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Development strategy for marine ecotourism area in Pohuwato Regency (a case study at Pohon Cinta Beach and Tanjung Maleo Beach)

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ABSTRACT

This research aims to know the marine ecotourism suitability, the carrying capacity of the area, and formulate a strategy for managing ecotourism areas in Pohuwato Regency. This research was conducted at the Pohon Cinta beach and Tanjung Maleo beach. The data analysis was done by measuring the land suitability index, area carrying capacity, and SWOT Analysis. The result of the suitability analysis of beach tourism shows that the Pohon Cinta beach tourism area is suitable for beach recreational activities, boating, banana boating, and jet skiing as well as is suitable for swimming. Tanjung Maleo beach area is suitable for all activities, such as beach recreational activities, swimming, boating, banana boating, and jet skiing. The total value of the carrying capacity of the Pohon Cinta beach areas is 9.840 people/day and 2.640 people/day respectively. The strategy for managing the tourism area of Pohuwato District, including promoting of tourist attraction, formulating policies, determining coastal areas that need protection, coordinating each related party, inviting the community and visitor to participate in preserving the environment, improving the quality of tourist areas, improving coordination between the district government and the community, socialization of coaching and educational campaigns, increasing natural disaster mitigation efforts, the government monitoring, adding tourist facilities, and developing non-governmental activities.



INTRODUCTION

Archipelago countries own a great opportunity to develop their marine tourism, and Indonesia is one of which in Southeast Asia and is a home for 17.504 islands whose 2/3 of the territory is water (Wahyuni, 2015). The Indonesian government has declared tourism as one of the leading sectors. Two of the eight priority programs in Gorontalo Province include world-recognized tourism and a more sustainable environment. The development of marine tourism area is one form of tourism management that attempts to provide benefit, particularly as an

effort to protect, preserve, and the potential and environmental services of marine resources. The potential of coastal tourism has proven to be able to encourage economic growth by its contribution to national income from various countries (Das & Chatterjee, 2015).

Ecotourism is being embraced as a potential economic rescuer by many rural communities who are motivated by the promise of jobs, new business opportunities, and skill development (Scheyvens, 2000). Jalani (2012) stated that ecotourism is a strategy for supporting conservation and providing income for communities in and around protected areas. It can contribute to economic development and conservation of protected areas by: a) generating revenues that can be used to sustainably manage protected areas, b) providing local employment, and c) instilling a sense of community ownership.

Currently, tourism area in Pohuwato regency has been a mainstay of government in increasing regional economic where one of which is Pohon Cinta Beach in Marisa, which is the capital of the regency. The promotion of local livelihoods through ecotourism has been widely considered as an important policy instrument for biodiversity conservation (Cattarinich, 2001; Lai & Nepal, 2006; Scheyvens, 2007). The local government has provided tourist facilities regardless of their quality, which are not optimum yet. In addition, tourists have also contributed to cause damage to the facility. Another area is Tanjung Maleo beach which has the potential to be developed as tourism area due to it is still beautiful and suitable for tourism.

The research aims to find out the suitability of marine ecotourism, to find out the carrying capacity of the area, and to formulate development strategy for ecotourism area in Pohuwato regency.

MATERIAL AND METHODS

The research was is conducted from July to December 2019 in Pohuwato Regency. The location for the research is divide into two areas namely Pohon Cinta Beach and Tanjung Maleo Beach. The research location is provide in Figure 1.

