

Feasibility study of Sendang Sikucing Beach as a new ecotourism object in Central Java, Indonesia

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ABSTRACT

Coastal area has a great potential to be developed into an ecotourism object, one of which is a coastal area in the village of Sendang Sikucing, Regency of Kendal. The area has a wide variety of biological and non-biological resources, along with a beautiful beach. Unfortunately, Sendang Sikucing coastal area had not been optimized as an ecotourism object. In fact, the development of Sendang Sikucing Beach can lead to society welfare and to increase the Village Own-source Income (PADes) and Local Own-source Income (PAD). This study aims (1) to analyze the feasibility of Sendang Sikucing Beach as an ecotourism object and (2) to formulate its development strategies. The method used is Tourism Suitability Index (in Indonesia Indeks Kesesuaian Wisata, IKW) analysis and SWOT Analysis. The results showed that Sendang Sikucing Beach received the title of Very Good (S1) and was very feasible to be developed as an ecotourism object. The strategy applied in its development is Stable Growth Strategy, which is growing gradually. Steps can be implemented in the area as follows to provide tourist facilities, promotion media transformation, and to build some breakwaters. Thus, Sendang Sikucing Beach can be an optimal coastal area for the economic development of local area.

Key words : Beach, Development strategy, SWOT, Tourism, Tourism Suitability Index.

Introduction

Indonesia is a maritime country consisting of thousands of large and small islands and has a vast coastal area (Amri *et al.*, 2019). This condition leads to the large potential in the tourism sector. The object of tourism in coastal areas has some potential development prospects for its natural beauty offer (Fithor *et al.*, 2020). Therefore, the existence of coastal areas should be managed properly.

The development of tourism industry is one of the strategies used to improve the economy and job opportunities (Yulisa *et al.*, 2016). The tourism sector in Indonesia also contributes to development activi-

ties (Chasanah *et al.*, 2017), especially coastal areas with various natural resource potentials (Bengen, 2010; Bibin *et al.*, 2017; Effendy, 2009; Herbst *et al.*, 2020).

One of the coastal areas which has potential to develop coastal ecotourism located in the Village of Sendang Sikucing, District of Rowosari, Regency of Kendal. This area has been promoted since 2012 and publicly opened in 2013 (Iswidodo, 2020). The type of tourism intensely promoted is recreational ecotourism.

Nonetheless, the number of visitor in the Village of Sendang Sikucing coastal area experienced a decline in 2019 to 7.29%. Based on data from the Statis-

tics Indonesia (BPS) of Regency of Kendal, the number of visitors in 2018 recorded as many as 59.908 people, and declined in 2019 to 55.543 people. It resulted to the decreasing of tourism sector income in the Village of Sendang Sikucing in the amount of IDR 19.23 million (5.87%).

Table 1. Number of Visitor and the Income of Sendang Sikucing Village 2018-2019

Visitor (persons)		Income (thousand rupiah)	
2018	2019	2018	2019
55.543	59.908	308.700	327.934

Source: (BPS, 2020).

The calculation did not include losses which caused to decreases income of society around the tourism object, since one of the aims of tourism existence in coastal areas is to increase society welfare (Fithor *et al.*, 2020; Rhormens *et al.*, 2017). Another aim is to overcome unemployment (Citra *et al.*, 2020; Mallick *et al.*, 2020), reducing poverty, and increasing regional economic growth (Fithor *et al.*, 2020). It has been proven in several countries that the implementation of ecotourism sector development to become one of the aspects of regional development (Arsia *et al.*, 2017; Novitasari *et al.*, 2019; Nugraha *et al.*, 2013). Tourism development needs to be done for each region in Indonesia in order to achieve this goal.

The phenomenon shows that Sendang Sikucing coastal area has not been properly and optimally managed to be able to become a centre of tourism in the Village of Sendang Sikucing. In fact, it needs a proper management and good packaging of a tourism object in an area to be able to compete with another tourism objects in the entire region (Chasanah *et al.*, 2017). An integrated development is also required to develop a new tourism object which is rich in heritage resources and potential tourist destination (Datzira-Masip, 2007).

On the other hand, Sendang Sikucing Beach is also flanked by two rivers flowing into the input of sediment into the region. When the west monsoon arrives, Precipitation will increase and cause sediment input into the area to be high so it is very risky to be overflowed sedimentation. This uncontrollable natural condition takes a negative effect on the tourism area in a region (Christian, 2018). Thus, it affects the convenience and flexibility of visitors in a traveling or visiting the coastal area.

