



# A Mediating Effect of Tourist Satisfaction on The Relationship Between Sustainability Tourism and Loyalty in The Tourism Villages

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## Abstract

The Sustainable Development Goals (SDGs) in the tourism sector can be achieved through a comprehensive and integrated approach considering sustainable development's economic, social, and environmental dimensions. This research aims to analyze the influence of the dimensions of sustainability on tourist loyalty in tourism villages, with tourist satisfaction as a mediating variable. This study uses a quantitative approach. The number of samples used in this research was 394 tourists from tourism villages in Karanganyar Regency, Indonesia. The data analysis method used PLS-SEM. The analysis findings indicate that economic, environmental, and institutional sustainability have a positive and significant impact on tourist satisfaction in the tourism village of Karanganyar Regency. Tourist satisfaction has favorably and considerably influenced tourist loyalty in the tourism village of Karanganyar Regency. Tourist satisfaction positively and significantly influences the relationship between economic sustainability, environmental sustainability, and institutional sustainability with tourist loyalty in the tourism village of Karanganyar Regency. Additionally, satisfaction partially mediates the relationship between economic, environmental, and institutional sustainability with tourist loyalty. This research develops a sustainability model for tourist villages that are increasingly developing worldwide. It can be used as a strategy or reference for tourist village managers to develop sustainable tourist villages.

*Keywords:* Sustainability, tourist satisfaction, tourist loyalty, tourism village

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## 1. Introduction

Sustainable development is now a global priority in all development initiatives. The government sectors must integrate sustainable development into all development strategies and programs to avoid environmental damage. The Sustainable Development Goals (SDGs) in the tourism sector can be achieved through a comprehensive and integrated approach considering sustainable development's economic, social, and environmental dimensions (Huaccho et al., 2019). This approach involves promoting sustainable products and production methods, implementing low-cost practices, and being resource-efficient (Boakye et al., 2021). Tourism sustainability must balance business and environmental interests (Baloch et al., 2023; Oteng-Abayie et al., 2022), supported by appropriate behaviour at tourist destinations by tourists (Vu et al., 2024). Rural tourism is an exciting trend in sustainable tourism development (Rosalina et al., 2023).

Tourism village encompasses diverse activities that typically revolve around nature-based tourism, agriculture, village life and culture, fishing, and the appreciation of rural landscapes (Yanan et al., 2024). Tourism awareness communities or village governments develop rural tourism in Indonesia into tourism villages (Rosalina et al., 2023). The government and entrepreneurs utilize tourism villages as a profitable prospect and can improve the economic conditions of the village (Yanan et al., 2024). Villages engage in many efforts overseen by the local administration or tourism advocacy organizations to transform their villages into tourist destinations. Tourism villages worldwide are experiencing rapid development by integrating natural and cultural attractions, historical significance, artistic elements, well-equipped public tourist amenities, and convenient accessibility while preserving the authentic procedures and traditions of village life (Gao & Wu, 2017).

The tourism village development program encourages village communities to creatively and innovatively manage natural and cultural potential through local wisdom as the primary source of income and prepare local communities to compete globally (Bakas et al., 2018). The tourism village strategy in Indonesia is called the Tri Daya concept. Tri Daya is a social and societal transformation concept in human empowerment, including social, environmental, and economic forces. Social power's objective is to stimulate

society's collective influence to establish a productive society. Environmental forces aim to foster development to establish a sustainable environment, whereas economic forces strive to establish a productive society (Chinwong et al., 2021).

Sustainable tourism villages offer activities focusing on social tourism sustainability, environment, culture, and economy (Vu et al., 2024). Sustainable tourism villages promote sustainable practices for more efficient resource use and reduced emissions and waste (Pásková et al., 2021). They also promote the conservation of natural and cultural resources and commit to innovation and sustainability in all social and environmental aspects (Maziliauske, 2024). Sustainable tourism provides socio-economic benefits for people living in tourist destination areas, conserves tourism resources, protects the environment, and creates authentic tourism experiences (Rosalina et al., 2023). This sustainable tourism aims to unite tourists and local communities for mutual benefit. When more tourist funds go directly into the pockets of people in tourist destinations, they spend most or all of those funds on the local economy. With more money circulating in society, this will encourage the emergence of new businesses, create jobs, and reduce poverty (Luukkonen, 2013).

Tourism loyalty measures tourist destinations' sustainability; many studies have examined various variables influencing tourist loyalty. Studies on tourists' views of destinations and their future behaviour concentrate on tourist satisfaction since it is crucial in influencing the intention to revisit and word-of-mouth promotion in destination marketing (Khoo, 2022). Positive word-of-mouth recommendations from satisfied tourists significantly influence others to visit an area more than negative feedback from dissatisfied tourists (Cong, 2016; Suhartanto et al., 2020). Research findings often contradict one other when satisfaction is considered a mediating variable. Research indicates that satisfaction can have a complete, partial, or no mediation effect on the correlation between goal quality and behavioural intention or loyalty behaviour (Al-Ansi & Han, 2019).

