

Local Community Perceptions Of Impacts And Future Support For Sustainable Tourism: A Case Study Of The Borobudur Tourism Area, Central Java, Indonesia

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Abstract

One of the tourism destinations prioritized by the Indonesian government for development to promote environmental sustainability is the Borobudur tourist region. The concept of the designed approach aims to maximize social benefits and economic prosperity while

minimizing the negative impacts of tourism on the environment. This study investigates the factors that contribute to local community support for the development of sustainable tourism activities in the Borobudur tourism region and explores the perceptions of the local population regarding the impacts of sustainable tourism. To facilitate this inquiry, a conceptual framework was devised. A survey was conducted among 100 participants, resulting in a 100% valid response rate. The PLS-SEM approach was employed for this evaluation. The findings demonstrate a beneficial correlation between social, economic, and health variables that affect the quality of life in adjacent towns. Additionally, this research showcases the local population's favorable attitude towards the potential expansion of Borobudur tourism. The findings reveal significant academic and practical contributions to the expansion of sustainable community-based tourism in Central Java. Future development assistance for this sector must consider local culture and environmental preservation by engaging local communities in maintaining infrastructure and resolving social conflicts.

Keywords: local community, economic impact, quality of life, sustainable tourism, Borobudur tourism development, environmental preservation.

Introduction

In 1991, Borobudur, the largest Buddhist temple in the world, was designated as a World Cultural Heritage Site by UNESCO. Apart from being a religious destination for Buddhists, Borobudur Temple in the Magelang Regency of Central Java attracts tourists from various parts of the world. In 2017, the central government was convinced to develop the Borobudur Tourism Zone, located about 10 kilometers away from the Borobudur Temple. Due to the potential for the temple to attract large crowds, the construction project intends to bolster the creative economy while also adding to the local tourist offerings.

The growth of Borobudur's tourism industry can have both positive and negative effects on the ecosystem. It is crucial to consider the potential environmental impacts of the industry's expansion. As (Rout et al., 2016) indicate, tourism and long-term economic growth are

interconnected, as reflected in foreign exchange earnings, domestic and international tourism spending, and capital investments in the travel sector. (Pavlić et al., 2015) argue that social effects can impact quality of life and industry growth, either positively or negatively. However, the study ultimately concludes that the benefits to society outweigh any drawbacks.

The expansion of Borobudur's tourism industry may impact the ecosystem positively or negatively. It is essential to consider the potential environmental consequences of the sector's growth in Borobudur. (Rout et al., 2016) found a close link between tourism and long-term economic growth. The travel industry plays a crucial role in driving growth, with foreign exchange earnings, domestic and international tourist spending, and travel-related industries' capital investment being key factors. Both the positive and negative social effects of tourism have a notable influence on individuals' well-being and contribute to the industry's development. Nonetheless, (Pavlić et al., 2015) found that the positive social advantages surpass the negative ones. Previous studies have found a number of positive outcomes resulting from expansion, such as the establishment of new job opportunities, the reinforcement of social structures, an increase in tax revenues, and the augmentation of income for local communities (Alisa & Ridho, 2020; Hanafiah et al., 2010; Jaafar et al., 2015). On the other hand, contrasting research shows that expansion also highlights the uneven development of tourist destinations. These factors encompass various uncontrollable and changing environmental factors, traffic congestion, social unrest, increasing expenses, unsanitary housing, and other socio-economic problems (Allen et al., 1988; Ap & Crompton, 1998; Godovykh & Ridderstaat, 2020; Gursoy et al., 2002). Therefore, policymakers should comprehensively analyze and address these issues when strategizing tourism development while prioritizing the local communities' benefits.

This research, which endorses the use of local benefits and studies proposed by (Andriotis, 2000), concentrates on the attitudes and perceptions of the local communities towards the plans for sustainable tourism development near Borobudur. Although there have been

multiple studies analyzing this subject over the past few years, none have evaluated the thoughts of the local populace on prospects for future expansion (Angelkova et al., 2012). Moreover, prior research has investigated the local community's perception of tourism development in various developed countries (Nursalam & Fallis, 2013; Yu et al., 2018) (Głąbiński & Duda, 2017; Jaafar et al., 2015; Sharpley, 2014; Yu et al., 2018) and in a limited number of developing nations, such as Bangladesh (Roy et al., 2021), Sri Lanka (W. K. A. Gnanapala & Sandaruwani, 2016), and India (Pratama & Mandaasari, 2020). While policymakers globally prioritize tourism in general, the views of local communities as primary beneficiaries are often disregarded (Diedrich & García-Buades, 2009; A. C. Gnanapala & Karunathilaka, 2016; Gursoy et al., 2017; Hunt & Stronza, 2014; Lundberg, 2015). Therefore, it is crucial to identify changes in local community perceptions, which reveal how they respond to tourism growth benefits and how they can be maximized. The aim of this study is to elucidate the perspectives of local communities, examine levels of support, and explore the potential impacts of growth on the standard of living in the context of sustainable tourism development plans within the vicinity of Borobudur Tourism.

Literature Review

Early studies by (Belisle & Hoy, 1980) examined local population opinions on the advantages and disadvantages of tourism in relation to the environment and standard of living. (King et al., 1993) researched local community perceptions of the social impacts of tourism. (Pizam, 1978) investigated how tourism affects social costs for local communities. Due to the ongoing evolution of local communities' perceptions in recent decades, research on the growth of tourism has focused on a variety of geographic frameworks. (Andereck et al., 2005; Besculides et al., 2002; Rasoolimanesh et al., 2017; Roy et al., 2021; Sharma & Dyer, 2009; Tsai et al., 2016; Tsundoda & Mendlinger, 2009; Vareiro et al., 2013; Zaidan, 2016). Ultimately, the failure of tourism development can be attributed to the neglect of local communities' perceptions and involvement (Pekerşen & Kaplan, 2023). While several studies have examined the impacts and influences of tourism on the local population (Moyle et al., 2010), one contradictory and controversial finding

emerged regarding the significance of locals' attitudes towards tourism (Brida et al., 2011). The main causes are influenced by sociocultural differences, environmental factors, and the distinct characteristics of each community (Brida et al., 2011; Tosun, 2002). Individuals' perceptions change over time (Canavan, 2013). Location, community standards, socio-cultural norms, and traditions all influence how individuals view things (Wang & Mirehie, 2022). To ensure future tourism activities remain sustainable, community perceptions are critical in capturing the connection between tourism development plans and community adjustments.

