

Hot Springs in Nepal: Tourism Management and Sustainability

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Abstract

Hot springs, naturally occurring geothermal phenomena, attract tourists for their therapeutic, spiritual, and recreational benefits. Nepal has favorable geological conditions and hosts numerous hot springs, yet their potential remains underutilized due to accessibility challenges and limited research. This study uses a mixed-methods approach to explore tourist motivations and the sustainable management of hot springs as a tourism resource in Nepal. The study employed content analysis and semi-structured interviews with 60 respondents from six hot spring sites. The study revealed that most tourists visit for medicinal and therapeutic purposes, underscoring their health and wellness benefits. Respondents highlighted the need for improved infrastructure to support sustainable tourism and manage growing visitor numbers. The study emphasizes a shift towards eco-friendly and wellness-oriented tourism, recognizing the importance of sustainable management for the long-term viability of hot springs tourism in Nepal.

Keywords:

Hot springs, Medicinal tourism, Spiritual tourism, Recreational tourism, Sustainable development

1 Introduction

Hot springs, or thermal springs, are characterized by the regular emergence of warm or hot groundwater from the Earth's surface, often with high mineral content. These geological features, exceeding the human body's temperature of 37°C and thereby termed as thermal springs, are shaped by natural processes such as magmatic activity, radioactive decay, thermal gradients, and chemical transformations within the Earth's crust (Stearns et al., 1937). Often found in volcanic regions and youthful tectonic belts like Nepal, they emerge as groundwater interacts with heated rocks or magmatic steam through fissures or veins. The composition of these springs is determined by the geological characteristics of the host rocks, primarily occurring along tectonic structures like thrust faults in Nepal, where surface water absorbs geothermal heat and resurfaces as thermal springs (Rai et al., 2020).

Sacred natural sites, as defined by the International Union for Nature, are lands or waters of special significance to peoples and communities. These include rivers, lakes and springs regarded as sacred and attracting tourists for their hot water with spiritual value (Khole, 2020). In various cultures, hot springs play pivotal roles in rituals and possess miraculous and healing properties, making them integral to spiritual life. This field of study highlights the importance of understanding niche tourism markets and the challenges they face in sustainable practice. Dating back to around 500 B.C., hot spring bathing has roots in Europe, the Middle East, South Asia, and China, despite concerns over water purity and potential hazards associated with some springs (Romero et al., 2003). Likewise, hot springs are given importance due to their therapeutic, relaxation, recreational, and spiritual values in Nepal (Ranjit, 2022).

This study explores the evolving utilization of hot springs as a significant tourist attraction in Nepal, a nation characterized by a profound belief in the medicinal, religious, and recreational values of hot springs, coupled with a deep-rooted adherence to ancient Hindu traditions. This inquiry aligns with prior scholarly works that have examined hot springs for various purposes, underscoring a rich academic interest in their multifaceted significance. Additionally, the study investigates the motivations driving tourists to visit Nepal's hot springs. It also examines the prospects and challenges associated with hot springs tourism, focusing on sustainable utilization and strategic management of hot springs as valuable tourism assets in Nepal. This focus is crucial in ensuring that hot springs remain a sustainable and revered component within the broader context of Nepal's tourism offerings.

2 Literature Review

2.1 Hot water springs and geothermal zones in Nepal

Nepal's geological setup has resulted in numerous hot springs, but detailed exploration is limited due to poor accessibility. These potential hot spring sites are often located in challenging terrains or remote, uninhabited regions with scant information sources. Among the notable hot springs, many are situated in areas that can be accessed

via motorable roads or trekking paths. These include Syabrubesi in Rasuwa; Kharpani near the Seti River; Jhinu along Modi Khola; areas adjacent to the Marsyangdi River below the Manang district headquarters; Tatopani village on the banks of the Kaligandaki River Valley; Khalanga Bazaar by the Tila Nadi Mayana near Bauli Gad and Jeoli Gad; Tapoban in Bajhang; the Valley of the Ritha God River in Darchula; areas along the Burhi Gandaki River on the Manaslu Base Camp route; Bhurung in Myagdi along the Annapurna circuit; Singha Tatopani by Myagdi Khola; and Kodari, Tatopani Bazaar near the Nepal - China border in Sindhupalchowk district.