No studies specifically investigate the sustainable aspects of tourist loyalty in tourism communities. The research by Asmelash and Kumar (2019) exclusively examined the relationship between sustainability dimensions: economic, environmental, socio-cultural, and institutional and tourist satisfaction in museums and cultural tourism. The research findings indicate that tourist satisfaction is affected by institutional, economic, and socio-cultural sustainability. Nonetheless, environmental sustainability exerts a minimal impact.

This study seeks to examine the impact of sustainability on visitor loyalty, focusing primarily on word of mouth and intentions to revisit, thereby addressing the shortcomings of previous research findings. This link will be analyzed through the mediating factors of satisfaction in the setting of tourism villages. This study seeks to examine the application of sustainable principles in ten emerging tourism villages situated in Karanganyar Regency. The results of this research will provide a significant reference for managers of other developing tourism settlements. This study examines the relationship between tourists' perceptions of the sustainability of tourism villages in Karanganyar Regency and their satisfaction and motivation to participate in tourism activities.

## 2. Literature Review

### 2.1. The Relationship between Sustainable Tourism and Tourist Satisfaction

Previous research has shown that pleasure may be distinguished between individuals' initial cravings and their subsequent experiences post-consumption. In the tourist sector, satisfaction is assessed based on the correspondence between pre-visit expectations and post-visit experiences. Tourists experience satisfaction when displays exceed their prior expectations, but they encounter disappointment when their prior expectations do not match their observed performance (Quynh et al., 2021). Asmelash & Kumar (2019) and Zakiah et al. (2023) indicate that contented tourists are more likely to engage in word-of-mouth recommendations, express favourable sentiments to their acquaintances, and exhibit loyalty towards the tourist sites they have visited. The aforementioned pleasure has a significant role in promoting sustainable tourism growth while minimizing the financial burden of marketing expenses (Asmelash & Kumar, 2019).

Previous studies have investigated the population's adherence to sustainable tourism development principles; however, the perspective of tourists remains an area requiring further investigation (Chatkaewnapanon & Kelly, 2019). Certain specialists focus on examining the effects of the environmental dimension (Chatkaewnapanon & Kelly, 2019), as well as the environmental, social, and cultural dimensions (Asmelash & Kumar, 2019; Aydin & Alvarez, 2016). A select few have expanded the triple bottom line framework to include the institutional component as the fourth essential pillar of sustainable tourism development (Asmelash & Kumar, 2019) (Asmelash & Kumar, 2019). Research by Rojulai, Aminudin, Asmalina, and Anuar (2018) employing Social Exchange Theory (SET) discovered four characteristics about the effects of tourism growth. They are reliable and precise on the economy, society, culture, and environment. Furthermore, there is evidence supporting the enhancement of quality of life and advocacy for the growth of tourism.

The study conducted by Asmelash and Kumar (2019) examined tourists' viewpoints on the economic, environmental, and social aspects of tourism, as well as their endorsement of sustainable tourism development. The economic dimension demonstrates the highest forecasting capability, followed by the social dimension. Nevertheless, the environmental aspect is considered statistically negligible. Wiwattanakantanga and To-ima (2014) investigated the impact of four elements of sustainable tourism on tourist satisfaction in Thailand. The study conducted by Asmelash and Kumar (2019) found social culture and environment as the foremost and secondary factors influencing tourist satisfaction, with the economic dimension positioned third in importance. The researchers concluded that the

institutional factor had the minimal impact on tourist satisfaction in their study of the region. The research formulated and examined the following four hypotheses based on the previously described findings.

H1: Economic Sustainability influences tourist satisfaction in tourist villages.

H2: Environmental Sustainability influences tourist satisfaction in tourist villages.

H3: Socio-Cultural Sustainability influences tourist satisfaction in tourist villages.

H4: Institutional Sustainability influences tourist satisfaction in tourist villages.

