The Effect of Tourism Infrastructure Asset Quality on Tourist Satisfaction: A Case on Forest Tourism in Tasikmalaya Regency

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Abstract: This study aims to determine the effect of the quality of tourism infrastructure assets on tourist satisfaction on forest tourism in Tasikmalaya Regency including the quality of accommodation, quality of accessibility and quality of amenities. The research population is tourists who have visited the Batu Hanoman Waterfall, Batu Blek Waterfall, Candung Waterfall, and Ciparay Waterfall in Tasikmalaya Regency with a sample size of 336 respondents, applying a purposive sample. The data is processed using the Structural Equation Model (SEM). The results of this study indicate that the quality of accommodation, the quality of accessibility and the quality of amenities have a positive effect on tourist satisfaction. This means that tourism infrastructure assets, both quality of accommodation, quality of accessibility and quality of amenities can increase satisfaction for tourists. In total, the quality of amenities has the greatest influence on tourist satisfaction, followed by the quality of accessibility and quality of accommodation. Studies prove that efforts to increase tourist satisfaction can be done by improving the quality of accommodation, quality of accessibility, and quality of amenities.

Keywords: Tourism infrastructure, Asset quality, Tourist satisfaction, Accommodation, Accessibility and Amenity

Introduction

National economic development in Indonesia is currently focusing on the tourism sector. It is known that the tourism sector has assets that need to be managed by an agency, both government and private, effectively, efficiently, and of high value throughout the life of the asset (Campbell 2011; Hastings 2010; Sugiama 2013). One of the assets in the tourism sector is found in forest tourism, where these assets need to be managed starting from the process of planning asset requirements, obtaining, taking an inventory, conducting legal audits, assessing, operating, maintaining, renewing or removing assets, to transferring assets effectively and efficiently. this is in accordance with the theory proposed by Sugiama (2013). Utilization of forest assets as forest tourism aims to ensure that managed assets can minimize costs over the life of the assets concerned, generate maximum profit and achieve optimum use and utilization of assets in accordance with asset management objectives according to Sugiama (2013).

Forest assets used as forest tourism are included in the classification of real estate and facilities assets, this refers to the theory proposed by Campbell (2011). Forest assets can be managed as tourism that is useful for creating environmental balance and harmony while still paying attention to the principles of sustainable development, the tourism potential is in the form of diverse natural resources from physical or biological aspects as well as human cultural wealth (Budiani et al. 2018). An asset that is used and utilized in a competitive business requires the best solution, to prioritize an asset in order to generate optimum income, this refers to the asset optimization theory proposed by Campbell (2011). This can be pursued by the availability of infrastructure assets that have a special role in industrial development and have an impact on increasing the number of tourist visits to a destination, so that the tourism sector

industry will continue to grow. Therefore, every forest tourism asset needs to pay attention to tourism infrastructure that can allow the tourism process to run smoothly, and provide services to tourists to meet their diverse needs. The quality of tourism infrastructure assets as well as tourist satisfaction with the quality of these assets are currently the concern of researchers in the field of tourism, including Hassan and Iankova (2012), Ali and Amin (2014), Haneef (2017), Chin et al. (2018), Ramyar and Halim (2020), Napitupulu, Rahmafitria, and Rosita (2021), etc.

Ali and Amin (2014) stated that physical elements do play a role in influencing the quality of tourist accommodation, especially the condition of the facilities themselves, the furniture and the quality of the food served. The research of Napitupulu, Rahmafitria, and Rosita (2021) reveals that the importance of accessibility quality is especially for tourist destinations because it is one of the important factors to influence tourists in making travel decisions. Chin et al. (2018) explain that the quality of accommodation and the quality of accessibility significantly affect tourist satisfaction. Haneef (2017) argues that the lack of adequate amenities is often cited as one of the main obstacles to tourism development and investment in a destination. Hassan and Iankova (2012) describe that tourists can evaluate their perceptions based on their experience of visiting the quality of existing facilities. Ramyar and Halim (2020), in their research, show that the quality of amenities affects tourist satisfaction.

Forest tourism sites that have been equipped with infrastructure assets, but the quality of the infrastructure and the influence of the quality of the infrastructure on tourist satisfaction are not yet known. Indications of problems found in the field, many tourists feel unsafe in the camp area, it is difficult to park their vehicles, and there are recreational facilities that can endanger visitors. In addition, there are tourists who slip while on the road or at tourist attractions. Thus, it is necessary to measure the quality of tourism infrastructure assets and their effect on tourist satisfaction. The quality of infrastructure assets is a crucial one as a determining factor to increase tourist satisfaction. This study intends to examine the components of the quality of the infrastructure assets studied, including the quality of accommodation, the quality of accessibility, and the quality of amenities to tourist satisfaction (Haneef 2017; Chin et al., 2018; Sugiama, 2019; Ramyar and Halim, 2020). Furthermore, it can determine the quality of tourism infrastructure from the point of view of tourists.

