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Ecotourism Around Ramsar-Listed Jagadishpur Reservoir, Lumbini Province, Nepal: Balancing Economic Growth and Environmental Sustainability

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ABSTRACT

Wetlands make up 5% of Nepal. Wetlands, both natural and man-made, are prevalent in Nepal. The largest artificial lake and most significant wetland among them is Jagadishpur, which is located in the Kapilvastu district. In developing nations, ecotourism is a rapidly growing sector that presents chances for both economic growth and the preservation of natural resources. Ecotourism has been promoted as a sustainable travel option in Nepal which promotes community development and environmental conservation. Despite its potential, issues such as inadequate infrastructure and an absence of studies on tourist perceptions still exist. This study assesses the ecotourism potential of the Jagadishpur Reservoir in Nepal, recognizing its importance as a site of both ecological and cultural value. Data was gathered through surveys, focus group discussions, interviews, and field observations. The findings indicate that although infrastructure and marketing need to be improved, locals are aware of the potential for ecotourism. Popular attractions include bird watching, boating, and local cultural activities; however, major issues including managing waste and insufficient promotion hamper growth. To boost local economic development and preserve the environment, the study suggests solutions for sustainable tourist development, such as better marketing, waste management, and infrastructure. The results encourage community involvement in conservation efforts, support sustainable management techniques, and promote ecotourism policy.

Keywords: Ecotourism, Jagadishpur Reservoir, Management practices, Perception, Ramsar Site

INTRODUCTION

Ecotourism is one of the fastest-growing sectors in travel and tourism, particularly in developing countries and economically challenged regions worldwide (Scheyvens, 1999; KC, 2017). In addition to giving local populations job opportunities, it protects and conserves natural resources (KC, 2017). Ecotourism supports

the three pillars of sustainable development because it is an effective way of establishing a scenario in which both parks and people benefit (Khadka *et al.,* 2021). Low-impact and non-consumptive activities are essential to ecotourism's promotion of ecological preservation, environmental protection, community development, and economic growth (KC, 2017). In the 1990s, the idea of ecotourism, which combined elements of rural and cultural travel arose as an alternative for mass tourism (Aryal *et al.,* 2022).

Nepal has a rich natural and cultural heritage due to its varied topography and ecoclimatic characteristics (Acharya, 2017). In terms of biodiversity richness, it is ranked 11th in Asia and 25th globally (Paudel, 2014). Ecotourism hotspots, including national parks and protected regions, are often located in remote landscapes rich in biodiversity, ecological significance, and indigenous cultural heritage (Gatti, 2025; Hawkins & Lamoureux, 2001). Ecotourism potential is determined by a number of important aspects, including specific attraction sites, consumer interest, socioeconomic links to biodiversity, and existing infrastructure (Eagles, 2002). Nature-based ecotourism emphasizes environmental quality and natural resources, whereas cultural ecotourism focuses on regional customs and minority cultures. With an emphasis on boosting local village economies, ecotourism has been promoted in Nepal since the Ninth Five Year Plan (1997–2002) to promote symbiotic links between tourism and the environment (NPC, 1999).

Ecotourism holds great potential, but in developing countries like Nepal, it struggles with challenges such as financial constraints and limited resources for planning and execution (Dhakal, 2024; Yogi, 2010). By promoting environmental and cultural sustainability ecotourism provides an opportunity to enhance tourism, as conventional tourism gradually loses its core values (Voronkova *et al.,* 2024; Neupane *et al.,* 2013). However, limited research is done on how tourists feel about ecotourism activities and destination management, particularly in places with cultural and ecological significance like Jagadishpur Reservoir.

Wetlands, which include reservoirs like Jagadishpur offer social, environmental, and economic benefits and are essential for the preservation of biodiversity (Jiang *et al.,* 1999). In addition, these resources provide recreational, religious, and motivational advantages to locals and tourists (Bohara *et al.,* 2024; Khatiwada *et al.,* 2022). As an element of Nepal's Important Bird Area (IBA) networks, the Jagadishpur Reservoir, situated in the middle Terai region close to the Lumbini world heritage site, has significant ecological, cultural, and economic significance. The reservoir collects its water from the Banganga River and has a catchment area in the Churia Hills, which was built in the 1970s to irrigate the nearby agricultural land (Baral & Thapa, 2008).

