Development Strategies of the Bahari Jawai Marine Tourism Coast Area Based on Community Empowerment in Sambas Regency

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Abstract. Tourism is an important sector that can increase coastal country's economies. The industry of tourism has been increasing in recent years and it can generate job opportunities, reduce outward migration, increase the income level, and improve the livelihood of local communities. This paper outlines the potentials and characteristics of natural and human resources as a proponent of the development of marine coast tourism based on community empowerment. This study aims to analyze the potential of resources and the suitability of tourism area which is supporting the attraction of tourists factor to come to Bahari Jawai beach and to develop a strategy for developing the marine tourism area of Sambas Regency based on natural resource potential, perceptions, participation, and aspirations of tourists and the community local. This research method is a descriptive method with the nature of a case study. Data collection was using observation and literature review and was analyzed with quantitative and qualitative analysis on each indicator. The development strategies in this study are 1). Strengthening marine tourism management; 2). Optimizing promotion and socialization on internet media; 3). Optimizing institutional roles in improving coastal security systems and health protocols; 4). Development of accessibility such as supporting facilities for coastal facilities and infrastructure.

1. Introduction
Tourism is an important and growing economic sector in numerous coastal countries [1]. Coastal and marine regions are highly productive also vulnerable to social-ecological systems [2, 3]. The social systems in the coastal and marine areas are often characterized by declining economic activity and an outmigration population. The ecological systems remain relatively unexploited. These systems are advantageous for tourism development [4]. Tourism can generate job opportunities and reduce outward migration. Moreover, it may increase the income level and improve the livelihood of local communities.

In Indonesia, the tourism sector is important in contributing to community development, especially coastal communities. The potential for marine tourism, especially natural resources is in the form of beaches and coral reefs. One of the provinces in Indonesia that has the potential for marine tourism is West Kalimantan Province, especially Sambas Regency which is located in the northernmost part of Malaysia. The coastline of Sambas Regency along 198.76 km has the potential to
be developed into a marine tourism area. The peak of tourist visits to Sambas Regency is in June and December. The following table is the tourist data entering Sambas Regency through the Aruk border gate and Sintete Port [5].

**Table 1.** Sambas Regency Tourism Statistics.

| No | Place     | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Des |
|----|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1  | Aruk Border | 1598 | 3443 | 2171 | 1465 | 1513 | 4492 | 1951 | 2445 | 1920 | 1540 | 1747 | 3351 |
| 2  | Sintete Port | 137  | 122  | 139  | 208  | 292  | 1434 | 963  | 462  | 412  | 280  | 998  | 1129 |

Indonesian tourism comes from people, by people, and for people. Therefore, in planning for tourism development, it is necessary to involve local communities around tourist destinations who are more aware of the condition of potential destinations in their area [6]. Bahari beach, which is located in Jawai Laut Village, South Jawai District, Sambas Regency, is a new tourist destination that is managed independently by the community. This marine tourism site was originally an unmanaged forest. At the end of 2019, the community began to independently manage the place then it started operating and opened to the public in early 2020. After a few months after the operation, local and foreign visitors came to the number of approximately two thousand visitors every week. The spread of the Coronavirus disease 2019 (Covid-19) which is endemic throughout the world and even to Indonesia has resulted in a drastic decrease in the number of tourists and income from the tourism sector. The new normal policy must be supported by a strong commitment from all stakeholders so that the implementation of the tourism sector continues to run well according to the protocol of the COVID-19 task force so that it can contribute to regional development and improve the welfare of the local community amid declining public interest in the tourism sector during the COVID-19 pandemic, 19 which is endemic in Indonesia and the world.

The purpose of this study is to analyze the potential resources that are supporting factors for attracting tourists to come to Bahari Beach and develop strategies for developing the Bahari Beach tourism area, Sambas Regency. The urgency of this research is to provide an overview of the strategy for developing coastal tourism areas based on the characteristics of potential natural resources and empowering local communities that have not been managed optimally of the coastal marine tourism area in Sambas Regency specifically during the COVID-19 pandemic.

Based on the description above, the potential of the Maritime Coast of Sambas Regency as a new tourism sector needs to formulate a strategy to develop Jawai marine tourism beaches based on local community empowerment and also as a reference or consideration for the government to develop programs and policies for the tourism sector during the COVID-19 pandemic.