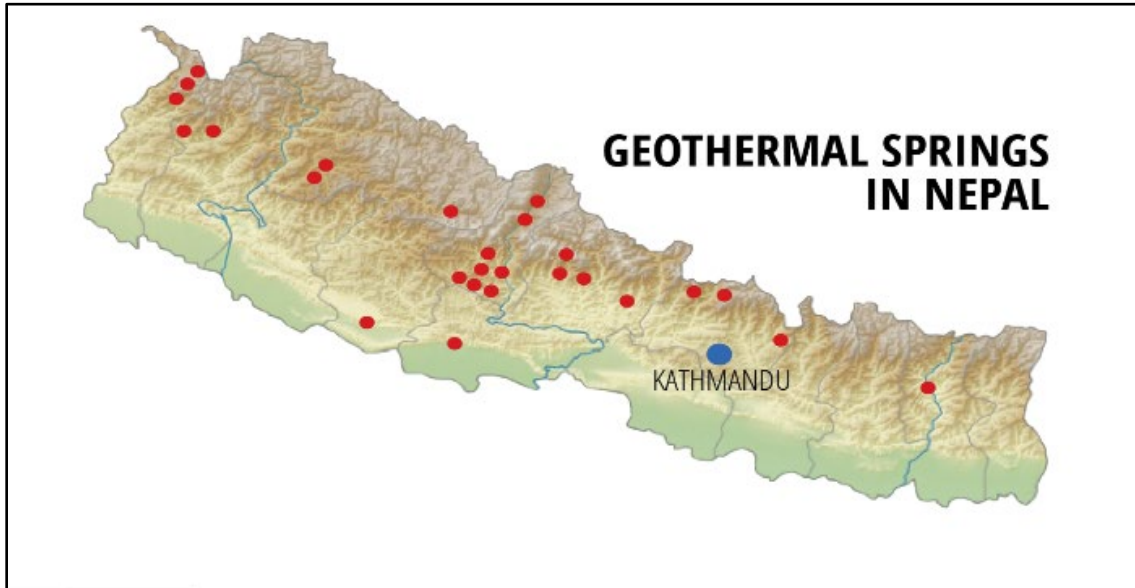


Figure 1: Locations of hot springs in Nepal (Ranjit, 2022)

Nepal has conducted scientific investigations of over a dozen geothermal sites in the early 1980s. These studies revealed that leveraging geothermal energy for electricity generation was not economically viable due to the low subsurface temperatures. Further analyses using various geo-thermometers have since confirmed subsurface temperatures in the range of 50°C to 120°C, whereas the temperatures at the surface of the thermal waters are between 23°C and 73°C (Ranjit, 2022).

Figure 1 presents the geothermal springs range in Nepal. Nepal has catalogued approximately 29 geothermal springs, predominantly located along the banks of major rivers such as the Mahakali, Karnali, Tila, Kaligandaki, Myagdi, Marshyangdi, Trishuli, and Bhotekoshi. The Government of Nepal has recognized 23 sites officially out of these identified sites. Notably, many of these geothermal springs are situated in remote and less accessible regions, often necessitating the traversal of unfamiliar trails to reach them (Rai et al., 2020).

2.2 Hot springs as tourism resources

Hot spring tourism represents a rapidly expanding segment of experiential tourism, incorporating elements of leisure, health and wellness, cultural enrichment, and

recreational activities (Chen, 2011). The lack of a universally accepted definition of hot spring in tourism literature creates challenges to its conceptualization. Generally, it involves tourism activities conducted at geothermal spring locations during leisure time, aimed at achieving therapeutic benefits, spiritual immersion, and recreational experiences, underscored by the unique natural features and ambience of these sites. The motivations driving customers to engage in hot spring tourism vary across regions, with Asian tourists often in pursuit of inner peace and serenity, whereas Western tourists are more likely to seek social interactions within spa environments. As a result, hot spring facilities offer a range of services that cater to these regional preferences, reflecting underlying cultural and historical influences (Khole, 2020). The domain of hot spring-based tourism has attracted considerable academic interest, given its unique combination of natural resources, its diverse uses for religious, therapeutic, and recreational purposes, and its ability to attract and engage various stakeholders (Chen, 2011).

