
Supply Optimization Model of Nature Tourism at Ciwidey Tourism Destination, Wets Java

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Abstract

Evaluation of tourism destinations based on supplier and demand-side perception is very important in tourism, mainly to determine the future policy of investment. Evaluation from the demand's side indicates the level of satisfaction and their revisit effect of the tourist at any certain tourism object while determining the lack of supply factors can be used to optimize the future supply. This research aimed to study the supplier and demand group perception at Ciwidey nature tourism destination. Two main steps were used during the study, the first is an interview and the second is a preparation of an optimization model, which both used to analyze the recent supply factors. The results show that three variables are needed to be optimized, including the availability of information, transportation, and religious facilities. Each variable consists of components where the optimization should be done collaboratively by all stakeholders involved: government, bureau of transportation, bureau of forestry, management, and local people surrounding the tourist resort.

Keywords: nature tourism supply; collaboration; stakeholder.

1. Introduction

Indonesia as a country that is awarded extraordinary natural wealth with the tourism sector as one of the country's foreign exchange earnings certainly needs to pay attention to the impact and environmental conditions where tourism is located.

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Reference [1] States that the environment or physical condition is one important factor in tourism. Tourism is very dependent on physical and environmental conditions, both as the main attraction of tourism itself and as a place where tourism activities occur. One effort to optimize the use of natural resources is to develop tourism with the concept of ecotourism. Ecotourism was chosen because it implements sustainable tourism by emphasizing three main aspects namely ecology, economy and social culture. The nature of tourism with the concept of ecotourism in the supply side aims to promote the coordinated development of tourism supply and demand systems, supply factors optimize tourism destinations and improve tourism quality [10]. At present progress in the field of tourism is experiencing very rapid development. Tourism supply is built using the demand system model, using a comprehensive evaluation method. The perception of tourism supply between group supply and demand can provide important references to tourism supply as well as adjusting decision making in managing a location [6]. Tourists are on the demand side, who experience and feel the supply of tourism directly, where the supply of sensing results also directly influences tourist behavior. Tourists return when satisfied, and they don't return when dissatisfied. The tourism management company has the main task as a provider of tourism supply. High supply or low evaluation of tourism supply directly affects the investment and construction of tourism in the location. The purpose of supply in the perception of supply between supply and demand for all parties must be taken fully in the determination of regulations and scientific decisions and makes sense for the optimization of the structure of tourism supply. In recent years, many researchers have paid more attention to the perception of supply goals between supply and demand. However, how to assess the sequence of development of supply factors and how to optimize supply factors for a tour, which is still lacking from in-depth study. Therefore, this study uses survey data on the perception of tourism supply between tourists and companies as managers of Ciwidey Bandung natural tourism destinations. Tourism is built with a supply optimization model to reveal differences in perceptions between tourism supply and demand groups, then place an analysis of decision making to optimize tourism supply factors. This study aims to look at the optimization model of Ciwidey's destination natural tourism services and design collaborative management in order to optimize Ciwidey's destination supply. The author hopes this research can be a reference for the development of tourism in the Ciwidey region in particular and in Indonesia in general.

2. Methods

Retrieval of research data carried out in 4 natural attractions in Ciwidey Natural Tourism Destinations, Bandung Regency, West Java. The four natural attractions are White Crater Tourism, Ranca Upas, Green Hill Park, and Situ Patenggang Glamping Lake Side. Data were collected from September 2019 to October 2019. The research approach used was a non-participant observation. The researcher is not directly involved in the life of the person being observed and is separately an observer. Observations were made on all tourist activities and forms of service from the manager. Data was also collected from various documents related to the four study sites. Interview is the process of collecting data and information through face-to-face between the questioner and the questioner or respondent [12]. Interview or interview in principle is an attempt to dig deeper information from relevant sources in the form of opinions, impressions, thoughts of the mind and so on. The questionnaire used was a type of questionnaire with closed-ended questions with answers in the form of a score of 1-5. A score of 1 means "very dissatisfied, and a score of 5 means" very satisfied ". Respondents are the parties involved in the management of tourist sites and also the visitors. The number of visitor respondents is determined to be at least