2. **Method**

This research was carried out from March 2021 to July 2021 at the Jawai Bahari Beach, Jawai Laut Village, South Jawai District, Sambas Regency. The trip was taken by land and sea with a time of ± 2 hours from Sambas City. The choice of research location was carried out purposively with the consideration that Bahari Beach was a beach that had just been opened to the public in early 2020 before the covid-19 pandemic. The tools and materials used in this study include stationery, cellphone cameras, cellphone stopwatches, secchi disks, roll meters, van veen grabs, pimpong balls, and measuring sticks.
2.1 Data collection technique

Primary data collection was carried out directly on the beach by purposive sampling, namely based on the representation of the area used in general by visitors and managers. This study aims to describe and consider land using a matrix to plan beach tourism that changes from the beach tourism category [7, 8, 9, 10].

Table 2. Matrix of compatibility versus beach leisure tourism.

| No | Parameter                        | Value | Categories                              | Score |
|----|----------------------------------|-------|-----------------------------------------|-------|
| 1  | Beach type                       | 0,200 | White sand                              | 3     |
|    |                                  |       | White sand mixed with coral fragments   | 2     |
|    |                                  |       | Black sand, a little steep              | 1     |
|    |                                  |       | Mud, rocky, steep                       | 0     |
| 2  | Beach width (m)                  | 0,200 | >15                                      | 3     |
|    |                                  |       | 10-15                                    | 2     |
|    |                                  |       | 3 - <10                                  | 1     |
|    |                                  |       | <3                                       | 0     |
| 3  | Water base material              | 0,170 | Sand                                     | 3     |
|    |                                  |       | sandy coral                             | 2     |
|    |                                  |       | Muddy sand                              | 1     |
|    |                                  |       | Mud, gritty mud                        | 0     |
| 4  | Water depth (m)                  | 0,125 | 0-3                                      | 3     |
|    |                                  |       | >3-6                                     | 2     |
|    |                                  |       | >6-10                                    | 1     |
|    |                                  |       | >10                                      | 0     |
| 5  | Water brightness (%)             | 0,125 | >80                                      | 3     |
|    |                                  |       | >50-80                                   | 2     |
|    |                                  |       | 20-50                                    | 1     |
|    |                                  |       | <20                                      | 0     |
| 6  | Current speed (cm/s)             | 0,080 | 0-17                                     | 3     |
|    |                                  |       | >17-34                                   | 2     |
|    |                                  |       | >34-51                                   | 1     |
|    |                                  |       | >51                                      | 0     |
| 7  | Beach slope (°)                  | 0,080 | <10                                      | 3     |
|    |                                  |       | 10-25                                    | 2     |
|    |                                  |       | >25-45                                   | 1     |
|    |                                  |       | >45                                      | 0     |
| 8  | Beach land closure               | 0,010 | Coconut, open land                      | 3     |
|    |                                  |       | Bush, thicket, low, savanna             | 2     |
|    |                                  |       | High Scrub                              | 1     |
| 9  | Dangerous biota                  | 0,005 | There is not any                        | 3     |
|    |                                  |       | Sea urchins                            | 2     |
|    |                                  |       | Sea urchin, stingray                    | 1     |
|    |                                  |       | Sea urchins, stingrays, lions, sharks    | 0     |
| 10 | Availability of fresh water/distance to freshwater sources (km) | 0,005 | <0,5                                     | 3     |
|    |                                  |       | >0,5-1                                   | 2     |
|    |                                  |       | >1-2                                     | 1     |
|    |                                  |       | >2                                       | 0     |
2.2 Land Suitability Analysis

The suitability of resource land is highly required for the development of coastal tourism. The suitability of beach tourism in the recreation category considers ten parameters, namely beach type, beach width, basic material, depth (meters), brightness, current speed (m/s), beach slope, coastal land cover, hazardous biota, and freshwater availability (Km) with four assessment classifications [10].

The formula used to calculate the marine tourism suitability index is

\[ IKW = \sum_{i=1}^{n} (Bi \times Si) \]

where:
- \( n \) = Number of suitability parameters
- \( Bi \) = value parameter
- \( Si \) = score parameter

2.3 SWOT Analysis

SWOT analysis is the identification of various factors systematically to formulate a strategy for developing the coastal marine tourism area. This analysis is based on the logic that can maximize Strengths and Opportunities, but simultaneously minimize Weaknesses and Threats. SWOT stands for Strengths and Weaknesses internal environment and Opportunities and Threats external environment. SWOT analysis compares external and internal factors [11].