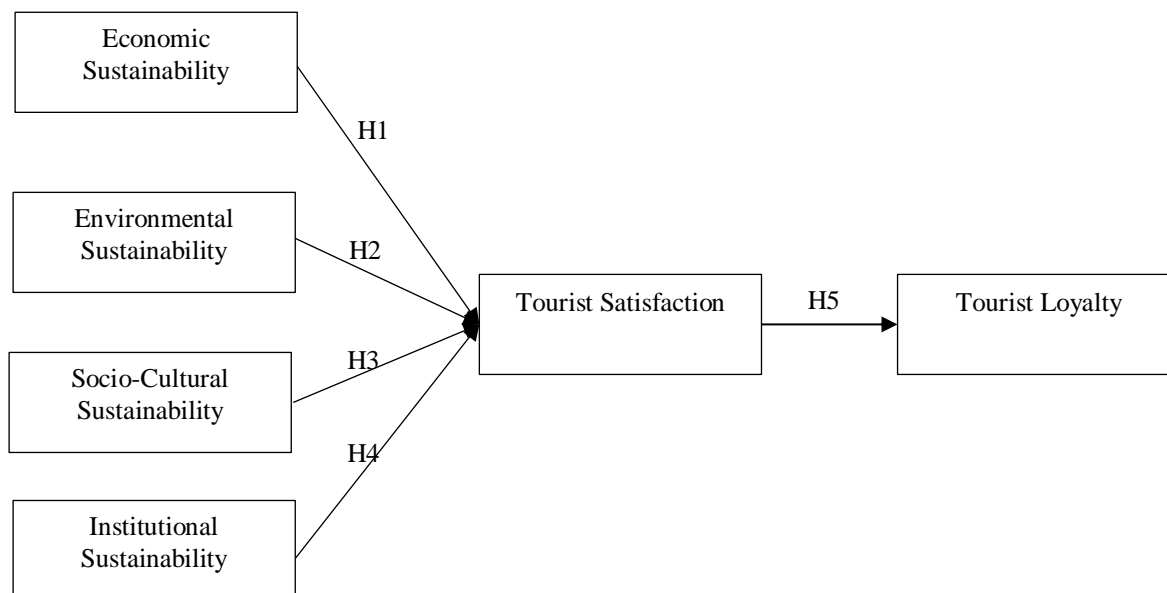
## 2.2. The Relationship between Tourist Satisfaction and Tourist Loyalty

Prior studies connecting satisfaction and loyalty have demonstrated a substantial impact of contentment on loyalty (Asmelash & Kumar, 2019; Breiby & Slåtten, 2018; Wang & Li, 2023; Zakiah et al., 2023). One of the primary origins of loyalty is attitude, which stems from the emotions elicited by visitors and typically indicates a favorable disposition toward a particular location. Even if an individual does not revisit a location, this disposition indicates their inclination to recommend it to prospective travelers (Cossío-Silva et al., 2019; L. et al., 2023).

Many studies investigate and evaluate the relationship between tourist satisfaction and loyalty (Asmelash & Kumar, 2019; Breiby & Slåtten, 2018; Zakiah, Baharta, et al., 2023). Based on the research above, the following hypothesis can be formulated:

H5: Tourist satisfaction influences tourist loyalty in tourist village

Based on the literature review and hypothesis development, the following conceptual framework is proposed in this research:



**Figure 1.** Conceptual Framework

## 3. Materials and Methods

This research employed proportional random sampling and purposive sampling for sample selection. A total of 394 tourists were sampled. The assessment of tourism sustainability variables is based on Asmelash and Kumar (2019), with the elements of economic sustainability encompassing employment quality, economic viability, and local welfare. The facets of Environmental Sustainability encompass physical integrity, biodiversity, resource efficiency, and environmental purity. The socio-cultural components of sustainability encompass social justice, visitor happiness, local governance, community well-being, and cultural diversity. The institutional sustainability factor include locally focused regulatory measures, civic engagement, local policy formulation, and political backing across many governmental tiers.

Measurement of tourist satisfaction refers to Asmelash and Kumar (2019), with indicators namely attractiveness, friendliness, treatment of tourist staff, reasonableness of entry fees, quality of information, safety and security, accessibility, and accommodation. Measurement of tourist loyalty refers to Som et al. (2014) and Akin & Demirel (2011). A five-point Likert scale was used to measure all variables in this study.

The data collection approach employs a questionnaire. Questionnaires were administered to participants in this study, specifically tourists in the tourist villages of Karanganyar Regency. The employed data analysis method is PLS-SEM. This study utilizes multivariate statistical analysis to evaluate the combined effects of components, do predictive

research, and develop structural models (Hair et al., 2019). The evaluation of the structural equation modeling (SEM) model in partial least squares (PLS) analysis include the assessment of the measurement model, the structural model, and the model's goodness of fit.

## 4. Results and Discussion

### 4.1. Results

#### 4.1.1. Measurement Model Evaluation

The results of the measurement model evaluation can be seen in Table 1 as follows.

