

Sustainable Marine Ecotourism Development Strategy at Barambang and Sibintang Beach, Central Tapanuli Regency

Strategi Pengembangan Ekowisata Bahari Berkelanjutan di Pantai Barambang dan Pantai Sibintang, Kabupaten Tapanuli Tengah

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ABSTRACT

When the holiday season approaches, local and foreign travellers flock to Barambang Beach's and Sibintang Beach's ecotourism regions, which are well-known tourist destinations. Nonetheless, inadequacies in the administration of ecotourism attractions occasionally result in low weekday and weekend visitor numbers at Barambang and Sibintang beaches. Since local populations rely on ecotourism activities for their livelihoods, this influences such activities but is not felt as much by those communities. The study was conducted in 2022 between July and September. A mixed methodology, along with an explanatory qualitative approach, was used in the study. The significant data used in the analysis came from interviews with a variety of participants as well as assessments of the water quality and ecology. Secondary data from some relevant document sources was gathered in the interim. The data analysis used Willingness to Pay (WTP), Willingness to Accept (WTA), economic potential, and SWOT analysis. The study findings indicate that the development plan can be implemented by including auxiliary facilities, such as signs informing visitors of the location of auxiliary facilities, directions, and the farthest swimming-safe water point. Tourists are also eagerly awaiting the establishment of eco-friendly play facilities. Additionally, the government can enact laws that give local community-run businesses regular direction and funding access.

Keywords: Development strategy, Tourism, Marine ecotourism, Sustainability

ABSTRAK

Sebagai objek wisata populer, kawasan ekowisata Pantai Barambang dan Pantai Sibintang selalu ramai menerima kunjungan wisatawan domestik maupun mancanegara ketika musim liburan tiba. Namun, pengelolaan objek ekowisata yang belum maksimal terkadang membuat Pantai Barambang dan Sibintang tidak mendapat kunjungan yang banyak pada hari-hari biasa maupun saat liburan akhir pekan. Hal ini berdampak pada kegiatan ekowisata yang kurang begitu dirasakan oleh masyarakat sekitar yang menggantungkan hidup dari kegiatan ekowisata ini. Penelitian dilakukan pada bulan Juli hingga September 2022. Penelitian menggunakan *mixed methodology* dengan pendekatan kualitatif eksplanatori. Data yang digunakan menggunakan data Primer yang didapat melalui wawancara dengan berbagai unsur serta dilakukan pengukuran kualitas air dan ekologi perairan. Sementara data sekunder dikumpulkan dari berbagai sumber dokumen terkait. Analisis data dilakukan menggunakan analisis *Willingness to Pay* (WTP), *Willingness to Accept* (WTA), potensi ekonomi, analisis SWOT. Hasil penelitian menunjukkan bahwa strategi pengembangan dapat ditempuh dengan penambahan fasilitas penunjang seperti pemberian papan informasi bagi para wisatawan terkait penunjuk arah, lokasi fasilitas penunjang dan titik perairan terjangkau yang aman sebagai area berenang. Penambahan fasilitas bermain yang ramah lingkungan juga sangat dinantikan oleh para wisatawan. Selanjutnya pemerintah dapat mengeluarkan kebijakan dalam melakukan pembinaan rutin serta akses permodalan bagi para pelaku usaha yang dijalankan oleh masyarakat setempat.

Kata Kunci: Strategi Pengembangan, Pariwisata, Ekowisata Bahari, Berkelanjutan

INTRODUCTION

A sustainable ecotourism activity will improve a region's welfare through a positive multiplier effect. The government, the corporate sector, and the community are the three key sectors that must collaborate and participate in ecotourism operations to be successful (Yoswaty & Samiaji, 2013). Based on ecotourism, marine tourism offers chances to enjoy the environment sustainably in addition to tourist attractions. Three fundamental concepts underpin ecotourism: conservation, economics, and education (Yulianda, 2019).