3. Result and Discussion

3.1 Land Suitability

Land suitability analysis aims to determine the spatial suitability of coastal tourism land using the concept of land evaluation. Based on the results of the study in table 2, it can be seen that the parameters of the suitability of resources for beach recreation are as follows:

| No | Parameters                  | Maritime Beach Conditions                       | Value | Score | IKW  |
|----|-----------------------------|-------------------------------------------------|-------|-------|------|
| 1  | Beach type                  | White sand mixed with coral fragments           | 0,200 | 3     | 0,600|
| 2  | Beach width (m)             | 29,0575 m                                      | 0,200 | 3     | 0,600|
| 3  | Water base material         | Muddy sand                                     | 0,170 | 1     | 0,170|
| 4  | Water depth (m)             | 0,725                                           | 0,125 | 3     | 0,375|
| 5  | Water brightness (%)        | 0,13                                            | 0,125 | 0     | 0    |
| 6  | Current speed (cm/s)        | 7,9425                                          | 0,080 | 3     | 0,240|
| 7  | Beach speed (°)             | 1,9                                             | 0,080 | 3     | 0,240|
| 8  | Beach land closure           | Coconut, open land                             | 0,010 | 3     | 0,030|
| 9  | Dangerous biota             | Jellyfish, snakes, stingrays, sea urchins       | 0,005 | 1     | 0,005|
| 10 | Availability of fresh water (Km) | 0,100                                        | 0,005 | 3     | 0,015|
|    | Total IKW                   |                                                 |       |       | 2,275|

The tourism suitability value is classified into four categories, namely: 'highly suitable' (IKW 2.5), 'suitable' (2.0 IKW < 2.5), 'unsuitable' (1 IKW < 2.0), and 'highly unsuitable' (IKW < 1) (Yulianda,
Based on the results of observations of 10 parameters of the suitability of coastal recreational tourism, it can be categorized as 'suitable'. This is the basic capital in the development of the new Jawai Bahari Beach tourist location into a tourist location in Sambas Regency. The following is a detailed explanation of the 10 parameters of the tourism suitability index (IKW) of the Jawai Bahari Beach.

### 3.1.1 Beach Type
Determination of the type of beach by direct visual observation, namely by observing the type and color of the sand. The type of beach is closely related to the basic material or substrate of the beach and the waters. Based on the type, the beach is divided into sandy beaches, rocky beaches, and rocky beaches [9]. In addition, a sandy beach is a beach dominated by black, gray, or white sand [12]. Determination of each type is based on the type of substrate from the basic material of the beach that visually on the Jawai Bahari Beach the basic material is in the form of white sand or sandy type. White sand does not easily absorb sunlight so it does not cause a feeling of heat when carrying out activities [13]. This type of beach and sandy bottom is more suitable for tourist activities than muddy or rocky beaches [14] based on indicators from [7, 8, 9, 10] that this type of beach is quite suitable as a beach recreation area.

### 3.1.2 Beach width
Measurement of beach width using a roll meter starts from the lowest low tide limit with the distance between the last living vegetation on the beach [9]. This measurement is carried out to determine the area that can be used by visitors for recreation and other activities [15]. Based on the measurement results show that the average beach width is 29 meters. The width of the beach greatly affects the activities of visitors. The wider it is, the better and vice versa if the width of the beach is small, the visitors will not feel free to carry out activities, especially when the atmosphere is crowded with visitors [16].

### 3.1.3 Basic materials
Determination of the water base material using a vanVeen grab tool than direct observation of the sand substrate and then classifying it into the type of sand or rocky sand [12, 23]. Observation of the substrate or basic material of the Jawai Marine Beach is carried out visually or direct observation by taking some of the water-based material. The constituent material is sand and some coral fragments and shells of bivalves class animals. The bottom substrate of the water is an important parameter for the comfort of visitors in water activities [9]. The fine sand will provide comfort and footing, especially for visitors who do not use footwear when playing in the water.

### 3.1.4 Water depth
Measurement of water depth using a measuring stick with the determination of the measurement location is 50-100 meters from the shoreline. Measurements into the waters use a measuring stick of 3 meters which are then plugged into the bottom of the water to see the water level that intersects with the scale of the measuring stick. Based on the results of measurements of the depth of the waters of the Jawai Bahari Beach is 0.725 meters. The visitors usually swim at a depth of no more than 1.5 meters because it is related to swimming safety [14].