**Table 1. Outer Loading, Composite Reliability, and Average Variance Extracted**

Variable	Items	Outer Loading	Cronbach Alpha	Composite Reliability	AVE
Economic Sustainability (EC)	11	0,778 – 0,889	0,957	0,963	0,702
Environmental Sustainability (EN)	12	0,876 – 0,935	0,980	0,982	0,817
Socio-cultural Sustainability (SC)	10	0,875 – 0,901	0,966	0,971	0,786
Institutional Sustainability (IN)	12	0,806 – 0,878	0,961	0,966	0,719
Tourist satisfaction (SAT)	8	0,870 - 0,899	0,961	0,967	0,786
Tourist Loyalty (TL)	6	0,807 – 0,876	0,916	0,934	0,704

Table 1 indicates that all variables possess indicators with an outer loading beyond 0.5, signifying the validity of the measurement items. The degree of variable reliability is satisfactory, as evidenced by Cronbach's alpha and composite reliability, both exceeding 0.70. A convergent validity level (AVE) exceeding 0.50 satisfies the criteria for robust convergent validity.

Discriminant validity was tested using the Fornell and Lacker Test, HTMT and Cross Loading. The results of the discriminant validity test can be seen in the table below.

**Tabel 2. Kriteria Fornell dan Lacker**

	EC	EN	IN	SAT	SC	TL
EC	<b>0.838</b>					
EN	0.707	<b>0.904</b>				
IN	0.615	0.682	<b>0.848</b>			
SAT	0.547	0.614	0.581	<b>0.887</b>		
SC	0.624	0.722	0.723	0.539	<b>0.887</b>	
TL	0.522	0.596	0.626	0.770	0.550	<b>0.839</b>

Discriminant validity evaluation should be conducted by examining the Fornell and Lacker criterion. Discriminant validity is a method of assessment that aims to ascertain the theoretical distinctions between variables and their empirical or statistical testing. The criterion proposed by Fornell and Lacker states that the root of the average variance extracted (AVE) variable should exceed the correlation between variables. A higher average variance extracted (AVE) root correlation exists among all variables. The findings indicate that the variables in question have satisfactory levels of discriminant validity. A higher average variance extracted (AVE) root correlation exists among all variables. This finding demonstrates that the variables possess sufficient discriminant validity.

**Tabel 3. Rasio Heterotrait-Monotrait (HTMT)**

	EC	EN	IN	SAT	SC	TL
EC						
EN	0.729					
IN	0.641	0.702				
SAT	0.568	0.632	0.603			
SC	0.648	0.742	0.749	0.558		
TL	0.553	0.623	0.666	0.813	0.585	

Discriminant validity is attained because the HTMT value for pairing variables is below 0.90, indicating that the variable for the item whose measurement is stronger than dividing the variance into other variable items. Discriminant validity with cross-loadings shows that all measuring items have significant correlations with each variable and weak correlations with others.

**4.1.2. Structural Model Evaluation**

The structural model evaluation has three steps. First, check for multicollinearity between variables and the inner VIF measure. The second is to test the hypothesis between variables using t or p values. Third, the f square value shows the direct variables' structural level influence (f square 0.02 is low, 0.15 is medium, and 0.35 is strong) (Hair et al., 2021).

**Table 4.** Inner VIF

Variable	SAT	TL
EC	2.183	
EN	2.844	
IN	2.433	
SAT		1.000
SC	2.683	

The evaluation results of the measurement model with Inner VIF show that the Inner VIF value between variables is smaller than 5. This value indicates no multicollinearity between variables or a low multicollinearity between variables. These results strengthen the results of parameter estimation in SEM PLS, which is robust (not biased).

**Table 5.** Hypothesis test

Hypothesis	Path Coefficient	P value	Conclusions
EC -> SAT	0.150	0.010	H1 accepted
EN -> SAT	0.306	0.000	H2 accepted
SC -> SAT	0.045	0.486	H3 rejected
IN -> SAT	0.248	0.001	H4 accepted
SAT -> TL	0.770	0.000	H5 accepted

The hypothesis test findings indicate that four hypotheses are accepted while one are rejected. This outcome indicates that the employed model possesses a sound or satisfactory framework.

**4.1.3. Goodness of Fit Model**

PLS is a variance-based structural equation modeling approach used to evaluate theoretical models, emphasizing predictive research. Consequently, many metrics were established to indicate the acceptability of the provided model, including R square and SRMR (Hair et al., 2019). R Square quantifies the extent of variance in endogenous variables that may be elucidated by other exogenous or endogenous factors within the model. Chin (1998) delineates the qualitative interpretation of R square values as follows: 0.19 indicates low influence, 0.33 signifies moderate influence, while 0.66 represents significant effect.

