the SWOT factors of the adventure tourism sector in the high mountain regions of Pakistan. The questionnaire included both open and close-ended questions for a diverse range of opinions. They were distributed among tourism professionals, government officials, and local residents in the HKHK region (Chandra & Kumar, 2021a).

Subsequently, in the second phase, seven experts were selected to rank the factors identified through the first phase based on their importance and relevance to the sustainable development of adventure tourism in our selected region. The data collected was then used to formulate strategies and identify the ones with the highest priority.

2.3 Validation of the Questionnaire

To validate the questionnaire, a pilot study was conducted with a sample of participants representing experts in the adventure tourism industry within the Hindukush Himalaya and Karakoram (HKHK) region of Pakistan. The pilot study aimed to assess the clarity, relevance, and comprehensiveness of the questionnaire items. Feedback from the pilot participants was analyzed, and necessary modifications were made to improve the questionnaire's reliability and validity (Elangovan & Sundaravel, 2021).

2.4 Research Design

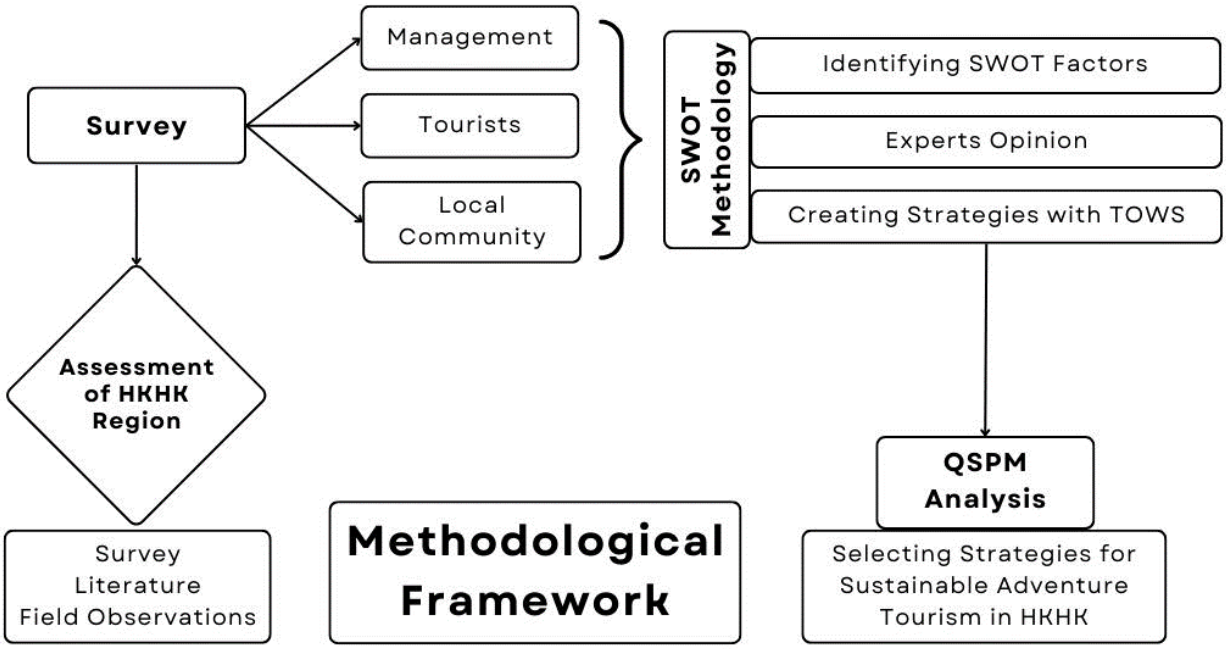

Fig 2. Methodological Framework

In the initial stage of our study, we employed questionnaires to the locals, tour operators, tourism departments, tourists etc. to identify and comprehend the internal and external elements of adventure tourism in the HKHK region of Pakistan. Then, we extracted key factors from the data, resulting in a comprehensive list of strengths, weaknesses, opportunities, and threats (SWOT) of the adventure tourism sector in the region (Ghorbani et al., 2015).

Subsequently, in the second stage, we assigned weights or coefficients to these factors, indicating their relative significance. The coefficients for each factor were determined by taking the questionnaire responses into consideration. In addition, the coefficients assigned to internal factors (strengths and weaknesses) or external elements (opportunities and threats) varied from 0 to 1, representing the relative significance of each factor (Ghorbani et al., 2015).

During the third stage, each factor is ranked based on its effectiveness in achieving the ideal condition, which is sustainable tourism development in Pakistan's HKHK region. The factors were

ranked from 1 to 4, with 1 indicating low importance and 4 indicating high importance. In addition, the factors were ranked by seven selected experts (Khan & Baig, 2020).

For the fourth step, we multiplied the weight of each element by its rank to derive the final score, facilitating a comparative assessment of factors. In the fifth stage, total scores were computed for internal and external factors by summing the final scores for each (Fan et al., 2023).

An overall score of 4 indicates exceptional strengths within the internal environment, alignment with the ideal vision and mission, and prompts the identification of tactics to maximize their utilization. Conversely, a score of 1 suggests numerous internal weaknesses that require transformation into opportunities. For external variables, a score of 4 signifies an excellent chance to achieve objectives, while a score of 1 suggests threats mitigable by internal forces (Fan et al., 2023).

In the sixth stage, we presented micro- and macro-strategies based on the SWOT analysis, encompassing various SO (strength-opportunities), WO (weakness-opportunities), ST (strength-threats), and WT (weakness-threats) strategies. Using the SWOT matrix, we compiled a distinct list of strategies, categorized into these four groupings (Datta, 2020).

In the last stage, we used a tool called the Quantitative Strategic Planning Matrix (QSPM) to prioritize strategies identified through the previous stage. The goal was to identify the best strategies to promote sustainable adventure tourism in the HKHK region of Pakistan. The QSPM model allowed us to evaluate different strategies using scores, making it easier to choose the most suitable ones (Zulkarnain et al., 2018).

2.5 The SWOT Analysis

SWOT analysis, an acronym for Strengths, Weaknesses, Opportunities, and Threats, serves as a crucial investigation process to assess the potential for sustainable development of adventure tourism in the HKHK region of Pakistan. It is a widely used method in management, providing a systematic approach to analyze both internal organizational factors and the wider environmental context (Oreski, 2012). The internal factors, such as strengths and weaknesses, are within the

control of the organization, while the external factors, including opportunities and threats, lie beyond their direct control.

One of the primary advantages of SWOT analysis is its simplicity and usefulness in organizing information, making it an essential tool for preliminary research and strategic planning in tourism (Oreski, 2012). It aids in identifying the internal strengths and weaknesses of the organization and the opportunities and threats present in its environment. For adventure tourism in the HKHK region, the SWOT analysis can be instrumental in formulating strategies that capitalize on strengths, address weaknesses, and seize opportunities while mitigating threats.

A plethora of research works, such as those by Fan et al. (2023), Chandra and Kumar (2021), Ghosh and Mukhopadhyay (2020), and Ghorbani et al. (2015), have demonstrated the utility of the SWOT method in determining the feasibility of developing tourism in various locations. By evaluating intrinsic strengths and weaknesses alongside extrinsic opportunities and threats, these studies have formulated effective strategies for tourism development, which serves as a valuable precedent for the sustainable development of adventure tourism in the HKHK region.

However, SWOT analysis also comes with certain limitations. It tends to be more applied than theoretical, emphasizing evaluation and practical assessment. Moreover, the method may need help to fully quantify the weight and significance of factors or account for their interdependencies (Oreski, 2012). In complex decision-making situations, SWOT analysis might prove insufficient, requiring complementary approaches for a comprehensive evaluation.

