Supply and Demand Analysis of Batu Burung Beach Tourism Object In Singkawang, West Kalimantan

*Yuniarti, Erni*¹; Fitriani, Meta Indah ²; Sumantri, Iman³; Soeryamassoekoa, S.B.⁴, Hernovianty, F., R.⁵

¹,²,³ Engineering Faculty, Tanjungpura University, Indonesia (erniyuniarti1978@gmail.com)

**Abstract**

Singkawang City West Kalimantan Province has one of the natural attractions of the beach is Batu Burung Beach. The attraction of this object is the panorama of the beach with granite stones which is based on the history as the gathering place of birds. The attraction of Batu Burung Beach has not been the main destination for tourists, because it has not been developed properly and realized optimally. The factor that hinders the development of tourist attractions is marketing so that not many tourists know about the existence of this attraction. This research purpose to analyse the potential of supply and demand tourist attractions Batu Burung Beach. The research method used is quantitative method and supported by qualitative method. The analysis method that used to analyse potential supplies is ODTWA analysis, while to analyse potential demands is using descriptive analysis. The results of research on Batu Burung Beach attractions show that it is worth developing as a beach tourist destination. Based on the recapitulation of the value of potential objects and tourist attractions, the beach got a potential value index of 77.33% which falls into the category worth to be developed. The criteria that requires follow-up actions so that this object can be in priority scale and developed into a beach tourist attraction is marketing. While the potential demand criteria that require follow-up actions is the need for the expansion of tourist attraction areas, widening of the entrance, procurement of sign boards, the addition of shelters, the expansion of toilets and prayer rooms, the addition of food stalls, and the procurement of social media and information brochures. Batu Burung Beach tourism object with this handling is expected to be developed into an alternative beach tourist destination in Singkawang City.

**1. Introduction**

West Kalimantan province administratively has only two cities, namely Pontianak City as the provincial capital and Singkawang City. Singkawang City is often mentioned as "Bumi Bertuah Gayung Bersambut" and "Taman Kalimantan Barat" because of the beauty of its natural landscape. One of the natural landscapes that become the main attraction of Singkawang City is its beaches. One of the beach that become tourist destinations is Batu Burung Beach which is located right next to Sinka Island Park Singkawang. It is called Batu Burung Beach from its historical story where it is a gathering place for birds to look for water on granite rocks. There are shelters available where tourists can sit and rest. Other facilities such as food stalls, prayer rooms, and toilets are also provided. There is bridge that leads to the historical bird stone and it also used by tourists or local residents to do fishing.

There are several aspects in Batu Burung Beach that need to be improved, especially in the marketing of its tourism objects. The improvements in marketing are needed as an effort to attract more visitors and improve the quality of tourist attractions that are carried out continuously and continuously (Widiastin, et al., 2012). Batu Burung Beach is managed by the government of Singkawang, therefore the marketing efforts is still lacking compared to the tourist attractions that are managed by private. The existence of the beach is not well known by tourists from other region outside Singkawang city. Tourists who visit Batu Burung Beach are mostly come from local tourists. Another aspect that may cause major impact is the environment aspect. Due to the tourist activities in the beach may cause coastal abrasion for the long term impact. The available breakwaters do not cover the entire coastal area of Batu Burung Beach. Moreover, the width of the beach is only 20 m, so it is feared that if left alone, this tourist attraction area will be lost due to abrasion.

The development of tourist attraction at Batu Burung Beach has not been carried out optimally. Therefore, in its development requires assistance and support from the government. The management of Batu
Burung Beach is still not collaborated with the government of Singkawang City. So far, the development of this tourism attraction only relies on private funds, hence the development process is very slow. Based on the description above, it is important to conduct an assessment of the potential supply to determine the feasibility of this tourism object for further development and analyse the potential demand of tourists at the Batu Burung Beach in Singkawang City, West Kalimantan.

2. Materials and Methods

2.1 Study Area

This research was conducted at the natural tourist attraction of Batu Burung Beach (Figure 1). The beach is located in Sedau Village, Singkawang City, West Kalimantan Province.

![Study Area Map](image)

2.2 Data

The methods used in data collection are the purposive and accidental sampling. Purposive sampling in this study is the sampling technique based on considerations in certain determinations, namely people or organizations who understand and experienced in the field are qualified to be respondents. These respondents are also called expert respondents, such as related stakeholders and managers of the beach. Meanwhile, accidental sampling determines the respondents by chance, meaning that the researcher coincidentally meets a person who is considered as a sample and is in accordance with the data source (Sugiono, 2016).

2.3 Analysis Method

The analysis methods used in this study consist of ADA-OTWA and descriptive method.