1. Social Impact of Tourism

Tourism can have both positive and negative social impacts, depending on various factors that typically influence the nature and direction of this industry. Improved version: The modernization initiatives have resulted in several positive effects, such as the enhancement of public services, employment opportunities, infrastructure, and social facilities. Additionally, there has been an increase in the value of local cultural development, as supported by various studies (Andriotis & Vaughan, 2003; Ap & Crompton, 1998; Gursoy et al., 2002; Jurowski & Gursoy, 2004; Mandić et al., 2018; Nopiyani & Wirawan, 2021; Nyaupane & Thapa, 2006; Zhang et al., 2006). The expansion of the tourism industry may adversely impact neighboring communities. Detrimental outcomes encompass unequal distribution of income from tourism, imbalanced infrastructure and facility development, erosion of cultural values, social issues arising from the escalation of crime rates, traffic congestion, expulsions, land use disputes, and confrontations between tourists and residents regarding public space (Henderson-Sellers & Markland, 1987). (Alam & Paramati, 2016; Ap & Crompton, 1998; Bello et al., 2017; Bornioli et al., 2022; Bowers, 2016; Davidson & Sahli, 2015; C.-K. Lee & Back, 2006; Pramanik & Ingkadijaya, 2018; Zhuang et al., 2019).

H1: The correlation between tourism's social impact and the quality of life of local communities is significant.

2. Economic Impact of Tourism

The management and utilization of the tourism industry significantly impact the economy. Increased tax revenue

and revenue from lodging, dining, transportation, and other tourist-support services will benefit areas relying on tourism as an economic tool while also promoting business growth and local investment. Promoting greater and diverse job creation leads to a wider spectrum of job opportunities and types (Akis et al., 1996; Aynalem et al., 2016; Comerio & Strozzi, 2019; Croes, 2014; Franzidis & Yau, 2018; Husbands, 1989; T. H. Lee, 2013; Lepp, 2007; Ritchie, 1988). Unfavorable consequences stemming from the pursuit of expansion and profit maximization could lead to the extensive exploitation of the environment and natural resources. Additionally, there is a possibility that the equilibrium between economic aspirations and environmental sustainability may become unstable, potentially resulting in natural disasters, crises, and price hikes that reduce the purchasing power of local communities. (Bello et al., 2017; Castilho et al., 2021; Gazta, 2018; Hrubcova et al., 2016; Scarlett, 2021; Stern, 2018; Uğuz et al., 2022; Yong, 2021).

H2: There is a significant correlation between the economic impacts of tourism and the quality of life in neighboring communities.

3. Health Impacts of Tourism

It is undeniable that the tourism sector and its associated activities have greatly contributed to the spread and transmission of diseases. The COVID-19 pandemic has posed significant challenges to the growth of the tourism industry. Mitigating the spread of disease by reducing tourism is a difficult undertaking, especially for regions dependent on tourism as a major economic driver. In studies conducted in (Kumar & Nafi, 2020a, 2020b), these issues were explored in greater detail. While tourism has a short-term negative impact on population health, long-term health outcomes are positively affected by it, according to (Godovykh & Ridderstaat, 2020). Additionally, there is an indirect correlation between tourism and a decline in the standard of living in the communities it serves, with large numbers of visitors driving fast, contributing to increased traffic and pollution in the area.

H3: The health effects are significantly correlated with the quality of life in local communities.

4. Quality of Life and Local Communities' Perceptions of Support for Future Tourism Development Plans Around Borobodu

The development plan for tourism areas heavily involves local communities, and their perceptions can significantly impact the success of the plan. Several studies have addressed the role of planning in facilitating support and tackling conflicts between local culture, interests, and development needs. Research suggests that the expansion of the tourism industry can positively impact the local economy by creating new job opportunities and promoting business growth. On the other hand, certain studies identify potential drawbacks, such as increased living costs and modifications to the social structures of affected communities. The development plan for tourism areas heavily involves local communities, and their perceptions can significantly impact the success of the plan. Several studies have addressed the role of planning in facilitating support and tackling conflicts between local culture, interests, and development needs. Research suggests that the expansion of the tourism industry can positively impact the local economy by creating new job opportunities and promoting business growth. On the other hand, certain studies identify potential drawbacks, such as increased living costs and modifications to the social structures of affected communities. Policymakers and developers can more effectively create strategies that maximize economic benefits while minimizing negative impacts on nearby communities and the environment by comprehending the various facets involved. The Purworejo Regency, situated in the Central Java province of Indonesia, has significant potential for the development of tourism areas. In addition to its proximity to the UNESCO-listed Borobudur Temple, Purworejo Regency's development plan for the tourist area surrounding Borobudur prioritizes sustainability and environmental protection. Efforts are underway to protect the surrounding environment while preserving historical and cultural heritage. Given that the resulting balance is critical to sustainability, development plans must be considered an obligation to maintain conservation as a legacy for future generations (Afthanorhan et al., 2017; Blackstock, 2005; González-García et al., 2022; Havadi Nagy & Espinosa Segui, 2020; Juma & Khademi-Vidra, 2019).

H4: There is a significant association between the quality of life of the local populace and their endorsement of the Borobudur tourism development proposal.

5. Theoretical Background

The significance of local opinions regarding tourism development plans is crucial to the tourism development process. Specific research indicates the following findings:

- a. Because locals feel a sense of belonging to their community, they possess extensive knowledge about the social, cultural, historical, and environmental aspects of the region. Involvement of local communities in the planning and development of tourism infrastructure fosters a stronger connection between the locales, tourist attractions, and the quality of visitors' experiences. Moreover, local communities also act as service providers for tourism and champions for the conservation of cultural heritage and the environment.
- b. Social unrest arises from tourism development plans that are executed without considering the opinions of the local population, potentially jeopardizing the sustainability of the tourism industry. By incorporating their participation and dialogue, identification efforts may ensue, with the ultimate goal of ensuring the more sustainable and equitable distribution of the economic benefits of tourism.
- c. According to research, local people's perspectives play a crucial role in ensuring that tourist growth happens in a sustainable way. A balance between resource conservation and tourism growth shapes perceptions.
- d. Increased pollution of the air, water, and soil also increases the risk of disease. This trend parallels the growing number of travelers.

The documentation of these effects is crucial to the tourism development planning phase. Sustainable policies should incorporate the input of local populations in the identification of risk issues. The evolving perspectives of the local people as beneficiaries must also be considered. These concepts are organized according to the Figure 1 conceptual framework.

