

Perceptions of the Local Community Toward the Tourism Industry's Impact on the Environment: A Focus on the Kaziranga National Park and Majuli

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Abstract: *Tourism is an industry experiencing rapid growth, with impacts beyond well-being and quality of life, encompassing substantial socio-economic and environmental effects. The study investigates how the local community perceives the connection between tourism development and its environmental impact. The study population includes various tourism stakeholders, such as representatives from local communities, hoteliers, and tour operators active in the regions. We distributed 207 questionnaires and concise descriptions of key study variables to enhance respondent understanding. After confirming the instrument's reliability and validity, we analyzed the data using principal component analysis. The findings indicate that a significant proportion of residents actively contribute to preserving natural resources and landscapes, proactively securing their environment as a major tourist attraction. Furthermore, tourism expenditures have contributed to the preservation and conservation of both the environment and the local community, fostering collaborations between local self-help groups and non-governmental organizations. However, the study also identified progressive natural and environmental capital deterioration. Factors such as excessive land use, construction, traffic congestion, air and water pollution, and solid waste and sewage buildup were noted as key challenges. To address these, the proposed framework emphasizes harmonizing business and environmental priorities in sustaining an ecological system through government support and policy interventions. The findings underscore the importance of ongoing tourism development and the need for effective governmental policies to conserve environmental and natural resources while ensuring local communities' economic viability and social well-being.*

Keywords: Environmental Impacts; Tourism Industry; Perceptions, Local Community; Kaziranga National Park; Majuli.

INTRODUCTION

Tourism, an essential element of worldwide economic activities, has experienced remarkable growth, becoming a significant catalyst for economic development in numerous countries. Tourism has emerged as a crucial element of economic success for many nations, as it promotes the generation of employment opportunities, the advancement of infrastructure, and the acquisition of foreign exchange revenue.

However, the rise in tourism has resulted in significant consequences, especially concerning environmental effects. Unregulated conventional tourism presents potential risks to numerous natural regions globally.

The condition can induce substantial regional stress, leading to soil erosion, elevated pollution levels, discharges into marine ecosystems, loss of natural habitats, more significant stress on endangered species and increased susceptibility to wildfires. It often depletes water supplies, leading to competition among local people for essential resources (Sunlu, 2003). Negative repercussions of tourism arise when the influx of visitors surpasses the environment's ability to accommodate such activities within permissible change limits.

The quest for Sustainable Tourism Development has become an essential framework to reconcile tourism's economic benefits with the need for environmental conservation. Tourism can substantially aid in environmental preservation, ecosystem conservation, biodiversity restoration, and the sustainable management of natural resources. Acknowledging the intrinsic beauty of unspoiled locations and natural environments stimulates initiatives to preserve their charm, often creating national parks and wildlife reserves.

Given the pristine nature of the environment and the region's abundance in several aspects, including its rich culture, natural resources, numerous tribes, intriguing religions, and unique traditions, the state of Assam, India, merits the development of its tourist business.

REVIEW OF LITERATURE

Tourism has become vital to economic growth, infrastructure development, and cultural preservation worldwide. However, its environmental implications have drawn considerable attention in academic discourse, underscoring the necessity for sustainable practices.

Stone et al. (2017) emphasized the significance of tourism in stimulating infrastructure development in Botswana, including hotels, lodges, and transportation networks. The tourism sector has also facilitated employment, poverty alleviation, and biodiversity conservation. Similarly, Mbaiwa et al. (2008) observed that policies such as Botswana's 1990 Tourism Policy observed that policies such as Botswana's

1990 Tourism Policy increased tourism numbers, GDP, and employment. However, both studies caution that tourism often develops as an enclave industry, with foreign ownership dominating and limited benefits trickling down to local communities.

In South Africa, Binns et al. (2002) showcased how tourism projects have been incorporated into local economic development strategies. The case studies of Still Bay and Utrecht demonstrated the potential of tourism to create jobs and harness natural and cultural resources. Meanwhile, Duffy et al. (2016) emphasized tourism's economic significance in the Dominican Republic, attributing up to 90.64% of household income to the sector. However, the study also noted disparities in income distribution, with male-headed households benefiting more than female-headed ones.