Hot water springs have been tapped for their therapeutic benefits for centuries, aiding in the treatment of ailments such as rheumatism, skin infections, and digestive problems. The practice of visiting hot springs for health and healing harks back to ancient civilizations like the Greeks and Romans. These early societies were pioneers in tourism that revolved around the healing virtues of mineral waters, with the Romans placing particular emphasis on both the therapeutic and social aspects of hot springs (Altman, 2000).

This tradition has evolved into a distinct global health spa travel trend, merging the therapeutic attributes of hot springs with a variety of wellness treatments and holiday experiences. The natural setting, especially the curative properties of water and climate, has emerged as a key component in the worldwide health and wellness tourism sector. Hot springs are globally recognized for their medicinal benefits, significantly enhancing health and wellness spa tourism by offering therapeutic properties that promote physical and mental well-being (Altman, 2000). Since the 1980s, the domain of hot (thermal) springs and mineral spa tourism has undergone significant changes. There's been an increasing appreciation for the role of preventive medicine, marked by a revival in the tradition of "taking the waters" as a form of relief from the pressures of modern urban life (Takeda, 2023).

The practice of pilgrimage to sacred sites, spanning from naturally occurring locales to human-constructed destinations, is a historical and cross-cultural phenomenon. Among these sacred sites, hot water springs hold a distinctive place, regarded as inherently sacred due to their capacity to evoke profound and transcendent experiences within human consciousness. These natural springs are conceptually defined as areas of land or water having special spiritual significance to peoples and communities (Khole, 2020). Hot springs, often situated in picturesque settings, hold deep religious significance for nearby communities and are associated with shared beliefs in nature's sanctity, rooted in spiritual attributes.

In addition, hot springs tourism has gained significant traction as a recreational activity due to its therapeutic benefits and unique experiential offerings. The geothermal waters, typically situated in rich natural landscapes and abundant in minerals, are believed to provide various health advantages, including improved circulation and stress relief. Additionally, the cultural and historical significance of many hot spring locations enhances their appeal, as tourists seek both relaxation and an authentic connection to the natural environment of the area (Khole, 2020). This dual attraction of physical wellness and cultural enrichment makes hot springs tourism a compelling choice for those seeking holistic recreational experiences (Chen, 2011).

The motivations driving pilgrimages to hot springs are diverse and encompass reverence for deities, active participation in rituals, quests for well-being, purification, resolution of fertility issues, absolution of sins, preservation of religious identity, and the pursuit of miraculous powers (Khole, 2020). Across various cultures, the cultural interpretation of water, bathing rituals, traditional medicinal practices, and perspectives on natural resources shape the utilization of hot springs. Additionally, hot springs have historically been intricately linked to the supernatural, and featured prominently in myths and legends that involve deities and mythical beings, further emphasizing their sacred status. These narratives, rooted in diverse cultural contexts, recount tales of magical properties associated with hot springs, including stories of fairies, legendary heroes, fountains of youth, and the concept of living or dead waters, showcasing the enduring spiritual significance of hot springs (Fytikas, 2000).

3 Methodology

This study adopted a mixed-methods approach to explore the motivations and changing dynamics of hot spring water tourism and sustainability. It incorporated two principal methodologies: (a) content analysis and (b) semi-structured interviews, both conducted at tourist sites in Nepal. Initially, content analysis was utilized as a qualitative tool, enabling an in-depth review and interpretation of visitors' experiences. This included the analysis of written content from websites, blogs, and records about hot water springs, as well as non-textual elements like images and graphical depictions. The content analysis process involved a meticulous examination of the data, adhering to a methodological framework similar to those used in previous research (Suneeth, 2021). Additionally, the study conducts semi-structured interviews to identify research gaps and gather detailed insights into the views and opinions relevant to the study's focus.

