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ARTICLE

Tourism and Community Development: A Holistic Perspective from the Local Community in Bodhgaya

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ABSTRACT

Tourism, an essential engine for economic development, also raises issues that lean towards the economic aspect face to face with the environmental, socio-cultural, and well-being of the local community. Bodhgaya, a UNESCO World Heritage Site and one of the holiest pilgrimage sites in Buddhism, reflects the complexities of tourism-driven development. Tourism has contributed to the local economy but has also manifested social-economic inequality, stressed the facilities, and put pressure on cultural heritage and the environment. This research elaborates on the relationship between tourism and community development in Bodhgaya through economic, cultural, environmental, and social aspects. Based on the literature review and primary data analysis, the research shows how residents perceive the impacts of tourism on their rural culture, the degree of involvement of the community in tourism governance, and the difficulties of maintaining a balance between tourism growth and the preservation of the local culture. The results show that although tourism creates jobs and aids local businesses, benefits are not evenly distributed, with many residents remaining in a precarious economic state. Additionally, cultural commodification and ecological degradation are rampant, made worse by inadequate infrastructure and exclusionary planning processes. This research highlights the critical role of community involvement in designing sustainable tourism approaches and suggests practical steps to ensure fair development. The impact of social tourism participants on resident community empowerment in religious and heritage sites is a topic of broader importance for destination management, cultural heritage, and tourism development in general.

Keywords: Impact Assessment; Seasonality; Perception; Socio-Economic Disparities; Tourism Infrastructure

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1. Introduction

Tourism has long been a driving factor behind global economic expansion, generating substantial revenue and contributing significantly to the GDP of many nations. The global economy is greatly impacted by international tourism, which generated almost 1.7 trillion USD in 2019 alone^[1]. However, concerns about tourism's broader impacts-particularly on the environment, locals, and cultural heritage-have been raised by the increased monitoring of the industry. Despite its ability to improve infrastructure, create jobs, and stimulate the economy, tourism frequently leads to environmental harm, the commodification of culture, and the marginalisation of local communities^[2]. These problems are most apparent at historical and religious sites, where controlling the number of people is essential to preserving cultural authenticity and ensuring that tourism's advantages are shared fairly^[3].

In India, religious tourism is quite significant, particularly in locations like Bodhgaya, a popular destination for Buddhist pilgrims. It is believed that Gautama Buddha became enlightened at Bodhgaya's Mahabodhi Temple, a UN-ESCO World Heritage Site. India is a popular destination for pilgrims and cultural tourists, as are countries with a large Buddhist population, such as Japan, Thailand, and Sri Lanka^[4]. Although Buddhism originated on the Indian subcontinent and has since spread worldwide, it also creates a humorous contrast in its birthplace of India and Nepal, where there are still very few Buddhist followers^[5]. Despite having many sacred sites associated with the life of Gautama Buddha, including Lumbini, Bodhgaya, Sarnath, and Kushinagar, many of these sites are now largely archaeological rather than active religious centres^[6]. Millions of visitors from both domestic and foreign nations flock to Lumbini and Bodhgaya, UNESCO World Heritage Sites, in search of spiritual enlightenment and a sense of cultural unity^[7]. The recovery of these sites for tourists is mostly the responsibility of the international Buddhist community, as residents, who make up only 0.8% of India's 1.35 billion inhabitants^[8], often do not have access to them. In India, where over 11 million Indians and about 1.5 million foreign visitors frequent these historic places, this situation emphasises the distinctive features of Buddhist tourism^[9].

One of the most important pilgrimage sites in the world is Bodhgaya, which has been a UNESCO World Heritage Site since 2002. The Mahabodhi Temple and other holy sites are the primary pulls for the millions of Buddhists and spiritual tourists who visit it because of their great religious, historical, and cultural significance. However, Bodhgaya's infrastructure and economic growth have stagnated despite its global relevance and capacity to draw large crowds of people^[10]. Bodhgaya has not benefited as much as expected, in contrast to other Indian religious sites incorporated into national tourism initiatives, such as the PRASAD and HRIDAY projects aimed at enhancing religious and heritage sites^[8]. This disparity presents several socioeconomic and environmental challenges for the local populace, highlighting the necessity of a more comprehensive analysis of how tourism affects various aspects of local life.

Also, tourism in heritage destinations like Bodhgaya has a profound impact on environmental management. As the increased tourist inflows always exert pressure on the local ecosystem, necessitating sustainable practices to mitigate resource depletion and waste accumulation^[1]. This study extends beyond socio-economic impacts to explore how tourism shapes environmental perceptions, management practices and ecological outcomes, thus contributing to the discourse on sustainable tourism in fragile environments. This study's conclusions are consistent with the global environmental management agenda, including the United Nations Sustainable Development Goals (SDGs). SDG 12 (Responsible Consumption and Production) emphasises the need for sustainable methods to reduce the environmental impact of economic activities, especially tourism^[11]. By analysing local views of ecological consequences and identifying gaps in waste management and resource conservation, this study helps to develop actionable measures for encouraging responsible tourism. Similarly, SDG 15 (Life on Land) emphasises the need to protect terrestrial ecosystems and prevent land degradation. Tourism's impact on local ecosystems in Bodhgaya, including difficulties such as litter accumulation and water resource depletion, emphasises the importance of comprehensive environmental management.