North Sumatra is one of the Indonesian provinces with many marine ecotourism destinations. Central Tapanuli Regency has the potential to have exceptional natural resources due to its proximity to the Indian Ocean. According to government data from 2016 for Central Tapanuli Regency (Ndruru, 2020), the region has at least 25 beaches along its west coast, making it a viable destination for marine tourism. There are also at least thirty little islands with stunning beaches and aquatic scenery nearby. The Research Team from the Matauli Fisheries and Marine College, in collaboration with BAPPEDA Central Tapanuli Regency, conducted this study because there is currently insufficient scientific data regarding the potential for developing Marine Ecotourism in Central Tapanuli Regency.

MATERIALS AND METHOD

Time and place of research

The study was conducted in 2022 between July and September. The study's sites were two research locations in the Central Tapanuli Regency's Sosorgadong District. The project focuses on developing solutions for both research locations' creative economy and marine ecotourism. The purposeful selection of the research site took into account the region's enormous potential for the growth of marine ecotourism.

Research method

A qualitative explanatory framework examines the mixed methodology applied to the research design. This study's data collection includes both primary and secondary sources. Direct interviews with respondents, including local community members, business owners, policymakers, and tourists in both locations, provided the primary data. Questionnaires used in interviews are arranged according to respondent groupings.

Forty-five residents who resided in or had direct contact with the research region comprised the local community respondent group. All tourists in the research region comprised the 45-person group of responders who were tourists. Forty-five people who work in the tourism industry responded to the survey. They included major and minor tourism firms, like resorts and homestays, and community-managed businesses. Fifteen responders were policy stakeholders; these individuals were government and municipal officials in charge of developing development policies in the study area. The sample size selection for the research is considered representative of the study area.

Secondary data was obtained from related agencies in Central Tapanuli Regency: the Tourism and Culture Service, Central Statistics Agency, Maritime Affairs and Fisheries Service, Environment Service, Industry and Trade Service, Public Works and Public Housing Service, and Region XI Forest Management Unit. Secondary data was also obtained through a literature study from references related to the study topic. The research also collected data about conditions by measuring and observing ecological conditions at the two study locations.

Data about ecological conditions is primary data, which includes coordinate points, depth, brightness, beach slope, beach width, water temperature, water pH, salinity, water aroma and color, Total Suspended Solid (TSS), and beach vegetation. Several analytical methods used in research use measurements of Willingness to Accept (WTA), Willingness to Pay (WTP), Analysis of the Economic Potential of Marine Ecotourism, descriptive analysis, direct measurement/observation of water quality and aquatic ecology, validity tests, and reliability tests.

Based on the potential in both research locations, researchers expect that the findings of this study can serve as a source of knowledge regarding the potential for marine ecotourism activities that can assist sustainable regional development. Furthermore, it is intended that this research would be considered by pertinent parties when developing policies of regional development, particularly the development of tourism-related assets in the future.

RESULT AND DISCUSSION

Demographic and geographical aspects

Population. The characteristics of the population in Sosorgadong District in 2022 will be 15,163 people, with a density of 105.93 persons/km², according to secondary data received from BPS Central Tapanuli Regency. The district's annual population growth rate is 1.90%. There are 7,531 male and 7,632 female individuals in the population. With 3,448 residents, Sosorgadong Village has the most significant population, while Siantar Dolok Village has the smallest, with 287 residents (BPS, 2022).

Facilities and Infrastructure. There are several facilities and infrastructure in the Sosorgadong District (BPS, 2022), which, of course, will support marine ecotourism activities. Road access in Sosorgadong District includes national, provincial, and district authority roads. The distance from Sosorgadong District to Sibolga City is approximately 45 km. There are 6 kindergarten schools, 27 elementary schools, 19 middle schools, and, and 2 high schools.

Respondent Characteristics. Because age affects a person's capacity to learn, comprehend, accept, or react to change, age is seen as significant (Saksono, 2012). A person's behavior and mentality are strongly correlated with their age because these traits undoubtedly alter as a person ages. According to Hasan (2018), working age is when an individual can continue to work, often referred to as labor, to support themselves. The country's working age is ten years to infinity because many impoverished people and school-dropped youngsters are in Indonesia. People of working age who are paid for their labor or services make up the labor force.