The study was framed within an exploratory model to thoroughly investigate the study's specific aims, a strategy frequently applied in tourism research to explore the hot springs as tourism resources in Nepal. The validity of the interview questionnaire was ensured after it was reviewed by two tourism experts. Modifications were made to the questionnaire based on their feedback. Interviews were conducted face-to-face, employing purposive and non-probability sampling methods, from September 18, 2023, to January 15, 2024, with each session lasting between 10 and 20 minutes. Data were recorded using an Excel spreadsheet, and MAXQDA 20 Analytics Pro software was used

for efficient and structured theme-based content analysis, following well-established methodologies in tourism research.

Table 1 presents the details of data collection for the semi-structured interviews conducted with 60 tourists and local stakeholders at diverse locations in Nepal. The study focused on six specific hot water spring sites in Nepal, which were selected to conduct semi-structured interviews as part of the research investigation. The chosen sites included Sribagar, Darchula, Jomsom, Mustang, Sadhu Khola, Mustang, Chame, Manang, Singha Tatopani, Myagdi and Tila Nadi, Jumla.

Table 1: Detail of selected hot springs in Nepal and respondents

S.N	Selected Sites/District	Temperature (c)	No. of Respondents		
			Tourists	Local Stakeholders	Total
1	Sribagar, Darchula	73	8	2	10
2	Jomsom, Mustang	72	8	2	10
3	Sadhu Khola, Mustang	69	8	2	10
4	Chame, Manang	55	8	2	10
5	Singha Tatopani, Myagdi	54	8	2	10
6	Jarmi Tatopani, Jumla	42	8	2	10
Total			48	12	60

The study selected the natural hot springs sites strategically based on their temperature (Rai et al., 2020), popularity and socio-cultural significance and to offer a diverse representation of hot water springs within the context of the study, facilitating a comprehensive exploration of motivations and evolving dynamics in hot springs water tourism.

4 Findings

The findings of this study illuminate the objectives through two distinct sections. The initial part focuses on the use of hot water springs in Nepal as a tourism resource. This segment analyzes the data from semi-structured interviews with tourists, offering insight into their motivations. It also considers the future prospects and challenges, informed by discussions with both spring authorities and tourists. The subsequent section further explores the evolving role of hot water springs as a tourism resource, capturing tourists' views on sustainable use and effective management of these natural assets.

4.1 Tourist motivations for visiting hot springs

In the present study, interview participants were men and women, primarily aged between 30 -60 years. The distribution of respondents showed that 59 percent were female, while 41 percent were male, indicating an error in the original text regarding the distribution between genders. The primary age group of respondents was 40 to 50

years. When asked about their reasons for visiting hot springs, a significant majority, about 55 percent, mentioned medicinal and therapeutic reasons as their main motivation. This interest in the health benefits of hot springs aligns with earlier research focusing on their medical properties, especially for physical therapy (Altman, 2000; Takeda, 2023). Additionally, 32 percent of those interviewed cited cultural and religious reasons for their visits (Khole, 2020), and the remaining 13 percent highlighted non-religious reasons, such as landscape appreciation, recreational activities, and historical interest (Kusdiby, 2022). These findings corroborate the literature suggesting that hot springs hold significant spiritual and recreational value in addition to their therapeutic benefits.

Respondents also noted the important role of hot spring waters in spiritual and medicinal traditions. Notably, certain superstitions associated with hot spring waters were mentioned, particularly at specific sites. During auspicious events like Mahashivaratri and Makar Sankranti, women bathe in hot spring waters seeking remedies for infertility and hoping for divine blessings for fertility and motherhood (Rai et al., 2020). These unique cultural practices enhance the attractiveness of Nepal's hot springs, imbuing them with spiritual, medicinal, and recreational significance.

4.2 Prospects of hot springs tourism in Nepal

This research examines the potential of hot springs tourism in Nepal from the perspectives of tourists and spring authorities, uncovering significant prospects for this niche tourism sector. Tourists commend Nepal's hot springs for their scenic beauty, therapeutic properties, and cultural importance (Takeda, 2023). Additionally, spring authorities underscore the economic impact of hot springs tourism, which has spurred both direct and indirect job creation (Deng, 2007). In line with the literature, the result shows that spring authority emphasized the unique potential of hot springs in Nepal, noting their authenticity and spiritual significance as valuable assets for community economic development.