The primary research question this study seeks to address relates to the complex and often overlooked interplay between tourism and community development in Bodhgaya. While tourism is often described as a driver of economic growth, particularly in the case of rural and religious communities, its broader impacts are much more complex. Beyond the projected economic benefits, tourism brings challenges such as ecological damage, cultural decline, and disproportionality in resource distribution^[11]. Such issues are especially evident in Bodhgaya where the local population tends to be on the margins, with tourism's economic benefits generally seen as flowing to a few participants^[9]. Socioeconomic inequalities and the absence of sustainability furthermore are reinforced when residents are frequently excluded from decision-making related to tourism.

The economic impact of tourism on the local people of Bodhgaya is one of the main areas of focus. Tourism may greatly boost economic growth by creating jobs, boosting local business revenue, and drawing in infrastructure investment. However, a large body of existing economic studies shows that these gains are often not dispersed fairly, especially in rural and religious communities^[2]. Many residents, especially those employed in low-paying, seasonal occupations, are nevertheless vulnerable to economic fluctuations, even if a select few, such as hoteliers, tour operators, and business owners, may profit from the flood of tourists^[12]. In addition, an increase in tourism can lead to inflation and greater living expenses, widening the gap between the rich and the poor.

Additionally, cultural preservation is a crucial factor to take into account while evaluating the importance of tourism in Bodhgaya. On the one hand, tourism may support the preservation and promotion of the area's rich cultural resources, including historical landmarks, regional customs, and celebrations. However, the authenticity of Bodhgaya's cultural identity is seriously threatened by cultural commercialisation, which is the packaging and selling of customs as tourist attractions^[8]. The potential for commercialising or diluting religious and cultural traditions increases with tourism, endangering the site's spiritual and cultural integrity^[13]. Prior studies conducted in other holy locations, like Varanasi and Lumbini, have shown comparable practices where cultural heritage is exploited and marketed to meet the needs of tourists^[4].

The environmental impact of tourism is another major issue, especially in a small town like Bodhgaya, whose environmental management systems and infrastructure have struggled to cope with the increasing number of visitors. Mass tourism often results in problems like pollution, waste management, and the excessive use of energy and water, and these issues are particularly common in urban areas^[14]. Without proper regulations and infrastructure, the surrounding natural landscapes of Bodhgaya, which are important to local people and tourists, are at risk of degradation^[9].

Another key aspect examined in the extensive literature is the level of community participation in tourism decision-making processes. Theoretical frameworks such as Community-Based Tourism (CBT) stress the importance of involving residents in tourism planning and development^[15] to ensure that the benefits are widely shared and that tourism serves broader ends of community development. However, previous studies under similar circumstances have shown foreign agents, including but not limited to government authorities, private enterprises, and non-national associations, to overshadow local voices overwhelmingly^[16, 17]. Aside from restricting the community's ability to be a beneficiary of tourism, this marginalization also hinders the development of locally pertinent solutions to problems posed by tourists^[18].

Taken together, these emphases shape the central questions guiding this study. It is first of all interested in residents' perception of tourism's role in Bodhgaya's economic development. The underlying reason for the question is that, while tourism leads to cash inflows, the profits aren't always equitably shared. Second, the study identifies the positive and negative impacts of tourism on cultural heritage and ecosystems in Bodhgaya, recognizing the dual role of tourism in facilitating the protection of Bodhgaya's cultural heritage and ecology while simultaneously posing a threat to both. Third, towards understanding how the local community can contribute to tourism development decision-making processes, the study identifies what areas the community is currently under-involved in and what opportunities exist for greater involvement. Finally, the research explores different pathways to realize sustainable community development through tourism, emphasizing the need for an integrated approach that considers economic opportunity, cultural conservation, environmental sustainability, and community empowerment.

Through identifying these issues, the study aims at a holistic understanding of tourism's impact on Bodhgaya's development. Besides advocating for economic development, it emphasizes the importance of laws and processes that afford local people, the environment, and Bodhgaya's unique cultural heritage a just standing, ensuring benefits for future generations. This study subsequently contributes to the rising debate surrounding sustainable tourism, particularly in rural and sacred places, by providing critical insights into how Bodhgaya might balance competing aspirations for tourism growth, community well-being, and cultural integrity.

2. Literature Review

The relationship between tourism and development at the community level has been well documented in scholarly literature, given the deep religious and cultural heritage of Buddhist society. Bodhgaya is a useful case study for examining the role of tourism in local economies and quality of life. Hindu pilgrimage centres like Varanasi or Rishikesh or the Islamic centre of Ajmer Sharif have international recognition that Bodhgaya has not yet achieved^[19]. Despite its importance as an international pilgrimage site, Bodhgaya has the potential to develop as a major destination, but this potential is limited by the absence of substantial infrastructure and economic development^[6]. Despite the millions who visit annually, the country faces many challenges, especially in its tourism industry, directly affecting the development and prosperity of its residents^[19]. This is why it is important to explore ways in which tourism can be better used for the good of the community and the economy.