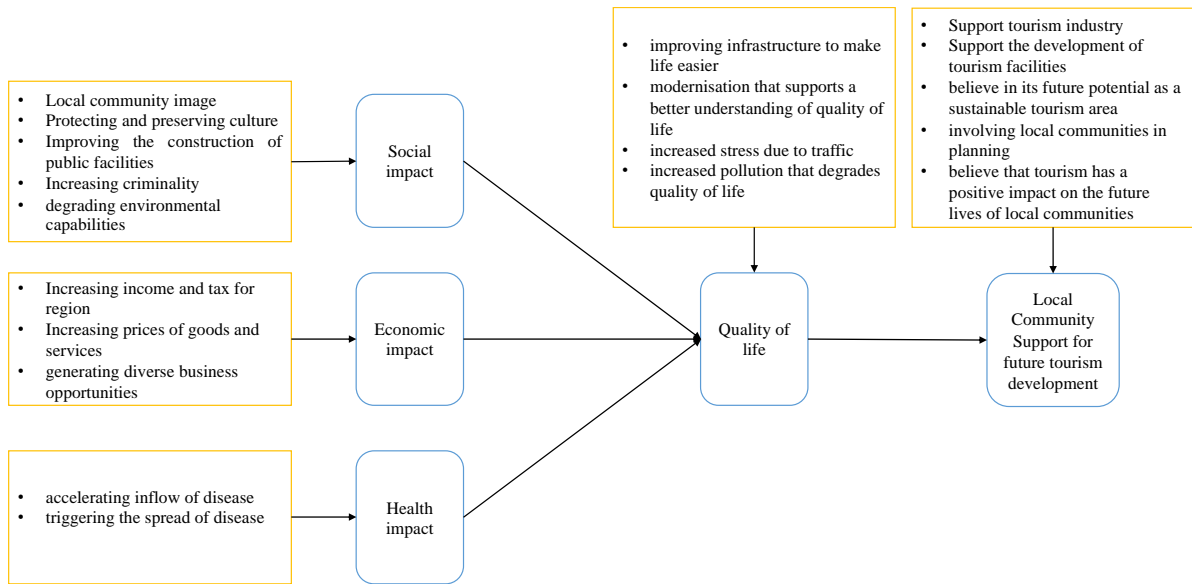


Figure 1. Conceptual Framework
(Source: Developed by authors)

Research Methods

A quantitative study was conducted in Purworejo Regency, Central Java, where residents responded to a survey using a 5-point Likert scale, ranging from 1 (extremely unsuitable) to 5 (very suitable).

Table 1. List of Variables

Variables	Item	Authors
Social Impact of Tourism	perception of the neighborhood, uphold and safeguard culture, expand the construction of public infrastructure, and rise in criminal activity	Ap dan Crompton 1998, Andriotis dan Vaughan 2003, Gursoy et al 2002, Jurowski dan Gursoy 2004, Nyaupane dan Thapa 2006, Zhang et al 2006, Mandić et al 2018, Nopiyani and Wirawan 2021, Ap 1992, Alam dan Paramati 2016, Bello et al 2017,

		Bornioli et al 2022, Bowers 2016, Davidson dan Sahli 2015, Franzidis dan Yau 2018, Lee dan Back 2006, Pramanik dan Inkadijaya 2018, Zhuang et al 2019
Economic Impact of Tourism	Increase taxation to generate revenue, generate employment opportunities, and raise the prices of goods and services.	Comerio dan Strozzi 2019, Croes 2014, Franzidis dan Yau 2018, Lee 2013, Lepp 2007, Akis et al 1996, Husband 1989, Ritchie 1988, Aynalem et al 2016, Bello et al 2017, Gazta et al 2018, Castilho et al 2021, Celik Uguz et al 2022, Hrubcova et al 2016, Scarlett 2021, Stern 2018, Yong 2021
Health Impacts of Tourism	speed up the flow of illness and spread it more widely.	Deb dan Nafi 2020a, 2020b
Quality of Life	Create infrastructure and facilities, encourage healthy lifestyle modifications, pollution and	Almeida-Garcia et al 2016, Nafi dan Ahmed 2017, Gu dan Wong 2006, Rojulai et al 2018, Nagy dan

	stress are related.	Segui 2020, Blackstock
Community support for future tourism development plans	To promote tourism, this paper explores the benefits of traveling, community participation, and opportunities for sustainable development in the travel industry.	2005, Juma dan Vidr 2019, Afthanorhan et al 2017, González-García et al 2022

We used a direct interview method to collect data from various people in Purworejo district who will benefit from the local community tourism development plan. A total of 100 people were randomly selected from the five villages in Purworejo district, as shown in Figure 2, namely Benowo village (18 people), Pekacangan village (32 people), Cacaban Lor town (19 people), Kampung Kidul (26 people), and Sedayu village (31 people). We calculated the sample size for 1,735 households using a 10% margin of error and the Slovenian formula (Sugiyono 2019). To develop, validate, and test the variables of interest, we used a partial least squares structural equation model (PLS-SEM). No questions were answered. This was discovered in this research.