Nonetheless, the application of SWOT analysis in the HKHK region for adventure tourism planning is vital. By systematically evaluating the internal and external factors, stakeholders can gain a holistic understanding of the region's potential for adventure tourism and strategically plan for its sustainable development. Through the SWOT matrix, the most critical strategic factors affecting the region's future can be identified and incorporated into long-term progress strategies (Banihabib et al., 2015).

2.6 Deriving Strategies from the SWOT Analysis

SWOT analysis allows for a systematic evaluation of criteria or factors related to strengths, weaknesses, opportunities, and threats. This analytical tool enables a comprehensive examination of both the demand (external) and supply (internal) aspects of adventure tourism in the HKHK region (Oreski, 2012).

However, traditional SWOT analysis alone has limitations when it comes to determining the significance of each SWOT factor, making it challenging to prioritize factors during the decision-making process. To address this, researchers have utilized SWOT and NBA (National Board of Accreditation) points to prioritize internal and external factors and develop alternative strategies. The TOWS matrix, introduced by Weihrich in 1982, serves as the next step in the strategy formulation process (Weihrich, 1982).

The TOWS matrix offers a powerful way to create strategies by strategically combining internal strengths and weaknesses with external opportunities and threats. It identifies four distinct strategic groups: Strength-Opportunity (SO), Strength-Threats (ST), Weaknesses-Opportunities (WO), and Weaknesses-Threats (WT).

SO strategies leverage internal strengths to capitalize on external opportunities, which is particularly ideal for promoting sustainable adventure tourism in the HKHK region. Conversely, WO strategies aim to mitigate internal weaknesses by taking advantage of external opportunities. On the other hand, ST strategies involve leveraging the region's strengths to address and reduce the impact of external threats, safeguarding the well-being of the tourism industry. Lastly, WT strategies are defensive tactics focused on minimizing both internal weaknesses and external threats, ensuring the resilience of the region's tourism sector.

The primary advantage of the TOWS matrix is its ability to align and integrate the prioritized internal and external factors into strategic alternatives. By systematically combining these factors, stakeholders can create well-informed and comprehensive strategies that foster sustainable adventure tourism development in the HKHK region. Although the TOWS matrix has its

limitations, such as omitting certain combinations like SW (internal strengths and weaknesses) or OT (external opportunities and threats), it remains an effective approach in guiding decision-making processes for the tourism industry in the HKHK region (Oreski, 2012).

2.7 The QSPM Analysis

The proper selection of strategies plays a vital role in achieving success in any organization or system (Kwiri and Zvarivadza, 2017). In the context of sustainable development for adventure tourism in the Hindukush Himalaya and Karakoram (HKHK) region of Pakistan, it is essential to consider both existing internal and external factors for further improvement (David, 2011). While the TOWS matrix provides valuable alternative strategies, it does not classify them based on priority. To address this, the Quantitative Strategic Planning Matrix (QSPM) method has been employed.

The prioritization of strategies through the QSPM method involves the following process:

- Each strategy is assigned a score ranging from 1 to 4 based on the level of attractiveness of the internal and external components/factors (1 = not attractive, 2 = less attractive, 3 = moderately attractive; 4 = highly attractive). These scores are derived from the input of seven selected expert professionals in the tourism industry, who provide their valuable insights.
- Next, the Attractiveness Scores (AS) are multiplied by the appropriate weights, as identified in the SWOT analysis, for each internal and external factor. This multiplication results in the Total Attractiveness Score (TAS) for each strategy.
- Finally, the TAS of each strategy under each individual factor is aggregated, and the strategies are ranked based on their total scores. The greater the value of TAS, the higher the priority of that strategy, and vice versa.

Through the QSPM analysis, stakeholders in the HKHK region can systematically prioritize the alternative strategies identified in the TOWS matrix. By integrating expert perspectives and considering the weightage of internal and external factors, the QSPM method aids in selecting the most promising strategies for sustainable adventure tourism development. The ranked strategies can then guide decision-making processes, ensuring that resources and efforts are directed toward the most attractive and impactful initiatives (Stacchini et al., 2022).

3. Results and Discussion

In this section, we present the results obtained from the methodology, which involved administering a questionnaire to identify SWOT factors relevant to the sustainable development of adventure tourism in the Hindukush Himalaya and Karakoram (HKHK) region of Pakistan. These factors were then classified into the TOWS matrix, facilitating the formulation of alternative strategies. Finally, the prioritization of these strategies was achieved through the application of the QSPM method, offering valuable insights for strategic decision-making.

3.1 An Overview of Study Participants

The questionnaire for the identification of SWOT key factors was distributed among various individuals associated with the adventure tourism industry, including tour operators, professional mountaineers, government officials in the tourism industry, and local residents. The participants of the study have the following demographics and associations with the tourism industry.

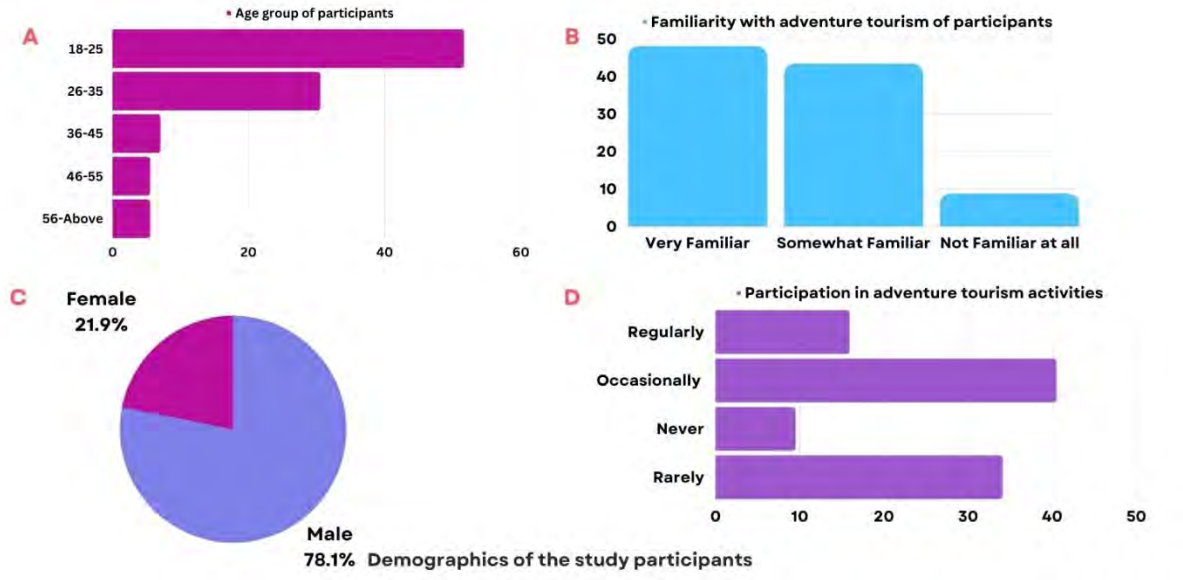

Fig 3. (A) age group of participants, (B) familiarity with adventure tourism, (C) gender of study participants, (D) participants engagement in adventure tourism activities

About half of the study participants were in the age group 18-25. Another significant proportion of the participants, about 30%, were in the age group 26-35. The remaining participants were older than 35, while 5.5% were senior citizens. Male individuals formed a large proportion of the study population. Of the study participants, only a small percentage were not familiar specifically with adventure tourism in the HKHK region.

In addition about 90% of the individuals have participated in adventure tourism activities in the HKHK region at least once in their lifetime.