Bodhgaya's unique status as an internationally important place of worship, which contrasts with other welldeveloped pilgrim destinations, necessitates this study. Influential researchers such as Gurită and Scortescu^[13] and He and Wang^[18] state that tourism plays an indispensable role in local development, particularly in areas with vibrant cultural heritage. However, there remains a disconnect between Bodhgaya's catalytic tourism industry and broader national and international tourism circuits, which raises questions about long-term sustainability for the local economy and its inhabitants^[14]. Lack of infrastructure, poor marketing strategies, and failure to optimize the UNESCO World Heritage status conferred on Bodhgaya are among the factors contributing to its relative invisibility on the global tourism map^[9]. Tourism in Bodhgaya is heavily reliant on domestic pilgrims, with a weaker economic multiplier compared to other religious tourism sites in India that receive significant foreign pilgrim inflow^[20]. Bodhgava falls short in tourism-generated income compared to other religious centers^[21], emphasizing the need to study its tourism development plans and socioeconomic impacts for the local people. Previous studies have pointed out the positive impacts of tourism, such as job opportunities, improved infrastructure, and increased incomes leading to better public services^[15, 22, 23]. There is significant potential for further economic development in Bodhgaya, as a considerable part of the population relies on the informal sector, including small-scale pilgrimage tourism enterprises^[8]. However, this potential has not yet translated into economic gains for the region on the same scale as more established religious tourism locations. Also, according to research, historic tourism can be both a cause of environmental problems and a means of conservation. For example, eco-tourism in Bhutan and Costa Rica has effectively combined tourism and ecosystem preservation, serving as a model for sustainable practices in heritage sites such as Bodhgaya^[12, 24]. This study contributes to this discourse by studying how local perceptions and seasonal dynamics affect environmental impacts in Bodhgaya.

Theoretical frameworks of tourist development, specifically Doxey's (1975) discomfort/tolerance index and Butler's (1980) tourism area life cycle model, provide useful lenses to understand the process by which tourism develops in culturally significant spaces and the reactions of local communities, such as in this case^[23]. While well-received initially for its economic benefits, uncontrolled tourism will ultimately result in social and environmental degradation over time, as depicted in these models. These questions are becoming more pressing in Bodhgaya. While growing numbers of pilgrims have some positive impacts, they have also created environmental stressors such as pollution, congestion, and water scarcity^[22]. Moreover, unequal distribution of tourismrelated income, poor urban planning, and inadequate infrastructure have worsened socioeconomic disparities among locals^[16].

Studies of pilgrimage tourism at other important Islamic and Hindu religious sites show how effective marketing and community mobilization, combined with good infrastructure policies, can elevate the global presence of a destination^[6]. For example, government interventions to improve connectivity, infrastructure, and cultural programming^[25] have played a role in making Varanasi an absolute must-see for both Hindu pilgrims and foreign tourists alike. Ajmer Sharif, which processes millions of pilgrims annually, is one of the largest pilgrimage sites of Islam and a major contributor to the local economy^[26]. These comparative instances indicate that Bodhgaya is not yet harnessing its full potential as a pilgrim site, despite its unparalleled importance within the Buddhist universe^[24].

In line with this, the study seeks to understand the perceptions of local residents regarding tourism and its impact on their lives. The questionnaire designed for this research aims to capture various dimensions of the local population's engagement with tourism, focusing on their economic benefits, cultural concerns, and environmental challenges as discussed in **Table 1**. The objective is to assess whether the community feels adequately involved in tourism planning and whether the benefits of tourism are being equitably distributed. The responses will provide critical insights into the current state of tourism development in Bodhgaya, highlighting gaps in the existing strategies and offering recommendations for creating a more inclusive and sustainable tourism model. This study intends to add to the larger conversation on sustainable tourism in culturally significant areas by closely examining the relationship between tourism, community development, and religious history. Other undeveloped religious tourism locations looking to strike a balance between development and environmental and cultural preservation may find that the lessons learnt from Bodhgaya offer insightful guidance.

Key Aspects of Tourism Impact in Bodhgaya

The following **Table 1** summarizes the key dimensions of tourism's impact in Bodhgaya, based on existing literature:

S.No.	Aspect	Reasoning	Purpose of the Study
1	Economic	Tourism generates income, creates	Assess how tourism impacts income generation,
	development	jobs, and attracts infrastructure investments ^[7, 27]	employment, and equitable economic distribution in Bodhgaya.
2	Cultural heritage preservation	Tourism aids in sustaining historical sites but risks commodifying traditions ^[28]	Investigate tourism's role in preserving Bodhgaya's cultural identity while mitigating the effects of cultural commodification.
3	Environmental impact	Tourism often leads to pollution and resource depletion but can also promote conservation ^[29, 30]	Explore tourism's effects on Bodhgaya's environment, including resource management and pollution control.
4	Community involvement	Local participation ensures equitable benefits and sustainable practices ^[3, 24]	Examine the extent of local involvement in tourism governance and identify strategies for greater inclusion.
5	Social inequality	Uneven benefits can widen socio-economic gaps ^[16, 17]	Analyze whether tourism exacerbates social inequalities and propose solutions for equitable development.
6	Infrastructure development	Tourism improves infrastructure but can strain public services if poorly managed ^[14, 31]	Evaluate infrastructure improvements in Bodhgaya and their alignment with both tourism and community needs.

Table 1. Identified aspects in the literature

3. Methodology

A mixed-methods research methodology is used in this study to thoroughly investigate how the locals of Bodhgaya perceive the effects of tourism. Through the integration of both quantitative and qualitative data, the study seeks to understand how residents perceive the economic, social, cultural, and environmental aspects of tourism. The methodology is intended to record a wide variety of viewpoints, guaranteeing the findings' depth and dependability.

3.1. Research Design

The study's parameters were determined after a thorough literature assessment. Community involvement, environmental sustainability, cultural preservation, and economic development are important factors. To guarantee that the survey and interview questions were in line with the goals of the study, these criteria served as a guide. Three stages of the study were carried out:

• Initial Phase: To identify pertinent topics, a review of the body of current literature was conducted in an inte-

grated review manner, where keywords of 'Buddhist' OR 'Buddhism' OR 'Religious' AND 'Tourism' OR 'Bodhgaya' OR 'India' OR 'Local Community' were used to find the relevant papers on Google Scholar and SCOPUS database, to include the vast literature. Based on evaluating the paper's abstract, 31 papers were selected that related Buddhist tourism to local people's perception and community development. From there parameters were identified and used in the study.