**Table 6.** R Squared dan SRMR Value

	R <sup>2</sup>	SRMR
Tourists Satisfaction	0.438	0.055
Tourits Loyalty	0.593	

Based on the processing results above, the joint influence of economic, environmental, socio-cultural, and institutional sustainability on tourist satisfaction is 0.438 or 43.8% (moderate influence). The magnitude of the influence of tourist satisfaction on tourist loyalty is 59.3% (moderate influence). Hair et al. (2021) state that SRMR values below 0.08 imply a well-fitted model. The obtained model estimation value is 0.055, indicating a high level of appropriateness for the model. This result implies that the variables in the model can be elucidated by empirical evidence.

**4.1.4. Mediation Analysis**

To initiate mediation analysis, it is imperative to ascertain the statistical significance of direct and indirect influence values by employing path coefficients, t statistics, and p-values to evaluate the mediation variable using the VAF (variance accounted) value. A VAF value greater than 80% indicates full mediation, while a VAF value between 20-

80% indicates partial mediation. A VAF value of less than 20% indicates no mediation. For this purpose, the VAF is estimated by dividing the indirect effect by the total effect. The results of the mediation analysis can be seen in Table 7.

**Table 7.** Mediation Analysis

	Indirect effect	Total effect	VAF	P value	Conclusion
EC -> SAT -> TL	0.116	0.116	26.55	<b>0.010</b>	Partially Mediated
EN -> SAT -> TL	0.236	0.236	54.18	<b>0.000</b>	Partially Mediated
IN -> SAT -> TL	0.191	0.191	43.92	<b>0.001</b>	Partially Mediated
SC -> SAT -> TL	0.034	0.034	7.90	<b>0.487</b>	No mediated

## 4.2. Discussion

### 4.2.1. The Influence Of Economic Sustainability And Tourist Satisfaction

This study found that economic settlement positively affects and significantly influences tourist satisfaction. The positive influence shows that the more (less) tourists show a positive perception of economic stability, the higher the perception of sustainable governance in the economic aspect, and the greater the tourist satisfaction with the village. The findings of this hypothesis testing align with the studies undertaken by Lee and Hsieh (2016), Asmelash and Kumar (2019), and Aydin and Alvarez (2016). These substantial findings demonstrate that tourism village administrators possess a commendable capacity for ecosystem management. Among the eleven measuring criteria, two are interrelated: the degree of diversification of the local economy and the seasonal management of tourist visits, which have been highly successful in tourism villages. Economic sustainability is essential for economic continuity and prosperity, particularly in diversifying local resources and managing seasonal tourism. Simultaneously, other metrics are satisfactory but require further enhancement to elevate tourist satisfaction.

The tourism settlements in Karanganyar include diverse local economic resources that draw numerous visitors. Diversification in business is essential for tourism places to maintain competitiveness (Campón-Cerro et al., 2017) and help tourist villages overcome market trends or unexpected economic conditions and attract more tourists (Winchenbach et al., 2022). Tourism managers use differentiated strategies by offering various product innovations (Szromek et al., 2022) and services to reach a wider target market, thereby increasing revenue potential. Tourism communities offering diverse products and services might diminish reliance on a singular income source. Should a product or service see a decrease in demand or fail, the corporation retains alternative revenue streams to mitigate the loss. Diversification can assist tourism settlements in adapting to unforeseen shifts in market trends or economic conditions, thereby attracting a greater number of tourists. A tourism village can target several market segments and accommodate travelers' wants and preferences by providing a range of products and services. By providing various vacation packages, a tourism town might entice tourists seeking diverse holiday experiences. These packages can enhance tourism villages' visitor numbers and elevate their standing in the tourism sector.

Tourism villages can undertake product and market diversification. Product diversification involves adding new products or services that can attract new customers or fulfil the needs of existing customers. For example, a tourism village that initially only offers holiday packages can expand its business by adding transportation or car rental services. Product diversification can help tourism villages to reach a wider target market and increase their revenue. The second diversification that tourism villages can do is market diversification. Market diversification is done by entering new markets or targeting different market segments. For example, a tourism village that initially only serves local tourists can expand its business by targeting international tourists. Market diversification can help tourism villages to reach more customers and increase their revenue.

### 4.2.2. The Influence of Environmental Sustainability on Tourist Satisfaction

The ecological challenges encountered by tourism villages need the development of management plans to conserve natural resources and reduce pollution. The environmental challenges include habitat degradation, endangered species preservation, development of biodegradable products and packaging, waste management, maintenance of clean air and water, erosion, depletion of natural resources, and pollution regulation. Effective management of the environment at this tourist attraction necessitates awareness and commitment from all stakeholders to regulate tourism while preserving ecological integrity. Tourists value destination managers who enhance, protect, and conserve the natural environment. Tourists exhibit a strong interest in sites that preserve ecological balance and offer a clean, healthy environment.

