



PERCEPTION OF LOCAL PEOPLE AND VISITORS TOWARDS ECOTOURISM

DEVELOPMENT IN JAGADISHPUR RESERVOIR

Bishal Aryal¹, Vivek Thapa Chhetri^{1*}, Pramisha Khanal²

¹Institute of Forestry, Tribhuvan University, Pokhara, Nepal

²Agriculture and Forestry University, Faculty of Forestry, Hetauda, Nepal

*Corresponding author: thapavivek777@gmail.com

Abstract

Ecotourism promotes stewardship of natural and cultural resources. However, local people and tourists' opinions are necessary to promote ecotourism development. This study attempts to identify prospective ecotourism products and assess local and visitor perceptions towards ecotourism development in the Jagadishpur reservoir. We conducted semi-structured interviews with 50 local households, 65 visitors, and 7 key informants. We used Friedman's rank test to determine the preferences for ecotourism products, and Fisher's exact test to quantify locals and visitors' perceptions of ecotourism. The findings showed that lakes/scenic beauty, and bird watching are the highest rated ecotourism products by locals and visitors, respectively. Local people and visitors perceived picnic spots and view towers as additional ecotourism products for ecotourism development, respectively. The perceptions of locals and visitors showed no significant difference that the area is suitable for ecotourism, biodiversity conservation, and livelihood promotion of locals. However, a significant difference was found in the perception between locals and visitors of the culture and tradition. The study showed that local people and visitors both are positive for ecotourism development in terms of suitability, livelihood, and biodiversity conservation. Detailed understanding and prioritized ecotourism products can contribute to ecotourism promotion more effectively. Furthermore, more research on the feasibility of identified ecotourism products and the effectiveness of fund allocation for ecotourism products are urgently needed to develop wetland tourism in a sustainable way.

Keywords: Biodiversity conservation; Homestay; Nepal; Perception; Wetland

DOI: <https://doi.org/10.3126/ije.v11i2.44768>

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Introduction

Wetland is a natural ecosystem that maintains ecological balance and has ecotourism potential (Sun et al., 2019). Wetlands are considered biodiversity-rich ecosystems, vulnerable, and sensitive ecosystems (Smardon, 2009). Wetlands cover roughly 6% of the Earth's surface, occupying 570 million ha (Sinthumule, 2021). It has been estimated that 60% of the wetlands have been lost in 100 years worldwide due to the conversion of wetlands into agricultural land through human-induced activities (Nesmith et al., 2016). In Nepal, water sources harbor an area of 743,563 ha comprising 5% of the country's total landmass (Ministry of forests and soil conservation, 2014). They support 42 globally threatened species and a broad range of nationally and globally important biodiversity and play significant ecological roles in Nepal's diverse ecosystem (International Union for Conservation of Nature, 2004). Although wetlands are one of the most productive ecosystems with high values and functions (Li et al., 2020), they are being deteriorated at an alarming rate due to their poor management (Rebelo et al., 2010; Junk et al., 2013).

The ecotourism concept was initiated in the 1990s as an alternative to mass tourism that contains elements of rural and cultural tourism. Ecotourism is environmentally responsible travel to natural areas which focuses on ecologically sustainable activities with supporting conservation measures and local people involvement (K.C., 2016). Ecotourism has been recognized as a potential funding source for wetland conservation (Aryal, 2019). It is one of the most important segments of the sustainable tourism industry, focusing on forest conservation, environmental protection, poverty alleviation, and economic development (K. C. et al., 2015). It provides alternative livelihood opportunities and can generate funds for biodiversity conservation and has drawn growing attention in developing countries around the world including Nepal (Chandel and Mishra, 2016). Wetland ecotourism has been an important source of income for local people in Nepal (Shrestha, 2011) who are the main protectionists of the wetland present in their area (ICIMOD, 2006). Sustainability is an issue for ecotourism sites when tourism activity is gaining priority as a green enterprise (Mikulic et al., 2015). Community-based ecotourism is a form of ecotourism that focuses on environmental conservation, cultural preservation, and socioeconomic development of a particular area (Thapa-Parajuli and Paudel, 2018). The ecotourism product should have 8 core principles for ecotourism potential i.e. natural area focus, interpretation, environmental sustainability practices, contribution to conservation, benefitting local communities, cultural respect, customer satisfaction, and responsible marketing (The Green Globe 21 International Ecotourism Standard, 2004).