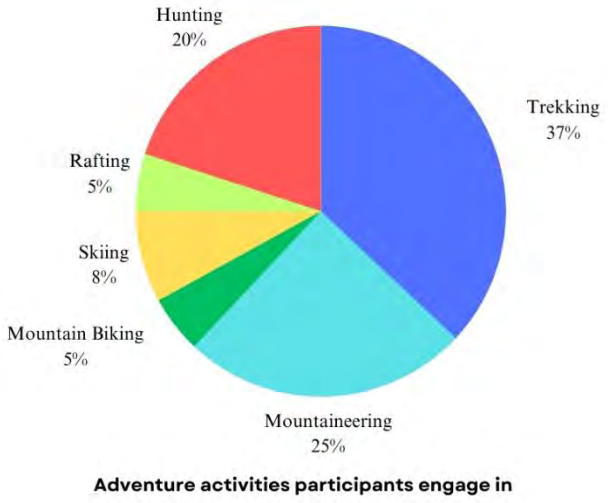

Fig 4. Types of adventure tourism activities participants engage in

Fig 4. shows the types of adventure tourism activities participants engage in, with mountaineering, skiing, and hunting being the most popular.

Lastly, the study encompassed a total of 128 participants, delineated into two distinct categories based on geographical origin. Specifically, 14 individuals were identified as international participants, while the predominant subset of 114 individuals ailed from the Hindukush, Karakoram and Himalaya region within the borders of Pakistan.

3.2 Identifying SWOT factors from the questionnaire

To begin the process, we reviewed the responses from a diverse pool of participants through our questionnaire. The questionnaire comprised both open-ended and closed-ended questions, allowing us to capture a wide range of perspectives. Once the data was gathered, we embarked on the data analysis phase, where we carefully reviewed and interpreted the responses to identify patterns and trends.

3.2.1 Classification of Popular Responses

In the data analysis, we focused on identifying the most frequently mentioned responses for each category: Strengths, Weaknesses, Opportunities, and Threats. By examining the recurring themes in the responses, we were able to pinpoint the key factors that were considered significant by the respondents. The popular responses were categorized into two main groups: Internal Factors (Strengths and Weaknesses) and External Factors (Opportunities and Threats).

For instance, one of the frequently mentioned strengths was the "Diversity of adventure tourism activities: trekking, mountaineering, skiing, rafting, paragliding, etc." Many respondents appreciated the wide range of adventure activities available in the area, making it an attractive destination for thrill-seekers. In addition, a commonly cited weakness was the "Potential lack of government support for sustainable adventure tourism." Several respondents expressed concerns about the need for more support and policies from the government to ensure the long-term sustainability of adventure tourism initiatives.

3.2.2 Weight Calculation

We assigned weights to each factor based on its frequency of mention in the survey responses. The sum of weights for all internal factors (strengths and weaknesses) and all external factors (opportunities and threats) was equal to 1.

For instance, the strength "Interest of international tourists in the region" was mentioned by a significant number of respondents (frequency: 87). Its weight was calculated as 0.081 (87/1071), which is part of the total weight of all internal factors (strengths and weaknesses). In addition, the threat "Climate change and related effects" was another frequently mentioned factor (frequency:

52). Its weight was calculated as 0.066 (52/787), which contributed to the total weight of all external factors (opportunities and threats).

3.2.3 Construction of IFAS and EFAS Matrices

With the data analysis completed and the weights calculated, we proceeded to construct the Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) matrices. The IFAS matrix highlighted the strengths and weaknesses of the adventure tourism industry in the HKHK region

Table 1. The Internal Factor Matrix for Adventure Tourism in the HKHK region

The Internal Factor Matrix			
Sr. No.	**Key Factors**	**Frequency**	**Weight**
	Strengths:		
1	Diversity of adventure tourism activities: trekking, mountaineering, skiing, rafting, paragliding, etc.	123	0.115
2	Economic significance of adventure tourism to the region.	111	0.103
3	Potential for infrastructure development through tourism.	56	0.052
4	Potential for environmental conservation through sustainable tourism.	49	0.046
5	Involvement of local communities in adventure tourism development.	46	0.043
6	Existence of cultural heritage which can be promoted and preserved.	65	0.061
7	Interest of international tourists in the region.	87	0.081
	Weaknesses:		
1	Potential lack of government support for sustainable adventure tourism.	99	0.149
2	Insufficient infrastructure to support the volume or scope of adventure tourism.	74	0.111

3	High vulnerability of mountain environments to environmental degradation	28	0.042
4	Possible negative cultural and social impacts of adventure tourism.	24	0.036
5	Lack of sustainable tourism concepts	64	0.096
6	Lack of regulations or effective enforcement to make tourism more environmentally sustainable.	12	0.018
7	Insufficient existing local adventure tourism businesses.	31	0.047

The EFAS matrix shed light on the opportunities and threats in the external environment. These matrices provided a comprehensive overview of our strategic position, allowing us to make informed decisions and devise effective strategies for the future.

Table 2. The External Factor Matrix for Adventure Tourism in the HKHK region

The External Factor Matrix			
Sr. No.	**Key Factors**	**Frequency**	**Weight**
	Opportunities:		
1	Promotion of eco-friendly technology and practices in adventure tourism.	68	0.073
2	Potential for policymakers to take an active role in leading development, providing financial incentives, and regulatory oversight.	79	0.085
3	Opportunity to minimize negative impacts on local communities by providing tourist education and engaging communities.	71	0.077
4	Potential for improving infrastructure to support sustainable tourism (e.g., transportation, ecotourism lodges, information centers).	56	0.06
5	NGOs and other organizations can contribute to sustainable development initiatives.	89	0.096
6	Adventure tourism can promote local businesses, increase local income, and create job opportunities.	87	0.094

7	Adventure tourism can contribute to preserving and promoting the region's cultural heritage.	13	0.014
	Threats:		
1	Environmental threats such as littering, waste disposal, deforestation, and damage to wildlife habitats.	89	0.112
2	Climate change and related effects	52	0.066
3	Potential lack of awareness and education around sustainable adventure tourism.	71	0.09
4	Seasonal fluctuations and off-peak periods	31	0.039
5	The need for adventure tourism development to be financially viable in the long term.	59	0.074
6	Destruction of Cultural and historical sites by tourists	20	0.025
7	Difficulty in effectively implementing waste management and disposal systems.	74	0.093

3.3 Development of Strategies from the SWOT Matrices for the Sustainable Development of Adventure Tourism in the HKHK Region

For a comprehensive evaluation of the Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) matrices, a panel of seven seasoned experts from the adventure tourism industry was invited to contribute their insights. These experts were selected based on their extensive experience and expertise in the field of adventure tourism. Each expert was provided with the IFAS and EFAS matrices containing the identified factors and their corresponding weights.

The experts had the following affiliation with the adventure tourism industry:

- Professor at the Environment Sciences Department at the Abdul Wali Khan University, Pakistan.
- Published author and researcher on tourism hospitality from Austria.
- Historian and author of several books on adventure tourism in the Hindu Kush region, Pakistan.

- President of Pakistan Association of Tour Operators.
- Politician, mountaineer, and member of Icelandic Parliament, Iceland.
- Secretary Tourism, KPK, Pakistan.
- Journalist on mountaineering in the HKHK region and around the world from Spain.

3.3.1 Ranking of Key Factors by Experts

The experts were asked to rank each factor in the matrices based on its perceived significance or impact on the organization or project. The ranking scale provided to the experts ranged from 1 to 4, where:

1: Minor significance or impact

2: Moderate significance or impact

3: Major significance or impact

4: Very high significance or impact

Through this ranking process, the experts individually assessed the factors, considering their domain knowledge and professional judgment. Each expert independently provided numerical rankings for the factors in both the IFAS and EFAS matrices.

As an example, the ranking given by one expert and the resulting final scores are illustrated in the table 3.