This study discovered that environmental factors positively and significantly influence tourist satisfaction. The beneficial impact indicates that more sustainable environmental management by the tourism village correlates with increased positive perceptions among tourists, leading to greater satisfaction. The results of this hypothesis testing are

different from the research conducted by Lee and Hsieh (2016), Asmelash and Kumar (2019), and Aydin and Alvarez (2016). Nevertheless, according to respondents' assessments, tourists regard the level of environmental attractiveness as only satisfactory, indicating a need for enhancement in sustainable environmental management. Among the eleven measurement items, those with the highest external loading indicate that the items pertaining to the quality of solid waste management methods and the utilization of renewable resources have been highly effective in tourism villages. Environmental sustainability prioritizes resource efficiency and ecological integrity, particularly in the management of solid waste and refuse. Simultaneously, other effective measuring items require maintenance and enhancement.

The waste problem received important attention from tourists in this study. One of the environmental issues that often occur in the tourism sector is the problem of waste and rubbish, especially plastic waste, the volume of which will increase as more tourists visit. In addressing waste management issues, it is imperative to foster awareness among diverse stakeholders, particularly the local population, following the provisions outlined in Law Number 10 of 2009. This legislation stipulates that the responsibility to safeguard tourist sites is collective. In addition, it is incumbent upon all individuals to actively promote a secure, well-organized, and hygienic environment, exhibit courteous conduct, and uphold the ecological sustainability of tourist attractions.

The management of the "Pokdarwis" (tourism awareness group) has undertaken initiatives to address the issue in each tourism village following the implementation of CHSE standards (cleanliness, health, safety, and environmental sustainability) as mandated by the government for tourism sector business actors. The existing conditions for handling waste in several tourism villages in Karanganyar Regency have been that waste banks have been formed, which function as containers for collecting waste from the community to convert it into value. The tourism village management through Pokdarwis has effectively handled this tourist garbage to prevent any unwanted odours from affecting the tourism community. The assessment of waste management in Karanganyar Regency, Central Java tourism villages is effectively demonstrated through tourists' perceptions regarding trash and rubbish issues.

The indicator of environmental sustainability, namely the use of renewable resources in this tourism village in Karanganyar Regency, Central Java, has received great attention from tourists. The development of renewable energy-based tourism villages plays an important role in achieving sustainable development goals (Maarif, 2023). In the context of sustainable development, renewable energy-based tourism villages offer opportunities to combine sustainable use of natural resources with responsible tourism development. Integrating renewable energy, such as solar and wind energy, in tourism village infrastructure can reduce dependence on limited fossil energy sources and reduce greenhouse gases, which aligns with global climate change mitigation efforts. Apart from that, the development of renewable energy-based tourism villages can also provide economic and social benefits, including creating new jobs, increasing the income of local communities, and sustainable environmental preservation. Thus, integrating the tourism village concept with renewable energy creates a strong collaboration between tourism development and sustainable development goals.

Numerous resort communities in Karanganyar Regency have implemented renewable energy, specifically solar electricity, for street illumination and agricultural pumps. Literature research indicate that the establishment of tourism villages with renewable energy sources holds significant potential for achieving sustainability and environmental sustainability. The implementation of renewable energy sources, including solar and wind energy, in tourist village regions can enhance the welfare of local communities. Literature indicates that the implementation of renewable energy in growing tourism communities offers numerous significant advantages. Initially, the utilization of renewable energy decreases reliance on finite fossil fuel resources. In the realm of tourism villages, this entails diminishing the reliance on fossil fuels for illumination, heating, and transportation, thereby mitigating adverse environmental effects. Additionally, renewable energy contributes to the reduction of greenhouse gas emissions. Tourism communities can aid in alleviating global climate change by substituting fossil fuels with renewable energy sources. This strategy is consistent with sustainable development objectives, emphasizing environmental conservation and mitigating adverse effects on ecosystems.

The results of literature studies also show that using renewable energy in tourism villages can provide economic benefits. Using locally available renewable energy sources, tourism villages can reduce long-term energy costs and increase energy efficiency. This activity can create new jobs, increase local community income, and encourage sustainable economic growth in the village. Utilization of renewable energy can also provide a positive image for tourism villages. Tourism villages that use renewable energy as part of their infrastructure can attract tourists who care about the environment. This policy can increase the number of visitors and contribute to the growth of the tourism sector. Developing renewable energy-based tourism villages is a smart step in achieving sustainable development goals. Literature studies emphasize that integrating renewable energy in tourism village infrastructure can provide significant environmental, economic and social benefits. By utilizing sustainable natural resources and reducing dependence on fossil energy, tourism villages can become an example of future environmentally friendly and sustainable tourism development.