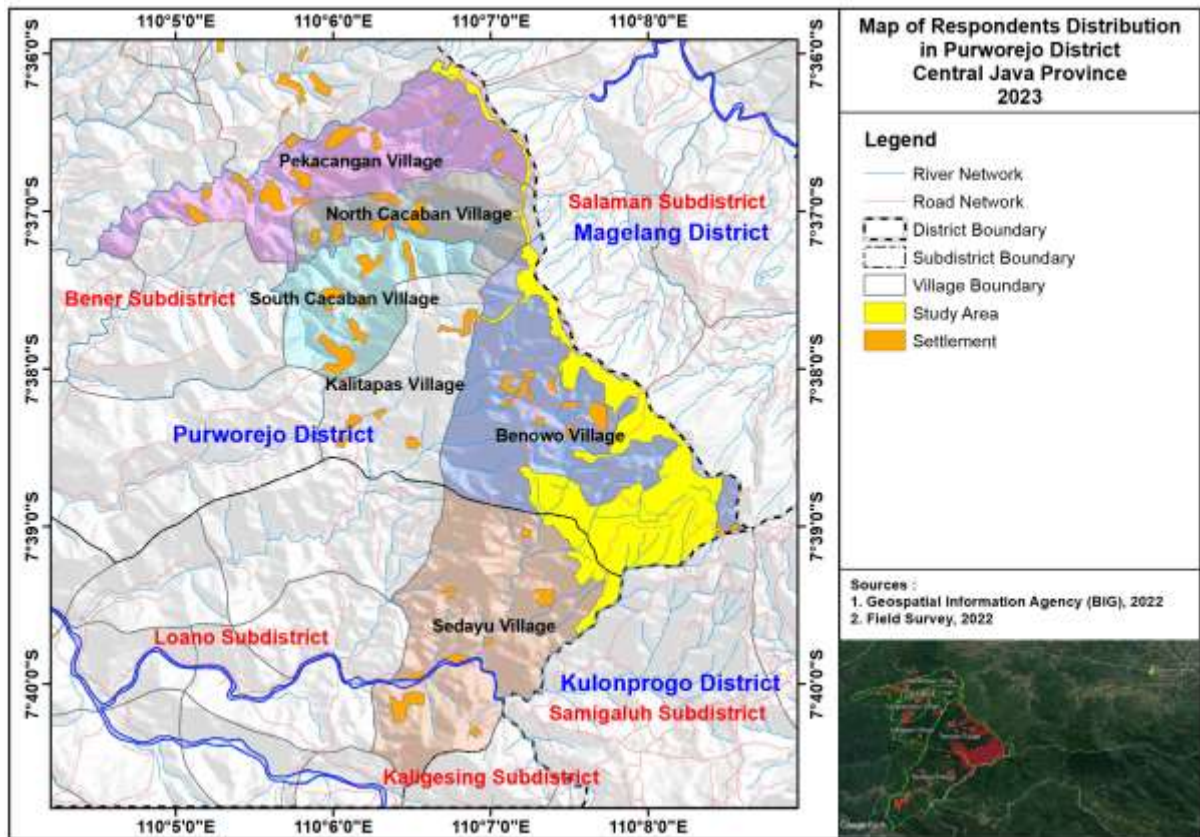


Figure 2. Map of Research Data Distribution

1. Data Analysis

The study participants comprised 84% male and 16% female individuals between the ages of 20 and 50, with 8% being 20–30 years old, 22% being 31–40 years old, and 36% being 41–50 years old. In terms of educational levels, 42% had completed primary education, 26% had attended lower secondary, 20% had attended high school, and 12% had completed tertiary or postgraduate education. Satisfaction with quality of life and support for tourism development plans were gathered from participants with varying levels of average monthly income. Responses were obtained from those with incomes below Rp.1,000,000 (44%), incomes ranging from Rp.1,000,001 to Rp.2,000,000 (36%), incomes between Rp.2,000,001 and Rp.3,000,000 (9%), incomes ranging from Rp.3,000,001 to Rp.4,000,000 (4%), and incomes above Rp.4,000,000 (7%). Table 2 includes all relevant details.

Table 2. Descriptive Data of Respondents

	Frequency (people)	Percent (%)
Gender		

	Frequency (people)	Percent (%)
Male	84	84
Female	16	16
Total	100	100
Age		
less than 20	6	6
20 - 30	8	8
30 - 40	22	22
40 - 50	36	36
more than 50	28	28
Total	100	100
Education Level		
Elementary	42	42
Lower Intermediate	26	26
Upper Intermediate	20	20
Undergraduate	12	12
Total	100	
Average Routine Income		
under 1.000.000	44	44
1.000.000 - 2.000.000	36	36
2.000.001 - 3.000.000	9	9
3.000.001 - 4.000.000	4	4
Above 4.000.000	7	7
Total	100	100
Response to Tourism Area Development Plan		
Agree	95	95
Disagree	5	5
Total	100	100

2. Model Assessment using PLS-SEM

Model evaluation and calculation with SMartPLS version 4.0, with a two-step approach involving the measurement model and structural model (Chin, 2009; Hair et al., 2011). The measurement model is required to assess the reliability and validity of the links between latent variables, and the structural model is required to measure the interactions between constructs. Confirmatory factor analysis (CFA) is used to evaluate the validity and reliability of completed research and assess the quality and suitability of the measurement model.

(Chin, 2009; Hair et al., 2011) indicate that convergent validation and discriminant validity tests satisfy validity criteria, which determine whether the research instrument accurately measures what it should. Convergent validity is achieved when factor loadings exceed 0.708, average variance extracted (AVE) is greater than 0.7, and communalities are greater than 0.5. Discriminant validity is obtained when factor loadings exceed 0.7, AVE is greater than the squared correlation between the constructs, and the heterotrait-monotrait ratio (HTMT) is less than 0.9. Additionally, reliability testing evaluates the consistency of measurement tools or respondents' responses. produced by focusing on Cronbach alpha values greater than 0.7 and composite reliability (CR) exceeding 0.7. If validity tests have been completed, (Cooper & Schindler, 2014) suggest that the aforementioned test should not be conducted as valid constructs indicate sufficient reliability. If the associated constructs' AVE and composite dependability exceed the threshold, a load factor of 0.4 to 0.7 can be utilized, as per (Hair et al., 2011).

Table 3. Measurement Items and Their Reliability

	Construct	Loading Factor
Social Impact of Tourism		
SOC01	Tourism development is beneficial in the protection and preservation of local culture	0.835
SOC02	Tourism improves public facility development	0.879
SOC03	Tourism degrades environmental capabilities	dropped
SOC04	Tourism increases criminality	0.745
SOC05	Tourism provides an image for the local community	dropped
Economic Impact of Tourism		
ECO01	Tourism increases revenue and tax sources for the region	dropped
ECO02	Tourism generates better and more diverse business opportunities	0.941

	Construct	Loading Factor
ECO 03	Tourism triggers price increases of goods or services	0.916
Health Impacts of Tourism		
HEA 01	Tourism accelerates disease inflow	0.993
HEA 02	Tourism triggers the spread of disease	0.761
Quality of Life		
QTL0 1	Tourism development supports ease of living through improved infrastructure in the region	0.902
QTL0 2	Tourism provides a modernizing impact that supports the notion of a better quality of life	0.883
QTL0 3	Tourism increases stress due to traffic	dropped
QTL0 4	Tourism reduces quality of life due to pollution	dropped
Local Community Support for Future Tourism Development		
LCS0 1	I actively support the tourism industry development plan through promotion and persuasion efforts in the local community.	0.624
LCS0 2	I support the development of tourism facilities so that the benefits can be felt by the local community	0.599
LCS0 3	I believe in the future of Purworejo Regency as a sustainable tourism area	0.712
LCS0 4	I think policy makers and those developing the tourism industry will involve local communities in future tourism planning.	0.821
LCS0 5	I believe tourism in Purworejo will have a positive impact on the lives of local people in the future.	0.698

Construct		Loading Factor
LCS06	I believe the local community can maintain the infrastructure supporting tourism	0.667

Table 3 illustrates that values of 0.599 or higher satisfy the majority of the indicator loadings among the 20 items. Additionally, five items are excluded since they do not meet the threshold. The CFA model is shown in the right column in Table 3, depicting standardized factor loadings. These results indicate that all values are statistically significant, demonstrating that they accurately reflect items that reproduce the original latent structure. This demonstrates recognition of the convergent validity of the measurement model (Anderson & Gerbing, 1988). Figure 3 illustrates the condition model, showing that the factor loadings in the measurement model range from 0.599 to 0.993 for the utilized construct values.