The objective of this study is to evaluate the potential of ecotourism in Jagadishpur Reservoir by looking at its cultural and biological resources, visitor attitudes, and development problems. Understanding the reservoir's importance as an ecotourism destination, finding out what makes visitors happy, and providing methods for the growth of sustainable tourism are its main objectives. It is expected that the findings of the study will improve tourism management techniques, promote ecotourism policies, and support in the development of nearby communities while protecting the environment.

MATERIALS AND METHODS

Study area

The study was carried out in the Jagadishpur Reservoir, which is located at an altitude of 197 meters (27° 35′ N to 27° 38′ N; 83° 05′ E to 83° 07′ E) in the Kapilvastu District of Lumbini Province, Nepal. Situated in Kapilvastu Municipality-9, approximately 11 km north of Taulihawa which is the district headquarters of Kapilvastu, the reservoir is the biggest artificial lake in Nepal. On August 13, 2003, it was designated as the Ramsar site (Gautam, 2020). The reservoir is used by the local population for a number of factors, such as household chores, grazing, fishing, harvesting food and fuelwood, and irrigating 6,200 hectares of neighboring agricultural land. The area experiences hot, rainy summers and cold, dry winters due to its sub-tropical monsoon climate. The Banganga River, which has a catchment area in the Churia Hills, provides water for the reservoir through a canal. The water depth varies from 7 meters during the monsoon season to 2 meters during the dry season (Sapkota *et al.*, 2021).

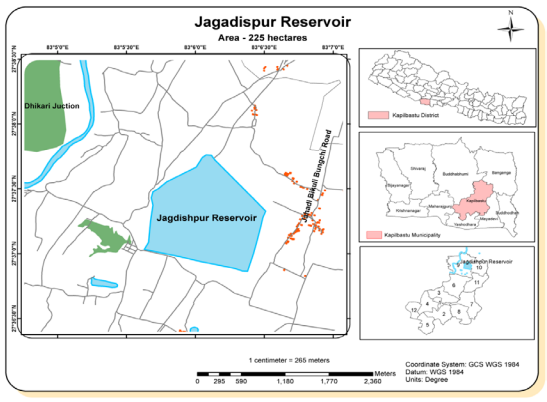

Figure 1*:* Map Representing the Study Area

Data collection

Primary data for this study were collected directly from the field using a combination of methods to ensure comprehensive coverage of the research objectives. Focus group discussions, direct field observations, key informant interviews, questionnaire surveys, and visitor surveys are some of the methodologies used.

Questionnaire surveys: Detailed face to face questionnaire survey was done. A survey was carried out personally to 109 households, or 25% of the neighborhood's total population. A questionnaire survey was done focusing on the respondents' socioeconomic background, perceptions about ecotourism, potential travel goods, and management techniques.

Surveys of visitors: To understand more about the socioeconomic advantages of tourism in the region, 40 visitors were surveyed about their visit characteristics, trip quality, and perceptions of ecotourism. Open-ended and closed-ended questions were used to obtain an in depth understanding of tourists' experiences.

Direct field observations: Field observations were conducted to clearly evaluate and record the ecotourism activities, infrastructure, and goods. This involved background information to support the survey results.

Key informant interviews: Judgmental sampling procedure was used to collect data from key-informants. Key informants were asked about the major ecotourism attractions, Industry's present state, future prospects, and management of ecotourism in the area.

Important stakeholders, such as members of the homestay committee, representatives of rural municipalities, and local staff members were interviewed. These interviews presented comprehensive information about the industry's present state, future prospects, and management of ecotourism in the area.

Focus group discussions: Members of the local community and the homestay management committee participated in focus group discussions. These discussions offered an opportunity to record group ecotourism

experiences, difficulties, opportunities, and theories.

To collect secondary data, institutional records, published and unpublished reports, books, journal articles, and internet sources were used. These resources, which came from libraries, rural municipality offices, and other appropriate organizations, supported the essential data analysis by offering comparative information and background context.

Data analysis

Primary and Secondary data were analyzed to get the necessary results. A study area map was created. Several technologies were also used to examine the data from the social survey. People's perceptions of potentiality were determined using a level 3 Likert scale. Based on people's responses, the most practical ecotourism activities in and around the lake were ranked. A weighted mean was employed to rank the various ecotourism attractions in the area. The results of the data analysis were presented in a clear and logical manner by using tables, pie charts, bar diagrams, maps, and other visual representation.

