



Mangrove Ecotourism Development Strategy on the Coast of Kabita Village South Wangi-Wangi District Wakatobi Regency

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Abstract

This study aims to identify the potential of mangrove ecotourism, and the suitability of mangrove ecotourism and determine mangrove ecotourism development strategies on the coast of Kabita Village, South Wangi-Wangi District, Wakatobi Regency. This research utilized mixed methods: quantitative and qualitative research methods. Data collection was carried out with primary data, namely observation of mangrove areas, questionnaires, and interviews with the people of Dusun II Kabita Village and stakeholders using purposive sampling techniques and secondary data, namely documentation and literature studies. The analysis used in this study is quantitative analysis, qualitative, and SWOT analysis. The results of the analysis of mangrove ecotourism potential show that the mangrove ecosystem of Kabita Village has a thickness of 239.21 m, a density of 0.98 ind/m², the tidal height reaches 0.2 m/s, there are 4 types of mangroves namely *Rhizophora mucronata*, *Rhizophora apiculata*, *Sonneratia alba* and *Bruguera gymnorhiza* and aquatic biota in the form of birds, crabs, shrimp, various types of mollusks and starfish. Priority strategies are to maintain and always preserve the condition of mangrove vegetation, increase community participation and empowerment, spatial planning of tourist sites and preparation of master plans, training on tourism-related businesses for local human resources, developing mangrove areas as ecotourism areas by cooperating with BUMN, private sector, and surrounding communities and increasing publications related to the existence of mangrove ecosystems and their protection through Ecotourism development.

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INTRODUCTION

In coastal areas, mangroves are an essential component of the coastal environment. The mangrove forest ecosystem is one of the transitional environments along the coast where land and marine ecosystems coexist (Yeni Astuti, 2021). Many significant human endeavors begin in coastal regions. Many significant human endeavors begin in coastal regions (Irwanto et al., 2021). Mangroves serve the community economically in a variety of ways, such as a location for fishing, a supply of food and wood, an ingredient for medications and cosmetics, and a hub for ecotourism (Purnobasuki, 2019). Mangrove forests serve as spawning, foraging, and breeding grounds for marine biota in addition to providing nutrients and ecological stability (Malik et al., 2019). While its physical role is to absorb waves, shield the coast from tidal waves and abrasion, and, to some extent, neutralize marine pollutants (Pratitis & Khalid, 2020).

If properly managed, the mangrove ecosystem has the potential to provide large amounts of revenue (Arfan et al., 2022). Despite their great value and minimal impact when used, mangrove forests have not attracted much attention as tourism sites (Spalding & Parrett, 2019). Kabita Village is one place in Indonesia that has a mangrove habitat. The mangrove region of Kabita Village features a section of the ecosystem dispersed over the breathtaking white sand and clear beach. Mangroves could be a useful resource for the residents of Kabita Village (Jamili et al., 2019). Students are educated through direct excursions to the mangrove area, which makes use of the mangrove ecosystem's potential in Kabita Village. In addition, locals and guests from neighboring communities use this mangrove area for recreation on specific days.

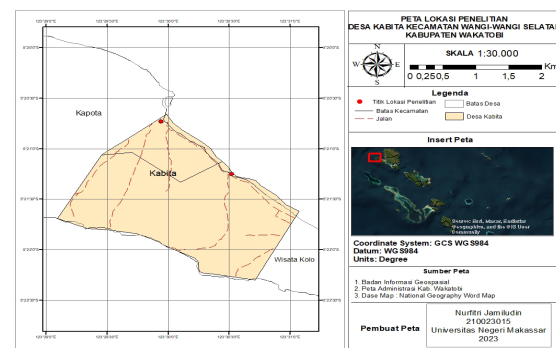
According to the findings of preliminary observations conducted in Kabita Village on October 20, 2022, with one of the village's informants, the mangroves on the village's coast had not been managed as well as they should have been, and the community had not benefited economically from the mangrove ecosystem in Kabita Village. In addition, a member of the community removed mangrove trees from Kabita Village's coastline region.

The idea for developing mangrove ecotourism is seen as significant in Kabita Village's coastal region. This is due to the fact that promoting mangrove ecotourism can both lessen envi-

ronmental harm and include the local population in its management, which has positive economic effects. The purpose of this study is to identify the internal and external elements that affect Kabita Village's mangrove region in order to decide the best course of action for developing mangrove ecotourism on Kabita Village Beach.