Previous studies have explained that accommodation quality has a significant relationship with tourist satisfaction (Nam, Ekinci, and Whyatt 2011; Chin et al. 2018). Better accommodation quality tends to increase the value that tourists feel about their spending, and this will increase the level of tourist satisfaction (Frías-Jamilena, Del Barrio-García, and López-Moreno 2013). Good quality of accessibility to a destination tends to increase the attractiveness of the destination and attract tourists to visit, furthermore this attraction will also increase tourist satisfaction (Guiver and Stanford 2014). Ramyar and Halim (2020) suggest that tourist satisfaction is influenced by accessibility. Other studies explain that the quality of accessibility has a positive effect on tourist satisfaction (Chin et al. 2018). The quality of amenities/facilities can increase tourist satisfaction (Marzuki et al. 2017; Ramyar and Halim 2020). Therefore, the proposed model as presented in Figure 1, and the hypotheses formulated in this study are:

Hypothesis1: *The higher the quality of accommodation, the more tourist satisfaction increases*
Hypothesis2: *The higher the quality of accessibility, the higher the tourist satisfaction*
Hypothesis3: *The higher the quality of the amenities, the higher the tourist satisfaction*
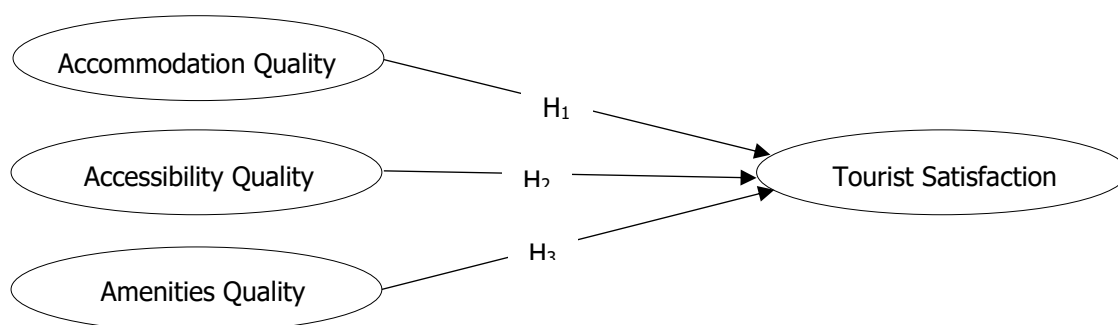

Figure 1. Proposed Model

Methodology

The location of this research is Forest Tourism in Tasikmalaya Regency including Forest Tour of Badak Batu Hanoman Waterfall, Batu Blek Waterfall, Candung Waterfall, and Ciparay Waterfall. These four tours were chosen because this research is suitable to be applied to this location, the similarity of popularity among visitors and the availability of natural attractions such as waterfalls. The object to be studied is the quality of tourism infrastructure assets including the quality of accommodation, the quality of accessibility, and the quality of the amenities available in forest tourism.

The method used in this research is descriptive with a quantitative approach. The quantitative approach in this study uses a questionnaire as a data collection instrument. This study applies a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. The population in this study are tourists who have visited the Badak Batu Hanoman waterfall, Batu Blek waterfall, Curug Candung waterfall, and Ciparay waterfall at least once in the period 2019 to 2021. The type of population in this study is an infinite population (Sugiama 2008). The target respondents of this study were domestic tourists from Tasikmalaya at least 16 years of age and over. Questionnaires were distributed from November 2020 to January 2021 using googleform. Questionnaires were distributed using google form during the year-end holiday season, from November 2020 to January 2021. A total of three hundred and forty-six tourists answered the survey questionnaire, but only 336 respondents were included in the data processing. This is because there are respondents from outside Tasikmalaya. Sampling method using nonprobability with purposive technique. Meanwhile, the sample size calculation applies the Slovin formulation with a minimum sample size of 99 respondents, but in this study, there are 336 respondents were obtained (Sevilla, 2007). Confirmatory factor analysis (CFA) is used to test the validity and reliability of the data (Sugiama 2008) and to test the hypothesis using SmartPLS. The use of CFA was to confirm the dimensions of the proposed model, and evaluate the level of validity and reliability (Raimkulov et al, 2021; Suhartanto et al, 2020; Chi, C. G. Qing & Qu, 2008).