According to the study by Baral et al. (2016), the estimated total annual economic value of the Jagadishpur reservoir is NRs 94.5 million (725,669.47 USD) and high importance was given by local communities to the future use value. People depending on natural resources, including wetlands, come front for conservation after realizing their potential (Lamsal et al., 2015). On contrary, wetland management has become a problematic

task since it is often treated as an unproductive wasteland in most developing countries (Lannas and Turpie, 2009), including Nepal citation is needed here. It is acknowledged that social criteria should be defined for ecosystem conservation considering perceptions of local people as a critical component for sustainable management plans (Miller and Hobbs, 2007). People-centered conservation approach is important for the sustainable management of wetlands (Lamsal, Atreya, et al., 2015) and environmental awareness promotes behavioral changes facilitating wetland conservation (Ibrahim et al., 2012). The assessment of people's perceptions and attitudes is an important aspect of conservation and natural resource management (Lantz et al., 2013; Nsengimana et al., 2017; Mogomotsi et al., 2020). Furthermore, the perception or attitudes of people present ideas about what types of activities should be prioritized (Mir et al., 2015). Local people's socioeconomic status, perception of conservation, and enthusiasm for community participation determine the sustainability of the wetland (Sah & Heinen, 2001). Perception of people toward tourism has been analyzed elsewhere (Kiper et al., 2011; Lamsal et al., 2015; Truong, 2021; Upadhaya et al., 2022), however, such studies are limited in Nepal. Jagdishpur has become a major source of attractions for national and international tourists; however, the prioritization of ecotourism products and people's perceptions of the potential of wetlands have not been explored. The objective of the study is to identify the potential ecotourism products and to assess local people and visitors' perceptions of the ecotourism potentiality of the Jagdishpur reservoir.

Materials and methods

Study area

The Jagdishpur reservoir is located in the Kapilvastu district (27° 35'N and 83° 05'E) of Lumbini province at an altitude of 197m in the southern lowlands of Nepal. The district experiences tropical to sub-tropical climate according to the altitudinal variation. Its average annual temperatures range from 25°C -19°C with a maximum of 43°C in the summer to a minimum of 4.5°C in the winter. The reservoir provides irrigation, fish, food, and recreational opportunities to 17,390 households with a population of 54,358 (IUCN, 2015). The reservoir was declared as a Ramsar site on August 13, 2003, and has been designated as a bird sanctuary in 2022. It is currently the largest man-made reservoir in the country with an area of 225 ha including the core area of 157 ha, including 60 ha of marshland, and 7 ha of shrub lands that support vulnerable, endangered, and critically endangered species. A total of 55 forest species are recorded, of which, 22 are herbaceous, 18 shrubs, and 15 tree species. It supports habitat for 43 species of fish, 52 species of herpetofauna, 168 species of birds, and 32 species of mammals (IUCN, 2015).