Their age significantly influences a person's social life. Younger policy leaders, local populations, tourists, and business actors are more susceptible to behavioural shifts from established norms or habits. In the meantime, respect and appreciation are what senior business people, visitors, local communities, and stakeholders aspire for (Manurung et al., 2022). The study's respondents comprised tourists, business people, and local community members, including 45 visitors, 45 business people, 45 locals, and 15 stakeholders.

The respondents' age distribution revealed nine over-45 respondents in the policy maker aspect, fifteen over-45 respondents in the tourist aspect, twenty over-45 respondents in the business actor aspect, and ten over-45 respondents in the local community aspect (Figure 1).

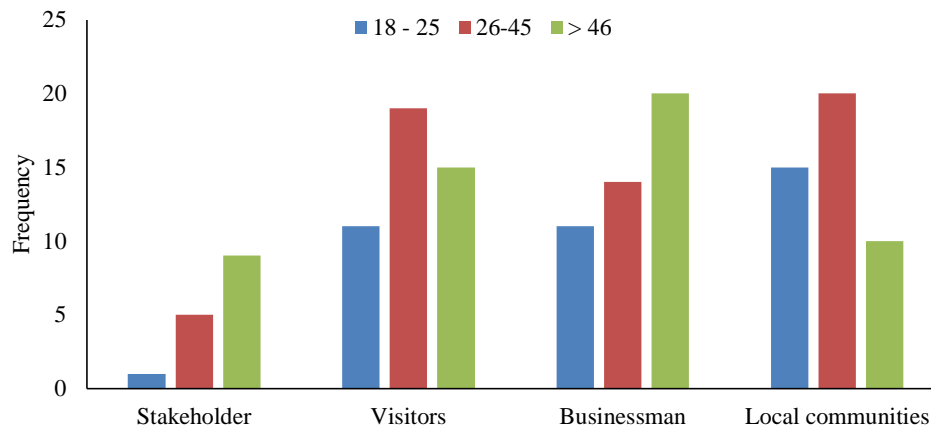


Figure 1. Respondent characteristics based on age

Education. Education is one metric used to assess the caliber of human resources. Because thoughts greatly influence thinking and encourage appropriate and suitable processing abilities, business actors, policymakers, local communities, and even highly educated tourists can optimally utilize the natural resources around them with increasingly improved processing (Muawanah et al., 2020). How local people, policy stakeholders, and even visitors are educated affects how well the fishing businesses they operate are run and developed. According to this research, the respondents' educational backgrounds varied from completing elementary school to having a bachelor's degree.

According to Yulianda (2019), education is work that is consciously done to influence and assist people to expand their knowledge and morals so that, unknowingly, it can help a child get closer to his or her objectives. Children's education is crucial to their ability to live affluent lives and contribute to society, religion, the nation, the state, and themselves. Eight respondents had a recent education and a bachelor's degree, and five respondents had just completed high school, according to the characteristics of respondents based on education in the policy-

making element. Ten respondents from the tourism sector had only completed high school, and twenty respondents from the bachelor's degree category. In addition, it is known that among responses from the business actor aspect, there are five individuals with a bachelor's degree and twenty-five with only a high school education. In the local community aspect, 20 high school graduates and eight bachelor's degree holders were among the respondents.

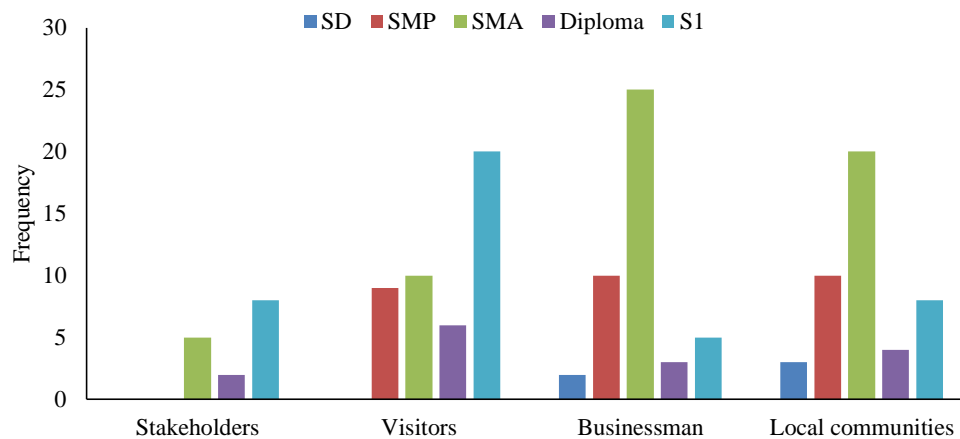


Figure 2. Respondent characteristics based on education

Ecological aspect. Various data were gathered between research loci based on the outcomes of water quality observations, as shown in Table 1

