



Sustainable Strategy in the Development of Mangrove Ecotourism in Pasar Rawa Village, Langkat Regency

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Received: October 14, 2023

Revised: November 19, 2023

Accepted: December 20, 2023

Published: December 31, 2023

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DOI: [10.29303/jppipa.v9i12.5664](https://doi.org/10.29303/jppipa.v9i12.5664)

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Abstract: Pasar Rawa Village has natural tourism potential that has not been managed optimally, one of which is mangrove ecotourism. Mangrove ecotourism is one of the efforts to conserve forest resources whose management positively impacts the environment and social economy of the community. This research aims to determine the right strategy for developing mangrove ecotourism in Pasar Rawa Village so that its management is sustainable. The research began by determining the strengths, weaknesses, opportunities and challenges of ecotourism development through direct observation, interviews, distribution of questionnaires and literature studies, then the development strategy was analyzed using SWOT analysis. The research results show that Pasar Rawa Village Mangrove Ecotourism is in quadrant I which supports aggressive growth policies and eleven ecotourism development plans refer to the regulations of the minister of tourism and the creative economy.

Keywords: Ecotourism; Mangrove; SWOT; Sustainable

Introduction

The mangrove ecosystem has an important role for the surrounding ecosystem (Barbier, 2016). Apart from providing ecosystem services, mangroves also have economic and social benefits for society. In an effort to mitigate climate change, mangrove plants have a higher level of carbon absorption, thereby helping to reduce total greenhouse gas emissions (Ahmed et al., 2022); (Rompegading & Handayani, 2023).

The rise of land conversion and illegal logging has caused mangrove forest cover to decrease and become damaged (Marpaung et al., 2022). Langkat Regency experienced a decrease in the area of mangrove land cover from 34,742.12 ha to 16,765.96 ha in a period of 25 years due to the conversion of mangrove forests into ponds and oil palm plantations (Basyuni et al., 2018). This damage has an impact on the economy of the people whose lives depend on the existence of the mangrove ecosystem especially fishermen who look for fish and crabs (K. I. W. Sari et al., 2023). One of the villages that is feeling the impact of the loss of mangrove

forests is Pasar Rawa Village in Gebang District, Langkat Regency.

Various efforts have been made to restore damaged mangrove ecosystems, including carrying out restoration and rehabilitation activities. Apart from that, conservation efforts need to be carried out to preserve the mangrove ecosystem. One way to manage it is through the use of mangrove areas for ecotourism (Hamidi et al., 2023) and involve local communities in its management (Upadhaya et al., 2022) so that there is interaction between society and the environment which ensures sustainability in ecotourism development (Kia, 2021). Increasing attention and awareness of the environment has caused ecotourism to become increasingly popular even though its activities still bring problems and challenges for sustainable development (Xu et al., 2023).

Ecotourism is defined as responsible travel to natural areas to gain knowledge, learn local culture and enjoy natural beauty (Lee & Jan, 2018). This activity is a choice in environmental conservation activities and community economic recovery in many areas by combining sustainable use of natural resources and

How to Cite:

Sari, R., Munthe, M. A., & Daulay, A. P. (2023). Sustainable Strategy in the Development of Mangrove Ecotourism in Pasar Rawa Village, Langkat Regency. *Jurnal Penelitian Pendidikan IPA*, 9(12), 11261–11267. <https://doi.org/10.29303/jppipa.v9i12.5664>

creating various income opportunities for the community (Samal & Dash, 2023; Baloch et al., 2023; Rasool et al., 2021).

Mangrove ecotourism in Pasar Rawa Village seems to have not been optimally managed so it has not had a big impact on the community. There needs to be an appropriate strategy to develop mangrove ecotourism in Pasar Rawa Village so that it becomes an environmentally based tourism destination. Therefore, this research aims to look at the potential resources of Pasar Rawa Village and then determine the right strategy for managing mangrove ecotourism in Pasar Rawa Village. It is hoped that the results of this research can be input for managers to develop sustainable mangrove ecotourism in Pasar Rawa village and can be used as input for making policies by the local government.