METHODS

This research uses qualitative methods and quantitative methods (*Mixed Methods*). The research location is on the coast of Kabita Village, Wangi-Wangi Suth District, Wakatobi Regency. This research focuses on the mangrove area and the Kabita Village community, namely the Dusun II community whose settlements are close to the mangrove area using the *purposive sampling*. Data collection techniques were carried out by collecting primary, secondary data and literature study. Primary data was carried out using mangrove potential observation techniques, namely type, density, thickness, tides, biota found in the mangrove area, questionnaires and interviews with the community in Hamlet II and stakeholder namely the Head of Kabita Village, Chair of the SPKP and Head of the Wakatobi National Park Office, as well as documentation and literature studies carried out to obtain secondary data. Data analysis techniques include quantitative analysis techniques for mangrove vegetation data, Likert scale questionnaires, and qualitative analysis techniques to describe the results of data collection through interviews. Additionally, SWOT analysis is used to develop strategies based on the strengths, weaknesses, opportunities, and treats (Rangkuti, 2016). Scoring techniques are used to obtain values for the prioritized strategy quadrants.



Source: Summary of research data (2023)

Figure 1. Research Location Map

RESULTS AND DISCUSSION

Results

Mangrove Vegetation Condition: The field observations in the coastal mangrove area of Kabita Village showed that thickness is 239.21 m, mangrove density is 0.98 ind/m², tidal speed is 0.2 m/s, and mangrove species are *Rhizophora mucronata*, *Rhizophora apiculata*, *Sonneratia alba*, and *Bruguera gymnorhiza* (Ritista P. Atmaja et al., 2019). The aquatic biota includes birds, crabs, shrimps, various molluscs, and stars.

Features of the Communities. The majority of Kabita Village population, who were discovered during the assessment, were between the ages of 26 and 5, and the majority earned between Rp. 1,000,001 and Rp 2,000,000 from their jobs as fishermen. High school graduates dominate the educational level.

Mangrove Ecotourims Areas` Suitability. Values for accessibility, area features, tides, density, thickness, mangrove type, and biota objects were derived based on the weighting and scoring system used to analyze the land suitability of the

mangrove region (Table 1).

Suitability of Mangrove Ecotourism Areas

Based on the land suitability analysis of the mangrove area using a weighting and scoring method based on thickness, density, mangrove type, tides, biota objects, area characteristics and accessibility values were obtained (Table 1).

Mangrove ecotourism development strategy

strategy for developing mangrove ecotourism utilizing a SWOT analysis method to determine a mangrove ecotourism development strategy for the mangrove area on Kabita Village's shore. Determining internal and exterior facts is one of the actions done.using the IFAS and EFAS matrices to score, creating a SWOT strategy matrix, and plotting on a SWOT quadrant graph to identify the sort of strategy employed depending on the plot's location

Internal factors

The internal factors of the mangrove ecosystem in Kabita Village come from *Internal*

Table 1. Observation results of the mangrove ecosystem based on IKW parameters

Parameter	Station		
	1	2	3
Mangrove thickness (m)	183,15	295,67	238,8
Mangrove Density(100m ²)	0,2	0,31	0,47
Types of Mangroves	4	4	4
Tide (m/s)	0,2	0,2	0,2
Biota Object	Fish, shrimp, crabs, mollusks, reptiles, birds and others	Fish, shrimp, crabs, mollusks, reptiles, birds and others	Fish, shrimp, crabs, mollusks, reptiles, birds and others
Regional Characteristics	It has panoramic or beautiful views and beautiful natural landscapes and white sand	It has panoramic or beautiful views and beautiful natural landscapes and white sand	It has panoramic or beautiful views and beautiful natural landscapes and white sand
Accessibillity	The road is quite good to reach the location, there are many alternative roads to reach the location, there are many means of conveyance/transportation to reach the location, there are supporting facilities and infrastructure (piers)	The road is quite good to reach the location, there are many alternative roads to reach the location, there are many means of conveyance/transportation to reach the location, there are supporting facilities and infrastructure (piers)	The road is quite good to reach the location, there are many alternative roads to reach the location, there are many means of conveyance/transportation to reach the location, there are supporting facilities and infrastructure (piers)

Table 2. Results of suitability analysis of mangrove ecotourism areas

No	Parameter	Weight	Station I		Station II		Station III	
			Skore	Ni	Skore	Ni	Skore	Ni
1	Mangrove thickness (m)	5	2	10	3	15	3	15
2	Mangrove density (100m2)	4	1	4	4	16	4	16
3	Types of Mangroves	4	2	8	3	12	3	12
4	Tide (m/s)	3	3	9	3	9	3	9
5	Biota objects	3	4	12	4	12	4	12
6	Regional Characteristics	2	2	4	2	4	2	4
7	Accessibility	2	3	9	3	9	3	9
Amount		-	-	56	-	77	-	77
Persentase (%)		-	-	70	-	96	-	96
Category Suitability		-	-	S2	-	S1	-	S1