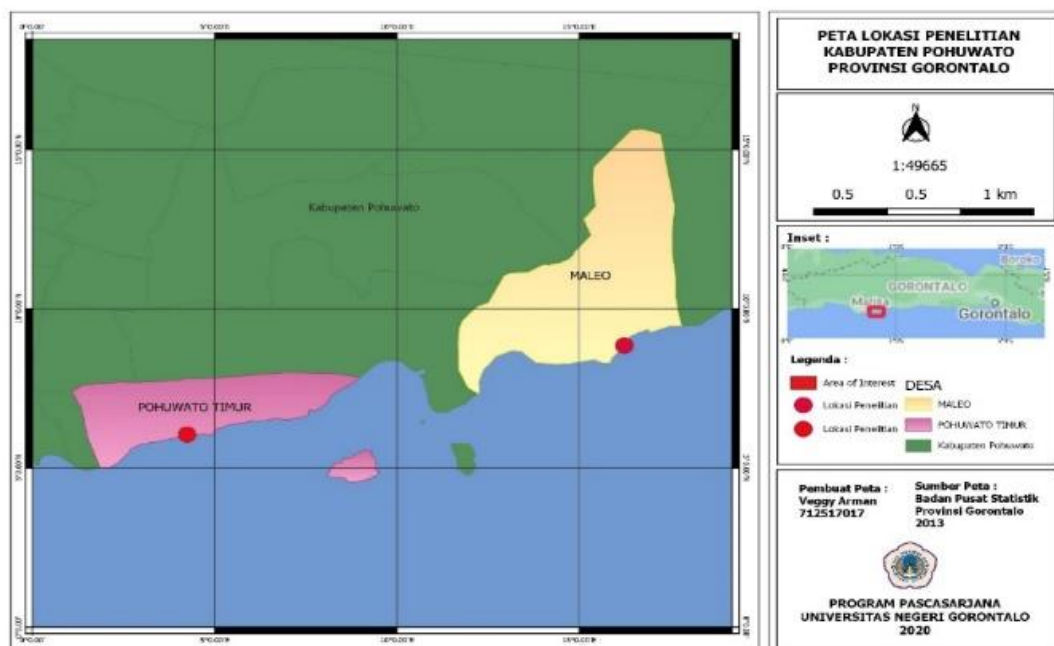


Figure 1. Research Location

The data employed in this research is primary and secondary. The primary data cover area resources (biological resources, water resources, habitat resources, and environment resources) that are retrieved directly in the field during the research, land suitability, carrying

capacity of area, and general condition of Pohon Cinta Beach and Tanjung Maleo Beach. Meanwhile, the secondary data include human resources data such as the ones obtained from Statistics Indonesia of Pohuwato regency, literature search, and other materials associated with the research.

Ecotourism Suitability Analysis. The suitability analysis identified factors of primary and secondary suitability, as well as factors believed to be unsuitable for certain land uses (Steiner *et al.*, 2000). The tourism suitability category opted to be analyzed in Pohon Cinta Beach, and Tanjung Maleo Beach is beach recreation, swimming, boating, banana boating, and jet skiing. Every category possesses weight and score that have been determined (Yulianda 2007 ; Indarjho, 2012). With this, the researchers used ecological conditions to see the potential of the area with multiple parameters to get a value Tourism Suitability Index (Hakim *et al.*, 2014). The land suitability analysis is defined as analysis to discover the suitability and ability of area to buffer all types of tourism area. States that the equation employed for tourism suitability analysis is:

$$TSI = \frac{Ni}{Nmax} \times 100\%$$

Information: TSI = Tourism Suitability Index (%), Ni: the-I parameter value, Nmax: maximum value of a tourism category.

The parameter of ecotourism suitability in Pohuwato District with a case study in Pohon Cinta Beach and Tanjung Maleo Beach is presented in table 1.

Table 1. Ecotourism Suitability Parameter of Pohuwato District – A Case Study in Pohon Cinta Beach and Tanjung Maleo Beach

No	Parameter	Weight	Category	Score
			Beach Recreation and Swimming	
1	Depth (m)	5	0 – 3	3
			> 3 – 5	2
			> 5	1
2	Beach Type	5	White Sand	3
			Coral Sand	2
			Black coral sand with little steep	1
3	Beach Width (m)	5	> 30	3
			10 – 30	2
			3 - <10	1
4	Bottom Water Material	3	Sand	3
			Sandy Coral	2
			Mud	1
5	Current Speed (m/s)	3	0 – 0,2	3
			> 0,2 – 0,4	2
			> 0,4	1
6	Beach Slope (°)	3	<10	3
			10 – 25	2
			> 25	1
7	Brightness (m)	1	> 5	3
			> 3 – 10	2
			< 3	1
8	Coastal Land Cover	1	Open field, Coconut,	3
			Dwarf Shrubs, Savanna	2
			Tall Shrubs, Port, and Residential Area	1
9	Dangerous Biota	3	None	3