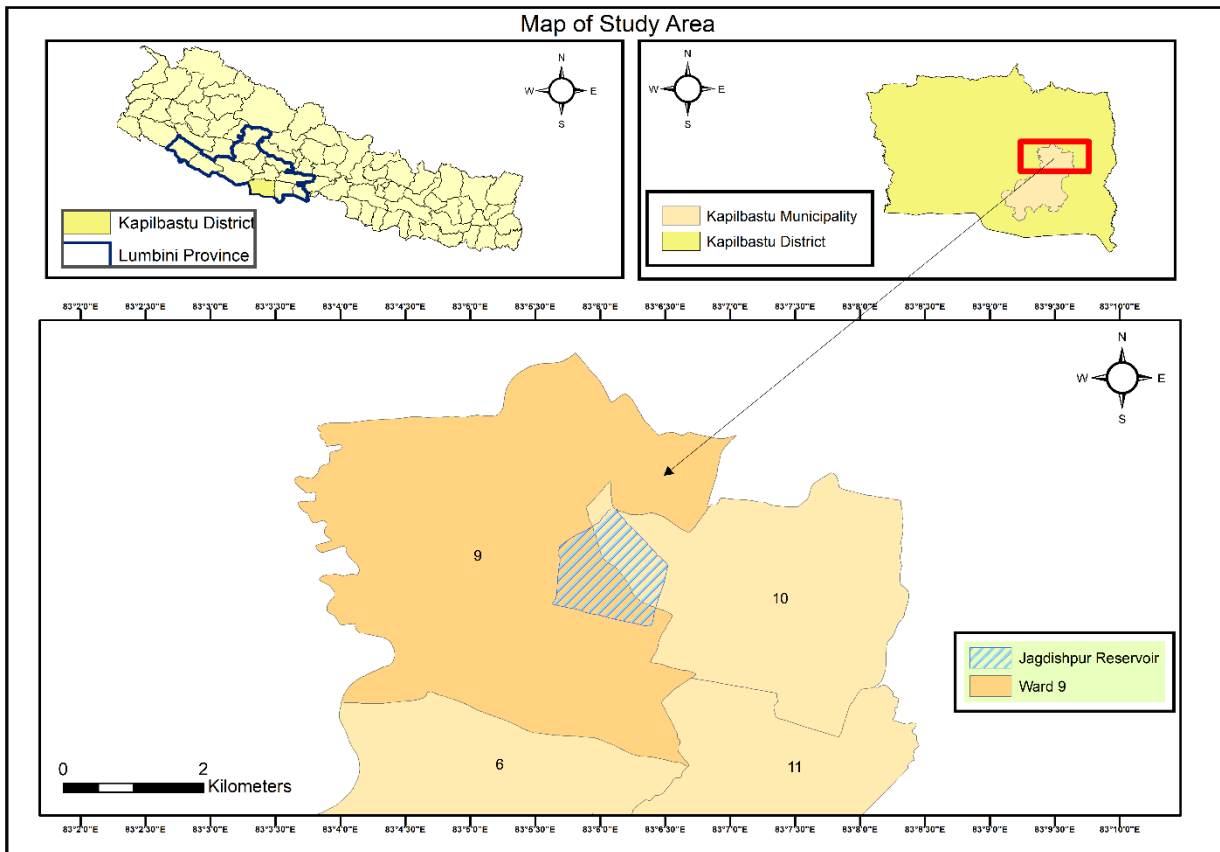


Figure 1: Location map of the study area showing Jagdishpur reservoir.

Data collection

The two sets of questionnaires were prepared for the household and visitor surveys whereas, key-informant interviews were conducted to validate the information given by households and visitors. Open-ended structured interviews were conducted with the seven key informants i.e. chairperson of the homestay management committee and DFO, IDO, mayor of Kapilvastu municipality, ward members, local club members, and teachers of the area to find out problems, opportunities, and challenges for the further promotion of ecotourism and homestay. A household survey among 500 estimated households using a semi-structured questionnaire was conducted to find their perception of the ecotourism potential of the wetland. The households were selected based on the homestay operating and non-homestay households. Sampling intensity of 10% is valid for the moderately large populations in the social survey (Neuman, 1994). Households were selected from the peripheral area within the 2 km distance from the wetland area. There are 6 villages that are in the impact zone of the wetland and three villages among them are in the direct impact zone of the wetland as per the discussion with Jagdishpur multistakeholder forum. Out of an estimated 500 households nearby a 2 km distance radius of the wetland within three villages, 50 households were selected following the simple random sampling method. The household survey was carried out on the themes such as economic aspects, social aspects, cultural aspects, and environmental impacts. Similarly, visitors were asked about the themes