Therefore, this research is important in concern to measure and to assess the feasibility of Sendang Sikucing Beach for exploration into a recreational tourist area. In addition, this study also analyses the tourism development strategy of Sendang Sikucing Beach to be able to be one of the income source in the Village of Sendang Sikucing and being a centre of tourism in Kendal generally.

Materials and Methods

The study was conducted in the Village of Sendang Sikucing coastal area, District of Rowosari, Regency of Kendal, Central Java. The distance from the village to the district centre is as far as 22 km. The beach location is not too far from the city centre and the availability of proper transportation access makes this beach has the potential to be developed.

The study was conducted in two stages over a period of four months starting from April to August 2020. The first stage of research was data collection, followed by the second stage of data processing. Sources of data in the study were obtained through collection of primary data and secondary data. Primary data used in this research as followed beach width, sediment, precipitation, and tourism suitability based on its indicators. Meanwhile, the secondary data used as followed socio-economic data and the demographics of the Village of Sendang Sikucing and the Regency of Kendal.

An assessment of the feasibility of ecotourism object was measured through Tourism Suitability Index (TSI) consisting of 10 parameters. TSI assessment parameters are shown in Table 2.

After the assessment of tourism object were carried out according to researchers' sensing, then TSI scoring and assessment were calculated. Assessment of TSI were calculated by dividing total score by the maximum value resulted, and then the value was converted into a percentage. The parameter values were obtained by multiplying the weight by the score of each parameter. Meanwhile, the maximum value obtained from the scoring was 84. TSI mathematical formula of TSI can be seen in equation (1).

$$TSI = \left(\frac{\sum Ni}{NMax} \right) \times 100\% \quad .. (1)$$

Description:

TSI = Tourism Suitability Index

Ni = Parameter value of-i (weight x score)

NMax = Maximum value of calculation

Results of TSI assessment can be classified into

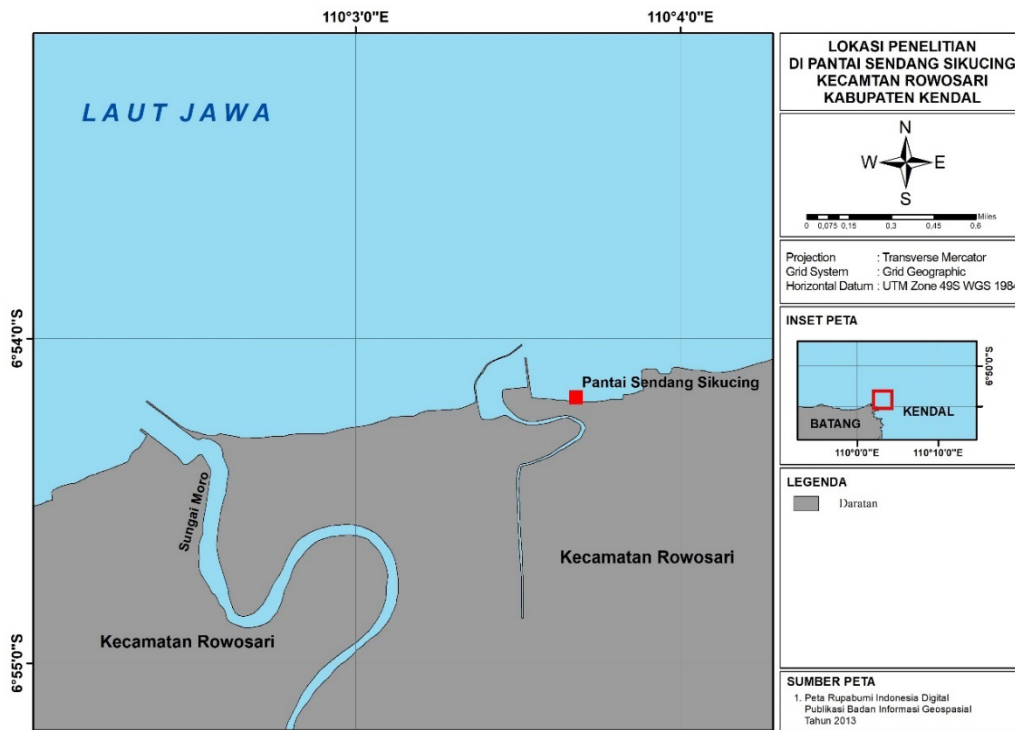


Fig. 1. Research Location of The Village of Sendang Sikucing Coastal Area, District of Rowosari, Regency of Kendal. Source: primary data, processed 2020.

