SWOT Analysis of Mangrove Ecotourism Development: Opportunities and Challenges in the Era of Green Tourism, Case Study of Sumbernadi Village, Ketapang District, South Lampung

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Abstract

This study aims to analyze the potential, challenges, and development strategies of the Mangrove Ecotourism Area in Sumbernadi Village, Ketapang District, South Lampung Regency, in the context of community-based green tourism. This study uses a qualitative descriptive approach supported by simple quantitative data through SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis. Primary data was collected through field observations, in-depth interviews, and questionnaires with local managers, residents, and village officials, while secondary data was obtained from official documents and relevant scientific literature. The findings show that Sumbernadi Village has a strong potential to become a sustainable ecotourism destination, with key strengths including a well-maintained mangrove ecosystem (90% planting success rate) and high community participation. The main weaknesses lie in limited infrastructure and digital promotion, while opportunities arise from growing green tourism trends, CSR support, and academic collaboration. Threats include ecosystem degradation due to tourism activities and climate change. Based on the SWOT analysis, the recommended strategy is a progressive-adaptive approach that emphasizes community capacity building, basic infrastructure improvement, and sustainable village policy implementation. This study provides a new model for the development of community-based mangrove ecotourism that integrates conservation, education, and local economic empowerment in South Lampung, contributing to the practical implementation of sustainable tourism management at the village level.

Keywords: Mangrove ecotourism, green tourism, SWOT analysis, community participation, South Lampung

A. INTRODUCTION

Sustainable tourism has become a major direction in the development of the tourism sector in Indonesia, along with increasing awareness of environmental conservation and empowerment of local communities (Putri & Hidayat, 2022). One of the tangible forms of applying these sustainability principles is the development of mangrove ecotourism, which not only functions as a natural tourist destination, but also has significant ecological and socioeconomic value for coastal communities (Rahmawati & Suprapto, 2021).

South Lampung Regency has great potential in the development of ecotourism, especially in coastal areas that are rich in mangrove ecosystems. One of the areas that is being developed is Sumbernadi Village, Ketapang District, which from 2023–2024 has been pioneered as a community-based ecotourism area. This area has a beach length of about 2,200 meters with a success rate of 90% of mangrove planting. Planting activities are carried out independently by the community with the support of seeds from the private sector (PEN). Although it has not received direct assistance from the local government, this area won the 1st Place Award for Forest Land Rehabilitation and Environment in Lampung Province in 2020 by BAPPEDA, which shows the

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community's commitment to environmental conservation (South Lampung Environment Office, 2021).

Previous research has shown that community-based mangrove ecotourism management is able to improve economic well-being and conservation awareness. Wulandari and Nugroho (2019) stated that community participation is the main factor in the success of coastal area management. However, the research of Yuliana et al. (2020) identified the main challenges in the form of limited infrastructure, lack of digital promotion, and lack of environmental education. Similar conditions are also found in Sumbernadi Village, where road access is still inadequate and public facilities such as toilets and information boards are still limited.

Efforts to develop this area include the construction of a 500-meter trekking trail, fishing spots, the Sanghyang Baruna Monument, and additional attractions such as the Bali Small Village. This concept reflects the integration of cultural, ecological, and recreational aspects that are in line with the principles of green tourism, namely tourism that emphasizes environmental preservation and strengthening local cultural values (Wijayanti & Hadi, 2022).

Several relevant studies have been conducted to assess mangrove ecotourism development strategies. Ananda and Suharjo (2020) show that SWOT analysis is an effective tool in formulating sustainable tourism destination strategies. Rosyid and Pertiwi (2018) emphasized the importance of synergy between the government, the community, and the private sector, especially in areas such as Surabaya. However, most of the research focuses on areas that have developed and have strong institutional support, while studies on new areas that are still managed independently by the community, such as Sumbernadi Village, are still limited (Suryani & Fathurrahman, 2022).

Thus, there is a research gap in the study of mangrove ecotourism development based on community participation in new areas that do not have formal infrastructure or policy support. Therefore, this study intends to analyze the strengths, weaknesses, opportunities, and threats (SWOT) in the development of Mangrove Ecotourism in Sumbernadi Village, as well as develop adaptive and sustainable management strategies in accordance with the local socio-ecological context. The novelty of this research lies in the collaborative approach based on the community in the new coastal area, which has the potential to become a model for green ecotourism management in South Lampung.