such as ecotourism activities, facilities for visitors, and their satisfaction with ecotourism products and facilities. The triangulation of the method was done to collect the same information from different methods i.e. the collected information from household information was discussed with the key informants to reduce the potential bias. The questions were developed in the English language and asked in the Nepali language to make them more understandable and to avoid any confusion for the respondents. The household survey questionnaire was pre-tested with 10 locals to check the responses of the informants. Before conducting the interview, the introduction, and objective of the research were explained to the participants for the confidentiality of the information and data collected. This was done to ease communication and make the responses of the informants to be ethical. The households head were interviewed and whenever searched members were not available, senior-most members of the family were interviewed. In addition, a questionnaire survey was conducted among 65 visitors randomly to understand their viewpoints. The sample size of the visitors were determined from the peak hour tourist flow during the month. Peak hour tourist flow was considered Saturday, and 4 Saturdays of the month were considered as baseline for the visitors flow. Out of the average tourist flow on Saturdays of the month (650), 10% sampling intensity was considered to represent the visitor's population.

Data analysis

Data collected was cross-checked, processed, tabulated, and analyzed quantitatively as well as qualitatively. Data were organized by coding and analysis through MS Excel and Statistical Package for Social Science (SPSS). Likert scale was used to find out peoples' perceptions about ecotourism potentiality. Friedman rank test was deployed to find out the preference of the ecotourism products. The Fisher's exact test was used to analyze the perception of locals and visitors toward ecotourism. The weighted mean was used to determine the ranking of different ecotourism activities.

$$\text{Weighted mean} = \frac{\sum_{i=1}^n w_i X_i}{\sum_{i=1}^n w_i}$$

Where,

w=weight of ranked position; n= number of choice; X represent response count for answer choice

I=observed values

Results

Demographic profile of the respondents

Respondents' age class was classified as young aged (18-35), medium aged (36-55), and old aged (above 55) years. Out of the total local respondents, 58% of the respondents were young aged, 32% were middle-aged,

and 10% were old-aged (Figure 2). Similarly, 83% of the respondents were young aged, 15% were medium aged, and 2% were old aged (Figure 3).