- Phase of Data Collection: Structured surveys and random sampling.
- Analysis Phase: Both qualitative thematic analysis of interview replies and quantitative analysis of survey data.

3.2. Sampling Strategy

A random sample technique was used in the study to guarantee an objective selection of local community respondents. A statistically significant sample of 216 people took part in the poll, making it possible to analyse community perceptions. The respondents' demographic distribution demon-

strated a varied representation of the Bodhgaya local community. 216 people with various residential statuses made up the sample. There was a wide range of educational backgrounds and the socioeconomic diversity of the neighbourhood was reflected in the respondents' professional jobs, which included shops, craftspeople, street vendors, food sellers, drivers, guides, and other positions.

3.3. Survey Instrument Design

The purpose of the questionnaire was to thoroughly investigate the socioeconomic, cultural, and environmental effects of Bodhgaya tourism. It was separated into important categories, **Table 2**, to collect respondents' insights methodically. Both open-ended and structured survey questions were used to gather both qualitative and quantitative data.

3.4. Structure of the Questionnaire

The table below summarizes the key sections and objectives of the survey instrument:

S.No.	Section	Objective	Sample Questions
1	Demographic characteristics	Understand respondents' profiles and background.	 What is your age, gender, and highest level of education? Are you a permanent resident or migrant? What is your occupation and years of experience?
2	Economic impact of tourism	Assess tourism's contributions to local economic development.	How has tourism contributed to the economic development of Bodhgaya?What are the main economic benefits of tourism in Bodhgaya?
3	Cultural heritage preservation	Explore how tourism influences the preservation of cultural heritage.	 How do you perceive tourism's role in preserving Bodhgaya's cultural heritage? What cultural benefits have you observed from tourism
			in Bodhgaya?
4	Environmental impact	Evaluate the impact of tourism on the local environment.	 How has tourism affected Bodhgaya's environmental condition? What are the main environmental challenges caused by tourism in Bodhgaya?
5	Capacity-building and community development	Identify capacity-building efforts and their influence on community development.	 Have any capacity building programs related to tourism skills been conducted for the community? What are the main drivers of community development through tourism?
6	Community involvement	Examine the extent of local participation in tourism-related decision-making.	 How would you rate community involvement in tourism decision making processes? What measures can promote greater community involvement in tourism development?

Table 2. Survey objective-question mapping.

S.No.	Section	Objective	Sample Questions
7	Educational and infrastructure support	Assess tourism's contribution to education and infrastructure improvement.	 Has tourism supported educational programs such as scholarships? Have there been notable improvements in local infrastructure due to tourism?
8	Social and environmental challenges	Identify the broader social and environmental challenges caused by tourism.	 Have you noticed an increase in community inequalities due to tourism? Has tourism caused environmental degradation or dam- age?
9	Tourists' role and engagement	Understand the role of tourists in promoting local culture and economy.	 How often do tourists buy products or services from the local community? In what ways have tourists supported local festivals and traditions?
10	Open-ended questions	Collect qualitative insights and recommendations from respondents.	What measures could be taken to mitigate the adverse effects of tourism seasonality?Any additional suggestions for sustainable tourism development?

Table 2. Cont.

3.5. Data Analysis

To find patterns and relationships, statistical tools were used to analyse survey results. Demographic information and opinions regarding the effects of tourism were compiled using descriptive statistics (such as frequencies and percentages). To investigate the connections between variables like educational attainment and the perception of economic benefits, inferential statistics (such as chi-square tests) were utilized. Despite its comprehensive methodology, the study admits certain shortcomings. First off, the results are unique to Bodhgaya and might not apply fully to other pilgrimage sites with distinct sociocultural and economic backgrounds. Second, the data was gathered over a specific time frame, which might have missed the seasonal fluctuations in travel that could influence community perceptions and engagement.

3.6. Study's Limitation

Despite the comprehensive methodology, there are limitations that the authors acknowledge. These are described below:

- A larger sample size could provide even more robust and generalizable insights into the perceptions of the community regarding Bodhgaya's tourism and its various impacts.
- The study focuses its applicability on Bodhgaya. However, cities with different sociocultural and economic con-

ditions may require other approaches. Hence, a comparative study with other regions could broaden the findings' relevance.

- Due to the collection of data during a specific time frame, there is a probability of overlooking seasonal variations in tourism that might affect community perception and engagement.
- There can be the addition of external factors into the questionnaire such as pandemics like COVID-19, global tourism trends, and geopolitical forces, that could significantly influence community perceptions and tourism outcomes.

4. Results

An examination of survey data from 216 participants is provided in this section, providing information on the socioeconomic, cultural, and environmental effects of tourism in Bodhgaya. The results, which are backed up by descriptive and inferential statistics, are arranged into subsections to emphasise noteworthy trends.

4.1. Demographic Characteristics

The survey sample comprised 216 respondents, **Table 3**, with a gender distribution of 147 males (68.1%) and 69 females (31.9%). The respondents' ages ranged from 17 to 67 years, with an average age of 36.68 years (Standard deviation, D = 11.56). A significant majority of participants (82.9%)

were permanent residents of Bodhgaya, while smaller groups included individuals who had relocated either alone (9.3%) or with their families (7.9%). Educational attainment among the respondents varied widely: 31.0% had completed matriculation, 29.2% held undergraduate degrees, and 14.8% were

illiterate. In terms of professional engagement, more than half of the respondents (55.1%) were employed year-round, while others worked seasonally during peak tourism months (22.2%) or for limited durations of three to four months (11.1%).