Weighted mean =(x1*w1 +x2*w2+……xn*wn)/ total respondents

Where, w=weight of ranked position, n= number of choice

X represent response count for answer choice

RESULTS

Respondents characteristics

To determine the characteristics of the respondents, 109 households in the study area participated in a survey. Of those participants, 53% were men and 47% were women. In terms of educational achievement, 23% had completed primary school, 41% completed secondary school, 3% completed higher education, and 33% were illiterate. The breakdown of respondents' castes showed that 63% were Brahmins, 31% were Tharus, and 6% were from other castes. Tharus were very common in the neighborhood and often lived in houses with metal roofs. In terms of housing, 82% of homes in the wetland area were made of cement, while 18% had metal roofs.50% of the respondents said that farming was their main job, followed by housework (27%), business (11%), and education (12%).

Current status of ecotourism

According to the survey, 67% of local respondents believed the ecotourism industry needed major changes, compared to just 6% which thought it was doing well and 27% who thought the situation was good. It was made clear that in order to improve the present area's ecotourism, improved infrastructure is required. Significant improvements have been made to the area in comparison to earlier periods, including the addition of more facilities and better transportation options that were not previously available.

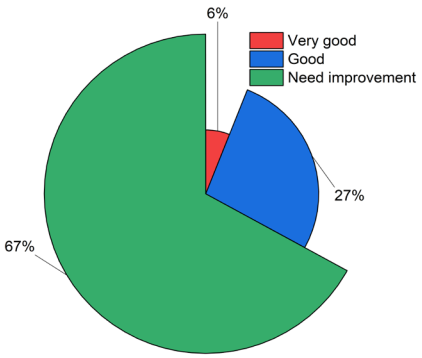

Figure 2: Ecotourism Status

Existing features/attractions and activities in the Jagadishpur area

Ecotourism activities

Local hotels and home stays play a crucial role in attracting tourists to the Jagadishpur Lake area. With 20 hotels offering quality

services and 8 home stays providing affordable accommodations, the region benefits from increased tourism, especially through overnight stays. Guests enjoy the clean rooms, private restrooms, and picturesque surroundings, while cultural activities like the Deuda dance enhance their experience. The view tower, which offers a stunning panoramic view of the lake, attracts about 50 visitors daily and encourages hotel stays. The lake's natural beauty and serene environment make it a popular destination for nature lovers.

Ecotourism attraction

Around 37% of tourists come for birdwatching, 26% for Scenic beauty of lake, 20% for Boating, and 17% visit the lake as picnic spot. Most visitors are drawn to the wetland because of its beautiful surroundings. While some people come for picnics and to enjoy the natural surroundings, most tourists spend the winter month's bird watching.

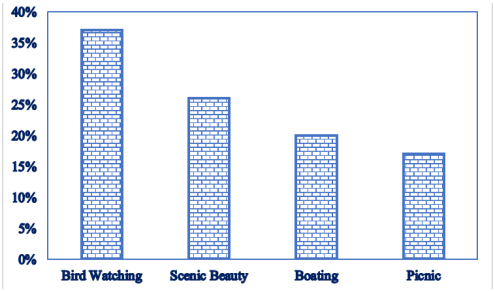

Figure 3: Ecotourism attractions of the area

Table 1: Weighted Mean of Ranking of Different Eco-tourism Activities

Weight	Preference	Bird Watching	Picnic	Boating	Scenic Beauty
5	First Choice	45	22	20	22
4	Second Choice	38	16	16	39
3	Third Choice	22	35	32	20
2	Fourth choice	25	14	38	32
1	Fifth choice	12	32	22	43
Weighted Mean		**4.633**	**3.110**	**3.284**	**3.972**
Rank		I	IV	III	**II**

According to the weighted mean analysis, bird-watching had the highest weighted mean of the rating of various potential ecotourism attractions in and around the lake, followed by boating and scenic beauty. Since most people visit the lake for picnics in the winter, the picnic area is ranked lower

Management practices to promote ecotourism

53% of the respondents said that eco-tourism promotion must be done for the management of the lake, from the local level and concerned organization, 28% said sustainable use of resources, 13% said formulation of the management committee, and 6% said others as shown in the figure below.