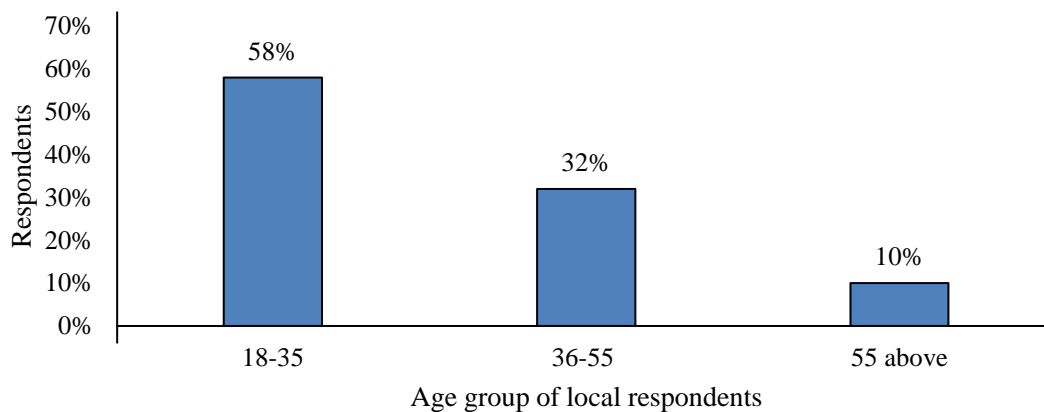


Figure 2: Age group of local respondents

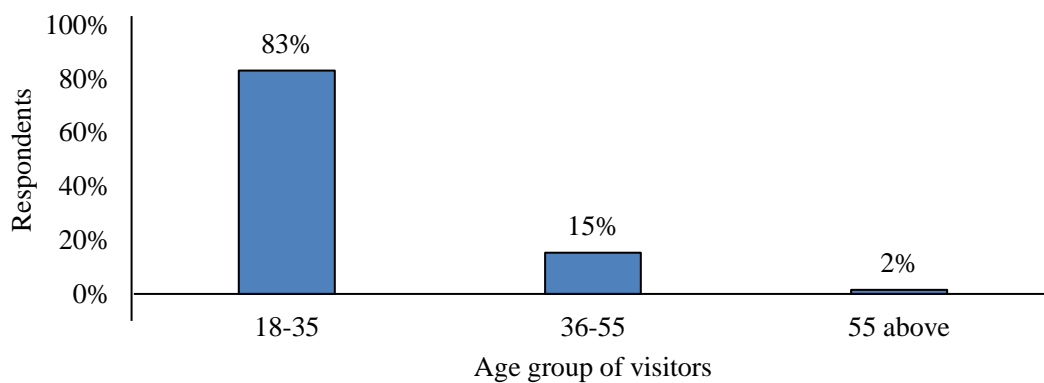


Figure 3: Age group of visitors

Local people ranking on existing ecotourism products

The non-parametric Friedman test showed that different people perceive the rank of existing ecotourism products differently, which is statistically significant (Chi Value = 108.432, df = 3, p<0.01). The highest rating of existing ecotourism products by the local people is lakes and scenic beauty, with a weighted mean of 3.56, followed by bird watching at 3.32, homestay at 1.72, and last by nature walk at 1.40 (Table 1).

Table 1: Ranking of local people on existing ecotourism products in Jagdishpur reservoir

Existing Ecotourism Products	Responses within category				Weighted mean	d.f	chi square value
	Highest	High	Moderate	Low			
Bird watching	19	28	3	0	3.32	3	108.432*
Lakes and scenic beauty	31	16	3	0	3.56		
Nature walk	0	2	16	32	1.40		
Homestay	0	4	28	18	1.72		

*Significant at p<0.01

Visitor ranking on existing ecotourism products

The non-parametric Friedman test showed that different people perceive the rank of existing ecotourism products differently, which is statistically significant (Chi Value = 91.866, df = 3, $p < 0.01$). Preference for existing ecotourism products by the visitor is bird watching, with a mean rank of 3.29, followed by lakes and scenic beauty at 3.24, nature walking at 1.78, and last by homestay at 1.69 (Table 2).

Table 2: Ranking of visitors on existing ecotourism products in Jagdishpur reservoir

Existing Ecotourism Products	Responses within category				Weighted mean	d.f	chi square value
	Highest	High	Moderate	Low			
Bird watching	31	24	8	2	3.29		
Lakes and scenic beauty	26	30	7	2	3.24	3	91.866*
Nature walk	7	3	23	32	1.78		
Homestay	0	9	26	30	1.69		

*Significant at $p < 0.01$

Local people ranking on additional ecotourism products

The non-parametric Friedman test showed that different people perceive the additional ecotourism products differently, which is statistically significant (Chi squared = 74.904, df = 3, $p < 0.01$). The highest rating of additional ecotourism products by the local people is Picnic Spot, with a mean rank of 3.40, followed by camping and boating with 3.05, cultural shows and programs with 2.18, and last by cycling with 1.37 (Table 3).