Table 3. IFAS score scoring

Internal factors		Weight	Rating	Weight x rating
Strength :				
S1	The condition of mangrove vegetation is quite good	0,16	3,3	0,51
S2	has a fairly strategic location	0,04	3,7	0,16
S3	Beautiful view	0,09	4,0	0,36
S4	Generally, the public understands the functions and benefits of the mangrove ecosystem	0,07	3,3	0,22
S5	Village government and community participate and support the development of mangrove areas	0,11	3,7	0,41
S6	The level of suitability of the land for mangrove ecotourism is at an appropriate level	0,20	4,0	0,80
S7	Mobile network is available and accessibility is quite good	0,13	4,0	0,53
S8	Friendly residents and tour guides	0,02	4,0	0,09
S9	The diversity of aquatic biota is used as a source of livelihood	0,18	4,0	0,71
Amount		1,00		3,80
Weakness				
W1	Ecotourism management institution is not yet available	0,14	2,30	0,31
W2	Does not yet have a concept for developing an ecotourism area	0,09	2,70	0,25
W3	Lack of facilities and infrastructure to support ecotourism activities	0,18	2,70	0,49
W4	Limited budget for mangrove development	0,25	2,70	0,68
W5	Cutting down mangrove trees	0,34	2,30	0,78
Amount		1,00		2,51

Source: Data Analysis (2023)

Strategi Factor Analysis Summary (EFAS) namely strength (*strength*) and weakness (*weakness*). The IFAS table can be seen in Table 3.

External factors

Internal factors of the Kabia Village mangrove ecosystem

come from the External Strategy Factor Analysis Summary (EFAS), which scores opportunities and threats. The EFAS value is the X-axis on the SWOT analysis quadrant graphic, and the EFAS value is the Y-axis, which scores opportunities and threats by reducing the total

Table 4. EFAS score scoring

External Factors	Weight	Rating	Weight x Rating
Opportunity:			
O1 Opening up job opportunities for the community	0,40	3,30	1,33
O2 Support and regulations from the government	0,30	3,70	1,11
O3 Local tourists and researchers often visit			
O4 The distance between the sub-district and the port is quite close	0,20	4,00	0,80
	0,10	4,00	0,40
Amount	1,00		3,63
Threat:			
T1 Changes in land use	0,23	2,00	0,47
T2 Land ownership conflicts	0,27	2,30	0,61
T3 Trash and wood carried by currents	0,40	2,70	1,08
T4 Competition from other tourist attractions	0,10	3,00	0,30
Amount	1,00		2,46

Source: Data Analysis (2023)

Table 5. SWOT Results

Score	Strength	Weakness	Opportunity	Threat	X (IFAS)	Y (EFAS)
	3,80	2,51	3,63	2,46	1,29	1,17

Source: Data Analysis (2023)

value of strengths with weaknesses.

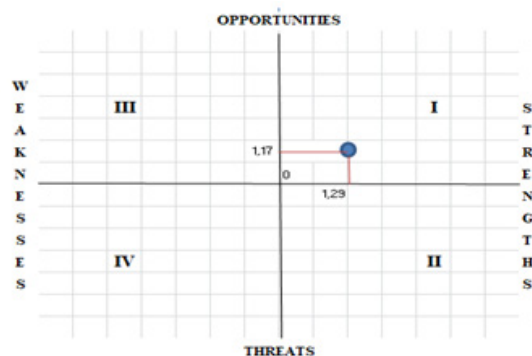


Figure 2. SWOT Quadrant of Mangrove Ecotourism Development Strategy. Data Analysis Source (2023).

The mangrove area on the coast of Kabita Village is in quadrant I, or an aggressive growth strategy, as shown in Figure 2. By utilizing the ecotourism power of the mangrove ecosystem, we can take advantage of existing opportunities

Discussion

After knowing the accumulated value of internal (IFAS) and external (EFAS) strategies, the next step is to choose an alternative strategy. Table 4 shows the strategies used to support the use of mangrove ecosystem resources as an ecotourism location.

Based on the results of weighting internal (IFAS) and external (EFAS) factors, the chosen strategy is the SO strategy, in this case the appropriate strategy for developing mangrove ecotourism based on its potential is as follows: Maintain and continually preserve the condition of mangrove vegetation and the diversity of biota that exist in mangrove forest areas.

Increasing community participation and community empowerment by maintaining and increasing the intensive/compensation given to conservation managers/communities carrying out conservation activities

Planning the spatial layout of tourist locations and preparing a master plan for ecotourism development can realize the concept or model of ecotourism in the Kabita Village Coastal Area more realistically. Seeing opportunities in the form of support from the government, in this case the Village Head and the Wakatobi National Park Office in its development.