In addition, there are still various unexplored hot springs in Nepal which need to be identified and invested in the infrastructure and promotional activities to use their full potential (Gambarov & Gjinika, 2017). Concurrently, the findings revealed the economic potential of hot springs tourism but stress the importance of sustainable development and infrastructure enhancement (Deng, 2007).

4.3 Challenges of hot springs tourism in Nepal

Despite the promising aspects, the study identifies several challenges to hot springs tourism in Nepal, including accessibility issues, insufficient amenities, and concerns over water quality. Springs authorities acknowledge difficulties in addressing water contamination, securing financial resources, maintaining ecological integrity, and engaging communities (Huang, 2010). Infrastructure development and accessibility improvements are crucial for enhancing the global appeal of hot spring tourism (Gambarov & Gjinika, 2017).

The research also highlights concerns over the adverse health impacts associated with hot spring bathing, including risks from minerals, toxins, radioactivity, and pathogens. Seasonal variations affect the suitability of hot springs for bathing, prompting calls for scientific guidance on safe usage (Huang, 2010). The study points to environmental issues like chemical pollution due to the influx of tourists, suggesting a need for sustainable management practices to mitigate negative impacts and preserve hot springs tourism in Nepal.

4.4 Sustainable development of hot spring tourism

The discourse on sustainable development and management of hot spring tourism resources garnered diverse opinions across the investigated areas. A common thread among the participants highlighted the need for comprehensive guidelines or a specific code of conduct for both tourists and locals, which would define appropriate behaviors at hot spring sites.

Respondents unanimously pointed to the critical role of infrastructure in sustaining hot spring tourism. Particularly, those visiting hot springs for wellness, spiritual, or recreational reasons stressed the necessity for efficient and hygienic water management systems, especially in springs known for their therapeutic qualities. The expectation for visitor safety now includes thorough water quality checks, underscoring the need for well-defined bathing zones or infrastructure developments specifically designed for hot spring use. This need has become more pronounced with the increasing influx of tourists, which not only raises the demand for better bathing facilities but also calls for measures to prevent water pollution and degradation of water quality.

This study focuses on the environmental, social, and economic aspects essential for the sustainable development of hot springs and the strategic management of such resources for sustainable tourism in Nepal. The study examines the environmental sustainability of hot spring tourism, emphasizing the importance of conservation practices to preserve natural landscapes and mineral-rich waters. It explores social sustainability by focusing on the significance of community involvement and cultural preservation, ensuring that local traditions and heritage are respected and integrated into tourism practices. In addition, it evaluates the potential of hot springs tourism to contribute to local economies, highlighting strategies for equitable economic benefits and long-term financial viability.

4.4.1 Environmental sustainability

The study sheds light on the opportunities and challenges associated with the environmental sustainability of hot springs in Nepal. These natural resources serve as significant attractions, contributing to the economic well-being and livelihood of communities near these sites (Milazzo, 2001). Nonetheless, the surge in tourism has sparked concerns over its environmental repercussions. Issues such as overcrowding, mismanagement of waste, and unchecked construction activities around hot springs have resulted in habitat destruction and water contamination in certain locales (Stearns et al., 1937). To combat these challenges, spring authorities advocate for sustainable

management strategies, including the imposition of visitor capacity limits, the establishment of effective waste management frameworks, and reforestation initiatives (Briassoulis, 2002; Liu et al., 2022). An authority highlighted the imperative of balancing heritage conservation with the benefits of tourism, underscoring the need for eco-friendly practices and the careful management of environmental impacts brought about by tourism influx.

4.4.2 Social sustainability

The study underscored the pivotal role of hot springs in fostering social sustainability within Nepal. These natural treasures not only offer recreational and therapeutic benefits but also hold profound cultural significance for both local communities and tourists. Communities residing in the vicinity of these springs frequently engage in tourism-driven economic activities, including the management of guesthouses, restaurants, and the sale of local handicrafts, thereby deriving substantial income from the influx of visitors to these areas.