Table 3. An Example of Ranking and Associated Scores from One of the Selected Experts

Sr. No.	Key Factors	Frequ-ency	Wei-ght	Effecti-ve Score	Final Score
Internal Factors					
	Strengths:				
1	Diversity of adventure tourism activities: trekking, mountaineering, skiing, rafting, paragliding, etc.	123	0.115	4	0.46
2	Economic significance of adventure tourism to the region.	111	0.103	2	0.206
3	Potential for infrastructure development through tourism.	56	0.052	3	0.156
4	Potential for environmental conservation through sustainable tourism.	49	0.046	3	0.138

5	Involvement of local communities in adventure tourism development.	46	0.043	4	0.172
6	Existence of cultural heritage which can be promoted and preserved.	65	0.061	4	0.244
7	Interest of international tourists in the region.	87	0.081	3	0.243
	Weaknesses:				
1	Potential lack of government support for sustainable adventure tourism.	99	0.149	3	0.447
2	Insufficient infrastructure to support the volume or scope of adventure tourism.	74	0.111	1	0.111
3	High vulnerability of mountain environments to environmental degradation	28	0.042	3	0.126
4	Possible negative cultural and social impacts of adventure tourism.	24	0.036	2	0.072
5	Lack of sustainable tourism concepts	64	0.096	3	0.288
6	Lack of regulations or effective enforcement to make tourism more environmentally sustainable.	12	0.018	4	0.072
7	Insufficient existing local adventure tourism businesses.	31	0.047	4	0.188
				Total Score:	2.923
External Factors					
	Opportunities:				
1	Promotion of eco-friendly technology and practices in adventure tourism.	68	0.073	3	0.219

2	Potential for policymakers to take an active role in leading development, providing financial incentives, and regulatory oversight.	79	0.085	1	0.085
3	Opportunity to minimize negative impacts on local communities by providing tourist education and engaging communities.	71	0.077	3	0.231
4	Potential for improving infrastructure to support sustainable tourism (e.g., transportation, ecotourism lodges, information centers).	56	0.06	2	0.12
5	NGOs and other organizations can contribute to sustainable development initiatives.	89	0.096	3	0.288
6	Adventure tourism can promote local businesses, increase local income, and create job opportunities.	87	0.094	4	0.376
7	Adventure tourism can contribute to preserving and promoting the region's cultural heritage.	13	0.014	4	0.056
	Threats:				
1	Environmental threats such as littering, waste disposal, deforestation, and damage to wildlife habitats.	89	0.112	4	0.448
2	Climate change and related effects	52	0.066	4	0.264
3	Potential lack of awareness and education around sustainable adventure tourism.	71	0.09	2	0.18
4	Seasonal fluctuations and off-peak periods	31	0.039	2	0.078
5	The need for adventure tourism development to be financially viable in the long term.	59	0.074	3	0.222
6	Destruction of Cultural and historical sites by tourists	20	0.025	2	0.05
7	Difficulty in effectively implementing waste management and disposal systems.	74	0.093	3	0.279

				Total Score:	2.896

Having a total score above 2.5 in the external factor matrix would imply that the perceived opportunities and strengths outweigh the perceived threats and weaknesses, indicating a more favorable external environment for the organization or project. Conversely, a total score below 2.5 in the external factor matrix would mean that the perceived opportunities and strengths are comparatively weaker, and the organization/project faces significant challenges or threats in the external landscape (Chandra & Kumar, 2021b).

In the external factor matrix, with a total score of 2.896, we can infer that the opportunities in the external landscape are relatively robust. This favorable outlook in the external environment presents us with potential advantages and avenues for growth. Similarly, in the internal factor matrix, with a total score of 2.923, we find that the adventure tourism industry in the HKHK region possesses significant strengths that can be leveraged to achieve our objectives.

3.3.2 Creating Strategies from Identified Key Factors

To develop sustainable development strategies for adventure tourism in the HKHK region, we conducted a thorough SWOT analysis that considered both internal and external factors. The key factors were ranked and scored based on their frequency, weight, and effectiveness, resulting in a comprehensive understanding of the strengths, weaknesses, opportunities, and threats facing the adventure tourism industry in the region.

From the SWOT analysis, we used the TOWS matrix to formulate appropriate strategies that align with our thesis title's objectives. By combining internal strengths with external opportunities (SO strategies), we identified potential courses of action that leverage the region's diverse adventure tourism activities, economic significance, and interest of international tourists. These SO strategies seek to capitalize on eco-friendly technology promotion, community engagement, and cultural heritage preservation, fostering a sustainable and attractive adventure tourism environment.

Moreover, by matching internal weaknesses with external opportunities (WO strategies), we devised plans to address challenges such as the lack of government support and regulations while tapping into opportunities like infrastructure development and NGO involvement. The WO strategies aim to overcome weaknesses through effective policies, financial incentives, and environmental education, resulting in improved sustainability and competitiveness.

To manage internal strengths and external threats (ST strategies), we crafted approaches to mitigate potential issues posed by environmental threats and financial viability concerns. These ST strategies involve leveraging the region's strengths, such as local community involvement and cultural heritage, to address threats like climate change and waste management effectively, ensuring long-term viability and resilience.

Furthermore, by combining internal weaknesses with external threats (WT strategies), we identified actions to minimize the impact of challenges such as insufficient infrastructure and lack of sustainable tourism concepts. The WT strategies focus on adopting eco-friendly practices, raising awareness, and implementing sustainable regulations to mitigate the adverse effects of threats on adventure tourism in the HKHK region.

3.3.3 Strength-Opportunity Strategies

SO Strategy 1: Community-Led Sustainable Tourism Development

This strategy leverages the involvement of local communities and their cultural heritage to lead sustainable adventure tourism initiatives. It engages local residents in decision-making processes, empowering them to design and manage tourism activities that promote eco-friendly practices and environmental conservation. This approach will not only enhance the authenticity of experiences for international tourists but also contribute to the economic significance of adventure tourism to the region by generating income and job opportunities for the local population.

Table 4. Strengths and Opportunities Used to Form SO1

Strengths	**Opportunities**
- Diversity of adventure tourism activities.	- Promotion of eco-friendly technology and practices in adventure tourism.
- Involvement of local communities in adventure tourism development.	- NGOs and other organizations can contribute to sustainable development initiatives.

- Existence of cultural heritage which can be promoted and preserved.	- Adventure tourism can promote local businesses, increase local income, and create job opportunities.
	- Adventure tourism can contribute to preserving and promoting the region's cultural heritage.

SO Strategy 2: Public-Private Partnership for Infrastructure Development:

This strategy takes advantage of the potential for infrastructure development through tourism by fostering collaboration between the government, private sector, and NGOs. It develops a comprehensive plan that prioritizes eco-friendly transportation, ecotourism lodges, and information centers. Policymakers can take an active role in leading these initiatives, offering financial incentives, and providing regulatory oversight to ensure sustainable development. Such partnerships will improve the region's tourism infrastructure, attracting more visitors, and supporting environmentally conscious adventure tourism.

Table 5. Strengths and Opportunities Used to Form SO2

Strengths	**Opportunities**
- Potential for infrastructure development through tourism.	- Potential for policymakers to take an active role in leading development, providing financial incentives, and regulatory oversight.
- Economic significance of adventure tourism to the region.	- Potential for improving infrastructure to support sustainable tourism (e.g., transportation, ecotourism lodges, information centers).

SO Strategy 3: Tourist Education and Community Engagement for Responsible Tourism with Focus on International Tourists

This strategy leverages the interest of international tourists in the region's adventure tourism to promote responsible tourism practices. It develops comprehensive tourist education programs that cater specifically to international visitors, emphasizing cultural sensitivity, environmental conservation, and eco-friendly practices. Engage local communities in delivering these programs to enhance cross-cultural understanding and ensure the tourism experiences meet the expectations of international tourists. By fostering responsible tourism and aligning it with the interests of international visitors, this strategy aims to create positive and authentic experiences while minimizing negative impacts on local communities and the environment.