S.No.	Demographics	Count	Percentage
1	Total respondents	216	100.0%
2	Gender		
	Male	147	68.1%
	Female	69	31.9%
3	Residential status		
	Permanent residents	179	82.9%
	Moved alone	20	9.3%
	Moved with family	17	7.9%
4	House ownership		
	Own house	173	80.1%
	Tenants	43	19.9%
5	Education level		
	Illiterate	32	14.8%
	Matriculation	67	31.0%
	Intermediate	47	21.8%
	Undergraduate	63	29.2%
	Post graduate	6	2.8%
	PhD	1	0.5%
6	Professional engagement		
	Throughout the year	119	55.1%
	For half of the year	25	11.6%
	For 3–4 months	24	11.1%
	At peak tourist season	48	22.2%
7	Professions		
	Shopkeepers	38	17.6%
	Artisans/craftsmen	30	13.9%
	Street vendors	27	12.5%
	Cloth merchants	16	7.4%
	Food vendors	13	6.0%
	Drivers	10	4.6%
	Guides	8	3.7%
	Homemakers	7	3.2%
	Other professions	67	31.0%

Table 3.	Demographics	data.
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4.2. Economic Impact

Tourism was widely recognized as a key driver of Bodhgaya's economic development as in **Table 4**, **Figure 1** and **Figure 2**. Among the respondents, 53.2% identified its contribution as moderate, while 35.2% considered it significant. Furthermore, 82.4% of respondents acknowledged that tourism had diversified the local economy by fostering new businesses and opportunities.

Table 4.	Contribution	of tourism	to economic	development.

S.No	Response	Count	Percentage (%)
1	Not at all	2	0.9%
2	Slightly	23	10.6%
3	Moderately	115	53.2%
4	Significantly	76	35.2%

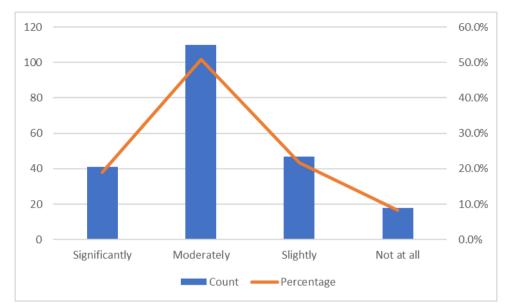


Figure 1. Have you observed people migrating in Bodhgaya in search of the opportunity for tourism employment?

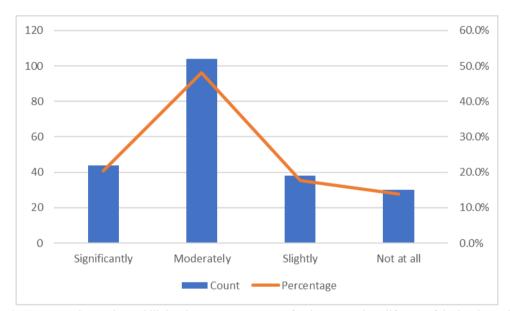


Figure 2. Have you observed any skill development programmes for the economic upliftment of the local population?

4.3. Cultural Heritage Preservation

Tourism emerged as a vital force for preserving Bodhgaya's cultural heritage, based on two different questions, as described in **Table 5** and **Figure 3**. Nearly half of the

respondents (49.5%) described tourism's role as highly effective, while 43.1% considered it somewhat effective. Only a small fraction (6.9%) viewed tourism as ineffective in this regard, underscoring widespread recognition of its cultural value.

S.No.	Response	Count	Percentage
1	Highly effective	107	49.5%
2	Somewhat effective	93	43.1%
3	Ineffective	15	6.9%
4	Not sure	1	0.5%

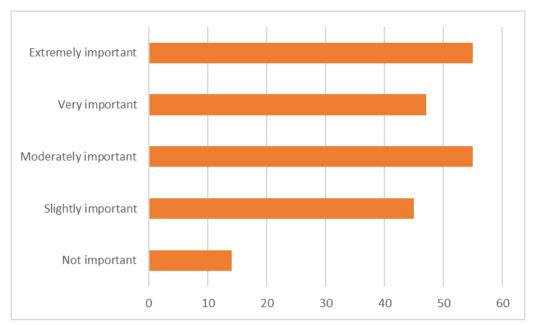


Figure 3. How important is preserving social and cultural heritage in Bodhgaya for sustainable tourism?

4.4. Environmental Impact

Respondents expressed mixed views on the environmental impact of tourism, as in Table 6. A majority (55.1%) identified a moderately positive impact, while 16.2% considered the effects significantly positive. Negative perceptions were relatively minimal, with only 9.7% citing moderately negative impacts and 4.2% reporting significant environmental harm.

The finding that seasonal workers are more favourable about tourism's environmental impacts, whereas permanent residents are concerned about litter accumulation and water shortages, emphasises the necessity for specific environmental regulations. Addressing these disparities can help to close the gap between short-term benefits and long-term environmental sustainability.