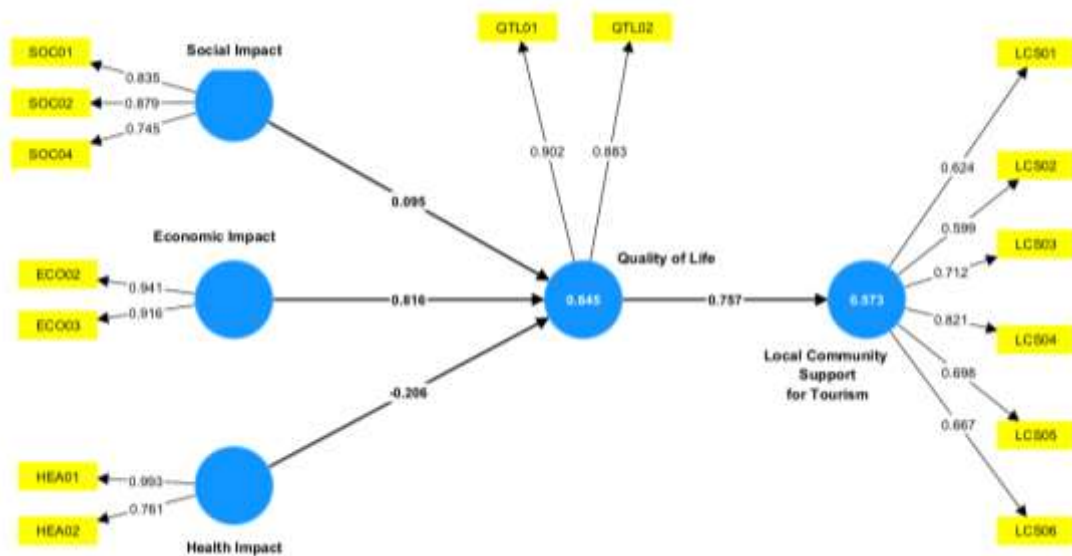


Figure 3. Research Measurement Model Diagram

Table 4 presents the values for Cronbach's alpha, AVE, and CR or rho_A for each factor. The range of Cronbach's alpha values for the analyzed constructs is from 0.745 to 0.841. When the results surpass the 0.7 threshold, it implies a strong association and consistency of the measurement instrument or that the respondents' answers are dependable and consistent across all constructs. Furthermore, this study obtained Average Variance

Extracted (AVE) values ranging from 0.675 to 0.862, exceeding the community threshold of 0.5. As a result, the study can establish convergent validity.

Table 4. Results of the Measurement Model in Research

Construct Reliability and Validity	Cronbach's Alpha	Rho_A	Composite Reliability	Average Variance Extracted (AVE)
Local community support for tourism	0.809	0.846	0.844	0.809
Social Impact	0.775	0.876	0.861	0.675
Economic Impact	0.841	0.858	0.926	0.862
Health Impact	0.807	3.016	0.876	0.782
Quality of Life	0.745	0.749	0.887	0.797

Returning to the factor load values in Table 3, the construction of item LCS02 results in a factor load value of 0.7, but this does not cause the item to fail because the AVE on the item is greater than 0.5, as shown in Table 4. Therefore item LCS02 can still be considered in the research model.

Table 5. Discriminant Validity

Validitas Diskriminan	AVE	Local support community for tourism	Social Impact	Economic Impact	Health Impact	Quality of Life
Local support community for tourism	0.809	0.690				

Validitas Diskriminan	AVE	Local support community for tourism	Social Impact	Economic Impact	Health Impact	Quality of Life
Social Impact	0.675	0.718	0.822			
Economic Impact	0.862	0.776	0.886	0.128		
Health Impact	0.782	0.672	0.514	0.123	0.884	
Quality of Life	0.797	0.805	0.972	0.109	0.356	0.893

The degree to which each latent variable is segregated from other constructs in the model addressed in this study is referred to as discriminant validity, and the HTMT value provided in Table 5 should be less than 0.9, as indicated by (Chin, 2009).

3. Structural Model

In this study, SMART PLS 4.0 was used to assess the path investigation using the estimated consequent path coefficients. Table 6 displays a summary of the hypothesis testing with t-values and p-values. It shows the overall goodness-of-fit index with the hypothesized structural model. The first three hypotheses relate to the relationship between tourism impacts on local communities and quality of life. H1, H2, and H3 were supported, proposing a positive relationship between social impact, economic impact, health impact, and quality of life. However, H4 was not supported, meaning that higher perceptions of respondents' quality of life had a negative impact on community support for future tourism development. The above consequences are explained in Figure 4: local communities' perceptions of tourism impacts and their support for future tourism development.

Table 6. Summary of Hypothesis Testing

	T statist ics	P valu es	Remar ks
H1: Social Impact -> Quality of Life	5.909	0.000	Suppo rted
H2: Economic Impact -> Quality of Life	1.907	0.027	Suppo rted
H3: Health Impact -> Quality of Life	12.464	0.000	Suppo rted
H4: Quality of Life -> Local Community _Support_for Tourism	0.662	0.508	Unsup ported

Table 7. Path Coefficient Analysis

	T statist ics	P valu es	Remark s
ECO02 <- Economic Impact	45.614	0.000	Suppor ted
ECO03 <- Economic Impact	26.764	0.000	Suppor ted
HEA01 <- Health Impact	3.671	0.000	Suppor ted
HEA02 <- Health Impact	2.162	0.031	Suppor ted
LCS01 <- Local Community _Support_for Tourism	5.866	0.000	Suppor ted
LCS02 <- Local Community _Support_for Tourism	n/a	n/a	Unupp orted
LCS03 <- Local Community _Support_for Tourism	6.209	0.000	Suppor ted
LCS04 <- Local Community _Support_for Tourism	12.721	0.000	Suppor ted
LCS05 <- Local Community _Support_for Tourism	5.963	0.000	Suppor ted
LCS06 <- Local Community _Support_for Tourism	n/a	n/a	Unsupp orted
QTL01 <- Quality of Life	43.801	0.000	Suppor ted
QTL02 <- Quality of Life	24.265	0.000	Suppor ted
SOC01 <- Social Impact	12.134	0.000	Suppor ted

	T statist ics	P valu es	Remark s
SOC02 <- Social Impact	48.08 3	0.00 0	Support ed
SOC04 <- Social Impact	10.43 1	0.00 0	Support ed