Table 3: Local people ranking on additional ecotourism products

Additional Ecotourism Products	Responses within Category				Weighted mean	d.f	chi square value
	Highest	High	Moderate	Low			
Camping and Boating	15	24	9	2	3.05		
Cultural program	6	5	30	9	2.18	3	74.904*
Picnic spot	27	19	1	3	3.40		
Cycling	2	1	10	37	1.37		

*Significant at $p < 0.01$

Visitor ranking on additional ecotourism products

The non-parametric Friedman rank test showed that different visitors perceive the additional ecotourism products differently, which is statistically significant (Chi square = 99.628, df =3, p<0.01). Preference for additional ecotourism products by the visitor is the view tower, with a mean rank of 3.58, followed by picnic spots at 3.05, camping and boating at 2.35, and last cultural shows and programs at 1.35 (Table 4).

Table 4: Visitor ranking on additional ecotourism products

Additional Products	Responses within Category				Weighted mean	d.f	chi square value
	Highest	High	Moderate	Low			
Camping and Boating	13	10	29	13	2.35	3	99.628*
Cultural program	0	4	15	46	1.35		
Picnic spot	11	29	20	5	2.71		
View Tower	41	22	1	1	3.58		

*Significant at p<0.01

Perception of local households and visitors towards ecotourism

The Chi-square test of independence demonstrates the violation of assumptions where all cells should have expected counts greater than or equal to five, which means there is not an adequate sample size to run the chi-square test, which can maximize the risk of making wrong decisions. So, Fisher's exact test was used to evaluate whether responses within the statements were associated with the respondent's categories. The two variables were respondents' categories with two levels (local, visitor) and statements with three levels (agree, disagree, and neutral). Cramer's V was also calculated to determine the effect size for the chi-squared test.

Fisher's exact test showed a non-significant association between the perception of the local household and visitors to the statement: the area is suitable for ecotourism development, $\chi^2(2, N=115) = 2.371, p = 0.342$, Cramer's $V = 0.144$. Similarly, a non-significant association was found between the perception of the local household and visitors to the statement; ecotourism promotes the livelihood of local people, $\chi^2(2, N=115) =$, $p = 0.112$, Cramer's $V = 0.193$. Likewise, a non-significant association was found between the perception of the local household and visitors to the statement; ecotourism will promote the conservation of biodiversity in the area, $\chi^2(2, N=115) =$, $p = 0.209$, Cramer's $V = 0.176$. Moreover, the perception of the local household and visitors to the statement; the culture and tradition of the area are preserved was found significant, $\chi^2(2, N = 115) =$, $p = 0.076$, Cramer's $V = 0.212$ (Table 5).

Table 5: Perception of local households and visitors towards ecotourism

Statements	Respondents category	Responses in % within Category			d.f	χ^2 value	p-value	Cramer's V
		Disagree	Neutral	Agree				
The area is suitable for ecotourism development	Local visitor	12 9.2	10 12.3	78 78.5	2	2.371	0.342	0.144
Ecotourism promotes the livelihood of local people	Local visitor	12 7.7	36 55.4	52 36.9	2	4.287	0.112	0.193
Ecotourism will promote the conservation of biodiversity in the area	Local visitor	12 9.9	18 23.9	70 66.2	2	3.556	0.209	0.176
The culture and tradition of the area are preserved	Local visitor	68 18.7	12 17.3	20 64	2	5.145	0.076*	0.212

*Significant at $p < 0.1$

Discussion

Our study revealed that local people have both positive perceptions of ecotourism suitability, biodiversity conservation, and livelihood improvement and negative perceptions related to culture and tradition preservation. We found that visitors are also positive about the ecotourism development of the study area. Local people's positive attitude towards ecotourism is obvious as they are operating homestay services and promoting their Tharu culture. About thirteen indigenous Tharu households are operating homestays. Our studies also showed that homestays require additional marketing and branding, which aligns with the study of Dhakal et al. (2015).

Several factors that provide the ecotourism services, such as local organizations and groups motivate local people to participate in ecotourism activities (Yip et al., 2006) and influence the higher concern of local people. The Jagdishpur multistakeholder forum has planned future programs including homestay improvement, fencing, lighting around the reservoir, an increase in the height of the dam, placement of proper signboards along the road, Tharu museum establishment, and publicity. This study revealed that picnic spots and view towers are the additional infrastructures to be prioritized by the management committee, which demonstrates the increasing craze of visitors for enjoyment and refreshment.