2.3.1 Potential Supply Analysis

ADO-ODTWA analysis is used to process data and information related to the existing tourism potential. This analysis is used to examine and calculate the development criteria that have been determined in structured steps so that a priority scale for the development of the tourism object is obtained. Meanwhile, to assess elements and sub-elements in the criteria, were obtained from the existing condition of the tourism object. These criteria are analysed based on current condition of the beach and combined with the priority of data that are suitable for this research. The criteria used in this research are tourist attraction, accessibility, management and services, accommodation, supporting facilities and infrastructure, availability of clean water, security, and marketing (Directorate General of PHKA, 2003). The next analysis step was to sum up all of the criteria that have been assessed.

The calculations of tourist attractions value are carried out to obtain the potential value of a tourism object, while the weight of each object has been determined for each element and is used to obtain the total score of the tourism object. The total score was obtained after the weight of each criterion is multiplied by the sum of the scores in each element (Romani, 2006).

\[
S = N \times B
\]

Description:
S = Score  
N = Total value of elements with criteria  
B = Weight of value  

Each criterion of potential and tourist attraction consists of low, medium, and high to classify the development level. The interval for each development classification was obtained by subtracting the highest score from the lowest score and then dividing the result with the interval used (Oktadiyani, 2006).

\[
Interval = \frac{(S_{max} - S_{min})}{K}
\]

Description:
Interval = Interval value  
Smaks = The highest score  
Smin = The lowest score  
K = Number of development classifications  

From this step, a feasibility index was obtained to decide which tourist object that will be a prioritized for development (Karsudi, et al., 2010). The feasibility index rates are divided as:

Feasibility rate > 66.6% = Feasible for development  
Feasibility rate 33.3% - 66.6% = Not yet feasible for development  
Feasibility rate < 33.3% = Not feasible for development  

The feasibility rate is used to determine the classification of tourism object development. If the assessment result shows that Batu Burung Beach is included as feasible area to be developed, then it will be recommended to be a priority in the preparation for tourism development.

2.3.2 Potential Demand Analysis

Data and information for potential demand were collected from tourists using a questionnaire. The variables used are socio-economic, tourist opinions, Department of Civil Engineering, University of Tanjungpura
and tourist behaviour or motivation. The information that were obtained from tourists are tourist characteristics, tourist travel patterns, tourist motivation, tourist ratings, tourist expectations, and the frequency of tourist visits. From the data, a recapitulation will be carried out to gain conclusions from the demand that will be used to generate development recommendations. Thus, the development recommendations are the final result of supply analysis, demand analysis, and inputs from the manager of Batu Burung Beach.

The data and information collected from tourists will be analysed using descriptive method. This method is one of the statistical methods for data processing, starting from data collection, summarizing, presenting, to describing data until the final data and information result is summarized (Nisfisianoor, 2009).

3. Result and Discussion

3.1 Potential Supply Analysis

The basis for potential supply assessment in this study consists of eight criteria, including elements and sub-elements which assessed in accordance with the existing conditions at Batu Burung Beach.

3.1.1 Attractiveness

The attractiveness of tourism object is assessed by calculating seven elements. Based on the results of the calculation, a total score of 900 was obtained for the attractiveness value, which means it includes in moderate category (Table 1).

Batu Burung Beach has various beauty attractions including views to the islands and hills in the sea, beautiful and clean beaches, as well as harmonious.

Table 1. Attractiveness of Batu Burung Beach

<table>
<thead>
<tr>
<th>No</th>
<th>Elements/Sub elements</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beauty</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>Safety</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Colors and types of sand</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>Variations of activities</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>Cleanliness</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Width of beach</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>Comfort</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>150</td>
</tr>
</tbody>
</table>

|            | Total score (score x value (6)) | 900   |

views of the beach and its surroundings. Tourist safety is also guaranteed because the beach is located in non-toxic and no escarpment area. The beach is close to settlements, hence there is influence from settlements and livestock of the surrounding community. In addition, the name of Batu Burung Beach itself is unique, which came from the local story said that many birds perched on a big rock at beach to drink (Figure 2).

Fig. 2. Natural landscape of Batu Burung Beach

3.1.2 Accessibility

Accessibility is related to the ease of access, meaning the ease of getting to a place and connectivity to other places. Accessibility is crucial for the development of a tourist object because both of transportation modes and roads provide easy access to the tourist object. Tourists might cancel their visit if the tourist object has poor accessibility. In this case, a good accessibility and connectivity also become one of the consideration for a tourist to visit (Yuniarti, et al., 2018).