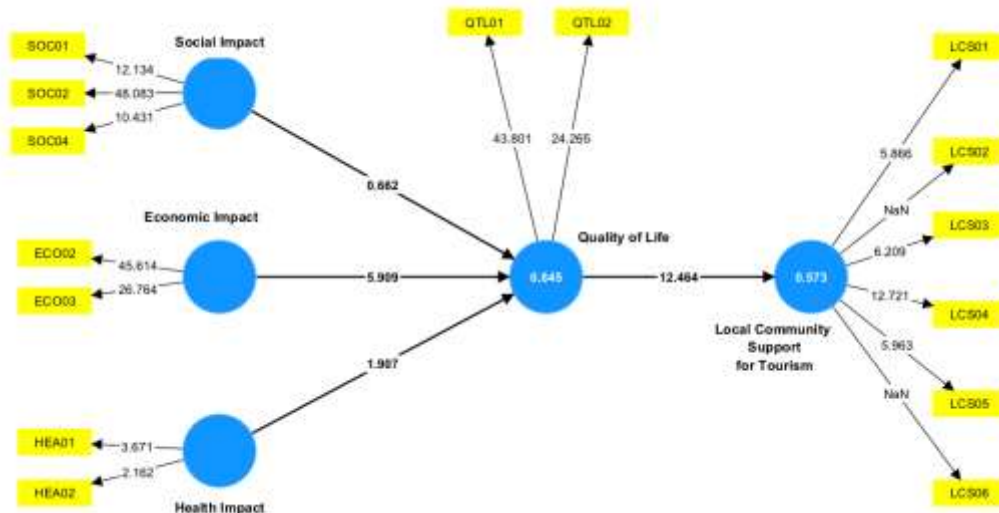


Figure 4. Diagram of the Research Structural Model

4. Discussion

Tourism development impacts local communities in general. The consequences impact people's standard of living. The nature of these impacts, both positive and negative, influences local people's contentment and discontent with tourism. The study discovered a significant link between tourism's social, economic, and health benefits and the quality of life in local communities. According to Table 6, respondents believe that tourism improves people's social, economic, and health status. However, the improvement in living conditions is insufficient to sway their support for tourism. The highest statistical link in H3: Health Impact -> Quality of Life for Tourism (T-statistic = 12.464; P = 0.000) demonstrates the significance of this link. As a result, the health impact alters their perception of future life.

Furthermore, T1: Social Impact -> Tourism Quality of Life (T-statistic = 5.909; P = 0.000) This means that locals' perceptions of future living standards are influenced by

social impacts. They also agree that tourism development may promote infrastructure upgrades and the development of public facilities, thereby improving living conditions, and that tourism can drive future efforts to protect the environment and maintain local culture. Furthermore, the modeled association between economic impact and quality of life was the weakest in H2: Economic Impact -> Quality of Life (T-statistic = 1.907; P = 0.027). They agree that tourism expands and diversifies economic options and that increases in the price of the goods or services they distribute may affect their standard of living in the future.

Although tourism development stimulates environmental protection and cultural conservation initiatives, people recognize that the impact of environmental capacity deterioration cannot be entirely prevented. Congestion and pollution in tourist zones cause stress and lower the quality of life for locals. Locals and tourists will have social and cultural clashes. Unbalanced infrastructure development and economic activity from tourists fuel crime. In reality, if the community does not see the benefits and is not active in the upkeep of tourism support infrastructure, initial support for tourism development plans will wane.

5. Conclusion

According to prior research, local inhabitants' sentiments are dynamic and evolve over time (Franzidis & Yau, 2018), and the changes have distinct characteristics that vary for each tourism destination. Local communities' perceptual features influence their support for sustainable tourism development initiatives. The emergence of negative consequences that compete with the benefits of increasing local populations' quality of life is an essential consideration. This point of view is based on the social, economic, and health effects of tourism. According to this study, the economic benefits of tourism improve the living standards of local communities more than the social benefits, and the health benefits of the presence of tourist places affect the living standards. One noteworthy finding on the economic side is that tourism does not significantly improve the quality of life of local communities through money and taxes. The community believes that in the development of tourism zones, interested parties fail to

include the involvement and participation of local communities, resulting in income and tax benefits that are insufficient to encourage improvements in their quality of life. In the social realm, the instability of social facility development distribution is seen to have the potential to cause environmental conflicts in the form of a decrease in the ability of the surrounding nature to improve the quality of life. Furthermore, tourism, which was initially thought to promote the image and marketing of local communities, turned out to be socially homogenized. In terms of health, the COVID pandemic situation or diseases that are at high risk of spreading through the flow of tourism activities harm local populations, and the consequences are thought to affect the low quality of life felt by local residents.

Tourism development significantly helps to sustain comfort when determining the quality of life. Tourism growth is believed to help the region's infrastructure and public facilities develop. Furthermore, tourism has a broader impact than simply attracting tourists to the destination, generating the opportunity for new ideas or exposure to modern values in measuring quality of life through interactions between local populations and tourists from other cultures and backgrounds. In some circumstances, tourism can raise environmental consciousness; therefore, tourism growth can assist in creating awareness about the need to maintain the natural environment and preserve local culture. These factors are capable of ensuring tourism's long-term viability. The findings of this study will assist researchers in evaluating community perceptions of similar tourism developments in the future, and aspects of the resulting perceptual assessment can be selected for consideration as constituent variables in assessing the economic value of tourism while considering its environmental impact. Natural resource accounting (NRA) is a term for this concept.

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References

- Afthanorhan, A., Awang, Z., & Fazella, S. (2017). Perception of tourism impact and support tourism development in Terengganu, Malaysia. *Social Sciences*, 6(3), 106.
- Akis, S., Peristianis, N., & Warner, J. (1996). Residents' attitudes to tourism development: the case of Cyprus. *Tourism Management*, 17(7), 481–494.
- Alam, M. S., & Paramati, S. R. (2016). The impact of tourism on income inequality in developing economies: Does Kuznets curve hypothesis exist? *Annals of Tourism Research*, 61, 111–126.
- Alisa, F., & Ridho, Z. (2020). Sustainable cultural tourism development: A strategic for revenue generation in local communities.
- Allen, L. R., Long, P. T., Perdue, R. R., & Kieselbach, S. (1988). The impact of tourism development on residents' perceptions of community life. *Journal of Travel Research*, 27(1), 16–21.
- Andereck, K. L., Valentine, K. M., Knopf, R. C., & Vogt, C. A. (2005). Residents' perceptions of community tourism impacts. *Annals of Tourism Research*, 32(4), 1056–1076.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411.
- Andriotis, K. (2000). Local community perceptions of tourism as a development tool: The island of Crete. Bournemouth University Bournemouth.
- Andriotis, K., & Vaughan, R. D. (2003). Urban residents' attitudes toward tourism development: The case of Crete. *Journal of Travel Research*, 42(2), 172–185.
- Angelkova, T., Koteski, C., Jakovlev, Z., & Mitrevska, E. (2012). Sustainability and competitiveness of tourism. *Procedia-Social and Behavioral Sciences*, 44, 221–227.
- Ap, J., & Crompton, J. L. (1998). Developing and testing a tourism impact scale. *Journal of Travel Research*, 37(2), 120–130.
- Aynalem, S., Birhanu, K., & Tesefay, S. (2016). Employment opportunities and challenges in tourism and hospitality sectors. *Journal of Tourism & Hospitality*, 5(6), 1–5.
- Belisle, F. J., & Hoy, D. R. (1980). The perceived impact of tourism by residents a case study in Santa Marta, Colombia. *Annals of Tourism Research*, 7(1), 83–101.
- Bello, F. G., Neil, C., Lovelock, B., & Feifei, X. U. (2017). Local residents' perceptions of socio-cultural impacts of tourism in Mangochi, Malawi. *Advances in Hospitality and Tourism Research (AHTR)*, 5(1), 1–22.
- Besculides, A., Lee, M. E., & McCormick, P. J. (2002). Residents' perceptions of the cultural benefits of tourism. *Annals of*