Results and Discussions

The value measurement in this study was carried out using an algorithm process to run confirmatory factor analysis (CFA) to obtain item reliability, convergent validity, and discriminant validity of the measurement scale. Referring to previous studies, the minimum cut-off point for outer loading should be above 0.50, the composite reliability value (CR) should be above 0.70, and the mean variance (AVE) should be above 0.50 (V Esposito Vinzi, Wynne W Chin, Jörg Henseler 2010).

Table 1. Model Measurement Results

Construct	Items	Lodings	CR[a]	AVE[b]
Accommodation Quality	Accommodation1	0,920	0,940	0,839
	Accommodation2	0,929		
	Accommodation3	0,898		
Accessibility Quality	Accessibility1	0,834	0,905	0,761
	Accessibility2	0,888		
	Accessibility3	0,893		
Amenities Quality	Amenities1	0,874	0,930	0,770
	Amenities2	0,865		
	Amenities3	0,888		
	Amenities4	0,881		
Tourist Satisfaction	Tourist Satisfaction1	0,899	0,945	0,811
	Tourist Satisfaction2	0,896		
	Tourist Satisfaction3	0,896		
	Tourist Satisfaction4	0,910		

Notes: [a]CR = Composite Reliability
[b]AVE=Average Variance Extracted

Table 1 shows that all items loading, CR, and AVE values are above the minimum cut-off point, therefore, internal consistency values are achieved. Discriminant validity (see Table 2) shows that all recorded values are greater than each correlation construct. Therefore, the measurement model is fit to be continued for hypothesis testing. The results of the hypothesis model test can be shown in Figure 2. All of the constructs in this research had average variance extracted (AVE) values above 0.5, which is the recommended threshold of AVE (Raimkulov et al, 2021), as shown in Table 1, that the squared correlations are all below the AVE values and confirm the discriminant validity as shown on Table 2.

Table 2. Discriminant Validity

|	1	2	3	4
1. Accommodation Quality	0,916			
2. Accessibility Quality	0,500	0,872		
3. Amenities Quality	0,583	0,779	0,877	
4. Tourist Satisfaction	0,568	0,790	0,867	0,900

Notes: The diagonal represents the square root of Average Variance Extracted (AVE) while the other entries represent the correlation

The model proposed in this study proposes 3 (three) hypotheses. All hypotheses have positive hypotheses, so the one-tailed hypothesis is used to test them. The independent variables of this model include three variables meanly quality of accommodation, quality of accessibility, and quality of safety with the dependent variable being tourist satisfaction. The results of the causality test between the independent variable and the dependent variable as shown in Table 3.

Table 3. Result Hypothesis Test

Correlation	Original Sample	Standard Deviation	T-Statistics	P-Values	Interpretation
Accommodation Quality => Tourist Satisfaction	0,079	0,039	2,096	0,037	**Received**
Accessibility Quality => Tourist Satisfaction	0,282	0,063	4,448	0,000	**Received**
Amenities Quality => Tourist Satisfaction	0,602	0,060	9,592	0,000	**Received**

Table 3 shows that, *first*, the quality of accommodation has a positive effect on tourist satisfaction. Therefore, hypothesis 1 is accepted. The accommodation asset assessed in this study covered the availability, condition, and security of camping sites. This finding is in line with previous research of (Kastenholz et al. 2013; Chin et al. 2018) which stated that accommodation quality and tourist satisfaction are significantly related. It means that the quality of accommodation can increase tourist satisfaction. However, the effect of this quality was found less significant. It is probably because tourists perceive that the accommodation asset of forest tourism is not the main attraction of such tourism since most tourists who visit forest tourism do not stay overnight.
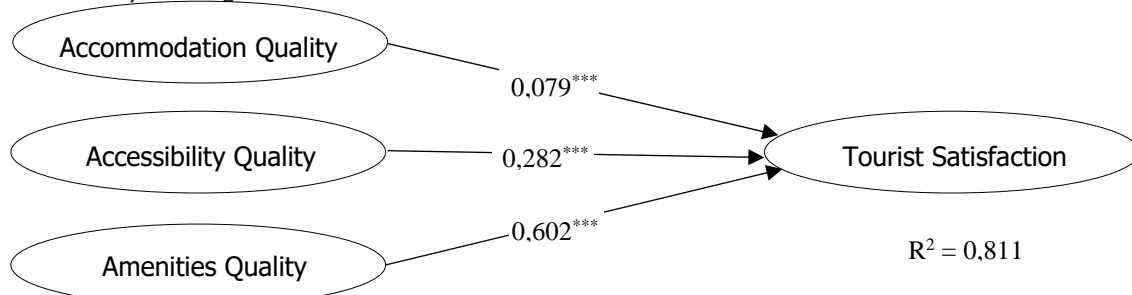
Notes: Path Coefficient. ***represents a significance level of 1%
Figure 2. Empiric Model