			One Species	2
			More than one species	1
10	Freshwater Availability (km)	1	< 0,5 km	3
			0,5 – 1 km	2
			> 2 km	1
Boating, banana boating, and jet skiing				
1	Depth of Waters (m)	5	> 8	3
			> 4 – 8	2
			< 4	1
2	Current Speed (m/s)	3	0 – 0,15	3
			> 0,15 – 0,40	2
			> 0,40	1

Carrying Capacity of Area. The Carrying Capacity of Area is a maximum number of visitor that is likely to be accommodated in the area provided in a certain time without causing damage to nature and human (Yulianda, 2007). It is calculated with the following formula:

$$CCA = K \frac{Lp Wt}{Lt Wp}$$

Information: CCA = Carrying Capacity of Area (person/day), K = ecological potential of visitor per unit area (person), Lp = length of area that can be functioned (m²/m), Lt = unit area for certain category (m²/m), Wt = time provided for tourism attraction in one day (hour/day), Wp = time spent by visitor for certain activity (hour). Table 2 indicates ecological potential and time estimation to determine the carrying capacity of marine ecotourism area in Pohuwato regency, particularly in Pohon Cinta Beach and Tanjung Maleo Beach.

Table 2. Time estimation to determine carrying capacity of area

No	Activity	Ecological Potential (K)	Unit area (Lt)	Time Needed (Wp) Hour	Total time in 1 day (Wt) hour
1	Beach Recreation	1	50 m ²	3	8
2	Swimming	1	250 m ²	3	8
3	Boating	1	500 m ²	1	8
3	Banana Boating	1	500 m ²	1	8
4	Jet Skiing	1	500 m ²	1	8

SWOT Analysis. The development strategy for ecotourism in Pohuwato regency is formulated by applying SWOT (Strength, Weakness, Opportunity, Threat) analysis. According to Rangkuti (2005), SWOT analysis identifies various factors systematically to formulate a strategy.

The SWOT analysis is based on logic, which may enhance strength (S) and opportunity (O) as well as reduce weakness (W) and threats (T). In addition, the SWOT analysis compares external factors, namely opportunities and threats, with internal factors, namely strengths and weaknesses (Ermawan, 2008). An effective strategy is assumed to be achieved by maximizing the strengths and opportunities available and minimizing the weaknesses and threats faced. Quantitative data analysis through weighting and rating is used in this analysis (Enggraini, 2011).

The step carried out in the SWOT analysis is internal and external factor identification. The results of both factor identifications are weighed and rated in which the external factor is determined in the same way when determining the internal factor. Putri (2010) utters that every factor is obtained by determining value of variable over the total value of factor by applying formula:

$$a_i = \frac{X_i}{\sum_{i=1}^n X_i}$$

Information : a_i : The- i factor weight, X_i The- i factor value, i : 1,2,3,....., n : Number of factor

The following step is creating SWOT matrix, where its subsequent step is creating a ranking table of strategy alternative. Then, it is continued by descriptive analysis to find out the strategy in managing marine ecotourism area in Pohuwato District.

RESULTS AND DISCUSSION

General Condition of Research Location. Pohuwato District is one of the districts in Gorontalo Province situated between coordinates 0°22' – 0°57' NL and 121°23' – 122°19' EL. Meanwhile, geographically, Marisa Sub-district is located in the center part of Pohuwato District as well as it is a place of Pohon Cinta Beach. The beach borders Buntulia Sub-district to the north and Tomini Gulf to the south, Duhiadaa Sub-district to the west, and Paguat Sub-district to the east.

In the meantime, Tanjung Maleo Beach is located in Maleo Village, Paguat Sub-district, Pohuwato District. Geographically, Paguat Sub-district is a sub-district including in the eastern part of Pohuwato District. Paguat Sub-district covers eight villages and one of which is Maleo.