- Tourism Research, 29(2), 303–319.
- Blackstock, K. (2005). A critical look at community based tourism. *Community Development Journal*, 40(1), 39–49.
- Borniolli, A., Vermeulen, S. J., van Haaren, J., Valente, R., & Mingardo, G. (2022). The Impacts of Tourism Stays on Residents' Self-Reported Health: A Pan-European Analysis on the Role of Age and Urbanization Level. *Sustainability*, 14(3), 1157.
- Bowers, J. (2016). Developing sustainable tourism through ecomuseology: a case study in the Rupununi region of Guyana. *Journal of Sustainable Tourism*, 24(5), 758–782.
- Brida, J. G., Disegna, M., & Osti, L. (2011). Residents' perceptions of tourism impacts and attitudes towards tourism policies in a small mountain community. *Tourismos: An International Multidisciplinary Journal of Tourism*, 9(1).
- Canavan, B. (2013). Send more tourists! Stakeholder perceptions of a tourism industry in late stage decline: The case of the Isle of Man. *International Journal of Tourism Research*, 15(2), 105–121.
- Castilho, D., Fuinhas, J. A., & Marques, A. C. (2021). The impacts of the tourism sector on the eco-efficiency of the Latin American and Caribbean countries. *Socio-Economic Planning Sciences*, 78, 101089.
- Chin, W. W. (2009). How to write up and report PLS analyses. In *Handbook of partial least squares: Concepts, methods and applications* (pp. 655–690). Springer.
- Comerio, N., & Strozzi, F. (2019). Tourism and its economic impact: A literature review using bibliometric tools. *Tourism Economics*, 25(1), 109–131.
- Cooper, D. R., & Schindler, P. (2014). *Business research methods*. McGraw-hill.
- Croes, R. (2014). The role of tourism in poverty reduction: An empirical assessment. *Tourism Economics*, 20(2), 207–226.
- Davidson, L., & Sahli, M. (2015). Foreign direct investment in tourism, poverty alleviation, and sustainable development: a review of the Gambian hotel sector. *Journal of Sustainable Tourism*, 23(2), 167–187.
- Diedrich, A., & García-Buades, E. (2009). Local perceptions of tourism as indicators of destination decline. *Tourism Management*, 30(4), 512–521.
- Franzidis, A., & Yau, M. (2018). Exploring the differences in a community's perception of tourists and tourism development. *Tourism Planning & Development*, 15(4), 382–397.
- Gazta, K. (2018). Environmental impact of tourism. *AGU International Journal of Professional Studies & Research*, 7–17.

- Głąbiński, Z., & Duda, T. (2017). The local community perception of tourism development. The case study of Gryfino County-Western Pomerania, Poland. *Bulletin of Geography. Socio-Economic Series*, 37, 7–23.
- Gnanapala, A. C., & Karunathilaka, T. P. (2016). Community perception on tourism development and its impacts: A study on Passikudha, Sri Lanka. *Tourism, Leisure and Global Change*, 3(1), 164–178.
- Gnanapala, W. K. A., & Sandaruwani, J. (2016). Socio-economic impacts of tourism development and their implications on local communities. *International Journal of Economics and Business Administration*, 2(5), 59–67.
- Godovykh, M., & Ridderstaat, J. (2020). Health outcomes of tourism development: A longitudinal study of the impact of tourism arrivals on residents' health. *Journal of Destination Marketing & Management*, 17, 100462.
- González-García, R. J., Martínez-Rico, G., Bañuls-Lapuerta, F., & Calabuig, F. (2022). Residents' perception of the impact of sports tourism on sustainable social development. *Sustainability*, 14(3), 1232.
- Gursoy, D., Jurowski, C., & Uysal, M. (2002). Resident attitudes: A structural modeling approach. *Annals of Tourism Research*, 29(1), 79–105.
- Gursoy, D., Yolal, M., Ribeiro, M. A., & Panosso Netto, A. (2017). Impact of trust on local residents' mega-event perceptions and their support. *Journal of Travel Research*, 56(3), 393–406.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152.
- Hanafiah, M. H., Harun, M. F., & Jamaluddin, M. R. (2010). Bilateral trade and tourism demand. *World Applied Sciences Journal*, 10(1), 110–114.
- Havadi Nagy, K. X., & Espinosa Segui, A. (2020). Experiences of community-based tourism in Romania: Chances and challenges. *Journal of Tourism Analysis: Revista de Análisis Turístico*, 27(2), 143–163.
- Henderson-Sellers, B., & Markland, H. (1987). Decaying lakes : the origin and control of cultural eutrophication. <https://api.semanticscholar.org/CorpusID:128332688>
- Hrubcova, G., Loster, T., & Obergruber, P. (2016). The Economic effects of tourism in the group of the least developed countries. *Procedia Economics and Finance*, 39, 476–481.
- Hunt, C., & Stronza, A. (2014). Stage-based tourism models and resident attitudes towards tourism in an emerging destination in the developing world. *Journal of Sustainable Tourism*, 22(2), 279–298.
- Husbands, W. (1989). Social status and perception of tourism in Zambia. *Annals of Tourism Research*, 16(2), 237–253.