Table 2. Tourism Suitability Index (TSI) Assessment Parameters

No	Parameter	Weight	Category S1	Score	Category S2	Score	Category S3	Score	Category NS	Score
1.	Water depth (m)	5	0 – 3	3	>3 – 6	2	> 6-10	1	> 10	0
2.	Type of beach	5	White sand	3	White sand, few crag	2	Black sand, craggy, slightly steep	1	Mud, rocky, steep	0
3.	Beach width (m)	5	>15	3	10 – 15	2	3- <10	1	<3	0
4.	Seabed materials	3	Sand	3	Sandy crag	2	Muddy sand	1	Mud	0
5.	Stream velocity (m/s)	3	0-0.17	3	0.17-0.34	2	0.34-0.51	1	>0,51	0
6.	Beach slopes (°)	3	<10	3	10-25	2	>25-45	1	>45	0
7.	Water brightness (m)	1	>10	3	>5-10	2	3-5	1	<2	0
8.	Coastal land covers	1	Coconut, open land	3	Low shrubs, savanna	2	High shrubs	1	Black settlement, mangroves, port	0
9.	Hazardous biota	1	None	3	Sea urchins	2	Sea urchins, stingrays	1	Sea urchins, stingray, lepu, sharks	0
10.	Availability of fresh water	1	<0.5 km	3	>0.5-1 km	2	>1-2	1	>2	0

Source: (Yulianda, 2007).

four categories, namely S1, S2, S3, and NS. The criteria of each classification can be seen in Table 3.

Another method used in this research was SWOT Analysis. SWOT Analysis is a tool of matching inter-

ests that can assist managers in determining a strategy to observe the strengths, weaknesses, opportunities and threats faced by an institution (David and David, 2017).

Table 3. TSI Assessment Classification

Notation	Category	Value Limit	Description
S1	Perfectly Suitable	80-100%	Has no severe limiting factor for a particular sustainable use
S2	Suitable	60-<80%	Has a slightly heavy limiting factors for a certain sustainable use of activities and will affect the productivity of tourism activities
S3	Conditionally Suitable	35-<60%	Has more limiting factors to fulfil and will reduce the productivity of tourism activities
NS	Not Suitable	<35%	Has a permanent limiting factor, it is impossible to develop sustainable tourism activities.

Source: (Yulianda, 2007).

In a SWOT Analysis, internal factors and external factors are obtained from the condition described by the informant. The internal factors are the analysis of the components of the strengths and weaknesses in the institution. The existence of weaknesses and strengths leads to the formation of special competencies and competitive advantages of institutions or companies. The strengths of the company which cannot easily be adapted or replicated by other competitors called special competencies. The strategies are designed as part of developing the institutional weaknesses, to make it as strengths, and even being special competencies. Components included in the internal factors as follows: 1) information management; 2) marketing; 3) finance and accounting; 4) production and operation; 5) research and development (R&D); and 6) Management Information Systems (MIS) of the company.

Meanwhile, external factors need to be analysed in order to develop a number of opportunities that can be utilized by the company and threats that should be avoided. Factors developed are important variables to respond by action, so it does not have all the components analysed. The important thing to note in the external analysis is to ensure that these factors are specific and quantifiable, so that prior strategies will be made empirically and meaningful. Component in the external analysis, as follows: 1) aspect of economic; 2) aspects of cultural, social, demographic, and environmental; 3) the aspect of political, government, and law; 4) aspect of technology; and 5) aspect of competition.

Results

The sediment distribution data is the data of surface sediment as the result of sediment estimation using algorithm. The recording results of sediment distri-

bution which represented sediment patterns during east monsoon and west monsoon of the year 2015, 2017, and 2019 shown in Figure 2.

Figure 2 shows that during the west monsoon, the values of the surface sediment were a lot more than during the east monsoon. Such conditions can cause coastal tourism land to be reduced and the comfort of tourism visits to be disrupted.

The estimation results of satellite imagery shown in Figure 2 indicates that the coastal area of Sendang Sikucing Beach has suspended solid materials of about 0-50 mg/l in the east monsoon and around 150-250 mg/l in the west monsoon. It is presumably due to the different intensity of precipitation between west monsoon and east monsoon (Table 4).