30 people in each natural tourism object, so the total number of respondents is as many as 120 visitors. Respondents for visitors are determined by accidental techniques based on convenience, meaning that the sample can be selected because it is at the right time, situation and place [9]. Meanwhile, the determination of respondents for stakeholders is done by purposive sampling. Data analysis was performed using a modified Importance Performance Analysis (IPA) method to build a tourism supply optimization model. Science is used to map the relationship between manager assessment and visitor ratings of each attribute (variable) and/or its elements to analyze the performance of the overall tourist attraction [7]. The WTP is described in four quadrants in the Cartesian diagram, where the horizontal axis shows the demand side and the vertical axis as the supply side. The midpoint of the quadrant is the intersection of the lines on the average supplier and demand assessment score (Figure 1).

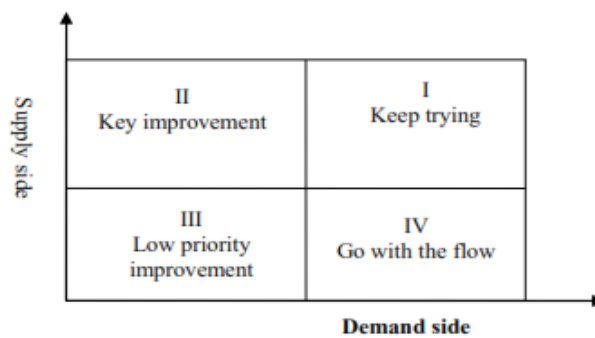


Figure 1: Optimization model of tourist destination supply

3. Results and Discussion

Managers as providers of services to visitors are decisive in the level of satisfaction of visitors who come to Ciwidey natural tourism destinations. The value of visitor and manager satisfaction towards the 8 general service variables of Ciwidey Nature Tourism Destinations can be seen in Table 1 below.

Table 1: The level of satisfaction of managers and visitors to general service variables

No	General Service Variables	Satisfaction	
		Visitor	Manager
1	Transportation	2,6	3,3
2	Resources	2,85	3,8
3	Security and Safety	3,75	4,05
4	Amenitas	3,4	4,2
5	Place of worship	2,3	2,5
6	Accommodation and Consumption	3,25	4,06
7	Economy	3,3	3,5
8	Environment	3,9	4,6

Based on the data in Table 1, a cartesian diagram is made (Figure 2) to see the performance of general service

aspects. Quadrant I shows that the supply side and demand perception have a high level of satisfaction evaluation. There are three variables in it, namely security and safety, security, accommodation and consumption as well as the environment. The performance of the variables included in quadrant I can further be maintained. Quadrant II is filled with the information source service variable. The perception of the variable information sources from the visitor side is lower than from the manager side. The manager considers having a good performance related to information sources, but the results of the study indicate the level of visitor satisfaction on these variables is low. Quadrant III includes transportation and worship facilities variables. Both supply and demand provide low evaluations of transportation and religious facilities. Transportation does not receive special attention from the managers, even though transportation facilities must be prioritized in order to maintain the satisfaction and smooth travel of visitors to the Ciwidey destination. In quadrant IV there are economic variables, the perception of visitors in this quadrant is high, while the perception of the providers of tourism facilities is low.

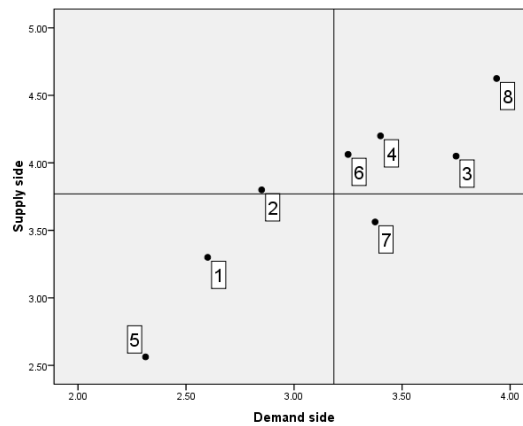


Figure 2: Natural science kartesius diagram of ciwidey nature tourism destination.