- Jaafar, M., Bakri, N. M., & Rasoolimanesh, S. M. (2015). Local community and tourism development: A study of rural mountainous destinations. *Modern Applied Science*, 9(8), 399.
- Juma, L. O., & Khademi-Vidra, A. (2019). Community-based tourism and sustainable development of rural regions in Kenya; Perceptions of the citizenry. *Sustainability*, 11(17), 4733.
- Jurowski, C., & Gursoy, D. (2004). DISTANCE EFFECTS ON RESIDENTS' ATTITUDES TOWARD TOURISM. *Annals of Tourism Research*, 31(2), 296–312.
- King, B., Pizam, A., & Milman, A. (1993). Social impacts of tourism: Host perceptions. *Annals of Tourism Research*, 20(4), 650–665.
- Kumar, S., & Nafi, S. M. (2020a). Impact of COVID-19 pandemic on tourism: Perceptions from Bangladesh. Available at SSRN 3632798.
- Kumar, S., & Nafi, S. M. (2020b). Impact of COVID-19 pandemic on tourism: Recovery proposal for future tourism. *GeoJournal of Tourism and Geosites*, Year XIII Vol, 33.
- Lee, C.-K., & Back, K.-J. (2006). Examining structural relationships among perceived impact, benefit, and support for casino development based on 4 year longitudinal data. *Tourism Management*, 27(3), 466–480.
- Lee, T. H. (2013). Influence analysis of community resident support for sustainable tourism development. *Tourism Management*, 34, 37–46.
- Lepp, A. (2007). Residents' attitudes towards tourism in Bigodi village, Uganda. *Tourism Management*, 28(3), 876–885.
- Lundberg, E. (2015). The level of tourism development and resident attitudes: A comparative case study of coastal destinations. *Scandinavian Journal of Hospitality and Tourism*, 15(3), 266–294.
- Mandić, A., Mrnjavac, Ž., & Kordić, L. (2018). Tourism infrastructure, recreational facilities and tourism development. *Tourism and Hospitality Management*, 24(1), 41–62.
- Moyle, B., Glen Croy, W., & Weiler, B. (2010). Community perceptions of tourism: Bruny and Magnetic islands, Australia. *Asia Pacific Journal of Tourism Research*, 15(3), 353–366.
- Nopiyani, N. M. S., & Wirawan, I. M. A. (2021). The impact of tourism on the quality of life of communities in tourist destination areas: A systematic review. *Open Access Macedonian Journal of Medical Sciences (OAMJMS)*, 9, 129–136.
- Nursalam, & Fallis, A. . (2013). Quality Management Direktorat. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699.

- Nyaupane, G. P., & Thapa, B. (2006). Perceptions of environmental impacts of tourism: A case study at ACAP, Nepal. *The International Journal of Sustainable Development and World Ecology*, 13(1), 51–61.
- Pavlić, I., Portolan, A., & Puh, B. (2015). The social impacts of tourism on local community's quality of life. 3rd International Scientific Conference Tourism in Southern and Eastern Europe, 3, 259–272.
- Pekershen, Y., & Kaplan, M. (2023). The perceptions of a local community on tourism development: The case of Akyaka as a Cittaslow. *Community Development*, 54(2), 292–311.
- Pizam, A. (1978). Tourism's impacts: The social costs to the destination community as perceived by its residents. *Journal of Travel Research*, 16(4), 8–12.
- Pramanik, P. D., & Ingkadijaya, R. (2018). The impact of tourism on village society and its environmental. *IOP Conference Series: Earth and Environmental Science*, 145(1), 12060.
- Pratama, I. G. S., & Mandaasari, I. A. C. S. (2020). The impact of tourism development on the economic, cultural and environmental aspects of local communities. *International Research Journal of Management, IT and Social Sciences*, 7(1), 31–36.
- Rasoolimanesh, S. M., Ringle, C. M., Jaafar, M., & Ramayah, T. (2017). Urban vs. rural destinations: Residents' perceptions, community participation and support for tourism development. *Tourism Management*, 60, 147–158.
- Ritchie, J. R. B. (1988). Consensus policy formulation in tourism: Measuring resident views via survey research. *Tourism Management*, 9(3), 199–212.
- Rout, H. B., Mishra, P. K., & Pradhan, B. B. (2016). Socio-economic impacts of tourism in India: An empirical analysis. *Journal of Environmental Management & Tourism*, 7(4 (16)), 762.
- Roy, S. K., Halim, M. A., Nafi, S. M., & Sazib, S. I. (2021). Factors affecting outbound tourism from Bangladesh: A Study on young Bangladeshi tourists. *South Asian Journal of Social Studies and Economics*, 11(4), 38–46.
- Scarlett, H. G. (2021). Tourism recovery and the economic impact: A panel assessment. *Research in Globalization*, 3, 100044.
- Sharma, B., & Dyer, P. (2009). An investigation of differences in residents' perceptions on the Sunshine Coast: tourism impacts and demographic variables. *Tourism Geographies*, 11(2), 187–213.
- Sharpley, R. (2014). Host perceptions of tourism: A review of the research. *Tourism Management*, 42, 37–49.
- Stern, D. I. (2018). The environmental Kuznets curve. In *Companion to Environmental Studies* (pp. 49–54).

Routledge.

- Tosun, C. (2002). Host perceptions of impacts: A comparative tourism study. *Annals of Tourism Research*, 29(1), 231–253.
- Tsai, C.-H., Wu, T.-C., Wall, G., & Linliu, S.-C. (2016). Perceptions of tourism impacts and community resilience to natural disasters. *Tourism Geographies*, 18(2), 152–173.
- Tsundoda, T., & Mendlinger, S. (2009). Economic and social impact of tourism on a small town: Peterborough New Hampshire. *Journal of Service Science and Management*, 2(02), 61.
- Uğuz, S. Ç., Kaimuldinova, K. D., Yildirim, G., & Kabiye, Y. (2022). Evaluation of environmental issues in the coasts of edremit gulf in terms of sustainable tourism. *Geo Journal of Tourism and Geosites*, 40(1), 302–312.
- Vareiro, L. M. da C., Remoaldo, P. C., & Cadima Ribeiro, J. A. (2013). Residents' perceptions of tourism impacts in Guimarães (Portugal): a cluster analysis. *Current Issues in Tourism*, 16(6), 535–551.
- Wang, S., & Mirehie, M. (2022). Community perceptions of tourism impacts. *Handbook of Tourism Impacts*, 60–74.
- Yong, E. L. (2021). Understanding the economic impacts of sea-level rise on tourism prosperity: Conceptualization and panel data evidence. *Advances in Climate Change Research*, 12(2), 240–253.
- Yu, C.-P., Cole, S. T., & Chancellor, C. (2018). Resident support for tourism development in rural midwestern (USA) communities: Perceived tourism impacts and community quality of life perspective. *Sustainability*, 10(3), 802.
- Zaidan, E. (2016). The impact of cultural distance on local residents perception of tourism development: The case of Dubai in UAE. *Tourism: An International Interdisciplinary Journal*, 64(1), 109–126.
- Zhang, J., Inbakaran, R. J., & Jackson, M. S. (2006). Understanding community attitudes towards tourism and host—Guest interaction in the urban—rural border region. *Tourism Geographies*, 8(2), 182–204.
- Zhuang, X., Yao, Y., & Li, J. (2019). Sociocultural impacts of tourism on residents of world cultural heritage sites in China. *Sustainability*, 11(3), 840.