The discourse among spring authorities and tourists alike revealed a unanimous endorsement of sustainable development practices (Briassoulis, 2002). The emphasis was on the synergy between authorities, the local populace, and tourists, deemed indispensable for maintaining ecological integrity and ensuring the enduring allure of Nepal's hot springs (Stearns et al., 1937). An authority highlighted the criticality of involving local communities in the tourism sector, recognizing them as custodians of these lands entitled to share in the benefits derived from tourism.

4.4.3 Economic sustainability

The study highlights the significant economic impact hot springs have in Nepal, especially in regions that are remote and economically underdeveloped. Economic activities stimulated by tourism at hot springs, including lodging, dining, and the sale of local crafts, have contributed to diversifying incomes and alleviating poverty within these communities. Additionally, hot springs serve as a source of revenue through tourism-related taxes and entry fees, funds which can be redirected towards enhancing local infrastructure and conservation initiatives (Liu et al., 2022). A participant effectively summarized the situation, stating:

The strategic focus on generating income and creating jobs through the sustainable development of hot springs in Nepal acts as a dynamic force for regional prosperity. By adopting responsible tourism practices, empowering local entrepreneurs, and committing to environmental conservation, these strategies not only open up new employment avenues but also foster a strong sense of ownership and stewardship among local populations.

4.5 Strategic management of hot springs tourism in Nepal

The strategic management of hot springs in Nepal is pivotal amidst growing tourist interest and environmental concerns. This study reveals a consensus on the urgent need for enhanced infrastructure tailored to mitigate pollution and accommodate rising visitor numbers (Briassoulis, 2002). This approach aims to rejuvenate traditional

activities and ensure responsible tourism practices (Liu et al., 2022). However, divergent perspectives highlight the influence of religious beliefs in safeguarding these sites, complicating efforts towards practical solutions (Milazzo, 2001).

The study emphasizes eco-friendly infrastructure development, effective waste management, and community-based tourism initiatives (Liu et al., 2022) aligned with global sustainability principles. These strategies are critical for minimizing environmental impacts, conserving natural resources, and fostering long-term sustainability (Liu et al., 2022). Moreover, integrating tourism promotion with the spiritual and medicinal needs of tourists is essential for sustainable growth and cultural preservation (Milazzo, 2001). In addition, a balanced and integrated approach is advocated, considering both environmental concerns and cultural values to manage Nepal's hot springs sustainably (Liu et al., 2022). This holistic strategy harmonizes tourism development with ecological conservation and cultural heritage preservation efforts.

5 Conclusion

The comprehensive study on hot springs tourism in Nepal has illuminated the essential balance between tapping into these natural resources for tourism and ensuring their sustainable management. Highlighting the therapeutic, spiritual, and recreational allure of Nepal's hot springs, the study reveals a significant predilection among tourists for the health and wellness benefits these natural wonders offer. Despite the promising prospects of hot springs tourism, the study brings to light several challenges that need addressing, such as the necessity for infrastructural enhancements to accommodate an increasing number of visitors and concerns about environmental degradation, water quality, and maintaining local culture and traditions. This study underscores a noticeable shift towards eco-friendly and wellness-centric tourism experiences, reflecting a growing consensus on the importance of adopting sustainable practices among tourists and management authorities alike. This trend presents a unique opportunity to rebrand hot springs as centers for eco-friendly wellness and conservation, attracting a new cohort of environmentally conscious tourists.

Sustainable management of hot springs tourism in Nepal is a holistic strategy that integrates environmental, socio-cultural, and economic factors is paramount. The study advocates for a multi-pronged approach, encompassing infrastructure development that aligns with environmental conservation goals, the involvement of local communities in tourism management, and equitable economic benefits distribution. Essential to this approach is fostering social sustainability by ensuring local communities benefit from tourism and promoting economic sustainability through responsible tourism practices that encourage local entrepreneurship without compromising environmental and cultural integrity. The implementation of such comprehensive management strategies—including infrastructure improvement, imposing visitor capacity limits, initiating waste management programs, and encouraging community-based tourism initiatives. Nepal can secure the long-term sustainability of its hot springs

as valuable tourism assets. This strategic management of hot springs will contribute to the country's broader tourism industry and safeguard these irreplaceable natural resources for coming generations.

6 About the author

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