Table 6. Strengths and Opportunities Used to Form SO3

Strengths	**Opportunities**
- Potential for infrastructure development through tourism.	- Potential for policymakers to take an active role in leading development, providing financial incentives, and regulatory oversight.
- Economic significance of adventure tourism to the region.	- Potential for improving infrastructure to support sustainable tourism (e.g., transportation, ecotourism lodges, information centers).

SO Strategy 4: Collaborative Sustainable Adventure Tourism and Cultural Heritage Conservation Projects

This strategy leverages the region's unique cultural heritage, including traditional arts, customs, and historical sites, to develop collaborative projects with local communities, NGOs, and heritage experts. It designs sustainable adventure tourism experiences that highlight the cultural richness

and historical significance of the region. By actively involving local communities and organizations, this strategy aims to preserve and promote the region's cultural heritage while supporting eco-friendly tourism practices. Additionally, explore partnerships with NGOs and other organizations to implement sustainable development initiatives that benefit local economies and foster a sense of pride and ownership among the community members.

Table 7. Strengths and Opportunities Used to Form SO4

Strengths	**Opportunities**
- Diversity of adventure tourism activities.	- NGOs and other organizations can contribute to sustainable development initiatives.
- Involvement of local communities in adventure tourism development.	- Adventure tourism can promote local businesses, increase local income, and create job opportunities.
- Existence of cultural heritage which can be promoted and preserved.	- Adventure tourism can contribute to preserving and promoting the region’s cultural heritage.

3.3.4 Weakness-Opportunity Strategies

WO Strategy 1: Sustainable Adventure Tourism Training and Skill Development

This strategy aims to address the weaknesses of insufficient existing local adventure tourism businesses and the lack of regulations or effective enforcement for environmentally sustainable tourism. By leveraging the opportunity to promote eco-friendly technology and practices in adventure tourism, this approach seeks to empower local communities through training and skill development programs. The collaboration with NGOs and other organizations will help provide training in sustainable practices and enhance the capabilities of local communities to establish and manage adventure tourism businesses while complying with environmental regulations.

Table 8. Weaknesses and Opportunities Used to Form WO1

Opportunities	**Weaknesses**
- Promotion of eco-friendly technology and practices in adventure tourism.	- Insufficient existing local adventure tourism businesses.
- NGOs and other organizations can contribute to sustainable development initiatives.	- Lack of regulations or effective enforcement to make tourism more environmentally sustainable.

WO Strategy 2: Mountain Environment Conservation and Ecotourism Development

This strategy focuses on addressing the weaknesses of insufficient infrastructure to support the volume or scope of adventure tourism and the high vulnerability of mountain environments to environmental degradation. The opportunity to improve infrastructure for sustainable tourism will be leveraged to develop eco-friendly lodges and information centers with minimal environmental impact. Collaborating with policymakers and environmental experts, this approach aims to implement conservation efforts to protect wildlife habitats and sensitive ecosystems while promoting eco-friendly practices through tourist education and community engagement initiatives.

Table 9. Weaknesses and Opportunities Used to Form WO2

Opportunities	**Weaknesses**
- Potential for improving infrastructure to support sustainable tourism (e.g., transportation, ecotourism lodges, information centers).	- Insufficient infrastructure to support the volume or scope of adventure tourism.

- Promotion of eco-friendly technology and practices in adventure tourism.	- High vulnerability of mountain environments to environmental degradation.

WO Strategy 3: Responsible Adventure Tourism Certification and Compliance

This strategy aims to tackle the weaknesses of potential lack of government support for sustainable adventure tourism and the lack of regulations or effective enforcement for environmentally sustainable tourism. By leveraging the opportunity for policymakers to take an active role in leading development and providing financial incentives and regulatory oversight, this approach focuses on collaborating with the government to establish a responsible adventure tourism certification program. The certification will set industry standards for sustainability, encouraging adventure tourism operators to comply with environmentally friendly practices and community engagement efforts.

Table 10. Weaknesses and Opportunities Used to Form WO3

Opportunities	**Weaknesses**
- Potential for policymakers to take an active role in leading development, providing financial incentives, and regulatory oversight.	- Potential lack of government support for sustainable adventure tourism.
	- Lack of regulations or effective enforcement to make tourism more environmentally sustainable.

WO Strategy 4: Cultural Heritage Tourism and Sustainable Community Empowerment

This strategy aims to address the weaknesses of possible negative cultural and social impacts of adventure tourism and the lack of sustainable tourism concepts. Leveraging the opportunity to minimize negative impacts on local communities by providing tourist education and engaging communities, this approach emphasizes collaboration with local communities to develop cultural heritage tourism experiences. By promoting sustainable practices and community engagement, this strategy seeks to preserve cultural heritage responsibly while empowering local communities through sustainable tourism initiatives.

Table 11. Weaknesses and Opportunities Used to Form WO

Opportunities	**Weaknesses**
- Opportunity to minimize negative impacts on local communities by providing tourist education and engaging communities.	- Possible negative cultural and social impacts of adventure tourism.
	- Lack of sustainable tourism concepts.

3.3.5 Strength-Threat Strategies

ST Strategy 1: Sustainable Diversification

This strategy focuses on promoting a diverse range of adventure tourism activities while ensuring they are conducted in an environmentally sustainable manner. Emphasis will be placed on educating tourists and local communities about responsible tourism practices, waste management,

and minimizing the ecological footprint of tourists. Additionally, efforts will be made to adapt to and mitigate the impacts of climate change.

Table 12. Strengths and Threats Used to Form ST1

Strengths	**Threats**
Diversity of adventure tourism activities	Environmental threats (littering, waste disposal, deforestation, damage to wildlife habitats)
Potential for environmental conservation	Climate change and related effects

ST Strategy 2: Making Adventure Tourism Climate Resilient

This strategy aims to make adventure tourism sustainable and adaptable to climate change and seasonal shifts. It involves developing climate-adaptive adventure activities, investing in resilient infrastructure, and implementing effective waste management systems to protect the environment. Seasonal tourism promotions will be used to diversify visitation and reduce environmental strain during peak seasons. In pursuit of climate-resilient adventure tourism, a climate monitoring system will be established to identify optimal times for specific activities. Climate-resilient infrastructure, including weatherproof shelters and sustainable accommodation, will be built. Adventure itineraries will be designed with flexibility to adapt to changing conditions, and adventure operators will be trained on sustainable adaptation strategies to ensure the industry's resilience.

Table 13 . Strengths and Threats Used to Form ST2

Strengths	**Threats**

Diversity of adventure tourism activities	Climate change and related effects
Potential for environmental conservation	Difficulty in effectively implementing waste management and disposal systems

ST Strategy 3: Community-Centered Development

This strategy focuses on empowering and involving local communities in the adventure tourism industry. It aims to raise awareness and provide education about sustainable tourism practices to both tourists and locals. Fostering community-centered development, workshops and training sessions will be organized for locals to enhance adventure tourism skills such as guiding and hospitality. Partnerships between adventure operators and local businesses will prioritize the use of locally sourced goods and services. Initiatives like homestays and cultural experiences will directly benefit local communities, making them integral to the tourism experience.

Table 14. Strengths and Threats Used to Form ST3

Strengths	**Threats**
Economic significance of adventure tourism	Potential lack of awareness and education around sustainable adventure tourism
Involvement of local communities	Difficulty in effectively implementing waste management and disposal systems

ST Strategy 4: Economic Sustainability through Responsible Growth

This strategy entails an approach where adventure tourism stakeholders prioritize the long-term economic viability of the industry while embracing responsible and sustainable practices. By tapping into the economic significance of adventure tourism, the strategy fosters inclusive growth by involving local communities, creating job opportunities, and supporting small businesses. Simultaneously, it emphasizes environmentally conscious practices to mitigate the impact on natural resources and ecosystems, ensuring their preservation for future generations. This strategy focuses on building resilience against seasonal fluctuations and external economic shocks, enabling the adventure tourism sector to adapt, thrive, and continue benefiting local economies and environmental conservation efforts over time.