1. Transportation; 2. Information Sources; 3. Security and Safeti; 4. Amity;
5. Means of Worship; 6. Accommodations and Consumption; 7. Economy; 8. Environment.

In Figure 2 it can be seen that there are 3 public service supply variables with low performance, namely aspects of information sources, aspects of transportation, and aspects of worship facilities. In this connection, it will then be seen the performance of the indicators of the 3 variables.

3.1. Information Source Variabel

The aspect of information sources is one of the important aspects in determining the choice of tourist sites by visitors. As expressed [15] that the advancement of information technology and the right promotion have an impact on tourist behavior in terms of determining tourist destination selection. The management and visitor satisfaction scores for the indicators of the information source variables are presented in Table 2.

Table 2: The value of visitor and manager satisfaction with the indicator variable information sources

No	Information Source Indicator	Satisfaction	
		Visitor	Manager
1	Friends/Family	2,6	3,3
2	TV/Radio Ads	2,85	3,8
3	Internet	3,75	4,05
4	Certain Institutions/Institutions	3,4	4,2
5	Newspapers/Magazine/Tabloids	2,3	2,5
6	Brochure/Leaflet/Booklet	3,25	4,06
7	Mouth to mouth	3,3	3,5

Dissemination of information on Ciwidey natural tourism destinations is done in various ways so that visitors are more detailed in knowing the services available at Ciwidey natural tourism destinations. The seven indicators of information source variables studied show that the highest dissemination of information comes from word of mouth (Figure 3). Ciwidey's destination visitor conveyed what he felt directly to his relatives and family.

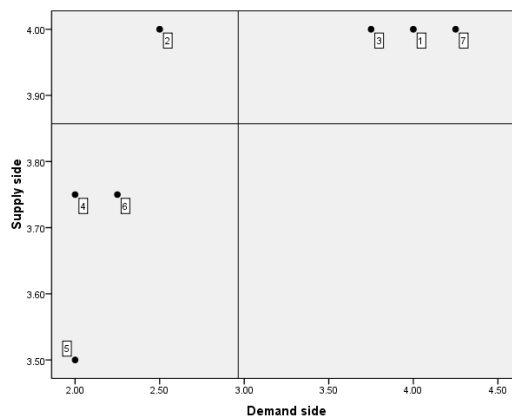


Figure 3: Indicators of information source variables.

1. Friends/Family, 2. TV/Radio Ads 3. Internet, 4. Certain Institutions/Institutions, 5. Newspapers/Magazines/Tabloids, 6. Brochures/Leaflet/Booklet, 7. mouth to mouth

Indicators in quadrants II and III show the low perception of visitors to the services provided. Increasing information through TV/Radio is important to note. Another thing that must be considered is the source of information on Nature Tourism Destinations in newspapers/magazines/tabloids as well as brochures/leaflets/booklets, and through certain agencies/institutions.

3.2. Transportation Variabel

Transportation is one of the important variables in supporting tourism activities in Ciwidey Natural Tourism Destinations. This is in line with research [11] which states that the availability of transportation facilities will provide its own satisfaction for tourists who visit attractions. Data on the value of visitors and managers' satisfaction with each indicator of transportation variables is presented in Table 3 with the Natural Sciences diagram as shown in Figure 4.

Table 3: Value of visitor satisfaction and management of the transportation variable indicators

No	Indicator of Transportation Variables	Satisfaction	
		Visitor	Manager
1	Ketersediaan kendaraan umum	2,5	3,25
2	Kondisi jalan	2,5	3,5
3	Rambu-rambu Lalu-lintas	2,75	4,25
4	Lampu penerangan jalan	2,25	3,5
5	Pengaturan lalu-lintas kendaraan	3	3