### 3.1.5 Water brightness
The brightness of the waters was measured using a secchi disk, the results obtained that the brightness of the Jawai Bahari Beach was 0.13%. The results of this measurement show that the waters are not following the indicators which should range from 50-80% [10, 17]. Even though the state of the waters
with a high level of brightness allows tourists to see underwater scenery which is an important point for coastal tourism locations [17]. The influence of the brightness of waters can be caused by several factors, such as climate (high intensity of rain) which makes the water cloudy [17] as well as water carrying in the form of the sand substrate from downstream and upstream of the river.

### 3.1.6 Current speed

Security is one of the important factors in beach tourism. One of the factors that make tourists unsafe is the speed of the current. The current velocity that is too high can endanger the safety and security of visitors [9] especially tourist sites that do not have monitoring officers. The results obtained from measuring the current speed are 7.9426 m/s. Although the current speed is not too high [10] different things that the classification of current speed consists of 4 categories, namely the category of slow currents with speeds in the range of 0-0.25 m/s, categories of medium currents with speeds in the range of 0.25 -0.50 m/s, category of fast current with speed in the range of 0.5-1 m/s and category of very fast current with speed above 1 m/s [14].

### 3.1.7 Beach slope

The process of forming a coastal slope is influenced by several factors, one of which is natural factors such as waves, currents, and substrates carried by currents [18]. Measurement of the coastal slope is an important indicator for the suitability of coastal tourism. The slope of the beach is related to the safety of visitors to carry out beach recreational activities [15]. Measurement of beach slope using a roll meter, stick, and rope. Then the measurement results are entered into the formula that refers to [19]. The measurement results show that the slope of the Jawai Sea Coast is 1.0150. This type of beach is a flat beach, so it is suitable for beach tourism. The type of beach is divided into four types, namely flat beaches, sloping beaches, steep beaches, and steep beaches. Each determination value of the beach is < 10° for flat beaches, 10 - 25 ° for sloping beaches, > 25-45° for steep beaches, and > 45° for steep beaches [7].

### 3.1.8 The closure of coastal land

The closure of coastal land in the Jawai Bahari Beach tourist area varies, namely there are residential houses located approximately 100 meters from the beach, open land, and coconut trees. Based on observations from the location, it shows that the land cover of the Jawai Bahari Beach is mostly overgrown with coconut trees and open land. The open land around the beach is also used by some business actors to build a family playground. Based on the land suitability matrix for beach tourism in the recreational category, a coastal land cover parameter can be said to be very suitable if it has coastal land cover in the form of coconut and open land [10]. This shows that the Jawai Bahari Beach has a coastal land cover that is very suitable for beach tourism in the recreational category for swimming activities.

### 3.1.9 Dangerous biota

Determination of the category of dangerous biota by observing directly the biota in the Jawai Bahari Coast. At the time of sampling the biota, it was examined with indicators of dangerous biota such as sea urchins, stingrays, sea snakes, and venomous fish. Dangerous biota is an important factor in coastal tourism. The less dangerous biota found in a tourist location, the better the tourist location will be. From the results of observations made at the Bahari Jawai Beach, several dangerous biotas were found, such as sea urchins, jellyfish, and snakes. Thus, the parameters of dangerous biota are a concern for visitors to travel.
3.1.10 Availability Fresh Water

The availability of freshwater for tourist visitors is used for self-cleaning or toilet needs. The availability of freshwater is very important in supporting tourism activities. Based on the results of the measurement of the distance of the freshwater source from the beach, the distance is 50-100 meters from the beach. The land suitability matrix for the beach tourism category, beach tourism can be said to be very suitable if it has a distance of freshwater availability <0.5 Km [10].

3.2 SWOT Analysis

Based on the results of the analysis of the potential of natural resources, both land suitability and tourism carrying capacity as well as the participation, perception, and aspirations of tourists and local communities, there are several internal factors (strengths and weaknesses) and external factors (Opportunities and obstacles).