Accessibility was assessed by calculating two elements. This calculation resulting a total score of 400 which means it is included in the high category (Table 2). This shows that the accessibility of this tourism object is well developed.

Table 2. Accessibility to Batu Burung Beach

<table>
<thead>
<tr>
<th>No</th>
<th>Elements/Sub elements</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Road condition and distance from the provincial capital</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>Travel time</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>80</td>
</tr>
</tbody>
</table>

|            | Total score (score x value (5)) | 400   |

Batu Burung Beach and Sinka Island Park are located side by side. There is a connecting access to Sinka Island Park which takes only five minutes by vehicles from Batu Burung Beach. Meanwhile, it takes approximately thirty minutes to get to nearby beaches such as Pasir Panjang Indah Park, Palm Beach, Tanjung Bajau, and Air Merah Beach. The roads are mainly in sufficient condition covered with asphalt pavement and paving blocks.

3.1.3 Management and Service

Management and services are assessed by counting three elements that are included in high category with a total score of 280 (Table 3).

Department of Civil Engineering, University of Tanjungpura
The management of tourism objects and its services needs to be maintained and improved as it directly affects the preservation of tourist objects and the most important thing is that it affects visitor satisfaction. Good management of tourist objects and services can be achieved by improving professional staff and communication skills. The hospitality, availability, and ability to guide tourists reflect the services provided by the manager and the surrounding community.

One of the important points in providing services is to establish communication with tourists to be able to convey information about the tourist object. Unfortunately, language often become the barrier to communicate, especially to foreign tourists. Manager and staff who operate the tourist object mostly speak only in Indonesian or local language, thus they cannot make good conversation with foreign tourists.

### 3.1.4 Accommodation

Accommodation is assessed by calculating the element number of rooms, from nearby accommodation. Accommodation plays an important role in supporting tourism objects. The accommodation distance to the tourism objects must be within a radius of 15 km. The calculation result obtained a total score of 90 which include in high category (Table 4). The high score was gained from the location of hotels that are close to Batu Burung Beach.

#### Table 4. Accommodation of Batu Burung Beach

<table>
<thead>
<tr>
<th>No</th>
<th>Elements/Sub elements</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of rooms</td>
<td>60</td>
</tr>
</tbody>
</table>

Total 80

Total score (score x value (5)) 400

The nearby popular hotels are Mahkota Hotel and Swiss Belinn which has a capacity of more than 100 rooms. The more developed an area of a tourism object will always be followed with an increase in the accommodation quality and the construction of new settlements (Wibowo and Ma’arif, 2014).

### 3.1.5 Facilities and Infrastructure

Attractions offered by a tourism object is not the only thing that attracts tourists. The availability of supporting facilities and infrastructure is very necessary to provide comfort for tourists during their visit. Comfortable facilities and sufficient infrastructure also give a good impact on the tourism object itself. The availability of facilities and infrastructure is assessed by calculating two elements. The first element is facilities and the second is infrastructure. The calculation results are included in the high category with a total score of 165 (Table 5).

Facilities are directly used by tourists to enjoy existing tourism objects. Meanwhile, infrastructure indirectly allows tourists to benefit from the tourism objects. The level of interest to a tourism object can affect the availability of facilities offered (Vengesayi, 2003). Some of the facilities and infrastructure that have been built at Batu Burung Beach are food and beverage stalls, toilet, prayer rooms, shelters, entrance and pathways, parking areas, electricity networks, drinking water networks, waste disposal, and information boards.

#### Table 5. Facilities and infrastructure assessment

<table>
<thead>
<tr>
<th>No</th>
<th>Elements/Sub elements</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Facilities</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>Infrastructure</td>
<td>30</td>
</tr>
</tbody>
</table>

Total 55

Total score (score x value (3)) 165

### 3.1.6 Availability of Clean Water

The availability of clean water is assessed by calculating the five elements resulting a total score of 840 which included in high category (Table 6). Batu Burung Beach is equipped with adequate clean water facilities. The clean water flows directly through pipes from mountain springs which located not far from the beach. The quality of the water is very clear and used for consumption by the surrounding community by cooking it. The water is available all year round. The preservation of vegetation around the springs is one of the main factors to maintain the clean water quality and availability.