Table 4. Precipitation Data in Sendang Sikucing Beach

No	Period of Time	Precipitation intensity (mm/day)
1	West Monsoon 2015	1178,595
2	East Monsoon 2015	26,48
3	West Monsoon 2017	1134,105
4	East Monsoon 2017	125,785
5	West Monsoon 2019	1204,305
6	East Monsoon 2019	13,263

Source: Primary data processed, 2020.

The highest precipitation occurred in the west monsoon in 2019 with a value of 1204.305 and the intensity of the lowest precipitation occurred in eastern monsoon in 2019. The intensity of precipitation causes the distribution pattern of sediments in Sendang Sikucing Beach. It is due to the large river near the region. This river can carry sediments from the mainland when the water volume of the river increases due to rain.

The estimation result of imagery satellite also indicated that the distribution of suspended solid

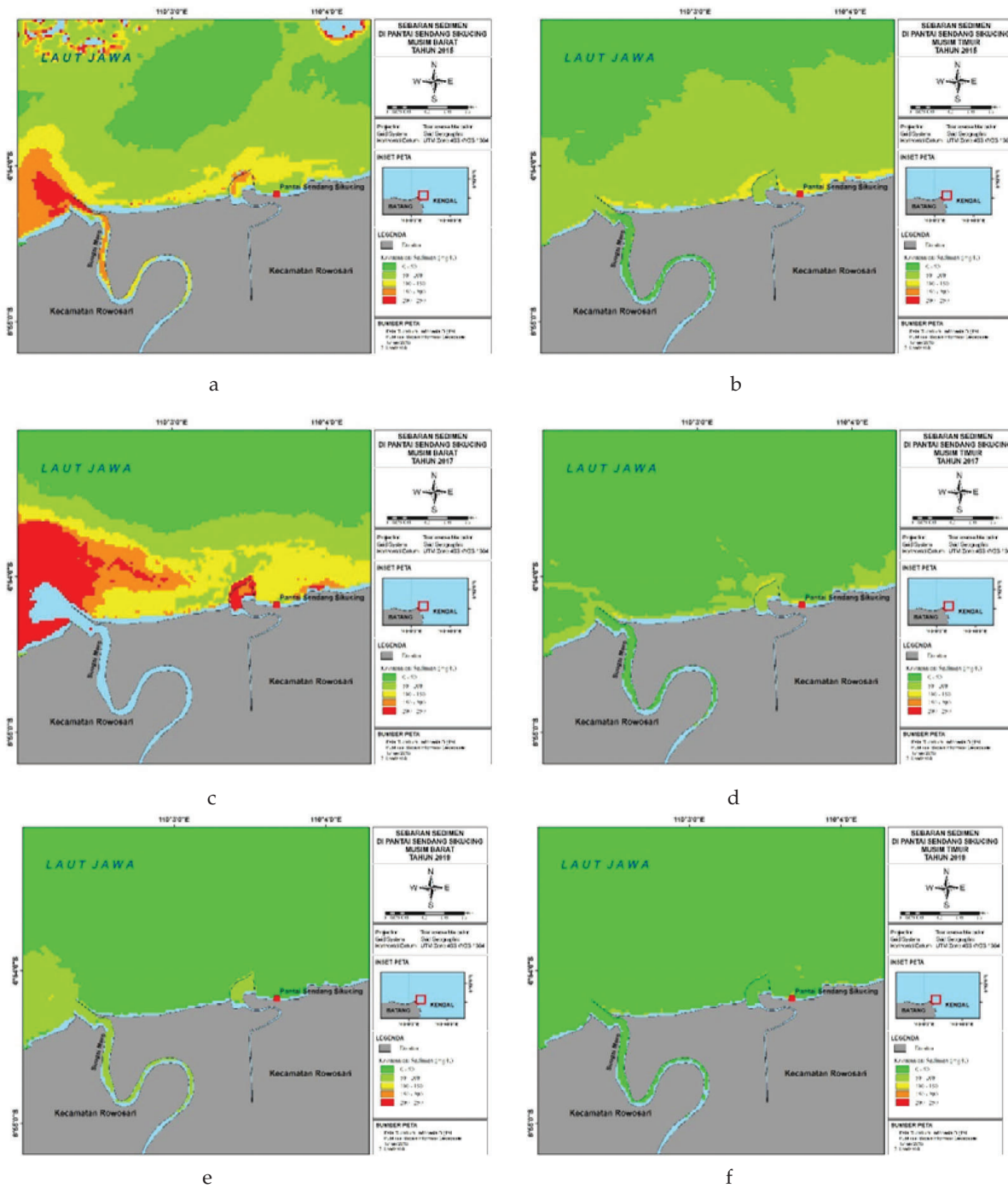


Fig. 2. Distribution of Sediment in Sendang Sikucing Beach. a) west monsoon in 2015, b) east monsoon in 2015, c) west monsoon in 2017, d) east monsoon in 2017, e) west monsoon in 2019, f) east monsoon in 2019. Source: Primary Data, processed 2020.