Method

Location and Time of Research

This research was carried out in Pasar Rawa Village, which is administratively located in Gebang sub-district, Langkat Regency, North Sumatra. Forest areas that are managed as mangrove tourism are production forest areas that were previously damaged and have been replanted. Around 138 ha of mangrove forest is managed by the Pasar Rawa Village Forest Management Institute (LPHD). Research data was collected in July-August 2023.

Research Tools and Materials

The tool used in this research was a questionnaire distributed to respondents including managers and tourists. The object of this research is Kelantang Mangrove Ecotourism which is located in Pasar Rawa Village, Langkat Regency.

Data Collection

Data on facilities, tourism potential and accessibility were collected through direct observation at the research location. Questionnaires were distributed to visitors using incidental *sampling*. The design of the list of questions in the research questionnaire was carried out using a Likert scale to assess respondents' opinions through ranking answers (Mallick et al., 2020). Interviews were conducted with local communities, Ecotourism managers, NGOs, tourism actors and the Langkat Regency Tourism Office. This data is then identified to determine the internal and external conditions of the research location and then with the help of experts the most appropriate factors are selected.

Data Analysis

SWOT analysis consists of four main factors, namely strengths, weaknesses, opportunities and challenges. This model was chosen based on Navarro-Martínez et al., (2020) who recommended SWOT analysis to determine sustainable tourism management because it will identify internal strengths and weaknesses as well as opportunities and challenges created externally. The identification results are entered into a matrix of internal and external factors using software *Microsoft Excel*. The IFAS and EFAS identification results are included in the SWOT matrix for strategy analysis.

Result and Discussion

Identification of internal and external factors is the first step in SWOT analysis. The results of identifying internal factors in the form of strengths and weaknesses of ecotourism are in Table 1, while the results of identifying external factors in the form of opportunities and challenges are in Table 2.

Internal Factor Analysis

Several types of mangrove vegetation can be found in the mangrove ecosystem area of Pasar Rawa Village. According to R. Sari et al., (2023), the types of mangrove plants found in the mangrove ecosystem of Pasar Rawa village are *Rhizophora apiculata*, *Bruguiera gymnorrhiza*, *Sonneratia alba*, *Excoecaria agalloca*, *Acrostichum speciosum*, *Acrostichum aureum*, *Scyphiphora hydrophyllacea*, dan *Acanthus ilicifolius*. Banyaknya jenis flora dan fauna yang ditemukan dapat menjadi peluang pengembangan wisata alam bahkan khususnya ekowisata mangrove (Syahrin & NP, 2020).

There are many tourist activities that can be done in Pasar Rawa Village apart from visiting the mangrove ecosystem, including seeing crab breeding places using the silvofishery system (Daulay et al., 2023), picking melons and watermelons at certain times, fishing and sitting relaxed in the hut, carrying out planting activities and enjoying food and drinks. a typical preparation from Pasar Rawa village. This activity can be part of a series of tourist trips including Mangrove Plants which is one of the educational tours (Abdillah & Harahab, 2020).

This potential has not attracted many tourists because of the lack of promotion by the management. Promotions carried out so far are still via Facebook or from the experiences of visitors who have come to Pasar Rawa Village because of research or work visits. Promoting tourist attractions will increase visitors and community income (Quezada-Sarmiento et al., 2018). Selain promosi, The costs that must be incurred on a tourist trip are also one of the determining factors for

tourists to visit (Purwoko et al., 2022), so it is necessary to improve the quality of facilities and infrastructure in the Pasar Rawa Village mangrove tourism area.

Facilities such as parking lots, public toilets, houses of worship and accommodation are not yet available in tourist areas so they are still living in the homes of local people. The lack of facilities is also due to poor management and insufficient funds.

There is only a canteen and rubbish bin in the Pasar Rawa Village mangrove tourist area. Facilities and infrastructure that support tourism activities such as canoes, tracking in mangrove areas, buoys and others are also not yet available. The availability of facilities and infrastructure that support tourist activities can provide comfort and a pleasant experience for tourists so that it can increase interest in traveling in a tourist area (Zamfir & Corbos, 2015).

Some of the access roads to tourist locations have not been asphalted and there are no directional signs indicating the location of the tourist attractions. Apart from that, there is no public transportation that goes directly to the location, so you have to use private vehicles. The distance from tourist attractions to the main road is not too far and mini buses can still enter tourist locations.