Second, the quality of accessibility has a positive and significant effect on tourist satisfaction; thus, hypothesis 2 is accepted. Accessibility is related to the comfort of roads and the type of vehicles to reach the destinations. This finding is in line with previous research which stated that there is a positive relationship between accessibility quality and tourist satisfaction (Al-Ababneh 2013; Forozia, Zadeh, and Gilani 2013; Chin et al. 2018). It means that the accessibility assets can increase tourist satisfaction. The provision of these assets is considered important since tourists perceive that the accessibility assets are very needed to reach the destinations. Another fact shows that accessibility can influence tourists' decision to travel, and good accessibility quality tends to lower transportation costs which at the same time results in a more pleasant travel experience for tourists (Ab Karim and Chi 2010; Brent Ritchie and Crouch 2010).

Third, the quality of amenities has a positive and significant effect on tourist satisfaction; thus, hypothesis 3 is accepted. The amenity assets observed in this study include parking lots, places to eat, and sanitation (trash bins and toilets). This finding supports the previous studies which stated that the quality of amenities is positively and significantly related to tourist satisfaction (Haneef 2017; Marzuki et al. 2017; Ramyar and Halim 2020). It means that the amenity assets can increase tourist satisfaction and the provision of these assets is considered important. Tourists perceive that these assets are urgently needed and used when they visit forest tourism.

Conclusions

Based on the results of the research and discussion that have been described, it can be concluded that the quality of infrastructure affects tourist satisfaction. The high-quality infrastructure accommodation can increase tourist satisfaction. This is in accordance with the results of previous studies (Kastenholz et al. 2013; Chin et al. 2018). The quality of accommodation is presented by the indicators of availability, conditions, and security of the camping site. But this accommodation infrastructure is considered less important (significant) by touristsThe reason is in accordance with the fact that most of the tourists who visit the forest tourism are only for vacation and not overnight. The higher quality of accessibility infrastructure can increase tourist satisfaction. This is in accordance with the results of previous studies (Al-Ababneh 2013; Forozia, Zadeh, and Gilani 2013; Chin et al. 2018). The quality of accessibility infrastructure is presented by the condition of the road to tourist attractions, the comfort of the road in the tourist area, and the type of vehicle to reach the destination. The higher quality of amenity infrastructure can increase tourist satisfaction. This is in accordance with the results of previous causal studies (Haneef 2017; Marzuki et al. 2017; Ramyar and Halim 2020). The quality of amenities is deployed by the condition of the physical parking area, the physical condition of the restaurant, and sanitation (garbage facilities and toilets conditions). The provision of accessibility and amenity infrastructure assets is considered important by tourists because of these assets are directly needed during their recreation.

Managerial implication

Based on the study, the following are practical implications that can be done to improve the quality of infrastructure assets and tourist satisfaction. *First*, the tourism area managers should be able to carry out infrastructure provision joint cooperation with a scheme between the government and private business entities. This is as referred to in a previous study for the provision of infrastructure in accordance with regulations (Nofitri 2020). *Second,* invite private investors who have the potential to open businesses by implementing a project system (Hamdan 2021), so that the provision of infrastructure assets is faster as needed. *Third*, it is necessary to invite and involve the empowerment of the surrounding community to maintain cleanliness and comfort, safety and hygiene, as well as community friendliness which should increase tourist satisfaction and can also increase the income of the local community (Kamaluddin and Tamrin, 2019).

Limitations and options for future research

Although this study provides important theoretical and practical implications based on empirical evidence, it has several limitations. First, the scope of this research is only to examine the quality of infrastructure assets from the aspects of accommodation, accessibility, and amenities. Therefore, it is recommended that further research be carried out by adding different indicators related to the level of visitor satisfaction with tourism assets, such as one of the indicators used in other studies (Chan et al. 2021) namely destination image. Second, the unit of analysis of this research focuses on examining waterfall tourism in Tasikmalaya Regency which includes Forest Tourism of Badak Batu Hanoman Waterfall, Batu Blek Waterfall, Ciparay Waterfall, and Candung Waterfall with the limited scale of tourism area development, so it is interesting to study other waterfall tourist areas which are different with similar characteristics but on a larger scale. Finally, research data were collected in one shot. Therefore, future research should use a different methodology or a longitudinal method on the same object and variables.

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