Table 15. Strengths and Threats Used to Form ST4

Strengths	**Threats**
Economic significance of adventure tourism to the region	Seasonal fluctuations and off-peak periods
Involvement of local communities in adventure tourism development	The need for adventure tourism development to be financially viable in the long term.
Potential for environmental conservation through sustainable tourism	

3.3.6 Weakness-Threat Strategies

WT Strategy 1: Environmental Stewardship and Awareness

This strategy focuses on enhancing environmental stewardship and raising awareness about sustainable adventure tourism practices. It involves collaborating with the government to promote sustainable tourism policies and regulations, while also developing educational campaigns to increase awareness among tourists, operators, and local communities about the importance of responsible environmental practices.

Table 16. Weaknesses and Threats Used to Form WT1

Weaknesses	**Threats**
Lack of regulations or effective enforcement to make tourism more environmentally sustainable	Environmental threats (littering, waste disposal, deforestation, and damage to wildlife habitats)
Lack of sustainable tourism concepts	Climate change and related effects
Potential lack of government support for sustainable adventure tourism	Potential lack of awareness and education around sustainable adventure tourism

WT Strategy 2: Infrastructure and Seasonal Resilience

This strategy emphasizes investing in infrastructure development to support adventure tourism growth and build resilience against seasonal fluctuations. It involves promoting public-private partnerships to address infrastructure gaps, providing training and support to local entrepreneurs to establish adventure tourism businesses, and developing innovative experiences to attract tourists during off-peak periods.

Table 17. Weaknesses and Threats Used to Form WT2

Weaknesses	**Threats**
Insufficient infrastructure to support the volume or scope of adventure tourism	Seasonal fluctuations and off-peak periods
Insufficient existing local adventure tourism businesses	The need for adventure tourism development to be financially viable in the long term

WT Strategy 3: Mountain Environment Protection and Conservation

This strategy focuses on conservation efforts for mountain environments and sustainable tourism practices. It involves collaborating with environmental organizations to implement conservation projects, enacting and enforcing regulations to protect sensitive mountain areas, and educating adventure tourists about the importance of preserving these unique ecosystems.

Table 18. Weaknesses and Threats Used to Form WT3

Weaknesses	**Threats**
High vulnerability of mountain environments to environmental degradation	Environmental threats (littering, waste disposal, deforestation, and damage to wildlife habitats)
Lack of regulations or effective enforcement to make tourism more environmentally sustainable	Climate change and related effects

WT Strategy 4: Cultural and Social Responsibility

This strategy centers on promoting cultural and social responsibility within adventure tourism. It entails conducting impact assessments to identify potential negative effects on local cultures, engaging with communities to develop culturally sensitive tourism experiences, and supporting the establishment of local adventure tourism businesses that uphold ethical practices and contribute positively to the community.

Table 19. Weaknesses and Threats Used to Form WT4

Weaknesses	**Threats**
Possible negative cultural and social impacts of adventure tourism	Destruction of Cultural and historical sites by tourists
Lack of existing local adventure tourism businesses	Potential lack of awareness and education around sustainable adventure tourism

3.4 Selecting the Best Strategies Using QSPM

To select and prioritize strategies for sustainable development in adventure tourism within the HKHK region, we employed the Quantitative Strategic Planning Matrix (QSPM) technique. This approach involved integrating the rankings given by seven experts from the adventure tourism industry. Due to some experts providing similar rankings, we created four diverse sets of rankings, enabling us to consider various perspectives and ensuring a comprehensive analysis. MS Excel was used for collating rankings from seven experts, calculating average rankings, and generating QSPM results for strategy prioritization.

The QSPM results are shown in four tables, each representing a different strategy category: Strength-Opportunity (SO), Weakness-Opportunity (WO), Strength-Threat (ST), and Weakness-Threat (WT) strategies. The matrix provides a platform for evaluating and comparing potential strategies based on the cumulative Final Attractive Scores (FAS). The FAS for each strategy is calculated by multiplying the weight, Assigned Score (AS), and Total Attractive Score (TAS).

Table 20. QSPM analysis results showing final attractive scores for each strategy.

		SO1		**SO2**		**SO3**		**SO4**	
	Weight	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**
S1	0.115	4	0.46	3	0.345	4	0.46	4	0.46
S2	0.103	2	0.206	4	0.412	2	0.206	2	0.206
S3	0.052	3	0.156	4	0.208	3	0.156	2	0.104
S4	0.046	3	0.138	3	0.138	3	0.138	3	0.138
S5	0.043	4	0.172	3	0.129	3	0.129	4	0.172
S6	0.061	4	0.244	3	0.183	4	0.244	4	0.244
S7	0.081	3	0.243	3	0.243	4	0.324	3	0.243
O1	0.073	3	0.219	3	0.219	3	0.219	3	0.219
O2	0.085	1	0.085	4	0.34	1	0.085	1	0.085
O3	0.077	3	0.231	3	0.231	4	0.308	2	0.154
O4	0.06	2	0.12	4	0.24	2	0.12	2	0.12
O5	0.096	3	0.288	3	0.288	3	0.288	4	0.384
O6	0.094	4	0.376	3	0.282	4	0.376	4	0.376
O7	0.014	4	0.056	3	0.042	3	0.042	4	0.056
FAS			**2.994**		**3.3**		**3.095**		**2.961**
		WO1		**WO2**		**WO3**		**WO4**	
	Weight	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**
W1	0.149	3	0.447	3	0.447	4	0.596	3	0.447

W2	0.111	1	0.111	4	0.444	1	0.111	1	0.111
W3	0.042	3	0.126	4	0.168	3	0.126	3	0.126
W4	0.036	2	0.072	2	0.072	2	0.072	4	0.144
W5	0.096	3	0.288	1	0.096	3	0.288	4	0.384
W6	0.018	4	0.072	3	0.054	4	0.072	3	0.054
W7	0.047	4	0.188	1	0.047	1	0.047	1	0.047
O1	0.073	3	0.219	3	0.219	3	0.219	3	0.219
O2	0.085	1	0.085	4	0.34	1	0.085	1	0.085
O3	0.077	3	0.231	3	0.231	4	0.308	2	0.154
O4	0.06	2	0.12	4	0.24	2	0.12	2	0.12
O5	0.096	3	0.288	3	0.288	3	0.288	4	0.384
O6	0.094	4	0.376	3	0.282	4	0.376	4	0.376
O7	0.014	4	0.056	3	0.042	3	0.042	4	0.056
FAS			**2.679**		**2.97**		**2.75**		**2.707**
		ST1		**ST2**		**ST3**		**ST4**	
	Weight	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**
S1	0.115	4	0.46	3	0.345	4	0.46	4	0.46
S2	0.103	2	0.206	4	0.412	2	0.206	2	0.206
S3	0.052	3	0.156	4	0.208	3	0.156	2	0.104
S4	0.046	3	0.138	3	0.138	3	0.138	3	0.138
S5	0.043	4	0.172	3	0.129	3	0.129	4	0.172