The adverse environmental consequences of tourism are well-documented. Shi et al. (2023) used GIS techniques to analyze land use changes in Dachangshan Island, China, finding significant increases in impervious surfaces and land surface temperatures due to tourism development. Azam et al. (2018) provided further evidence from Malaysia, Singapore, and Thailand, linking tourism growth to increased environmental pollution. They stressed the importance of government interventions, including environmental taxes and green technology incentives, to mitigate tourism's ecological footprint.

Baloch et al. (2023) highlighted the dual-edged nature of tourism, noting its socioeconomic benefits alongside environmental degradation, including pollution and biodiversity loss. The study proposed a sustainable ecotourism framework and emphasized the need for policy interventions to balance economic growth with environmental conservation. Akhtar et al. (2022) echoed similar concerns, stressing the need for improved management practices and stakeholder collaboration to address habitat destruction and pollution caused by tourism.

As Wilson (2008) observed in Latin America, tourism development often exacerbates social inequalities, where local elites and businesses disproportionately benefit from tourism, leaving the general population marginalized. The visible wealth gap can foster resentment and political unrest. In some cases, tourism destinations also face social challenges like sex tourism and child exploitation.

Conversely, sustainable tourism practices can positively impact local communities. Dodds et al. (2016) underscored the importance of community involvement in tourism initiatives, which enhances resource management and safeguards cultural heritage. Similarly, Mahmudin (2024) highlighted the role of local wisdom in sustainable tourism, advocating for the integration of regional expertise to foster economic growth and inclusivity.

Effective tourism management requires collaboration among stakeholders. Rachmawati et al. (2021) advocated for partnerships between government, local communities, academia, and industry to balance stakeholder demands sustainably. Gupta et al. (2024) emphasized the interconnectedness of economic, social, and environmental aspects of tourism, calling for ethical business practices and innovative strategies to mitigate the adverse effects of mass tourism.

Muhanna (2006) and Akhtar et al. (2022) stressed the urgency of integrating environmental management principles into tourism projects, particularly in developing

countries. They argued for policies that encourage resource efficiency and discourage unsustainable practices, such as the illegal use of natural resources. Polyzos and Tsiotas (2020) further highlighted the role of transport infrastructure in shaping regional tourism economies, emphasizing the need for sustainable development to ensure long-term benefits.

The studies collectively demonstrate that while tourism contributes significantly to economic growth and cultural preservation, it poses substantial environmental and social challenges. Addressing these issues necessitates a holistic approach integrating stakeholder collaboration, sustainable practices, and robust policy frameworks. Only through such efforts can the tourism industry achieve its full potential without compromising environmental integrity and social equity.

OBJECTIVES

The main objectives of this paper are

1. To study the perception of the local community toward the impacts of the tourism industry in the environment.
2. To explore the measures to reduced negative impacts of the industry.

METHODOLOGY

Profile of the study areas:

The selected study areas are the important tourist destinations of Assam, India. The Kaziranga National Park (KNP) is a UNESCO World Heritage Site based on its natural significance. Based on nature, India has its 7th UNESCO World Heritage Site, and the state of Assam boasts two such sites. The other study area, Majuli, is the largest river island in the world, known for its cultural heritage and the Satra Nagari of Assam.

Kaziranga National Park is situated on the southern banks of the Brahmaputra River. It spans three districts of Assam: Golaghat, Nagaon, and Sonitpur. The park was initially declared a reserve forest by Lord Curzon on 3rd January 1908, covering an area of approximately 400 sq.km. Hunting, shooting, or trapping wild animals was prohibited by the order of the then Conservator of Forest, Mr. H. Carter. In 1916, it was designated a 'Game Sanctuary.' Later, in 1950, Mr. P.D. Stracey, the then Senior Conservator of Forests, replaced the term 'Game Sanctuary' with 'Wildlife Sanctuary.' On 11th February 1974, Kaziranga was declared a National Park, encompassing 40,993 hectares of land. In 1985, Kaziranga was recognized as a World Heritage Site by UNESCO. The geographical area of Kaziranga National Park is 430 sq.km.