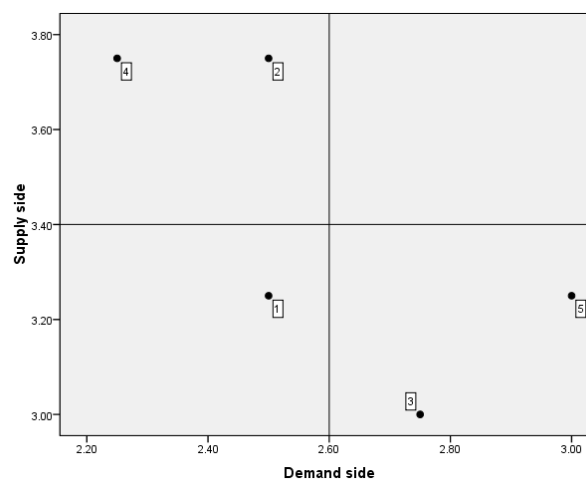


Figure 4: Indicators of transportation variables.

1. Availability of public transportation, 2. Road conditions; 3. Traffic signs,
4. Street lighting, 5. Vehicle traffic control

Transportation variables consisting of 5 indicators occupy different positions. In quadrant II there are indicators of road conditions and street lighting that should get the attention of the manager because the visitor's perception is low while the manager's perception is high. The condition of the road to the Ciwidey natural tourism destination is narrow, especially the road that starts from Soreang to Ciwidey and there is still damage at several road points. Road conditions require special attention from responsible stakeholders, in this case, the Department of Transportation and the Department of Public Works, In addition, the road to Ciwidey tourist destination also meanders and follows forest areas, this causes many visitors to complain about the existence of lighting lamps inadequate road. The addition of street lighting at certain points needs to be done to avoid traffic

accidents leading to Ciwidey tourist destinations.

3.3. Variabel of Workship Facilities

One of the destinations for tourists is to be able to calm down and get closer to the creator. Thus, worship facilities become one of the important tourist facilities in a tourist destination. These means of worship include a mosque, church, pure and others. The manager and visitor satisfaction scores for the variable indicators of worship facilities are presented in Table 4.

Table 4: Value of satisfaction of visitors and managers of the indicators of variables of worship facilities

No	Indicator of Worship Facilities	Satisfaction	
		Visitor	Manager
1	Mosque	4	4,5
2	Church	1,75	2,25
3	Pure	1,75	1,75
4	Others	1,75	1,75

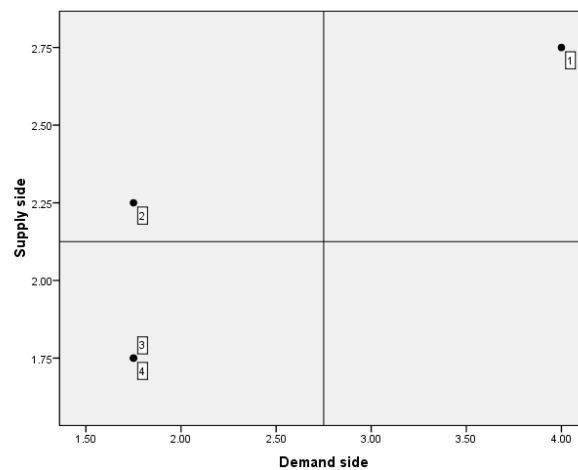


Figure 5: Indikator-indikator variabel sarana ibadah.

1. Mosque, 2. Church, 3. Pure, 4. Others

The Cartesian diagram of the Natural Sciences for indicators of worship facilities variables as shown in Figure 5. Figure 5 shows that there are 3 indicators of supply of low-performing public services, namely the availability of church worship facilities, Pure, and other worship facilities. Based on visitors' perceptions of the availability of Ibadan facilities besides mosques it is rather difficult to find in Ciwidey tourist destinations. This caused some visitors who were Christians and others to be rather difficult to carry out worship both on the way to Ciwidey and when they were at tourist sites in Ciwidey.

3.4. Performance Indicator Optimization Efforts

Optimization of the performance of each indicator in the information source variable, transparency, and facility variables is presented in Table 5.