materials mostly located on the west coast. It is due to the existence of large river on the west coast which supplies most of suspended solid materials in the area. The large amount of suspended solids ma-

terial causes several negative impacts on tourist areas, including sedimentation, abrasion, water turbidity, and others.

Field observations indicated that Sendang

Sikucing Beach potentially had low sedimentation. It could be seen from the position of the Moro River estuary (Figure 1) that led to the west caused by the built of coastal construction. The position of the Moro River estuary affected the distribution of suspended solid materials away from the shore (Figure 2). Abrasion can be another danger possibly occurs in the coastal area of Sendang Sikucing which is influenced by high waves in the area by the high range of 0.5 meter.

Discussion

Tourism Feasibility Test

The tourism feasibility of Sendang Sikucing Beach was measured using the Tourism Suitability Index

(TSI) developed by Yulianda (2007) by considering 10 criterias, including water depth, type of beach, beach width, seabed materials, stream velocity, beach slopes, the brightness of the waters, coastal land covers, hazardous biota, and the availability of fresh water.

The calculation result of tourism suitability of Sendang Sikucing Beach shown on the Table 5.

Based on Table 5, the total of the Tourism Suitability Index (TSI) showed a value of 71. In percentage, the value of TSI of Sendang Sikucing Beach was 84.52%. According to the value of TSI, Sendang Sikucing Beach classified in the category of Very Good (S1) for value of TSI was on the range of 80-100%. These results indicated that Sendang Sikucing Beach is feasible as a coastal recreational tourism.

Table 5. TSI Assessment Result of Sendang Sikucing Beach

No	Parameter	Result	Weight	Score	Value
1	Water depth	1 meter	5	3	15
2	Type of Beach	Black sand	5	1	5
3	Beach width	20 meters	5	3	15
4	Seabed materials	Sand	3	3	9
5	Stream velocity	0,01 m/s	3	3	9
6	Beach slopes	3,4 ^o	3	3	9
7	Brightness of water	0,6 meter	1	0	0
8	Coastal land covers	Sea WARU, Sea Spruce, Open land	1	3	3
9	Hazardous Biota	-	1	3	3
10	Availability of fresh water	< 100 meters	1	3	3
		SUM			71

Source: Primary data processed, 2020.

Table 6. Internal Factor Analysis (IFAS)

No	Internal Factor (IFAS)	Score	Weight	Sum
	Strengths (+)			
1.	Feasible to be coastal recreational area	4	0,090	0,358
2.	Strategic location and accessible	2	0,065	0,130
3.	Sandy beach	3	0,083	0,250
4.	Affordable entrance ticket	4	0,105	0,420
5.	Adequate parking lot	4	0,077	0,309
	Weaknesses (-)			
6.	Decreased number of visitors 7,29%	4	0,114	0,457
7.	Decreased tourism revenue 5,87%	3	0,102	0,306
8.	High waves	3	0,083	0,250
9.	None of tourism facilities (toilets, places of worship, and souvenir centers)	3	0,108	0,324
10.	Lack of information boards for directions from the main road	4	0,090	0,358
11.	Traditional marketing scheme	3	0,083	0,250
	TOTAL		1	-0,48

Source: Primary data processed, 2020.

SWOT Analysis

SWOT Analysis was done by compiling in detail the components of strengths, weaknesses, opportunities, and threats of Sendang Sikucing beach as a development object of coastal recreational ecotourism. The results of internal and external analysis of the development of Sendang Sikucing Beach as a tourism area can be seen in Table 6 and 7.

The calculation of SWOT Analysis for internal factors showed the value -0.48. This value was obtained from the subtraction between strengths (1,466) and weaknesses (1,944). The negative value of internal factors was caused by the greater value of weaknesses than the strengths. It showed that the aspect of weaknesses of Sendang Sikucing Beach were a lot more than the aspect of strengths. Thus, it requires a comprehensive strategy for Sendang

Sikucing Beach to be developed.