### 4.2.3. The Influence of Socio-cultural Sustainability on Tourist Satisfaction

The continuity of the management model will greatly influence the social and cultural values of local communities at tourist locations. Great management will result in changes or loss of identity, traditional values, cultural conflicts, and social pressure. Change or lose traditional identity and values because traditional identity and values are considered commodities and adapted to the visitor's traditional identity and values. Tourism villages must maintain its social and cultural aspects to attract tourists interested in learning about customs and experiencing the authentic village ambiance.

This research found that socio-cultural sustainability exerts a beneficial yet insignificant effect. The minimal impact of socio-cultural sustainability on satisfaction indicates that its management has not been executed well, resulting in a lack of good opinions from tourists. This outcome is seen in the tourist perception index of merely 65.9%, categorizing it as sufficient. Of the three items assessing the socio-cultural sustainability variable, SC8 and SC3 exhibit the highest outer loading, signifying their association with the preservation of local lifestyles and the quality of interactions between hosts and guests, which have been notably successful in tourism villages. Concurrently, several metrics pertaining to social equity, visitor satisfaction, and municipal governance are satisfactory however require enhancement.

The findings of this study contrast with those of Lee and Hsieh (2016) and Aydin and Alvarez (2016), which demonstrate that socio-cultural sustainability has a positive and significant impact on tourist satisfaction. Asmelash and Kumar (2019) found that socio-cultural desires were the primary predictor of tourist contentment, followed by institutional and economic desires. Socio-cultural sustainability fosters significant cultural interchange between tourists and local communities, enhancing good and harmonious relationships. Tourists seek a direct connection to the historical and cultural elements of the local region.

Tourists consider measures of local lifestyle preservation in tourism villages to be important. The influx of tourists affects the preservation of indigenous lifestyles. Tourist spending can augment the income of local citizens. Enhancing the quality of life for the populace may lead to an increased consumerist mentality, fostering discontent with their traditional and simplistic way of living, while simultaneously igniting aspirations to adopt a lifestyle akin to that of visiting tourists. In terms of tourist satisfaction, visitors want the authenticity of rural life, encompassing the distinctive daily routines of village inhabitants, which is characteristic of tourist villages. The village's distinctive features and uniqueness are the primary motivators for visitor visitation. Tourists value host-guest interaction indicators to boost satisfaction. Tourism settlements will transform local society. Planning based on actual and potential societal issues. Thus, local communities are actively involved in tourism planning and development to encourage their passion and dedication to the destination's success. Quality of contact between tourism village communities and tourists is important. Tourists admire village people's hospitality because it makes travel easier. Respondents' opinions of village people's friendliness toward tourists in tourism villages in Karanganyar Regency show these interactions are firmly established.

### 4.2.4. The Influence of Institutional Sustainability on Tourist Satisfaction

An institution's ability to adapt to its strategic environment's shifting dynamics is called institutional sustainability. Institutions refer to tourism settlements' long-term tourism management capacities. This study demonstrated that institutional sustainability greatly improves tourist satisfaction. A better first impression of tourism communities might boost tourist satisfaction. Tourist perception index scores suggest moderate or good perceptions of institutional sustainability. Perception of Local Leaders' Attention to Village Tourism Development is highest and Controlling Local Tourism Development Practices lowest. Both items in the locally oriented control policy indicator show that respondents like institutional sustainability management in Tourism communities. Tourism village administrators in Karanganyar regency said institutional sustainability management may promote political engagement, local policy planning, and political support at different levels of government. The findings of this study are in line with research conducted by Lee and Hsieh (2016), Asmelash and Kumar (2019), and Aydin and Alvarez (2016), which show that institutional sustainability has a positive and significant effect on tourist satisfaction.

Tourists very well perceive the attention of local leaders to the development of village tourism and institutional sustainability. These findings demonstrate the indispensability of leadership in the tourism industry to advance tourism, particularly in rural areas. Assistance will be required to facilitate the engagement of village communities that adhere to traditional mindsets in the village development process. In order to enhance awareness and foster active community engagement in village development, it is imperative to have a leader who can effectively influence the community and facilitate a shift in mindsets. A bottom-up approach to comprehending the village development process highlights the community's leadership position and active participation, which impacts all planning and budget allocation policies. The village head's leadership is evidenced by four indicators: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. These indicators directly impact community engagement. Research conducted by Mai, Nguyen, and Hien (2023) and Purnomo et al. (2020) emphasizes the significance of leadership in the development and management of all facets of tourism. The extensive involvement and input of traditional leadership can establish a robust basis for the effective advancement of cultural tourism. The leadership model established in tourism development is parabolic or traditional leadership, which possesses the authority to enforce conventions that



have persisted for centuries. In addressing, controlling, and coordinating the issue of tourism, the participation of institutions, non-governmental organizations, and traditional communities within society is essential.