S.No	Response	Count	Percentage (%)
1	Significantly positive	35	16.2%
2	Moderately positive	119	55.1%
3	No impact	32	14.8%
4	Moderately negative	21	9.7%
5	Significantly negative	9	4.2%

Table 6. Environment impact.

ipation

The level of local participation in capacity-building programs varied substantially, as shown in Table 7. While 41.2% of respondents reported moderate participation, 22.2% highlighted a lack of such initiatives. Similarly, community involvement in tourism-related decision-making was rated as moderate by 38.0% of participants, with 23.6% indicating high involvement. However, 19.0% observed no community

4.5. Capacity-Building and Community Partic- involvement at all, reflecting a potential area for improvement in local engagement.

4.6. Impact of Seasonality

The seasonal nature of tourism posed significant challenges for local livelihoods. Over one-third of respondents (37.0%) reported a high seasonal impact, while 31.9% experienced a moderate effect (Table 8).

S.No	Response	Count	Percentage	
1	High involvement	51	23.6%	
2	Moderate involvement	82	38.0%	
3	Limited involvement	42	19.4%	
4	No involvement	41	19.0%	

Table 7. Community involvement in decision-making.

Table 8. Seasonal impact of tourism.

S.No	Response	Count	Percentage (%)
1	High impact	80	37.0%
2	Moderate impact	69	31.9%
3	Low impact	51	23.6%
4	No impact	16	7.4%

4.7. Education and Infrastructure

Tourism's contributions to education and infrastructure were moderate (**Figure 4**). More than half (52.3%) of respondents acknowledged educational benefits, such as scholarships and training programs. However, the overall impact on educational advancement appeared limited. Regarding infrastructure, 39.4% described its development as moderate, while 28.2% observed significant improvements. These findings suggest that while progress has been made, there is room for further enhancement in these areas.

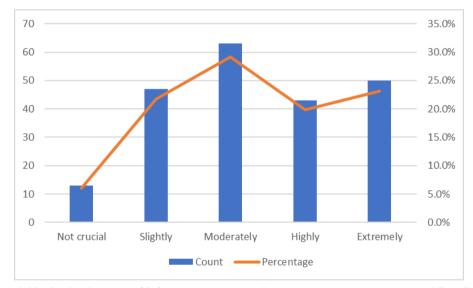


Figure 4. How crucial is the development of infrastructure (e.g., roads, waste management systems, public toilets) for tourism in Bodhgaya?

4.8. Social and Environmental Challenges

Tourism-induced social challenges were relatively minimal. A small proportion of respondents (22.2%) reported increasing inequalities, such as the shift from permanent to temporary employment, while 19.0% noted instances of environmental degradation. Issues related to crime and other social problems were negligible, with 84.7% of respondents indicating no such concerns. However, there has also been moderate development of the area through regenerative intervention of these religious cores, which may bring about reformatory changes as shown in **Figure 5**.

4.9. Support for Local Products and Festivals

Tourists often supported local products and services, as reported by 40.7% of respondents who observed frequent purchases (**Table 9**). Another 45.8% noted occasional

tourist support. However, views on tourist involvement ing active participation and 50.5% reporting no significant in local festivals were evenly split, with 49.5% perceiverent engagement.

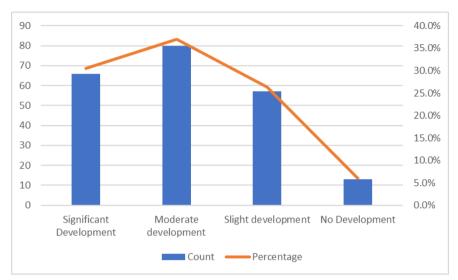


Figure 5. Have you observed the regeneration/revitalization of any area in the precinct of tourist sites?

S.No	Response	Count	Percentage (%)
1	Often	88	40.7%
2	Sometimes	99	45.8%
3	Rarely	26	12.0%
4	Never	3	1.4%

Table 9. Tourist interaction with local products.

4.10. Perceived Infrastructure Priorities

Infrastructure development emerged as a critical priority for sustainable tourism. Approximately 23.1% of respondents considered it extremely important, while 29.2% deemed it moderately important.

4.11. Health and Skill Development

A substantial proportion of respondents noted tourism's contributions to health and skill development, as shown in **Table 10**. Approximately 30.6% acknowledged enhancements in health and education services, while 68.5% observed the presence of skill development programs. However, participation levels varied, with 48.1% describing these programs as moderately successful and 13.9% noting no observable initiatives.

S.No	Response	Count	Percentage (%)
1	Significantly	44	20.4%
2	Moderately	104	48.1%
3	Slightly	38	17.6%
4	Not at all	30	13.9%

Table 10. Skill development programs observed.

4.11.1. Statistical Summary of Chi-Square Tests

The statistical associations between various survey variables were analyzed using the Chi-Square test (**Table 11**):

S. No.	Dimension	Variable	Chi-Square Test	p-Value	Significant Insights
1	Economic impact	Professional engagement and economic benefits	$\chi^2 = 9.34$	0.0262	Seasonal workers were more likely to report higher economic benefits from tourism.
2	Economic diversification	Gender and perception of diversification	$\chi^2 = 8.45$	0.030	Male respondents were significantly more likely than females to view tourism as diversifying the economy.
3	Environmental impact	Professional engagement and environmental perception	$\chi^2 = 10.78$	0.0107	Seasonal workers reported more positive environmental impacts of tourism.
4	Seasonality	Age and seasonal challenges	$\chi^2 = 12.31$	0.040	Older respondents perceived less seasonal impact on livelihoods.
5	Seasonality	Professional experience and seasonal challenges	$\chi^2 = 14.89$	0.007	More experienced respondents faced fewer seasonal challenges.
6	Tourist support for festivals	Education and tourist involvement in festivals	$\chi^2 = 11.25$	0.008	Higher education levels were linked to lower perceptions of tourist participation in local festivals.
7	Infrastructure priorities	Gender and infrastructure importance	$\chi^2 = 9.68$	0.020	Male respondents emphasized infrastructure development more than females.