Component of the aspect of strengths with the highest value of SWOT Analysis calculation was affordable entrance ticket price which was only around IDR 5.000,- up to IDR 10.000,-. The price was considered affordable than any other tourism objects around the area. Meanwhile, component of the aspect of weaknesses with the highest value of SWOT Analysis calculation was a decrease in the number of visitors. This condition had a significant impact for the sustainability of Sendang Sikucing Beach, in which were the decreased revenue of tourism object, the decreased income of business people around the tourism object, and in the long term, it affects to the declining amount of the Village Own-source Income (PADes) and Local Own-source Income (PAD).

The calculation of SWOT Analysis for external

Table 7. External Factors Analysis (EFAS)

No	External Factors (EFAS)	Score	Weight	Sum
Opportunities (+)				
1.	Community willingness in managing tourism area	4	0,143	0,571
2.	Support from both village and local government	4	0,161	0,643
3.	Village-owned enterprises (BUMDes) are actively operating	4	0,119	0,476
4.	Funds to support the development of tourism area	3	0,113	0,339
Threats (-)				
5.	High Precipitation causes sedimentation	3	0,095	0,286
6.	Existence of Kendal Industrial Estates (KIK) is prone to produce waste	3	0,143	0,429
7.	Adjacent to two other beaches	2	0,125	0,250
8.	Lack of technology utilization	2	0,101	0,202
TOTAL			1	0,86

Source: Primary data processed, 2020.

Table 8. Strategies of SWOT Matrix

	Strengths	Weaknesses
Opportunities	<p>S-O Strategy Developing tourism services by establishing a souvenir centre filled with local products (S1, S4, S5, O1, O3, O4)</p>	<p>W-O Strategy</p> <ul style="list-style-type: none"> • Providing adequate tourism facilities, such as clean toilets and rinse areas, proper places of worship, and storage places for goods (W9, O2, O4) • Transformation of promotional and marketing media through digital and tourism ambassadors of Kendal Regency (W6, W7, W10, W11, O1, O2, O4) • Build a breakwater (W8, O4)
Threats	<p>S-T Strategy Assessing sedimentation refinement of tourism area using GIS (S1, S3, T5, T8)</p>	<p>W-T Strategy Intensifying promotion through social media (W6, W7, W11, T7, T8)</p>

Source: Primary data processed 2020.

factors showed the value 0.86. This value was obtained from the subtraction between opportunities (1,466) and threats (1,944). The positive sign on its value indicated that Sendang Sikucing Beach will likely to have more opportunities to expand than the threats to face in the future.

Component of the aspect of opportunities with the highest value of SWOT Analysis calculation was the support from both village government and local government. The village government is able to mobilize the community to develop and manage the Sendang Sikucing Beach because the impact will obviously return to the community. Similarly, the Government of Kendal Regency fully supports the tourism development Sendang Sikucing Beach to be as one of the leading tourism destinations in the Regency of Kendal. Component of the aspect of threats with the highest value of SWOT Analysis calculation was the the existence of Kendal Industrial Estate which can possibly harm coastal ecosystems with the waste produced by the factories, especially on channels that are directly related to coastal of Sendang Sikucing Beach. This is contrary to the concept of ecotourism which is not only looking at tourism places as a natural beauty, but also putting concern to the sustainability of diversity, economic development, and the development of local communities around the object (Navarro-Martínez *et al.*, 2020).

Based on the SWOT Analysis in Figure 3, it can be seen that the development position of Sendang Sikucing Beach is in Quadrant II of SWOT, this condition is due to the greater value of the aspect of opportunities than the aspect of threats, and the

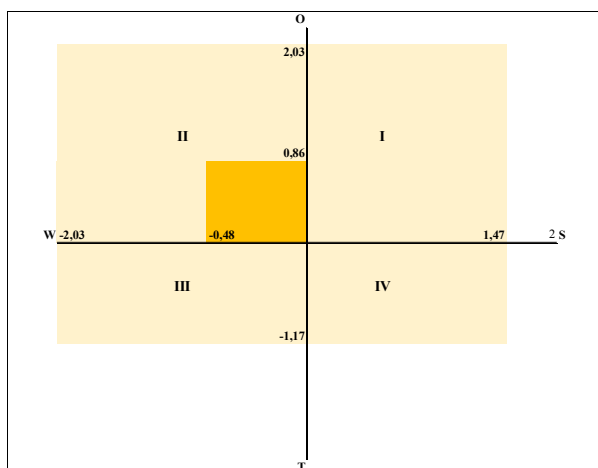


Fig. 3. Diagram of SWOT of Sendang Sikucing Beach.
Source: Primary data processed, 2020.

greater value of aspect of weaknesses than the aspects of strengths. It means that the development strategies that can be applied in Sendang Sikucing Beach is Stable Growth Strategy. Sendang Sikucing Beach can develop in accordance with the limitations of its capabilities, even though it still actually has many opportunities. In other words, Sendang Sikucing Beach can develop into a qualified tourism area gradually, not instantly.