Majuli, the second study area, is the largest river island in the world, situated in the midst of the mighty Brahmaputra River. It is renowned as a centre of Vaishnava culture in Assam. Majuli is home to the largest number of Vaishnava Satras (monasteries), with as many as twenty-two Satras spread across the island. Prominent Satras include Kamalabari, Natun Kamalabari, Auniati, Garmur, Samoguri, Dakhinpat, and Bengenaati. Majuli's cultural and religious significance, combined with its unique geographical status, makes it a significant tourist destination.

Methods of Analysis

Data collection: Both types of data were used in the study. The secondary data were collected from various published/unpublished research papers, government reports, journals, etc. The semi-structured questionnaire collected the primary data from both selected study areas,

i.e., Kaziranga National Park and Majuli's respondents. A total of 207 samples were collected, 107 from the Kaziranga National Park and 100 from the Majuli. The reliability of the questionnaire was .663, which is fair for the used and collected data. The Cronbach Alpha technique was utilised to calculate the reliability of the questionnaire. The exploratory factor analysis i.e., principal component analysis has been used to dimension reduction of the selected variables. Kaiser-Meyer-Olkin Measure of Sampling Adequacy value .635 and Bartlett's Test of Sphericity (Chi-square) 412.807 and .00 significance level.

RESULTS AND DISCUSSION

Profile of the respondents:

In this study, a total of 207 samples were collected from both study areas, i.e., Kaziranga National Park and Majuli. A total of 107 samples were collected from KNP and 100 sample sizes from Majuli. The profiles of the respondents are discussed below.

Table. 1. Gender distribution of the respondents

Gender distribution of the respondents		
Sex	Frequency	Percent
Female	65	31.4
Male	142	68.6
Total	207	100

The above table indicates the gender-wise distributions of the respondents among the samples. The study's primary results show that 31.4% of the respondents were female and 68.6% were male.

Table. 2 Age of the respondents

Age of the respondents		
Age	Frequency	Percentage
18-25	71	34.3
26-35	65	31.4
36-45	34	16.4
46-55	28	13.5
56-above	9	4.3
Total	207	100

The above table shows the distribution of the age of the respondents; for the age group between 18 and 25, 34.3% of the respondents were in this age group. In the age group 26 to 35, a total of 31.4% of the respondents were under this category. In the age category between 36 and 45, 16.4% were under this. From age 46 to 55 age, a total of 13.5% fell under this, and 4.3% of the respondents were the age of 56 and above.

Table. 3 Distribution of religions of the respondents

Religions of the respondents		
Religions	Frequency	Percentage
Hindu	193	93.24
Christian	12	5.8
Muslim	2	0.97
Total	207	100

Table 3 represents the distribution of religions among the respondents. The primary survey results indicate that 93.24% of the respondents were Hindu faith believers, 5.8% were Christian believers, and 0.97 were Muslim faith believers.

Table. 4 Marital status of the respondents

Marital status of the respondents		
Status	Frequency	Percent
Unmarried	92	44.4
Married	115	55.6
Total	207	100

Table 4 above represents the marital status of the respondents. The primary survey results show that a majority of the respondents were married, which is supported by 55.6% of the primary results. The unmarried percentage was 44.4% in the selected two study areas.

Table. 5. Educational qualifications of the respondents

Educational qualifications of the respondents		
Education	Frequency	Percent
Primary to IX	40	19.32
HSLC	52	25.12
HS	46	22.22
Graduate	46	22.22
Post Graduate	20	9.66
Professionals/PhD	3	1.45
Total	207	100

Table 5 shows the distribution of frequencies of educational qualifications of the respondents. The primary survey results show that 19.32% of the respondents were at the primary to class IX education level. 25.12% of the respondents were HSLC passed; HS and graduate completed percentages of the respondents were 22.22% and 22.22%, respectively. 9.66% of the respondents were post-graduated, and 1.45% were professionals or PhD holders.

Table. 6 Distribution of frequency of Occupations of the respondents

Occupations of the respondents		
Occupations	Frequency	Percent
Students/Researchers	30	14.49
Tourism	53	25.6
Government Job	27	13.04
Farming	54	26.09
Self-Employed/Business/Private	34	16.43
Labour	9	4.35
Total	207	100

Table 6 shows the frequency distribution of the respondents' occupations. The primary survey results show that 14.49% of the respondents were students or researchers; 25.6% of the respondents were tourism-related job holders. The percentage of government job holders was 13.04%; the farming-related occupations of the respondent per cent was 26.09%; the percentage of Self-Employed/ Business/Private was 16.43%, and 4.35% of the respondents were labour.