Potential Resources of Tourism Area in Pohuwato Regency. Resources are elements containing an ecosystem and are essential to be studied in planning an ecosystem area management. The resources comprise biological resources, environmental services resources (scenery), and human resources (Enggraini, 2011).

The biological resources in Pohuwato regency, particularly in the research location, are production and capture fisheries value of Marisa Sub-district in 2019, which is approximately 5.670,42 tons while the same result in Paguat Sub-district is 5.708,80 tons (Pohuwato in Figure, 2019). The mangrove forest area in the coastal area of Pohuwato District, Gorontalo Province, has become a buffer zone for the coastal area of Tomini Gulf. The cover land of mangrove forest in this area declined from 13.243,33 Ha in 1988 to 7.420,73 in 2010 (Djamaluddin, 2011).

The environmental services resource in Pohuwato District is taking advantage of the mangrove area as tourism. The location is located in Pohon Cinta Beach and is one of the alternatives to tourism in the area. The obvious explanation is elaborated in figure 2.



Figure 2. Mangrove Tourism Area

The vegetation grown around the coast is banana (*Musa acuminata*) tree, mangrove, coconut (*Cocos nificera*) tree, and shrubs. The open field dominates the area, and it is rocky sand. The area does not contain any hazardous biota like sea urchin (*Echinoidea*). The coral reef

ecosystem in Pohon Cinta Beach and Tanjung Maleo Beach is a good habitat for coral reef fish and other pelagic fish. As evidence, the area is a fishing ground for local fishermen. In addition, the vegetation functions as complementary beauty of natural tourist attractions.

Tourism Suitability Analysis. The tourist attractions in Pohuwato District are Pohon Cinta Beach and Tanjung Maleo Beach thus, its suitability analysis is pivotal in the development of the area. The parameters measured are beach recreation, swimming, boating, banana boating, and jet skiing. The research finding is classified into three categories, which are suitable, suitable and conditional, and not suitable, where they are calculated based on tourism suitability index formula. The tourism area of Pohon Cinta Beach is suitable for beach recreation, boating, banana boating, and jet skiing, while it is suitable and conditional for swimming. In the meantime, Tanjung Maleo Beach area is suitable for all activities, including beach recreation, swimming, boating, banana boating, and jet skiing.

Carrying Capacity of Area. The number of visitor that can be accommodated in Pohon Cinta Beach area is 9.840 people per day. In detail, the activity estimation is 1.068 people for beach recreation, 117 people for swimming, 2.369 people for boating, 2.344 people for banana boating, and 3.882 people for jet skiing. The total area that can be used for the entire tourism category is \pm 39 ha. The beach recreation is started in the morning until evening in which the morning activities are sport and jogging in the jogging track provided by management. Then, visitor's midday activity is enjoying various culinary, and the afternoon is spent by enjoying sunset once eating roasted corn on the coastline. In the evening, Pohon Cinta Beach is still crowded with visitors who come to ride several games rent.

Tanjung Maleo Beach can accommodate around 2.640 people per day in which the total area which can be used is approximately 7,18 hectares. The area is far smaller than Pohon Cinta Beach. The beach recreation uses area of around 6.538 m² with possible number of visitor that can be accommodated for 349 people/day. Meanwhile, the swimming uses area of around 5.632 m² with a carrying capacity of 112 people/day. Then, the boating activity uses area of around 34.999 m² with a carrying capacity of 560 people/day, and banana boating activity uses around 45.513 m² with a carrying capacity of 728 people/day. Lastly, the jet skiing activity uses area of around 55.712 m² with a carrying capacity of 891 people/day. Therefore, the total number of visitors that can be accommodated in this area are 2640 people/day.

Marine Ecotourism Development Strategy. SWOT analysis is a classical strategic planning instrument. By using the framework of *strengths* and *weaknesses* and *external opportunities* and *threats*, this instrument provides a simple way to estimate the best way to implement a strategy. This instrument helps the planners of what is usually achieved, and what things should be considered by them (Jackson et al, 2003 ; Oetomo & Ardini, 2009).