3.2.1 Internal Factors

The strength factor obtained based on the results of observations at the location is 1). The potential of natural resources is very suitable for tourism activities; 2). Tourism carrying capacity; 3). The existence of Pokdarwis institutions; 4). Local Community Commitment. The product of the natural beauty of Bahari Beach is the main attraction for visitors who come. Tourism activities at Bahari Beach were originally built based on the local community's self-help. The commitment of local community groups is the main capital of the establishment of this tourist beach. Previously, the marine coast was an unmanaged forest. This is supported that tourism management to realize sustainable tourism based on community empowerment needs to pay attention to several aspects, especially the development of human resources to support community-based tourism [20]. In addition, local communities who are members of the tourism awareness group (POKDARWIS) in terms of maintaining and supporting beach tourism activities have a schedule for cleaning the beach. Every morning from 6 to 7 people do beach cleaning and it is more intense on weekends or national holidays before tours are opened to the public.

Weakness factors that can affect the development of the Jawai Beach Coastal area are 1) Lack of promotion and cooperation 2) Road access is not adequate; 3) Internet access is still weak; 4) Lack of skilled tourism personnel. Jawai Bahari Beach, which is ± 46.5 Km from the capital of Sambas Regency, is reached in ± 1 Hour 37 Minutes across the Sambas Besar River with access to some roads that are still damaged and village roads that have not been paved. Internet access around the beach is still weak, sometimes the signal is lost. This can hinder the activities of tourists on the beach. Apart from the weakness of accessibility, no less important is the availability of skilled human resources as tourism managers. Management of tourism, such as a business to survive, training, and education for its workforce are very important [21]. The need for skilled human resources based on the marine tourism development plan in managing and utilizing the existing potential to increase visits and increase visitor satisfaction. In the current digital era, promotion and socialization strategies are very important. For the marine coast of Java, there are no media from the manager as a promotion and socialization of the marine coast. Promotion is still limited to word of mouth and some testimonials from visitors who have made tourist visits through social media.

3.2.2 External Factors

The probability factors obtained from the research results are 1) Support from local government; 2) The enthusiasm of the surrounding community for tourism is quite high; 3) The Sambas Regency area is located on the Indonesia-Malaysia border. The Jawai Laut Village Government supports the development of Jawai marine coastal ecotourism. Granting permits for tourism activities. Another support from the government is the plan to build a bridge on the big Sambas river which can facilitate...
access to the location, this can increase people's motivation to visit. The Jawai Bahari Beach has not been included in the 2015-2035 Sambas Regional Spatial Plan (RTRW) because this beach was just opened in early 2020. However, the development is dominated by the community. The form of community-based tourism development has its advantages such as; creation of wider employment opportunities for the community, supporters of cultural preservation, a more secure belief in efforts to preserve local community resources, and the existence of economic benefits that are directly enjoyed by the community [22].

Barrier factors that can affect the development of the Marine Coast area are 1) The threat of rainy season waves and Jellyfish Season; 2) Covid-19 pandemic period; 3) Potential conflicts of interest; 4) Management of tourism area development has not been integrated. The rainy season in West Kalimantan in October-March every year has an impact on high waves which also affect activities around the coast. In early 2021, high waves damaged several marine beach facilities in the moderately and heavily damaged categories. This tourist attraction is relatively new but has many visits from the people of Sambas Regency and from outside the City of Sambas also sometimes stranded jellyfish which often stings the visitors while enjoying activities on the beach. In addition, the problem that is quite hampering recreational activities at the marine beach is the COVID-19 pandemic. During the Covid-19 pandemic, the government made 3M health protocol regulations. Where people keep their distance The PSBB and PPKM rules that are enforced limit the public from visiting tourist objects until the closure of recreational areas. Moreover, the holiday moment is used by visitors to take a vacation to the Marine Beach. This is a big job for the management of the Javan maritime coast to make a strategy to attract visitors during the covid-19 period. Then from that, an important concern is the absence of a grand design for the development of the area owned by the Jawai Bahari Beach. Management is still in the method of plots individually by certain individuals and groups.

Based on external and internal factors, the strategies that can be done are 1) Strengthening marine tourism management; 2) Optimizing promotion and socialization on internet media; 3) Optimizing institutional roles in improving coastal security systems and health protocols; 4) Development of accessibility such as supporting facilities for coastal facilities and infrastructure.

4. Conclusion
The results showed that the suitability of the Jawai marine beach for beach tourism activities was included in the highly suitable category where the average suitability index of the area (IKW) was 2.275, meaning the beach was very suitable for beach recreational activities. Strategies that can be done are 1) Strengthening marine tourism management; 2) Optimizing promotion and socialization on internet media; 3) Optimizing institutional roles in improving coastal security systems and health protocols; 4) Development of accessibility such as supporting facilities for coastal facilities and infrastructure.

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