Table 1. Water quality and ecological conditions

Parameter	Value	
	Barambang	Sibintang
Deepness	135 cm	111 cm
Brightness	64,67 cm	56,33 cm
Declivity	5,6 ⁰	9 ⁰
Beach width	74,8 m	75,70 cm
Temperature	31,60 ⁰ C	31,17 ⁰ C
pH	7,73	7,67
Salinity	33 ppm	32,33 ppm
Water aroma	odorless	odorless
Watercolor	greenish blue	greenish blue
Total Dissolved Solid (TDS)	5,06 ppm	7,70 ppm
Vegetation	sea cypress, coconut trees, and mangroves	sea cypress, beach grass, Angsana

The vegetation that grows on Barambang Beach is sea pine, ketapang, and mangrove, and the average temperature of this beach is 31.6⁰C, according to observations and measurements of environmental data. Then, Sibintang Beach is recognized for its sea pine, grass, and angšana vegetation, with an average temperature of 31.17⁰C. Most water quality parameters are known to comply with water quality regulations, as stated in the Decree of the Minister of the Environment number 51 of 2004 for marine tourism, based on data results about water quality at both research locations. Based on the findings of chemical parameter observations, such as pH, the measured values fall within the range of 7.2–7.8, which is still within the acceptable range for quality requirements, which is pH 7–8.5. The measured salinity also falls within the 32.33–34.10 ppm range, which is still within the range of the water quality guidelines of 31–37 ppm. The average water quality value continues to meet standards or quality standards, according to the findings of observations of water physics parameters.

SWOT analysis

Based on the SWOT analysis, different development methods that were judged appropriate to be implemented were found in Barambang Beach and Sibintang Beach, Sosorgadong District, Tapanuli Regency.

Strength to opportunity (SO). The natural features of Barambang Beach and Sibintang Beach, which are the area's assets, include white sand, rows of sea pine trees, and various river estuaries with picturesque

views. These natural beauties have been conserved over time. The research location, Barambang Beach and Sibintang Beach, exhibit strengths in friendliness and historical values. The former contributes to the comfort and safety of tourists interacting with the local community, while the latter enhances the beach's allure for visitors.

Weakness to opportunity (WO). Inadequate facilities and accessibility are additional reasons why visitors are not interested in visiting Barambang Beach and Sibintang Beach. One of the most significant weaknesses that must be addressed is the lack of information and promotions tourists receive. Promotional efforts to draw domestic and foreign tourists can be undertaken if potential development, facility construction, and road infrastructure are sufficient (Surhamzah, 2021). Tourism promotion in Central Tapanuli Regency can be accomplished using social media, online, print, and banners on marine ecotourism at critical locations, including the city center, retail malls, and tourist area entrances.

Strength to threat (ST). Environmental shifts and competition from other regions threaten Barambang Beach and Sibintang Beach. Local community support is significant because the community is intimately involved in managing marine ecotourism to ensure it constantly preserves the environment from harmful impacts (Tambunan, 2018). Involving the community in management can lower poverty rates by generating jobs for the locals, who can also serve as tour guides, transport providers, lodging providers, and vendors of souvenirs.

Weakness to threat (WT). In order to prevent external threats, it is necessary to decrease internal weaknesses at Barambang Beach and Sibintang Beach by implementing a Weakness-Threat (WT) approach. Because ecotourism can help preserve the area's ecology and indigenous culture, counselling regarding marine ecotourism is necessary. Ultimately, the objective is that it can help locals develop a feeling of identity and pride that will increase due to more ecotourism activities.