The tourism area in Pohuwato regency can be developed by applying strength owned to take the existing opportunity through inviting people and visitors to engage in preserving environment, promoting the tourism area, and improving coordination between Regional Government and community. Meanwhile, the use of opportunity to deal with threats generates some strategies that are formulating policy, determining coastal area which requires protection, and improving disaster mitigation effort. Also, the advantage of opportunity through dealing with weaknesses generates strategies including improving tourist attraction quality, monitoring by government, and adding tourism facility. Lastly, minimizing and avoiding existing threats generate strategies, including coordinating with related parties, doing socialization regarding guidance, and developing nongovernmental activities.

CONCLUSION

Pohon Cinta Beach, as a tourist attraction, is suitable for beach recreation, boating, banana boating, and jet skiing while it is suitable and conditional for swimming activity. In the meantime, Tanjung Maleo Beach, as a tourist attraction, is suitable for all tourism activities. Pohon Cinta Beach and Tanjung Maleo Beach can accommodate approximately 12.480 people/day. Management strategies of tourist attraction in Pohuwato regency are promoting tourist attraction, formulating policy, determining the coastal area that requires protection,

doing coordination with all related parties, inviting community and visitor to participate in maintaining environment sustainability, improving tourist attraction quality, improving coordination between regional government and community, doing socialization regarding guidance and educational campaign, improving disaster mitigation effort, monitoring performed by government, adding tourism facility, and developing nongovernmental activity.

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REFERENCES

- Bagheri, M., Sulaiman, W. N. A., & Vaghefi, N. (2012) Application of geographic information system technique and analytical hierarchy process model for land-use suitability analysis on coastal area. *J Coast Conserv* (2013) 17:1–10. <https://doi.org/10.1007/s11852-012-0213-4>.
- Cattarinich, X. (2001). Pro-poor tourism initiatives in developing countries: Analysis of secondary case studies. PPT working paper no. 8 (Retrieved on 22nd August, 2013 from <http://195.130.87.21:8080/dspace/bitstream/123456789/449/1/Propoor%20tourism%20initiatives%20in%20developing%20countries%20analysis%20of%20secondary%20case%20studies.pdf>).
- Cifuentes, M.A. (1992). *Determinación de capacidad de carga turística en áreas protegidas*. Turrialba. Costa Rica: Biblioteca Orton IICA/CATIE 23p.
- Das, M., & Chatterjee, B. (2015). Ecotourism: A panacea or predicament. *Tourism Management Perspective*, 14, 3-16. <https://doi.org/10.1016/j.tmp.2015.01.002>.
- Djamaluddin, R. (2011). Survei Kondisi Ekosistem Mangrove di Kabupaten Pohuwato. Program Teluk Tomini (SUSCLAM) Tomini Bay Sustainable Coastal and Livelihoods Management Project. CIDA
- Enggraini, R. (2011). Kajian Sumberdaya Danau Untuk Pengembangan Wisata Danau Diatas, Kabupaten Solok. *Bogor: Institut Pertanian Bogor*.
- Ermawan, W. R. (2008). Kajian Sumberdaya Pantai Untuk Kesesuaian Ekowisata di Pantai Prigi, Kabupaten Trenggalek, Provinsi Jawa Timur. *Bogor: Institut Pertanian Bogor*.
- Hakim, A., Setiono, P. Ningtias, Tasrif, Sudarsono, Ari, Yanda, W. Puji, Pertiwi, Jupri, Dista, Anita, & Yoppie, 2014. Pedoman Penyusunan Rencana Teknis Pemanfaatan Kawasan Konservasi Perairan. Direktorat Konservasi Kawasan dan Jenis Ikan, Direktorat Jenderal Kelautan, Pesisir dan Pulau-Pulau Kecil, Jakarta.
- Indarjho, A., 2012. Strategi Pengembangan Ekowisata Bahari Berbasis Daya Dukung Lingkungan Di Pulau Panjang, Pantai Bandengan, Pantai Kartini, dan Teluk Awur Kabupaten Jepara. Disertasi. Sekolah Pascasarjana, Universitas Diponegoro, Semarang.
- Jackson, S. E., Joshi, A., & Erhardt, N. L. (2003). Recent research on team and organizational diversity: SWOT analysis and implications. *Journal of management*, 29(6), 801-830.
- Jalani, J.O. (2012). Local people's perception on the impacts and importance of ecotourism in Sabang, Palawan, Philippines. *Procedia-Social and Behavioral Sciences*, 57(9), 247–254. <https://doi.org/10.1016/j.sbspro.2012.09.1182>.
- Joerin F, Theriault M, Musy A. (2001). Using GIS and outranking multicriteria analysis for land-use suitability assessment. *IJGIS* 15:153–174. <http://www.informaworld.com>. <https://doi.org/10.1080/13658810051030487>.