Table 1. Analysis of internal factors for Mangrove Ecotourism in Pasar Rawa Village

Internal factor strategy	Weight	Rating	Score
Strength			
Fruit picking tour	0.18	3.4	0.63
Silvofishery	0.15	2.8	0.43
There is a Saung at the tourist development location	0.22	3.8	0.83
There are special products made from processed mangrove plants	0.16	2.8	0.46
There are independent nurseries	0.12	3.2	0.38
There are fishing spots			
Total	1.00		3.18
Weakness			
Promotion is still lacking	0.23	1.8	0.42
Facilities are still lacking	0.16	1.2	0.20
Access to the location (not yet paved)	0.23	2	0.47
There are no directions to tourist locations	0.19	2.8	0.52
There are no facilities to support tourism activities (canoes, tracking, buoys)	0.19	1.8	0.33
Total	1.0		1.93

External Factor Analysis

Business competition in the mangrove tourism sector is still low in Langkat Regency, especially in Pasar Rawa Village. Fewer competitors will attract more visitors. Collaboration with various parties for tourism development needs to be held because relying on

managers alone as an internal aspect is not enough (Spalding & Parrett, 2019). The supporting potential of Pasar Rawa Village makes many companies want to collaborate in developing mangrove ecotourism. Several parties have also helped in making huts and rubbish bins at tourist locations. The surrounding community also supports tourism development by providing accommodation, parking and most importantly keeping the surrounding environment clean.

On certain days, Pasar Rawa Village will be busy with pilgrims from outside the city and abroad such as Malaysia to visit the grave of the Sheikh Datuk. Apart from that, every independence celebration there is always a canoe race held around the riverbank which will attract many people to come. This can certainly be an opportunity to promote the existence of mangrove ecotourism in Pasar Rawa village.

A safe location and the presence of many typical processed marine products will be potential supporters of tourism development. Visitors can travel and enjoy food safely and comfortably. There are several challenges in developing mangrove tourism in Pasar Rawa village, namely high tidal flooding, land conversion and forest encroachment, competition from similar tourism, and the availability of management funds. Based on Bachri et al., (2021), the success of ecotourism development if it uses the principles of sustainable development which starts from considering the quality of the environment and the welfare of the community.

Table 2. Analysis of External Factors for Mangrove Ecotourism in Pasar Rawa Village

External factors strategy	Weight	Rating	Score
Opportunity			
There is the tomb of Sheikh Datuk	0.10	6	0.61
Canoe competition activities at certain events	0.15	7	1.04
Support from NGOs, villages and local communities	0.14	6.8	0.94
City people are looking for rural tourism experiences	0.12	7.6	0.91
Safe tourist development location	0.19	7.6	1.41
Typical village processed food from sea products	0.19	6.6	1.22
Several companies are interested in developing tourism	0.12	3.4	0.41
Total	1.00		6.55
Challenge			
High tide flood (rob)	0.30	4.6	1.39
Land conversion and forest encroachment	0.30	4.4	1.33
There are competing tours	0.18	2.4	0.44
Development funds	0.21	2.8	0.59
Total	1.00		3.76

Based on Figure 1, Pasar Rawa Village mangrove ecotourism is in the strategic position of quadrant I. The tourism development strategy that must be implemented is to support aggressive growth policies (growth oriented strategy) (Listiani et al., 2023). This can be done through increasing sales, assets, profits or a combination of the three (Rangkuti, 2015); (Has et al., 2023)



Figure 1. SWOT Quadrant of Mangrove Ecotourism in Pasar Rawa Village

Aggressive strategies are between the Strength and Opportunity (S-O) quadrants. Based on the strengths

and opportunities that Pasar Rawa village has, the management can utilize existing strengths to create ecotourism packages for visitors and the packages offered must be safe and in accordance with the mangrove ecotourism potential. Seeing opportunities for support from various parties in the development of ecotourism, various parties can be involved so that the ecotourism that is developed is sustainable. According to (Sinulingga et al., 2015), the involvement of elements of the population, agencies, universities and NGOs can be one of the strategies for developing sustainable tourism, such as developing ecotourism-based tourism packages. Some ecotourism programs that can be developed are mangrove educational tours, mangrove cultivation, photography of the beauty and uniqueness of mangrove vegetation, and culinary tourism.