Table 11. Summary of the key results.

The implications of these findings are discussed below:

- Although most people agreed that tourism contributed to economic expansion, seasonal workers reported greater financial gains than year-round workers. Seasonal workers who deal directly with tourists during busy times may be more exposed to the financial benefits of tourism, according to this research (p = 0.0262). This also highlights how some people are dependent on the seasonality of tourism, which may make them economically vulnerable during off-peak months.
- Male respondents were substantially more likely to acknowledge the contribution of tourism to economic diversification (p = 0.030). Men may be more involved in commercial ventures related to tourism, which could be a reflection of gender norms.
- According to seasonal workers, tourism has a greater positive influence on the environment (p = 0.0107). Their participation in temporary positions that emphasise environmentally friendly practices or draw attention to improvements associated with tourism may be the cause of this. On the other hand, year-round inhabitants could be more sensitive to the negative environmental effects of tourism, like trash production or resource depletion.
- Seasonal impacts were less common among older and more seasoned respondents (p = 0.040, p = 0.007). This

suggests that as people gain knowledge and time, they create flexible ways to lessen the negative consequences of the seasonality of tourism. Workers who are younger and have less experience seem to be more at risk.

- Higher-educated respondents thought that tourists were less involved in local festivals (p = 0.008). This can suggest a discrepancy between the aspirations of educated people regarding cultural engagement and the actions of tourists. Creating activities that both meet community expectations and promote significant tourism involvement could help close this gap.
- Male respondents gave infrastructure development a higher priority (p = 0.020), which may be related to their work in transportation, construction, or other infrastructure-related industries and may also indicate some perceptional differences.

5. Discussion

Tourism in Bodhgaya presents a paradoxical reality, offering both substantial benefits and notable challenges as already discussed in **Table 11**. This intricacy illustrates how tourism is a two-pronged socioeconomic driver that may both strengthen vulnerabilities and change communities by highlighting interrelated patterns that demand further investigation.

5.1. Economic Aspect

Tourism in Bodhgaya has become a dominating economic force, facilitating diversification and providing job opportunities. Such a strong relationship between perceptions of economic gain and programming reveals the extent to which tourism can change livelihoods, perhaps most meaningfully for seasonal workers. Often highly active during the peak travel season, these individuals report stronger economic uplifts that emphasize the instantaneous cash influx travel presents.

Seasonality is the biggest problem, and the economic benefits are not shared equally. Though older residents seem to be less affected, younger workers who rely mainly on seasonal placements are economically vulnerable in between seasons. The community's reliance on tourism also makes it susceptible to broader economic vulnerabilities, including fluctuations in visitor volume caused by outside forces like pandemics. Strategies to diversify the local economy or extend the tourist season are needed to address these economic disparities. The undesirable effects of seasonality can be mitigated, for instance, by promoting the year-round nature of attractions or promoting complementary industries such as crafts, wellness tourism, or educational programs.

5.2. Cultural Aspect

Almost half of the respondents rated the influence of tourism on cultural preservation to be very effective. As per perceptions, sacred places, artifacts, and regional customs that may otherwise suffer neglect or decay are safeguarded. Despite moderate to high levels of community involvement among respondents, 19.0% reported having no engagement with cultural tourism, indicating underlying systemic barriers. These can range from limited access to platforms for decision-making, ineffective stakeholder communication, or exclusion based on gender or socioeconomic status. The marginalization of community engagement risks alienating certain demographics, contradicting the inclusive development goals integral to sustainable tourism. This discrepancy also raises concerns over cultural commodification-the commercialization of heritage to meet visitor demands at the expense of regional authenticity. Increasing local participation through cultural workshops, participatory governance, and education can address this gap. Such measures will instill pride among locals and ensure that tourism aligns with cultural preservation objectives

5.3. Environmental Impacts: Divergent Perceptions

The environmental impact of tourism is contentious, with respondents disagreeing about impacts depending on their stay time and existing occupation. Seasonal workers are less exposed to long-term ecological issues simply because they work for shorter periods, which is likely why they reported better environmental outcomes. Permanent residents, who have to live with the environment day in and day out, expressed concern about degrading the environment through negative impacts such as litter accumulation, water shortages, and deforestation. This discrepancy highlights the tension between short-term financial returns and long-term environmental shortfalls. Although tourism has improved the environment in some ways, for example with better waste management programs, these activities do not appear to go far enough to combat systemic ecological problems.

The findings of this study highlight the interconnectedness of tourism and environmental management. Seasonal workers' exposure to environmentally beneficial practices during peak tourist seasons highlights the possibility for SDG 12-aligned actions, such as encouraging eco-friendly tourism practices and reducing waste. Furthermore, permanent residents' worries about environmental degradation align with the goals of SDG 15, which promotes sustainable land and resource use. Addressing these issues necessitates a collaborative strategy that matches local tourism operations with global environmental standards. For example, implementing circular economy ideas into tourism businesses, such as recycling programs and resource-efficient infrastructure, can directly support SDG 12 aims. Furthermore, incorporating ecosystem restoration initiatives into tourism planning may ensure that Bodhgaya's natural heritage corresponds with the conservation priorities indicated in SDG 15.