S6	0.061	4	0.244	3	0.183	4	0.244	4	0.244
S7	0.081	3	0.243	3	0.243	4	0.324	3	0.243
T1	0.112	4	0.448	3	0.336	3	0.336	3	0.336
T2	0.066	4	0.264	4	0.264	3	0.198	3	0.198
T3	0.09	1	0.09	3	0.27	4	0.36	2	0.18
T4	0.039	2	0.078	3	0.117	1	0.039	4	0.156
T5	0.074	3	0.222	3	0.222	3	0.222	4	0.296
T6	0.025	2	0.05	1	0.025	1	0.025	1	0.025
T7	0.093	3	0.279	4	0.372	3	0.279	3	0.279
FAS			**3.05**		**3.264**		**3.116**		**3.037**
		WT1		**WT2**		**WT3**		**WT4**	
	Weight	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**	**AS**	**TAS**
W1	0.149	3	0.447	3	0.447	4	0.596	3	0.447
W2	0.111	1	0.111	4	0.444	1	0.111	1	0.111
W3	0.042	3	0.126	4	0.168	3	0.126	3	0.126
W4	0.036	2	0.072	2	0.072	2	0.072	4	0.144
W5	0.096	3	0.288	1	0.096	3	0.288	4	0.384
W6	0.018	4	0.072	3	0.054	4	0.072	3	0.054
W7	0.047	4	0.188	1	0.047	1	0.047	1	0.047
T1	0.112	4	0.448	3	0.336	3	0.336	3	0.336
T2	0.066	4	0.264	4	0.264	3	0.198	3	0.198

T3	0.09	1	0.09	3	0.27	4	0.36	2	0.18
T4	0.039	2	0.078	3	0.117	1	0.039	4	0.156
T5	0.074	3	0.222	3	0.222	3	0.222	4	0.296
T6	0.025	2	0.05	1	0.025	1	0.025	1	0.025
T7	0.093	3	0.279	4	0.372	3	0.279	3	0.279
FAS			**2.735**		**2.934**		**2.771**		**2.783**

Based on the QSPM results, the strategies were prioritized according to their Final Attractive Scores (FAS). The strategies with higher FAS values were considered more favorable and effective in addressing the outcomes of the SWOT analysis for sustainable development strategies in adventure tourism in the HKHK region. These are shown in the table below.

Table 21. Priority level of each strategy based on QSPM results

Priority	**Strategy**	**Final Attractive Score (FAS)**
1	SO2: Public-Private Partnership for Infrastructure Development	3.300
2	ST2: Making Adventure Tourism Climate Resilient	3.264
3	ST3: Community-Centered Development	3.116
4	SO3: Tourist Education and Community Engagement for Responsible Tourism with a Focus on International Tourists	3.095
5	ST1: Sustainable Diversification	3.050

6	SO1: Community-Led Sustainable Tourism Development	2.994
7	WT2: Infrastructure and Seasonal Resilience	2.970
8	SO4: Collaborative Sustainable Adventure Tourism and Cultural Heritage Conservation Projects	2.961
9	WO3: Responsible Adventure Tourism Certification and Compliance	2.934
10	WT4: Cultural and Social Responsibility	2.783
11	WT1: Environmental Stewardship and Awareness	2.771
12	WT3: Mountain Environment Protection and Conservation	2.771
13	WO2: Mountain Environment Conservation and Ecotourism Development	2.750
14	WO1: Sustainable Adventure Tourism Training and Skill Development	2.735
15	WT1: Environmental Stewardship and Awareness	2.735
16	WT2: Infrastructure and Seasonal Resilience	2.707

The top priority strategy with the highest FAS is "SO2: Public-Private Partnership for Infrastructure Development" with a score of 3.300. This strategy emphasizes collaboration

between the public and private sectors to enhance infrastructure development, which can significantly contribute to the growth and sustainability of adventure tourism in the region.

The second priority strategy is "ST2: Making Adventure Tourism Climate Resilient" with an FAS of 3.264. This strategy focuses on making adventure tourism resilient to climate change, addressing potential challenges and ensuring the industry's long-term viability in the face of environmental changes.

Next in line is "ST3: Community-Centered Development" with an FAS of 3.116. This strategy places emphasis on involving and empowering local communities in adventure tourism development, which can foster sustainable practices and enhance community benefits.

"SO3: Tourist Education and Community Engagement for Responsible Tourism with a Focus on International Tourists" follows with an FAS of 3.095. This strategy emphasizes educating tourists and engaging them in responsible tourism practices, thereby promoting cultural and environmental preservation.

"Sustainable Diversification" holds the fifth position with an FAS of 3.050. This strategy focuses on diversifying adventure tourism offerings, attracting a broader range of visitors while ensuring sustainability.

The remaining strategies in the top ten include "SO1: Community-Led Sustainable Tourism Development" (FAS: 2.994), "WT2: Infrastructure and Seasonal Resilience" (FAS: 2.970), "SO4: Collaborative Sustainable Adventure Tourism and Cultural Heritage Conservation Projects" (FAS: 2.961), "WO3: Responsible Adventure Tourism Certification and Compliance" (FAS: 2.934), and "WT4: Cultural and Social Responsibility" (FAS: 2.783).

These prioritized strategies highlight the significance of community engagement, responsible tourism practices, environmental protection, and collaboration in fostering sustainable adventure tourism development in the HKHK region. By focusing on these high-ranking strategies, the region can enhance its adventure tourism industry's resilience, attractiveness, and positive impact on both the environment and local communities.

3.5 Importance of the Selected Strategies

The sustainable development strategies identified through the SWOT analysis and prioritized using the QSPM offer valuable insights for the adventure tourism industry in the HKHK region. These strategies were carefully evaluated and ranked based on their potential to capitalize on strengths, address weaknesses, seize opportunities, and mitigate threats. In this section, we will delve into the importance and potential impact of the top four selected strategies. These strategies emerged as the most promising in fostering sustainable growth, resilience, and positive outcomes for adventure tourism in the region. By understanding the significance of these strategies, stakeholders can make informed decisions and direct their efforts towards ensuring the long-term success and sustainability of adventure tourism in the HKHK region.

To recap, the four selected strategies, in order of priority, for sustainable development in adventure tourism in the HKHK region are:

1. Public-Private Partnership for Infrastructure Development (SO2): This strategy aims to foster collaboration between the government, private sector, and local communities to invest in and improve tourism-related infrastructure. By developing modern and sustainable facilities, the region can enhance the overall tourism experience and attract more visitors.

2. Making Adventure Tourism Climate Resilient (ST2): Climate change poses a significant threat to the region's natural environment and adventure tourism activities. This strategy focuses on implementing measures to adapt to climate change impacts and promote environmentally responsible practices in the industry.

3. Community-Centered Development (ST3): This strategy emphasizes engaging and involving local communities in adventure tourism development. By empowering communities to actively participate in decision-making and benefit from tourism, the strategy promotes social and economic sustainability while preserving local cultural heritage.

4. Tourist Education and Community Engagement for Responsible Tourism with a Focus on International Tourists (SO3): This strategy aims to educate tourists and engage them in responsible and sustainable tourism practices. By raising awareness among international visitors, the region can reduce negative impacts on the environment and local communities, thus fostering responsible tourism growth.

Although there is a scarcity of studies focusing on sustainable strategies for adventure tourism in the HKHK region of Pakistan, we can draw insights from comparable studies conducted in other natural landscapes.

For instance, our prioritized strategies for sustainable tourism development in the HKHK region share common themes with the strategies proposed by Fan et al. (2023) in their study on Changbai Mountain in China. Both studies emphasize the significance of infrastructure development and investment in the tourism sector through public-private partnerships. In our research, the "Public-Private Partnership for Infrastructure Development" (SO2) strategy aims to foster collaboration between the government, private sector, and local communities to improve tourism-related infrastructure. Similarly, Fan et al. (2023) suggest "establishing an appropriate mechanism for public and private sector investment in infrastructure, tourism services, and entrepreneurship" as a crucial strategy for sustainable tourism development in Changbai Mountain.

In our strategy "Community-Centered Development" (ST3), we emphasize the involvement of local communities to preserve cultural heritage and promote sustainable tourism. Similarly, Kelfaoui et al. (2021) identified a strategy for rural mountain tourism in Kabylie, Algeria, which advocates for the revitalization of traditional villages, preservation of handicrafts, and cultural events related to heritage to attract tourists to the Kabylie region.