The community can be involved and play a role in managing the mangrove ecosystem, such as being empowered as guides, souvenir craftsmen, transportation services and providers of special food and drinks for visitors. Based Prasenja et al., (2017), communities living around tourist areas can be one of the key players in supporting tourism development.

Analisis of Ecotourism Development Strategy with SWOT

Based on Table 3, there are 11 strategic plans for developing mangrove ecotourism in Pasar Rawa Village, Langkat Regency which consider sustainable ecotourism development in accordance with Ministerial Regulation No. 9 of 2021 concerning Guidelines for sustainable tourism destinations.

Table 3. SWOT Matrix Analysis of Mangrove Ecotourism in Pasar Rawa Village

		No	Strength (S)	No	Weakness (W)
Internal/ external		1	Fruit picking tour	1	Promotion is still lacking
		2	Silvofishery	2	Facilities are still lacking
		3	There is a Saung at the tourist development location	3	(lodging, toilets, seating, etc.) Access to the location (not yet paved)
		4	There are special products made from processed mangrove plants	4	There are no directions to tourist locations
		5	There are independent nurseries	5	There are no facilities to support tourism activities (canoes, tracking, buoys, etc.)
		6	There are fishing spots		
No	Chance (O)	No	S - O Strategi	No	W - T Strategy
1	There is the tomb of Sheikh Datuk Besilam which is visited by pilgrims from abroad	1	Optimizing the management of natural resource potential as tourist attractions by providing facilities and services for tourist visits such as mangrove ecotourism tours (S1, S2, S3, S5, S6, O1, O2, O5)	1	Increase promotions by creating attractive brochures and sharing them on various social media (W1, W5, O1, O2, O4, O6)
2	Canoe competition activities at certain events		Increasing promotions through social media and conventional media to reach a wider market by developing a tourism marketing team (S4, O3, O4, O6).	2	Build the most needed facilities in a tourist attraction (W2, W4, W5, O3, O5, O7)
3	Support from NGOs, villages and local communities	2	Establishing collaboration with various parties to develop tourism (S1, S2, S4, O3, O7)	3	Collaborating with various related parties who can support tourism development (W3, O3, O7)
4	City people are looking for rural tourism experiences				
5		3			

6	Safe tourist development location				
7	Typical village processed food from sea products				
	Several companies are interested in developing tourism				
No	Threat (T)	No	S - T Strategi	No	W-T Strategi
1	High tide flood (rob)	1	Planting and monitoring mangrove forest areas (S2, S5, T2)	1	Optimizing existing resources and finding village uniqueness to develop (W1, W2, W4, W5, T3, T4)
2	Land conversion and forest encroachment	2	Create unique product characteristics to make tourism unique (S1, S4, T3, T4)	2	Anticipate disasters by arranging certain months where high tides may occur (W3, T1, T2)
3	There are competing tours				
4	Development funds	3	Make a plan to prevent damage to tourist areas due to disasters (S3, S6, T1, T2)		

Conclusion

The strategy for developing mangrove ecotourism in Pasar Rawa village is in quadrant 1 with an aggressive strategy. The strategy that must be implemented is to maximize the strengths you have and take advantage of existing opportunities. There are eleven ecotourism development plans based on the SWOT matrix to achieve sustainable ecotourism.

Acknowledgments

Thanks to all the research team and writers so that this scientific work can be published. Thanks to the LPPM of Satya Terra Bhinneka University for supporting the implementation of the research and the LPHD of Pasar Rawa Village for assisting in the implementation of research in the field.

Author Contributions

Conceptualization, Ratna Sari, Muhtar Ardansah Munthe and Aulia Putra Daulay; methodology, Ratna Sari; software, Muhtar Ardansah Munthe; validation, Ratna Sari;

Funding

This research was funded by the Ministry of Education, Culture, Research and Technology of the republic of Indonesia, contract number 065/E5/PG.02.00.PM/2023.

Conflicts of Interest

In this study, it is essential to note that the authors sincerely and openly declare that they have no conflicts of interest that could influence the results or interpretation of this study. Confirms that the integrity and objectivity of our research remain intact. The funders had no role in the design of the study, in the collection, analysis, interpretation of data and in the writing of the manuscript.

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