Table 5: Efforts to optimize performance indicators in general service variables

Variable	Indicator	Performance Optimization Efforts
Information Resources	TV/Radio Ads	Expand interesting advertisements on Tv and promotions on Radio.
	Certain institutions/Institutions	Form a special team for the socialization and empowerment of the local community.
	Newspapers/Magazines/Tabloids	Print news about Ciwidey nature tourism.
	Brochure/Leaflet/Booklet	Make attractive designs and share them with people in crowded locations.
Transportation	Availability of public transportation	Increase in public transportation fleet.
	Road condition	Repair of potholes
	Street lighting	Adding street lighting at the required points.
Means Worship	Church	Church Development
	Pura	Pure supply
	Others	Designation of a special place for worship

Improved services through performance optimization indicators in the variable information sources require superior human resources in the field of communication and design for the dissemination of information on Nature Tourism Destinations to potential demand areas. In the transportation and worship facilities variable the performance optimization focuses on the improvement and provision of infrastructure. Table 6 shows the collaboration design in the context of optimizing the supply of general services Ciwidey Natural Tourism Destinations. Table 6 shows the 3 categories of public service supply optimization stakeholder stakeholders in Ciwidey Nature Tourism Destinations. Primary stakeholders are the main stakeholders, secondary stakeholders are important stakeholders, and tertiary stakeholders are stakeholders whenever possible. Collaboration of all relevant stakeholders, in this case, is the Regional Government, Transportation Department, Public Works Department, Police, Perhutani, and Managers have their respective portions and cannot be separated from each other in performance optimization. Variable sources of information consisting of four low-performing indicators require collaboration from stakeholders. In these indicators the Regional Government, Perhutani and Managers are the primary or main stakeholders who have an important role in improving and promoting Ciwidey tourist destinations.

Table 6: Collaboration on general service supply optimization

Variable	Indicator	Stakeholder						
		a	b	c	d	e	f	g
Information Resources	TV/Radio Ads	Primary	Tertiary	Tertiary	Tertiary	Primary	Primary	Tertiary
	Institutions	Primary	Tertiary	Tertiary	Tertiary	Primary	Primary	Tertiary
	Newspapers	Primary	Tertiary	Tertiary	Tertiary	Primary	Primary	Tertiary
	Brochure/Leaflet/Booklet	Primary	Tertiary	Tertiary	Tertiary	Primary	Primary	Tertiary
Transportation	Availability of public transportation	Secondary	Primary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary
	Road condition	Primary	Primary	Primary	Secondary	Tertiary	Tertiary	Tertiary
	Street lighting	Primary	Primary	Primary	Secondary	Tertiary	Tertiary	Tertiary
Means Worship	Church	Primary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary
	Pura	Primary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary
	Others	Primary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary	Tertiary

Note : a. Regional Government, b. Transportation Agency, c. Public Works Agency, d. Police,

e. Perhutani, f. Manager, g. Public

Other stakeholders act as tertiary stakeholders while still having a role in the information source variable. Two other low variables, namely transportation and religious facilities, are the responsibility of the government, the Department of Transportation, and the Department of Public Works. According to [3], the government as a public sector has the task or role of coordination (planning) planning (planning), laws and regulations (legislation and regulation), entrepreneurs or entrepreneurs, stimulation (stimulation), the role of social tourism (social tourism) and its role as an attraction for the public (public interest) [5]. One of the goals of collaboration is to ensure that tourism development planning, including optimizing the performance of indicators of public service variables, is carried out and ensuring sustainable tourism [14].

4. Conclusion

There are three variables with each indicator that has low performance in the supply of Ciwidey destination natural tourism, namely the variable information source with information dissemination indicators through Tv or Radio advertisements, certain Agencies or Institutions, Newspapers / Magazines / Tabloids, and Brochures / Leaflets / Booklets. Low performance is also on the transportation variable with indicators of public vehicle

availability, road conditions and street lighting and the last variable that is low performing is the worship facilities with Church indicators, Pure and other worship facilities. Optimization of the performance of each indicator in the variable varies according to the indicator's focus. Optimization of performance indicators must be carried out collaboratively by primary, secondary and/or tertiary stakeholders, namely the Regional Government, Transportation Agency, Public Works Agency, Police, Perhutani, and Managers having their respective portions and cannot be separated from each other in performance optimization

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