5.4. Social Dynamics

Socially, the tourism industry in Bodhgaya helps create a relatively peaceful atmosphere where violence and disturbances are few and far between. This stability is offset by the feeling of growing inequality, especially when it comes to moving from permanent employment to temporary employment. The increase in precarious, tourism-dependent employment emphasizes the need for equitable access to resources and opportunities within the tourism sector. Moreover, the data demonstrates the difference between the benefits of tourism and its potential for social cohesion. For example, there are gaps in governance, such as the lack of community involvement in tourist decision-making. These findings illustrate the need to prioritize local voices in tourism planning to ensure that benefits are shared equitably and following community interests.

5.5. Educational and Infrastructural Impacts

In comparison to other aspects of socio-economic development, contributions of tourism to education and infrastructure have not been noteworthy in Bodhgaya, with moderate gains cited by 52.3% of respondents for education and 39.4% for infrastructure. While tourism has the potential to develop human capital through scholarships, training programs, and occupational opportunities, these efforts appear inconsistent and inadequately funded. Likewise, infrastructural investments, though evident, remain significantly lower than the region's growth demands. These findings reveal that the tourism sector has not fully leveraged its potential to drive systemic improvements in education and infrastructure. Investments in these areas, such as broadening educational access for marginalized populations or modernizing transit networks, could yield long-term benefits.

The results demonstrate the interrelation of the economic, cultural, environmental, and social aspects of tourism in Bodhgaya. Tourism is a driver of growth and preservation, yet its benefits are not evenly distributed, and its challenges are significant. These findings, which include both positive and negative outcomes, reflect the complexities of managing heritage tourism in developing regions. This study highlights key areas where targeted interventions can maximize tourism's benefits and address its limitations:

- Diversification policies can promote economic stability by reducing reliance on seasonal tourists. Promoting yearround activities like cultural festivals or academic tourism can help to keep jobs and income stable.
- Enhancing cultural preservation requires equal engagement in tourism governance. Community-led tourist co-

operatives and capacity-building projects can empower marginalised communities and promote more inclusivity in decision-making.

- Promoting sustainable environmental practices needs collaboration among parties. Investing in environmentally friendly infrastructure, waste management systems, and renewable energy resources can help to reduce tourism's environmental impact. Integrating environmental education into tourism planning can also help residents and seasonal workers harmonise their beliefs and actions.
- Targeted skill development initiatives for tourism roles can improve workforce adaptability and resilience. Scholarships, vocational training, and language courses can help people interact with international tourists, resulting in better service quality and economic consequences.
- Prioritizing infrastructure improvements that balance tourism and community welfare, including sustainable transportation, water management systems, and healthcare facilities. These changes can benefit both residents and visitors.

The study adds to the larger discussion about sustainable tourism by highlighting the interdependence of economic, cultural, and environmental factors. Its emphasis on community perspectives adds complexity to existing material, highlighting the need to integrate tourism policies with local interests. The findings provide a framework for creating solutions that maximise tourism's advantages while minimising expenses. Despite its virtues, the study has some shortcomings that require addressing. The use of self-reported data includes possible biases, such as social desirability and recollection problems. Furthermore, the cross-sectional design reduces the capacity to detect longitudinal trends or causality. Future study should take a mixed-methods approach, combining quantitative surveys with qualitative interviews to delve further into resident experiences. Including visitors, officials, and industry leaders would broaden the scope for a more comprehensive understanding of tourism dynamics.

Comparative studies of related heritage sites may also provide useful insights into context-specific issues and opportunities. Finally, longitudinal studies that monitor the long-term effects of tourism interventions would provide essential evidence for sustainable development planning.

6. Conclusions

Tourism in Bodhgaya appears as a transformational but complex phenomenon, combining economic benefits, cultural preservation, and environmental impacts with social and economic vulnerabilities. The study emphasises tourism's role in diversifying the local economy and maintaining Bodhgava's cultural heritage, citing significant benefits recorded by seasonal workers as well as increased recognition of its cultural significance. However, issues such as income seasonality, unequal access to tourism advantages, and environmental deterioration persist, particularly among long-term inhabitants. While tourism promotes global reputation and economic progress, its ability to alleviate structural concerns such as educational access and infrastructure development is underutilised. The observed generational and professional gaps highlight the importance of tailored policies that prioritize year-round economic possibilities, participatory decision-making, and environmentally responsible activities. Increased community involvement and fair benefit-sharing methods could close existing gaps, aligning tourism development with inclusive and sustainable aims. Additionally, this study highlights the dual role of tourism as a driver of environmental pressures and an opportunity for sustainable management in Bodhgaya. Addressing issues such as waste accumulation, resource depletion, and infrastructure gaps requires a comprehensive approach that integrates tourism with environmental management practices. These findings contribute to the broader dialogue on achieving sustainability in heritage destinations, aligning with global efforts to balance development with ecological preservation.

This study adds to our understanding of tourism's diverse impacts in heritage-rich, developing regions. Its findings lay the groundwork for policy actions targeted at reducing tourism's negative consequences while maximising its socioeconomic and cultural benefits. The lessons acquired here are not just crucial for Bodhgaya, but also for similar destinations around the world, emphasising the importance of a balanced strategy that respects both local heritage and community well-being.

Author Contributions

M.K. conducted the survey and analysed the results. S.K.M. prepared the parameters for the discussion. M.K. and S.K.M. have written and edited the manuscript together.

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Informed Consent Statement

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Data Availability Statement

The data that support this study's findings are primary data based on a survey conducted by the authors, which are available on request from the corresponding author.

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Conflicts of Interest

The authors state that there are no conflicts of interest to declare.

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