Furthermore, the analysis towards the strategies for the development of the tourism area of Sendang Sikucing Beach was carried out through a SWOT matrix. The SWOT matrix compiled were involved indicator-based strategies in each of its aspects, as followed S-O, S-T, W-O, and W-T. The SWOT matrix can be seen in Table 8.

The most appropriate development strategy implemented in Sendang Sikucing Beach according to Diagram of SWOT and SWOT matrix was W-O strategy. It was based on the calculation of the SWOT Analysis which showed the high value of opportunities and weaknesses owned by Sendang Sikucing Beach. The development strategy can be achieved with strong integration and coordination among elements of the village, such as the community, the village government, local governments, and private parties. Tourism development will be easily implemented by the support and participation of all those elements (Giriwati *et al.*, 2019).

Conclusion

Sendang Sikucing beach has various kinds of potential to be developed as a coastal based tourism area. It is based on the natural beauty and the richness of existing biological and non-biological resources. Based on the calculation of Tourism Suitability Index (TSI), Sendang Sikucing Beach received the title of Very Good (S1) with a value above 80%. This means Sendang Sikucing Beach is feasible to be developed as a new ecotourism object.

Several strategies are being formulated for the development of Sendang Sikucing Beach as a new ecotourism object. Through SWOT Analysis, the strategy can be applied in the development is Stable Growth Strategy, which is growing gradually. It is based on the value of the aspect of weaknesses which is greater than the aspect of strengths, and the value of aspect of opportunities is greater than aspect of threats. Steps can be implemented in the areas follows to complete tourism facilities, the

transformation of the media campaign, and building a breakwater. Thus, Sendang Sikucing Beach can be an optimal ecotourism object for the economic development of the local area.