Willingness to Accept (WTA) and Willingness to Pay (WTP) analysis

WTA (Willingness to Accept) and WTP (Willingness to Pay) values found in a marine ecotourism study can be used to assess the economic value of ecotourism attractions and activities. The WTA value indicates the community's willingness to accept the lowest compensation for a marine ecotourism object or activity the community offers visitors. In contrast, the WTP value indicates the tourists' desire to pay the maximum value.

Table 2. WTA, WTP analysis, and economic potential

No	Location	WTA (IDR)	WTP (IDR)	Economical potential (IDR)
1	Sibintang	255.280	260.054	76.455.750
2	Barambang	110.250	503.474	148.021.263

The Willingness to Pay calculation results for Sibintang Beach are IDR 255,280, while for Barambang Beach, they are IDR 110,250 (Table 2). By examining many economic potential criteria, we can determine how much a visitor can afford to spend on a single ecotourism item during a visit to one of the two research locations. Sibintang Beach's average WTP was IDR 260,054, while Barambang Beach's was IDR 503,474.

Potential for sustainable marine ecotourism development

An area's regional potential is something that has to be developed. Potential development impacts Regional Original revenue (PAD) and is linked to local communities' economic revenue (Purnomo, 2016). Through the assistance and provision of infrastructure for controlled beaches, a policy of the regional government must foster the potential for sustainable growth of coastal ecotourism. Additionally, local communities must be actively involved in developing sustainable beach ecotourism. In this case, this will naturally be related to their hospitality, and the growth of beach ecotourism will directly improve local communities' welfare (Nabila et al., 2021). At Barambang Beach and Sibintang Beach, one component for promoting sustainable beach ecotourism is a beach's naturalness and historical and cultural significance (Mutmainah et al., 2016).

Based on the research findings, most respondents selected Disagree with a value of 0.350 for the tourist element question, which asked, "I came to Sibintang beach to find out about the natural beauty, history, customs, and culture of this place." This demonstrates the need to educate visitors about the history and culture of coastal ecotourism destinations to help them better understand the place they are visiting (Daulay, 2018). Additionally, the study's findings indicate that, with a value of 0.322, most respondents disagreed with the statement that

"beach ecotourism objects must have game spots" regarding the tourist component. The information above demonstrates how important the game area is to the beach ecotourism area's management and how it helps visitors. Significant observations and findings regarding the potential for the development of marine ecotourism at Barambang Beach and Sibintang Beach are possible. This also includes the outcomes of statistical computations that scholars have examined; some of these calculations have the lowest total item value.

The following are the findings and annotations from the statistical computations that were performed: a) Before engaging in any additional activities that can alter the tone of the environment, all locations must be preserved in their natural physical state, b) increasing the clarity of billboards, information boards, and location markers everywhere. There are already signs in place at some locations, but they are unclear and make it harder for visitors to discern the location, c) acquisition of infrastructure for the tourist post, together with upkeep and functionalization of the site, d) yearly recruitment of sustainable tourism ambassadors at the village and subdistrict levels, following the Central Tapanuli Regency tourism ambassadors. In order for village/subdistrict tourism ambassadors to have direct access to the coastline ecotourism region in their respective villages/subdistricts, d) acquisition of infrastructure and gear to facilitate tourism-related activities (such as beach football, beach volleyball, beach takraw, flying fox, swimming, snorkelling, and banana boating), e) creating or designating areas for people to take pictures can enhance the beach's appeal and increase its worth, f) promoting tourism at the village/sub-district level involves involving all relevant parties up to the district level, g) universities' contributions to education, conservation, and the development of Central Tapanuli as a coastal ecotourism destination, and h) in order to establish sustainable beach ecotourism in Central Tapanuli Regency, particularly at Barambang Beach and Sibintang Beach, it is essential to preserve a beach's naturalness as well as its historical and cultural significance.

CONCLUSION

Barambang and Sibintang beaches have the potential to be used as ecotourism areas, so the development strategy that can be taken, namely the addition of supporting facilities such as providing information boards for tourists related to directions, the location of supporting facilities and the farthest safe water points as swimming areas.

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