Table. 7 shows the Involved in tourism related businesses of the respondents

Involved in tourism related businesses of the respondents		
Status	Frequency	Percent
No	144	69.57
Yes	63	30.43
Total	207	100

Table 7 shows the distribution of involvement of the respondents in tourism-related businesses. The primary survey results show that a total of 69.57% of the respondents were not involved in any tourism-related businesses, while 30.43% of the respondents were directly involved in tourism-related businesses in the study areas.

Table. 8 Shows the length of staying at the destinations

Length of residence at the destination		
Length in years	Freq.	Percent
Greater than 10 years	199	96.14
More than 4 year but less than 10 years	10	3.87
Total	207	100

Table 8 shows the length of residence at the destinations. The primary survey results show that 96.14% of the respondents resided more than 10 years in both study areas, while 3.87% stayed more than 4 years but less than 10 years in the study areas.

Extracted factors through the varimax rotation method were present below

Table. Factor Analysis					
Factor Analysis (Overall Cronbach alpha=.661, n=207)		F1	F2	F3	F4
F1	Tourism development has resulted in preserving natural resources and landscapes	.539			
	Local people have started protecting their environment as it is the major attraction for tourists	.779			
	Tourism spending has also facilitated the preservation and conservation of the environment	.83			
	The local community and local SHGs/NGOs are partnering to protect the environment of the place	.588			
F2	The tourism growth has been coupled with large construction activities such as hotels, and restaurants damaging the landscape & ignoring the tectonics & geology of the place		.66		
	Open spaces in the destinations area are slowly getting replaced by tourism-related infrastructure		.67		
	There has been interference in wildlife habitat and their breeding cycles		.824		
F3	The tourist flows to locations have resulted in increased traffic enlarging the levels of pollution in the area			.666	
	The garbage and littering in the area have increased due to Tourism development			.812	
F4	Tourism development has resulted in overcrowding in the destination area				.787
Eigen Value		2.670	1.712	1.403	1.059
Variance Explained		24.271	15.565	12.759	9.631
Total Variance Explained		62.225			

F1-The environment of the study areas is positively impacted by the development of the tourism industry and its further development in the designated study areas. The local community began to safeguard their environment as a significant tourist attraction and became involved in preserving natural resources and landscapes as it continued to develop. Tourism expenditure has also contributed to preserving and conserving the environment following that visit. The local community and local SHGs/NGOs are collaborating to safeguard the area's environment.

F2-The expansion of the tourist sector will inevitably result in negative environmental repercussions. Negative consequences encompass significant construction endeavors, including hotels and restaurants, which harm the landscape and disregard the local tectonics and geology; open spaces are gradually supplanted by tourism-related infrastructure; and there has been disruption of wildlife habitats and their breeding cycles in the designated study areas.

CONCLUSION

The preservation of natural resources is a critical concern, but the pressing need is to mitigate the adverse impacts caused by the growing influx of tourists. In the

selected study areas, the development of the tourism industry has heightened the local community's awareness of the importance of preserving their unique natural resources and biodiversity. Economic benefits, cultural identity reinforcement, and the recognition of their area's uniqueness have positively influenced both the environment and the destination.

However, the development of tourism has had evident detrimental repercussions. Soil erosion, rising pollution, discharges into wetlands and rivers, habitat loss, threats to endangered species, and traffic congestion have all arisen as major environmental issues. Environmentalists have recommended garbage incineration, landfilling, and banning non-biodegradable plastic bags. However, although admirable, these ideas are often difficult to apply successfully.

Encouragingly, the local youth are being educated early about environmental cleanliness and actively participate in maintaining their surroundings by collecting and properly disposing of waste. This proactive behaviour sets a strong example. Visitors, too, must take responsibility for the environmental well-being of their destinations. A global understanding of environmental issues and a commitment to act responsibly are imperative.

We can protect and sustain the environment of these cherished tourist destinations with collective comprehension and sincerity. Achieving this balance will safeguard the nation's tourism sector, ensuring its continued growth and preserving its esteemed reputation for future generations.

Disclosure Statement

The authors reported no possible conflicts of interest.

Funding

No monetary assistance was obtained from any agency.

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