References

- Amri, S., Meilina, H. and Nasir, M. 2019. The impact of the economic activities of marine tourism in jangka beach, Jangka Mesjid Village of Jangka Bireuen sub-district, Indonesia. *Russian Journal of Agricultural and Socio-Economic Sciences*. 91(7) : 168–176. <https://doi.org/10.18551/rjoas.2019-07.17>
- Arsiæ, S., Nikolaiæ, D. and •ivkoviæ, Z. 2017. Hybrid SWOT - ANP - FANP model for prioritization strategies of sustainable development of ecotourism in National Park Djerdap, Serbia. *Forest Policy and Economics*. 80 : 11–26. <https://doi.org/10.1016/j.forpol.2017.02.003>
- Bengen, D. G. 2010. Ekosistem and sumber daya pesisir dan laut serta pengelolaan secara terpadu dan berkelanjutan. *Prosiding Pelatihan Pengelolaan Wilayah Pesisir Terpadu*. 28–55.
- Bibin, M., Vitner, Y. and Imran, Z. 2017. Analisis Kesesuaian and Daya Dukung Wisata Kawasan Pantai Labombo Kota Palopo. *Jurnal Pariwisata*. 4 (2): 94–102.
- BPS. 2020. *Wisatawan and Pendapatan Sendang Sikucing 2018-2019*. BPS Kabupaten Kendal. <https://kendalkab.bps.go.id/indicator/16/271/1/wisatawan-dan-pendapatan-sendang-sikucing.html>
- Chasanah, I., Purnomo, P. W. and Haeruddin, 2017. Conformity analysis of Jodo Beach tourism in Sidorejo village, Gringsing District, Batang. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan*. 7 (3): 235–243. <https://doi.org/10.19081/jpsl.2017.7.3.235>
- Christian, C. S. 2018. The caribbean's geotourism potential and challenges: A focus on two islands in the region. *Geosciences (Switzerland)*. 8 (8) : 1–12. <https://doi.org/10.3390/geosciences8080273>
- Citra, N., Zamdial and Muqsit, A. 2020. Analisis aspek oseanografi kelayakan pembangunan pelabuhan perikanan pantai di muara sungai Jenggalu Kota Bengkulu. *Jurnal Enggano*. 5 (3) : 587–602.
- Datzira-Masip, J. 2007. Cultural heritage tourism-opportunities for product development: The Barcelona Case. *Tourism Review*. 6 (1) : 13–20.
- David, F. R. and David, F. R. 2017. *Manajemen Strategik: Suatu Pendekatan Keunggulan Bersaing* (15th ed.). Salemba Empat.
- Effendy, M. 2009. Pengelolaan wilayah pesisir secara terpadu: solusi pemanfaatan ruang, pemanfaatan sumberdaya dan pemanfaatan kapasitas asimilasi wilah pesisir yang optimal and berkelanjutan. *Jurnal Kelautan*. 2 (1) : 81–86.
- Fithor, A., Prayitno, S. B., Purwanti, F. and Indarjo, A. 2020. Tourism suitability, and carrying capacity: prospect ecotourism (case study in marina beach semarang. *E3S Web of Conferences*, 202. <https://doi.org/10.1051/e3sconf/202020203010>
- Giriwati, N. S. S., Hawa, L. C., Pamungkas, S. T., Iyati, W. and Hidayat, A. R. T. 2019. Local community participation in ecotourism development: the case of sumberwangi hamlet destination, East Java, Indonesia. *PEOPLE: International Journal of Social Sciences*. 5 (1) : 81–98. <https://doi.org/10.20319/pijss.2019.51.8198>
- Herbst, D. F., Gerhardinger, L. C., Vila-Nova, D. A., de Carvalho, F. G. and Hanazaki, N. 2020. Integrated and deliberative multidimensional assessment of a subtropical coastal-marine ecosystem (Babitonga bay, Brazil). *Ocean and Coastal Management*. 196 (September), 105279. <https://doi.org/10.1016/j.ocecoaman.2020.105279>
- Iswidodo, 2020. *Suasana di Pantai Sendang Asih Kendal Serasa di Pegunungan*. Jateng Tribun News. <https://jateng.tribunnews.com/2020/01/22/suasana-di-pantai-sendang-asih-kendal-serasa-di-pegunungan>
- Mallick, S. K., Rudra, S. and Samanta, R. 2020. Sustainable ecotourism development using SWOT and QSPM approach: A study on Rameswaram, Tamil Nadu. *International Journal of Geoheritage and Parks*. 8 (3) : 185–193. <https://doi.org/10.1016/j.ijgeop.2020.06.001>
- Navarro-Martínez, Z. M., Crespo, C. M., Hernández-Fernández, L., Ferro-Azcona, H., González-Díaz, S. P. and McLaughlin, R. J. 2020. Using SWOT analysis to support biodiversity and sustainable tourism in Caguanes National Park, Cuba. *Ocean and Coastal Management*. 193 (February). <https://doi.org/10.1016/j.ocecoaman.2020.105188>
- Novitasari, D. P., Pratikto, I. and Suryono, C. A. 2019. Kajian kelayakan fisik pantai seribu ranting Jepara sebagai Kawasan Wisata Pantai. *Journal of Marine Research*. 8 (1) : 47–54.
- Nugraha, H. P., Indarjo, A. and Helmi, M. 2013. Studi kesesuaian dan daya dukung kawasan untuk rekreasi pantai di pantai panjang kota bengkulu. *Diponegoro Journal of Marine Research*. 2 (2) : 130–139. <https://doi.org/10.14710/jmr.v2i2.2474>
- Rhormens, M. S., Pedrini, A. de G. and Ghilardi-Lopes, N. P. 2017. Implementation feasibility of a marine ecotourism product on the reef environments of the marine protected areas of Tinharé and Boipeba Islands (Cairu, Bahia, Brazil). *Ocean and Coastal Management*. 139 : 1–11. <https://doi.org/10.1016/j.ocecoaman.2017.01.022>
- Yulianda, F. 2007. Ekowisata bahari sebagai alternatif pemanfaatan sumberdaya pesisir berbasis konservasi. *Makalah Seminar Sains*. 21.
- Yulisa, E. N., Johan, Y. and Hartono, D. 2016. Analisis kesesuaian dan daya dukung ekowisata pantai kategori rekreasi pantai laguna desa mepas kabupaten kaur. *Jurnal Enggano*. 1(1) : 97-111. <https://doi.org/10.31186/jenggano.1.1.97-111>