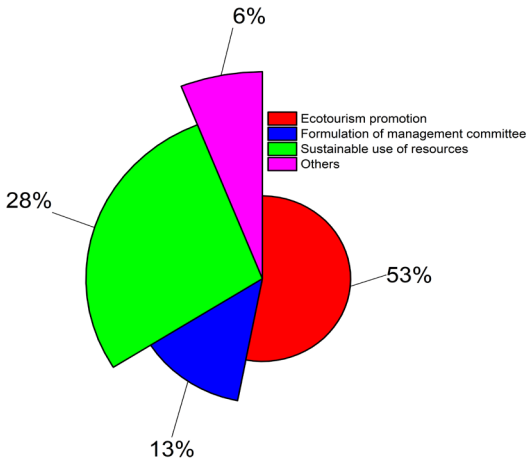

Figure 5*:* Management Practices to promote Ecotourism

Perception of Visitors towards Ecotourism

In the Jagadishpur area, tourists have a positive perception of ecotourism. A large percentage of tourists (85%) think there is a lot of potential for ecotourism in the region. However, 20% believe that marketing and visibility may be improved, while 67.5% agree that the region's natural and cultural aspects have been presented properly. Seventy-five percent of

visitors expressed satisfaction with the facilities and services provided by the locals. However, 7.5% of respondents were unhappy and 17.5% were uninterested, indicating some gaps in meeting visitor expectations. 85% of tourists believe that locals offer great service to attract tourists, and the friendly nature of the residents was underlined. However, when it comes to promoting ecotourism products through media, only 55% of visitors believed that proper advertisement was being conducted, suggesting the need for improved marketing strategies.

Issues and Constraints for Ecotourism Promotion

The area has significant ecotourism potential, but several challenges hinder its growth. Poor infrastructure, including bad roads, limited lodging, and inadequate services, discourages visitors. Solid waste management, particularly non-biodegradable waste disposal, harms the environment and reduces the area's appeal, necessitating proper waste disposal and recycling systems. Additionally, rising social issues like drug use, alcoholism, and disrespect for local traditions threaten cultural integrity. Limited promotion further restricts visibility, making it essential to implement a comprehensive marketing strategy. Addressing these issues through improved infrastructure, waste management, and strategic promotion can enhance ecotourism and attract more visitors.

DISCUSSION

There were 109 responders to the survey, which provided important information about the state of ecotourism in the study area. Male respondents made up 53% of the sample, and 41% of respondents had finished secondary school. With 50% of the population employed in agriculture, the Brahmin community (63%) was the most prevalent ethnic group. According to the results, ecotourism potential is currently unexplored, which supports the local view that infrastructure improvements are necessary to promote tourism growth. Even if popular activities like bird viewing, boating, and home stays are already available, respondents' worries about the potential of neglected ecotourism reflect a serious lack of infrastructure and promotion.

The survey's reaction to ecotourism indicates that, as long as important sectors like waste management and transportation get funding, residents consider it as a chance to improve their town. The results of this study align with earlier studies that highlight the significance of local participation in ecotourism (Regmi & Walter, 2017), which has been recognized as a significant advantage in preserving a balance between modernization and cultural conservation. Similar to this, infrastructure and solid waste management problems that have been noted in earlier research (Lai & Nepal, 2006) remain major obstacles to the growth of ecotourism in the area. But this study broadens the discussion by emphasizing the value of advertising and infrastructure development to maximize ecotourism potential (Aryal *et al.,* 2019).

This study highlights the potential for ecotourism growth in Jagadishpur Reservoir through a blend of cultural and environmental activities, such as agricultural research and a Tharu cultural museum. Incorporating cultural aspects alongside ecological attractions can attract both domestic and international tourists, broadening traditional ecotourism. The strong local support for ecotourism stems from cultural pride and economic benefits like higher incomes and infrastructure improvements. However, challenges such as poor waste management, transportation, and

communication infrastructure hinder its full potential. Sustainable planning and investment in eco-friendly infrastructure are essential for unlocking the region's ecotourism opportunities.

CONCLUSIONS

Jagadishpur Reservoir which is Nepal's largest artificial lake and a Ramsar site, holds significant potential for ecotourism due to its rich biodiversity and cultural heritage. While activities like birdwatching and boating attract visitors, challenges such as inadequate infrastructure, poor waste management, and limited promotion hinder its growth. This study highlights the need for sustainable tourism strategies, including improved facilities, enhanced marketing, and community engagement in conservation efforts. By addressing these challenges, Jagadishpur Reservoir can become a model ecotourism destination, balancing economic benefits with environmental preservation.

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