In addition, upon comparing the priority strategies proposed by Chandra and Kumar (2020) for sustainable tourism development in the Northern Himalayan State of India with our identified strategies for sustainable adventure tourism in the HKHK region, several key similarities emerge. both studies recognize the importance of capitalizing on the region's diverse attractions and nurturing them into niche tourism segments. Our strategy "Making Adventure Tourism Climate Resilient" aligns with their strategy "SO1 – Capitalizing scientific inputs and recognizing the conventional sustainability practices, Uttarakhand's diverse tourism attractions can be nurtured into niche tourism segments."

Furthermore, both studies emphasize the role of vocational training and local involvement for creating an innovative and professional service environment. Our strategy "Community-Centered Development" is akin to their strategy "SO2 – Through vocational training programs and by

increasing a focus on local volunteers and representatives, an innovative professional service environment might be developed for sustainable tourism in the State." While Chandra and Kumar emphasize shifting focus from religious to ecotourism and other niche forms, our strategy "Sustainable Diversification" shares the common goal of promoting sustainable and diverse tourism offerings.

Some strategies proposed by Ghorbani et al. (2015) for sustainable tourism development in the Kaji Namakzar Wetland, Iran also match our proposed strategies. Ghorbani et al.'s "WT3 - People participations using tourism approaches for sustainable management of ecotourism" can be compared to our "Community-Centered Development." Both strategies advocate for community engagement and active involvement in the tourism development process, recognizing the value of local knowledge and participation in sustainable management practices. Additionally, Ghorbani et al.'s "SO4 - Ecotourism development for attracting tourists, students, and researchers from environmental and earth sciences" aligns with our strategy "Collaborative Sustainable Adventure Tourism and Cultural Heritage Conservation Projects." Both strategies promote the preservation and sustainable use of natural resources and cultural heritage, aiming to attract different stakeholders interested in ecotourism and adventure tourism.

By comparing our strategies with those from other studies, we reinforce the alignment of priorities and emphasized the universal importance of responsible tourism development. These insights provide valuable guidance for policymakers, industry stakeholders, and local communities to implement effective and sustainable strategies that promote adventure tourism while preserving the natural and cultural richness of the HKHK region.

4. Conclusion

In conclusion, this study explored the sustainable development of adventure tourism in the HKHK region of Pakistan. The study commenced with a comprehensive SWOT analysis, which identified the region's strengths, weaknesses, opportunities, and threats concerning adventure tourism. By leveraging the TOWS matrix and QSPM with rankings from experts, we extracted and prioritized key strategies that could enhance the sustainability and growth of adventure tourism in the region. Our findings highlighted the significance of various strategies, such as "Public-Private Partnership for Infrastructure Development" and "Making Adventure Tourism Climate Resilient," emphasizing the importance of collaboration, climate resilience, and community engagement in promoting responsible tourism practices. By combining internal and external perspectives, we gained a holistic understanding of the factors impacting the region's tourism landscape and formulated strategies that capitalize on its strengths while addressing potential challenges.

Moving forward, the HKHK region has significant potential to become a prime destination for adventure tourism. To ensure its sustainable development, future research could focus on assessing the impact of implemented strategies, gauging the satisfaction of tourists and local communities, and monitoring environmental and social indicators. Additionally, conducting studies on the economic benefits of sustainable tourism and developing tools for effective destination management and marketing would be beneficial.

This study contributes valuable insights and practical strategies to foster the sustainable development of adventure tourism in the HKHK region. By adopting these strategies and exploring further research directions, we can envision a future where adventure tourism thrives harmoniously with the region's natural beauty, cultural heritage, and local communities, ensuring the preservation and prosperity of this unique tourism landscape.

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6. Appendix – Questionnaire for First Phase

Response Number

{{Response Number}}

Respondent Email

{{Respondent Email}}

Date Submitted

{{Date Submitted}}

What is your age group?

{{What is your age group?}}

What is your gender?

{{What is your gender?}}

Do you live in the Hindukush Karakoram and Himalaya region of Pakistan? (mention your district below)

{{Do you live in the Hindukush Karakoram and Himalaya region of Pakistan? (mention your district below)}}

How familiar are you with adventure tourism in the Hindukush Karakoram and Himalaya region of Pakistan?

{{How familiar are you with adventure tourism in the Hindukush Karakoram and Himalaya region of Pakistan?}}

How often do you participate in adventure tourism activities in the region?

{{How often do you participate in adventure tourism activities in the region?}}

What type of adventure tourism activities have you participated in within the region? Please select all that apply.

{{What type of adventure tourism activities have you participated in within the region? Please select all that apply.}}

How important do you think is adventure tourism to the economy of the region?

{{How important do you think is adventure tourism to the economy of the region?}}

In your opinion, what are the main benefits of adventure tourism to the local community in the region? Please select any that you think are relevant.

{{In your opinion, what are the main benefits of adventure tourism to the local community in the region? Please select any that you think are relevant.}}

What do you think are the main challenges facing sustainable adventure tourism development in the region? Please select any that you think are relevant.

{{What do you think are the main challenges facing sustainable adventure tourism development in the region? Please select any that you think are relevant.}}

In your opinion, what should be the top priority for sustainable adventure tourism development in the region?

{{In your opinion, what should be the top priority for sustainable adventure tourism development in the region?}}

What is the importance of the private sector for tourism development in the Pakistan HKH region?

{{What is the importance of the private sector for tourism development in the Pakistan HKH region?}}

Is it easy for foreign visitors to receive permits and clearance for adventure tourism activities in the HKH region?

{{Is it easy for foreign visitors to receive permits and clearance for adventure tourism activities in the HKH region?}}

What role do you think policymakers should play in sustainable adventure tourism development in the region? Please select any that you think are relevant.

{{What role do you think policymakers should play in sustainable adventure tourism development in the region? Please select any that you think are relevant.}}

How developed is the tourism infrastructure in the HKH region?

{{How developed is the tourism infrastructure in the HKH region?}}

Are local communities negatively impacted by adventure tourism in the HKH region?

{{Are local communities negatively impacted by adventure tourism in the HKH region?}}

How can adventure tourism development in the region contribute to poverty alleviation? Please select any that you think are relevant.

{{How can adventure tourism development in the region contribute to poverty alleviation? Please select any that you think are relevant.}}

Is international tourism becoming more popular in the HKH region of Pakistan?

{{Is international tourism becoming more popular in the HKH region of Pakistan?}}

Which of the following is an environmental threat associated with adventure tourism in the HKH region of Pakistan? Please select any that you think is relevant.

{{Which of the following is an environmental threat associated with adventure tourism in the HKH region of Pakistan? Please select any that you think is relevant.}}

How can adventure tourism development in the region be made more environmentally sustainable? Please select any you think are relevant

{{How can adventure tourism development in the region be made more environmentally sustainable? Please select any you think are relevant}}

In your opinion, what is the most important factor that should be considered when developing sustainable adventure tourism in the region?

{{In your opinion, what is the most important factor that should be considered when developing sustainable adventure tourism in the region?}}

Do you think adventure tourism can affect biodiversity in the HKH region?

{{Do you think adventure tourism can affect biodiversity in the HKH region?}}

How can education and awareness-raising initiatives be used to promote sustainable adventure tourism practices among tourists and local communities? Please select any you think are relevant

{{How can education and awareness-raising initiatives be used to promote sustainable adventure tourism practices among tourists and local communities? Please select any you think are relevant}}

How can the government work with local communities to ensure that they benefit from sustainable adventure tourism development in the region?

{{How can the government work with local communities to ensure that they benefit from sustainable adventure tourism development in the region?}}

How can the region's infrastructure be improved to support sustainable adventure tourism development? Please select any that you think are relevant.

{{How can the region's infrastructure be improved to support sustainable adventure tourism development? Please select any that you think are relevant.}}

How can NGOs and other organizations play a role in promoting sustainable adventure tourism in the region? Please select any you think are relevant.

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