Moreover, a previous study suggested that tourism activities lead to the establishment of road access, hotels, lodges, resorts, restaurants, infrastructure, souvenir shops, groceries, and gift shops (K C et al., 2021) which may be the reason behind the positive attitude of local people and visitors toward ecotourism growth in our study. More than two-thirds of the local households and visitors agreed with the fact that the area is suitable for ecotourism development, which is a good sign in terms of future tourism sustainability due to the

consideration that the presence of tourists increases the pride of the local people in the community (Clifton et al., 2009). The majority of the local respondents (52%) agreed with the statement that ecotourism promotes the livelihood of the local people, while the majority (55.4%) of the visitors were neutral about the statement, which may be due to a lack of information about the contribution of ecotourism activities to the income generation of the local people. Jepchirchir (2016) suggested that people involved in ecotourism activities perceive it as a livelihood option, which supports the results of our study that ecotourism helps to promote the livelihood of local people.

Our study found that about two third of the local people believed that ecotourism will promote the conservation of biodiversity in the study area, which may be due to the increased awareness of biodiversity conservation and wildlife damage compensation scheme by the government, has improved the attitude towards conservation in Nepal (Spiteri, 2008). Our study found the lakes & scenic beauty and bird watching as the major ecotourism products, whereas Baral et al. (2016) reported that most of the visitors enjoyed nature walking and local fishes. This study concludes that this wetland is a pristine habitat for migratory birds.

The study found the opposite opinions regarding culture and traditional preservation. Our study found that cultural value is degraded upon international tourists' arrival (Khadka et al., 2021), which may be due to western cultural influence (Tosun, 2002) and the local workforce's inadequacy to perform their cultural shows in the community. However, the majority (64%) of the visitor perceived the culture and traditions would be preserved by the local household for the sake of economic benefits (Besculides et al., 2002; Meleddu, 2014). People recognize ecotourism as an important element in the development of human well-being (Upadhaya et al., 2022). Various studies have focused on the perception and attitudes of the local people towards tourism impacts (Nyaupane and Thapa, 2006). However, this study analyzes the local and visitor perception of ecotourism development, which contributes to sustainable tourism management significantly. Overall, this study identified the potential ecotourism products and to assess local people and visitors' perceptions of the ecotourism potential of the Jagadishpur reservoir.

Conclusion

The knowledge of local people and visitors' opinions is important in policymaking and future planning of the tourist destination. This study revealed the association between local people and visitors' perceptions of ecotourism development. This study explored the priority ecotourism products for ecotourism management and could serve as a basis for fund allocation from the local government. Our study revealed that local people have both positive perceptions of ecotourism suitability, biodiversity conservation, and livelihood improvement and negative perceptions related to culture and traditional preservation. We found that visitors are also positive about the ecotourism development of the study area. This study analyzes the local and visitor

perception of ecotourism development, which contributes to sustainable tourism management significantly. The study will sensitize the concerned stakeholders and the local government to invest in wetland infrastructure construction. Similarly, further research should be conducted on the feasibility of the identified ecotourism products, the effectiveness of fund allocation for ecotourism products, and the impact of ecotourism on local people.

Authors contribution statement

B. Aryal reviewed the literature, collected data, and conducted data analysis. V.T. Chhetri prepared a draft manuscript for finalization. P. Khanal assisted with data collection, edited, and reviewed the manuscript.

Conflict of interest statement

There is no conflict of interest among the authors.

Acknowledgments

We would like to express our heartfelt gratitude to the Institute of Forestry for providing us with a platform to conduct this research. We would like to acknowledge Prof. Yajna Prasad Timilsina for the data analysis. We would like to thank Mr. Bibek Subedi for the field support. We would like to acknowledge all the key informants, local households, and visitors who were part of the data collection.

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