#### Table 6. Clean water availability

<table>
<thead>
<tr>
<th>No</th>
<th>Elements/Sub elements</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Volume</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Distance from source</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Distribution piping</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Eligibility for consumption</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>Availability</td>
<td>30</td>
</tr>
</tbody>
</table>

Total 145

Total score (score x value (6)) 840
3.1.7 Security

Security can be assessed by calculating four elements resulting a total score of 425 which means it is included in the moderate category (Table 7). Security is related to the protection for tourists so they feel comfortable and protected while visiting the tourism object. The security of in Batu Burung Beach is still lacking due to disturbance from livestock that come from nearby settlements. In addition, fire incidents also occurred around the beach. The fire was indicated to be caused by natural factors, but the exact cause was still unknown. Until recently, tree felling has only been carried out by the surrounding community for personal purpose.

<table>
<thead>
<tr>
<th>No</th>
<th>Elements/Sub elements</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tourist safety</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>Wildfire</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Illegal logging</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Land use</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>85</strong></td>
</tr>
</tbody>
</table>

**Table 7. Security assessment**

3.1.8 Marketing

The assessment of marketing is based on marketing criteria. The total score of 60 shows that it is in the medium category (Table 8). One of the determinants of tourism objects development is its marketing. The increase in tourist visits can also be influenced by good tourism promotion. Batu Burung Beach still need to intensify the promotion effort since only few people know about the existence of this tourism object. The entrance fee to Batu Burung Beach is free. Visitors only need to pay Rp. 5,000 for motorbike parking and Rp. 10,000 for car parking.

<table>
<thead>
<tr>
<th>No</th>
<th>Elements/Sub elements</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marketing</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

**Table 8. Marketing of Batu Burung Beach**

3.1.9 Potential Supply Recapitulation of Batu Burung Beach

The assessment of all the criteria must meet all the elements that are taken into account as the initial assessment. The assessment of overall criteria resulting a final index of > 77.83%, it means that Batu Burung Beach is feasible to be further developed. Meanwhile, the lowest potential index value is gained by the marketing component with 50 score which falls in the range of > 33.3% - 66.6%, meaning that this criterion is not feasible to be developed (Table 9). Therefore, managers should optimize the dissemination of information or advertisements through various media, both print media and social media and other electronic media to increase the number of visits.

3.2 Potential Demand Analysis

The assessment of potential demand is carried out by analysing three parameters, namely: attitudes, tourist behaviour, and tourist ratings to the tourist object. This analysis method is known as ODTWA analysis, used to determine the existing potential and problems seen from the point of view of tourists. The needs of tourists during their visit is determined from this analysis.

3.2.1. Tourist Characteristics

The survey results for tourist characteristics found that the tourists consist of 71% men and 29% women. The average age of tourists is 11-20 years old for men and 21-30 years old for women. This age range is the age where people are more productive to do various activities, including traveling. The majority of tourists are from Singkawang City with by 86%, and others are from Pontianak City by 14%. This means that the travel distance also effects on tourist visits. The less travel distance and travel time, the more people interested to visit a tourist object.

Another determining factors is the ease of access to Batu Burung Beach, shown by the good condition of roads that already covered by asphalt. The only area that still covered by paving block is the entrance to the beach. The majority of tourists are students by 86% and 14% as private employees. Marital status shows that 86% are married and 14% are single. The tourists with income value > 500,000 are more dominant by 86%. This shows that low budget tourist objects, especially those with free entrance fee, are still very popular among tourists. Vice versa, tourism objects that offers many attractions but the ticket prices are expensive are tend not to be very popular among tourists as it only attracts tourists with high income.

3.2.2. Tourist Pattern

To analyse tourist pattern, the parameters are reason for visit, type of visit, transportation mode used, and source of information. The survey results show that tourists who planned their visit ahead by 57%, Tourists who visited in groups by 57%, by oneself by 14%, and couple by 29%. Meanwhile, the majority of transportation mode used consists of motorcycles by

Department of Civil Engineering, University of Tanjungpura
86%. The main source of information for tourists about Batu Burung Beach is from word of mouth by 86%. The results of this pattern of tourists indicate that the manager must provide all the necessary facilities to meet all the needs of tourists, such as shelters and places to eat and drink. Increasing the quality and quantity of new and unique attractions is necessary to make the tourists visiting again. The provision of facilities, especially for private vehicles, is also needed so that tourists feel safe and comfortable bringing private vehicles considering that there is no public transportation to get there. Dissemination of information is also needed, apart from word of mouth, promotions need to be enhanced through other media.

3.2.3. Tourist Motivation

Tourists can be interpreted as people or individuals who do recreation by visiting tourism objects (Goeldner and Ritchi, 2000). Tourist motivations can vary. A person's need or desire to be free from routine activities will form the motivation for tourism. Curiosity about a tourist objects that arises from tourists is caused by their motivation to travel (Athman and Monroe, 2004). The reasons for visits and activities are the motivational parameters of tourists. Based on this calculations, it is known that most tourists go on vacation for relaxation or to relieve fatigue indicated by 71%. While the activities carried out by tourists are intended to avoid themselves from routine activities which are indicated by 86%.