- Lai, P.H., & Nepal, S.K. (2006). Local perspectives of ecotourism development in Tawushan Nature Reserve, Taiwan. *Tourism Management*, 27(6), 1117-1129. <https://doi.org/10.1016/j.tourman.2005.11.010>.
- Maryono., Effendi, H., Krisanti, M. (2019). Tourism Carrying Capacity To Support Beach Management At Tanjung Bira, Indonesia. *J. Segara Vol.15 No.2 Agustus 2019: 119-126*. <http://dx.doi.org/10.15578/segara.v15i2.6790>.
- Oetomo, H. W., & Ardini, L. (2009) Swot Analysis In Strategic Management: A Case Study At Purabaya Bus Station. *Journal of Economics, Business, and Accountancy Ventura*. Volume 15, No. 2, August 2012, pages 171 – 186. <http://dx.doi.org/10.14414/jebav.v15i2.73>.
- Pohuwato Dalam Angka, (2019). Badan Pusat Statistik Kabupaten Pohuwato. Pohuwato. Provinsi Gorontalo.
- Putri, V. (2010). Pengembangan Wisata Pantai Tanjung Kerasak, Kabupaten Bangka Selatan, Provinsi Kepulauan Bangka Belitung. Bogor: Institut Pertanian Bogor.
- Rangkuti, F. (2005). Analisis SWOT: Teknik Membedah Kasus Bisnis. Jakarta: PT.Gramedia
- Scheyvens, R. (2000). Promoting women's empowerment through involvement in ecotourism: Experiences from the third world. *Journal of Sustainable Tourism*, 8(3), 232-249. <https://doi.org/10.1080/09669580008667360>.
- Scheyvens, R. (2007). Exploring the tourism-poverty nexus. In C.M. Hall (Ed.), *Pro-poor tourism: Who benefits? Perspectives on tourism and poverty reduction* (pp. 121-144). Clevedon, England: Channel View. <https://doi.org/10.21832/9781845410766>.
- Segrado, R., Muñoz, A.P. & Arroyo, L. (2008). Medición de la capacidad de carga turística de Cozumel. *El Periplo Sustentable*, 13, 33-61.
- Steiner, F., McSherry, L., Cohen, J. (2000) Land suitability analysis for the upper Gila River watershed. Elsevier Science B.V. All rights reserved. *Landscape and Urban Planning* 50 (2000) 199-214. [https://doi.org/10.1016/S0169-2046\(00\)00093-1](https://doi.org/10.1016/S0169-2046(00)00093-1).
- Wahyuni, T. (2015, Maret Selasa). *safari*. Retrieved from [cnnindonesia.com:https://www.cnnindonesia.com/gaya-hidup/20150310171652-269-38122/keoknya-wisata-bahari-di-negara-kepulauan-terbesar-sedunia](https://www.cnnindonesia.com/gaya-hidup/20150310171652-269-38122/keoknya-wisata-bahari-di-negara-kepulauan-terbesar-sedunia)
- Yulianda, F. (2007). Ekowisata Bahari Sebagai Alternatif Pemanfaatan Sumberdaya Pesisir Berbasis Konservasi. Seminar Sains Departemen Manajemen Sumberdaya Perairan FPIK, IPB. Bogor.
- Zacarias, D.A., Williams, A.T., & Newton, A. (2011). Recreation Carrying Capacity Estimations to Support Beach Management at Praia De Faro, Portugal. *Applied Geography*, 31, 1075-1081.