#### **4.2.5. The Influence of Tourist Satisfaction on Tourist Loyalty**

Tourist satisfaction is essential for sustainable tourism development (Bernini et al., 2015). As highlighted in earlier studies, tourist satisfaction and sustainable tourism development are closely linked (Bernini et al., 2015; Asmelash & Kumar, 2019). Satisfied travellers are likely to promote the tourist destination to others, provide positive feedback to friends and family, and show loyalty to the visited attraction sites. This satisfaction affects promoting sustainable tourism development while minimizing marketing expenses (Asmelash & Kumar, 2019).

The results of this study found that satisfaction has a positive and significant influence on the tourist loyalty. The research aligns with Al-Ansi & Han (2019) and Chi, Huang, & Luo (2019), which concluded that tourist satisfaction is an antecedent that influences tourist loyalty. These findings show that tourists play an important role in promoting village tourism. Therefore, tourism village managers need to understand tourists' perceptions of satisfaction. The findings of this study indicate that respondents hold a positive perception of visitor satisfaction in tourism villages. Consequently, tourism village managers in Karanganyar Regency must enhance the management of tourism villages across all dimensions of tourist satisfaction. Among the eleven measurement items, the destination attractiveness and accommodation items have the highest outer loading, and this shows that the management of destination and accommodation attractiveness (quality of food and drinks, customer handling, suitability of prices) has gone very well in tourism villages so that it influences these tourists to visit again and recommend to others. A fairly good rating from tourists should be a concern for tourism village managers because tourist satisfaction is a factor that greatly influences customer loyalty. Several studies below provide a fairly comprehensive explanation of the relationship between customer satisfaction and loyalty.

Tourism satisfaction refers to favourable emotions from tourist encounters in a specific location (Quynh et al., 2021). Tourists must get consistent satisfaction to encourage return purchases and word-of-mouth recommendations. Long-term profitability for the company is contingent on clients perceiving value in every transaction. Wang, Tran, & Tran (2017) stated that tourist satisfaction with tourism sites is a complex term comprising various interconnected aspects. One factor can satisfy tourists, while other factors may not. Destinations share similarities in terms of attractions, amenities, and accessibility. Regarding filiarial aspects, intangible services are highly dynamic and require higher quality as time progresses (Asmelash & Kumar, 2019). The aforementioned rationale indicates that tourist satisfaction is essential for enhancing visitor loyalty. In a tourism village, tourist satisfaction can be achieved by delivering unforgettable experiences through services, amenities, attractions, and accommodations. Contented tourists represent a long-term investment for a tourist town, as they foster the desire to return or, if they do not revisit, to promote the community to others while highlighting its positive attributes.

#### **4.2.6. The Influence of Tourist Satisfaction on The Relationship Between Sustainability Dimensions and Tourist Loyalty in Tourism Villages**

Tourism satisfaction is mostly determined by the alignment between expectations prior to the visit and experiences afterward. Tourists derive satisfaction when exhibitions exceed their expectations and experience disappointment when their expectations surpass the actual performance (Quynh et al., 2021). Tourist satisfaction is crucial for the sustainable development of tourism (Quynh et al., 2021; Zakiah et al., 2023). Previous research has demonstrated a significant correlation between tourist satisfaction and the advancement of sustainable tourism (Zakiah et al., 2023; Asmelash & Kumar, 2019). This study's findings indicate that tourist satisfaction mediates the impact of economic and environmental sustainability on tourist loyalty. The findings indicate that enhanced management of economic and environmental sustainability, bolstered by high satisfaction, will elevate revisit intention and word-of-mouth referrals. The results of this study corroborate previous research, which indicated that satisfied tourists are likely to recommend tourist sites to others, share positive experiences with family and friends, and exhibit loyalty to the areas they have visited. These findings influence the assurance of sustainable tourism development while circumventing exorbitant marketing expenses (Asmelash & Kumar, 2019).

## **5. Conclusion**

The analysis findings indicate that economic, environmental, and institutional sustainability have a positive and significant impact on tourist satisfaction in the tourism village of Karanganyar Regency. Tourist satisfaction has favorably and considerably influenced tourist loyalty in the tourism village of Karanganyar Regency. Tourist

satisfaction positively and significantly influences the relationship between economic sustainability, environmental sustainability, and institutional sustainability with tourist loyalty in the tourism village of Karanganyar Regency.

This study is conducted in a constrained situation, which affects the model's generalizability under various scenarios. Consequently, to implement the study in various contexts, it is essential to consider the underlying profile of the variables associated with the test. This restriction is essential to prevent issues with test outcomes that affect the development of recommended management policies. This study used solely a questionnaire as a data collection instrument, perhaps introducing an element of subjectivity in the respondents' responses.

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