3.2.4 Tourist Rating

Tourists rating can be interpreted as tourist opinion about the condition and development of Batu Burung Beach. The tourists rating assessment consists of 5 aspects, namely: a). Aspects of attractiveness (addition of attractions, arrangement of the area, cleanliness of tourist objects, and safety of tourists), b). Aspects of accessibility (roads condition and directions), c). Aspects of supporting facilities (shelters, toilets, prayer rooms, gardens, parking lots, food stalls, souvenir shops, lodging, information boards, information centers, and clean water supply), d). Marketing aspects (social media and information brochures), e). Security aspects (security posts, security guards, and safety facilities).

3.3 Tourism Object Development

Batu Burung Beach has a potential value index of 77.83%, which means that this tourism object is feasible for further development. The development recommendations given are combination of the results of supply analysis, demand analysis and inputs from beach managers (interviews result) which are then classified according to the tourist assessment. The development to increase tourism potential in tourist objects is expected to achieve better tourism quality, increase on the number of visits, and positive impacts on the economy of the surrounding communities (Hidayat, 2011).

The agenda of tourism object development includes: increasing supporting facilities and infrastructure inside and outside the area, increasing accessibility to and from the tourism object area, as well as vigorous promotion and management.

3.3.1 Results of Potential Supply Analysis

The tourism supply consists of seven components, namely attractions, costs spent by tourists, accessibility, facilities, service, activities offered, and marketing (Kresic and Prezbazac, 2011). The tourism supply components are in accordance with the criteria for assessing the potential supply of Batu Burung Beach. The potential attractions for Batu Burung Beach are: a). Panorama of the island on the sea, b). There is a uniqueness, namely Batu Burung which is the icon of Batu Burung Beach, c). Various activities that can be enjoyed such as: swimming, fishing, boating, d). Suitable for fishing, e). Noise free, f). No impact from pollutants and waste, g). Clean water supply from the springs. h). Free entry

3.3.2 Results of Potential Demand Analysis

The inputs and suggestions from tourists play an important role in the development of a tourism object. It is interpreted as requests or demand by tourists in order to improve the quality of the tourist object. This quality improvement is performed in the form of procurement of attractions and new infrastructure as well as maintenance of existing infrastructure. The inputs and suggestions collected from the survey are such as, improving facilities, improving accessibility, and improving the cleanliness of tourism objects. All inputs and suggestions from tourists should be taken into account and correspond with sustainable tourism by preserving the natural environment of the beach.


The development of tourism objects needs to be done by the management team together with support from the government. The government can promote or further introduce the tourism potential of Singkawang City by holding annual routine activities such as festivals, exhibitions, Singkawang City Government Anniversary events, and sports tournaments. Promotion can also be done through print media such as: banners, billboards, billboards, pamphlets, and brochures. In addition, it can also be done by optimizing the function of the tourism ambassador of Singkawang City and the tourism communities in Singkawang City. Another active role of the government is to encourage culinary and hotel entrepreneurs in Singkawang City to always improve the quality of services.

The management team of the tourism objects need to improve the marketing, especially tourism promotion. It is expected that the potential of Batu Burung Beach
tourism object can be developed optimally so that it can increase tourists interest. With the increase in the number of tourists, it will also give positive impacts on improving the welfare of the surrounding community.

4. Conclusion

Eight criteria assessment were carried out based on the results of supply potential analysis. The assessment results show that seven criteria have feasibility index rate of >66.6%, meaning that it is feasible to be developed and only marketing that have feasibility index rate of 33.3%-66.6%, which is not feasible to be developed. The tourism potential of Batu Burung Beach has a total index value 77.83%, which means that Batu Burung Beach is feasible to be developed by improving the marketing criteria. The assessment of potential supply analysis shows that the criteria for attractiveness, accessibility, service management, infrastructure, availability of clean water, accommodation, and security of Batu Burung Beach are in high score which represent the criteria are well developed. While the marketing criteria receive a moderate score because it relates to the dissemination of information and promotions that is still lacking.

The results of the potential demand analysis show that the tourists expect an expansion of the tourism object area, widening of the entrance area, procurement of sign boards, addition of shelters, expansion of toilets and prayer rooms, addition of food stalls, as well as promotion by social media and information brochures.

5. Author’s Note

Writers declare that there is no conflict of interest regarding the publication of this article. Writers confirmed that the paper was free of plagiarism.

6. References


Department of Civil Engineering, University of Tanjungpura