Training of local human resources regarding the tourism business. considering that increasing regional economic income and community income is one of the goals of developing this region. One of the forces that can achieve this is a trained society.

Develop mangrove areas as ecotourism locations by collaborating with public companies, private companies and local communities. Various partners work together to build infrastructure

Table 6. Alternative Development Strategy Matrix for the Mangrove Ecotourism Area on the Coast of Kabita Village.

	Internal factors	Strenght	Weakness
		Has a fairly good mangrove ecological condition Has a fairly strategic location Beautiful views Generally, people understand the functions and benefits of the mangrove ecosystem Village government and the community participate and support the development of ecotourism areas The level of land suitability for mangrove ecotourism is at an appropriate level Mobile network is available and accessibility is good Friendly residents and tour guides The diversity of aquatic biota is used as a source of livelihood	Ecotourism management institutions are not yet available There is no concept for developing an ecotourism area Lack of supporting facilities and infrastructure Limited budget for developing ecotourism areas Cutting down mangrove trees
	External Factors		
	Opportunity	S-O Strategy	W-O Strategy
	Job opportunities open Support and regulations from the government Local tourists and researchers often visit The distance between the sub-district and the port is quite close	Maintain and always preserve the condition of mangrove vegetation and biota diversity in the area (S1, S3, S4, S5, S6, S9, O1, O2, O3). Maintain and continue to increase community participation and community empowerment in area management as expected (S9, S4 S5, O2, O3). Training on tourism-related businesses for local human resources. (S4,S58,O1,O2,O3) Spatial planning of tourist locations and preparation of a master plan for the development of mangrove ecotourism areas on the coast of Kabita Village (S5, S2, O2, O4) Developing mangrove areas by collaborating with BUMN, private sector and communities around the area (S1, S2, S3, S6, S7 O1, O2, O4) Increasing publications related to the existence of mangroves and their protection through the development of ecotourism (S1, S2, S3, S5, S8, S9.O1, O2, O3)	Socialization and assistance to the community regarding the management of ecotourism areas to improve the regional economy (W1, O1, O2) Collaboration with various partners to provide infrastructure that can support mangrove area development activities (W3, W4, O2, O3) Introduction and promotion of the mangrove development plan area by making boards/banners at ports, public media spaces and social media (W2, O2, O3, O4) Making plans/designs of areas for mangrove ecotourism (W2,O1,O2,O4)
	Threat	S-T Strategy	T-W Strategy
	Changes in land use Land ownership conflicts Trash and wood carried by the current Competition from other tourist attractions	Strengthening the concept of ecotourism to the community so that in the future the area will become multifunctional for education, economics, etc. (S1,S3,S4,S5,S6,T3,T4). Make strict regulations (in writing) regarding land status (S5, S7, T1, T2) Law enforcement regarding physical tolerance limits on the coast of Kabita Village, because it can disturb other biota (T1, T2, W2) Maintain and increase intensive/compensation for the community and beach cleaning officers in carrying out area conservation and cleaning activities (S1, S3, S5, T1, T2, T3)	Increase government participation and increase firmness in enforcing regulations prohibiting destruction and land conversion activities (T1, T2, W5) Providing training on recycling waste management which can be used for area development to save costs on purchasing materials and can become an environmentally friendly area (T3, T4, W4)

that supports tourist visits, such as tracking routes, more gazebos in mangrove areas, security posts, toilets, prayer rooms, water and lighting facilities.

Increasing publications about the existence of mangrove ecosystems and how to maintain them through ecotourism development. Seeing opportunities, such as the presence of students and researchers, and using existing strengths, namely the potential that has been previously identified, to achieve the most appropriate level of alignment. Strategies that can be used to increase the number of tourist visitors and increase awareness about the existence of mangroves in the ecosystem include publishing more publications about the existence of mangroves and their protection through the development of ecotourism. Local people are very important in implementing this strategy because they are open and humanist, which will make tourist visitors feel comfortable.

CONCLUSIONS

The potential for mangrove ecotourism on the coast of Kabita Village, Wangi-Wangi Selatan District, Wakatobi Regency, consists of various types of flora and fauna as well as natural attractions which are the attraction of the mangrove area.

Based on the level of suitability, it shows that the mangrove area in Kabita Village is included in the suitable category (S2) at station I and the very suitable category (S1) at stations II and III.

The concepts that can be used to develop mangrove ecotourism on the coast of Kabita Village are as follows: maintain and consistently preserve the condition of mangrove vegetation; increasing community participation and empowerment; spatial planning of tourist locations and preparation of master plans; training of local

workers on tourism-related businesses; and developing mangrove areas as ecotourism by collaborating with private, public and private companies.

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