B. METHOD

This study uses a descriptive qualitative approach equipped with simple quantitative data. A qualitative approach is used to deeply understand the social, cultural, and environmental conditions in the management of Mangrove Ecotourism in Sumbernadi Village, Ketapang District, South Lampung Regency. This approach is in accordance with the view of Sugiyono (2019) who explains that the qualitative method aims to describe phenomena naturally through direct interaction between researchers and informants. This approach also strengthens the understanding of the role of communities and regional development strategies based on local participation.

The research was conducted in Sumbernadi Village, Ketapang District, South Lampung Regency, which was deliberately chosen because it has a natural mangrove ecosystem, planting success rate of up to 90%, and high community participation in conservation activities (Creswell & Poth, 2018). This location is also a new ecotourism area that is independently pioneered by the community, so it is relevant to the research objectives. The research activities will be carried out

in October 2025, including instrument preparation, initial observation, data collection, and analysis of results using the SWOT approach.

The data collected consists of primary data and secondary data. Primary data was obtained through field observations, in-depth interviews with tourism managers, village officials, and the community, and the distribution of SWOT questionnaires to respondents. Secondary data was obtained from official village documents, reports from the South Lampung Tourism Office, as well as scientific literature such as journals and books related to ecotourism and green tourism (Bungin, 2020). The combination of these two types of data is used to strengthen the validity of the research results.

The data collection procedure includes four main techniques: **(1)** direct observation of the physical condition of the area, infrastructure, and community activities; **(2)** semi-structured interviews with key stakeholders (Moleong, 2021); **(3) a** SWOT questionnaire to assess perceptions of strengths, weaknesses, opportunities, and threats; and **(4)** a documentation study that examines secondary data and activity reports related to area management.

Data analysis is carried out with SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to determine the strategic position and direction of regional development. This analysis identifies internal factors (natural potential, community participation, infrastructure, promotion) and external factors (government support, CSR, green tourism trends, climate change). Based on the Rangkuti (2018) model, the identification results were compiled into four alternative strategies, namely SO, WO, ST, and WT, which are the basis for recommendations for sustainable ecotourism development.

The validity of the data is maintained through triangulation of sources and methods, namely by comparing the results of observations, interviews, and documentation to ensure the accuracy of the information. In addition, members were examined by key informants, such as the Head of the Village Service Section, to verify the results of the researcher's interpretation. According to Moleong (2021), triangulation is an important technique in ensuring the credibility of qualitative data through confirmation between sources, methods, and collection times.

C. FINDINGS AND DISCUSSION

The Mangrove Ecotourism Area in Sumbernadi Village, Ketapang District, South Lampung Regency has a beach length of about 2,200 meters with a planting success rate of 90%. Rehabilitation activities are carried out independently by the community with the support of seeds from the private sector (PEN) and technical assistance from environmental institutions. The community is active in mutual cooperation and rejuvenation every year, even though it has not received financial support from the local government. This effort obtained the 1st Place Award for Forest Land and Environmental Rehabilitation of Lampung Province in 2020 by BAPPEDA, which shows the success of the conservation model based on community participation.

The area development plan includes the construction of a 500-meter trekking trail, fishing area, Sanghyang Baruna Monument, gazebo, and homestay. In addition, the construction of a mangrove research and education center is planned to support tourism, education, and conservation. These results strengthen the view of Nurhidayah and Fauzan (2020) that the success of mangrove-based ecotourism is determined by collaboration between communities and local institutions.

SWOT Analysis

The results of the identification of internal and external factors are shown in Table 1. All indicators were obtained from in-depth observations and interviews with managers, communities, and village governments.

Table 1. SWOT Analysis and Strategy Matrix for Mangrove Ecotourism Development in Sumbernadi Village

INTERNAL FACTORS / EXTERNAL FACTORS	STRENGTH(S)	DISADVANTAGES (W)
	1. Healthy mangrove ecosystems (±90%). 2. Active participation of local communities. 3. The Uniqueness of the Coastal Culture (Sanghyang Baruna Ritual).	1. Accessibility and infrastructure are still limited. 2. Digital promotion has not been managed properly. 3. Lack of public facilities.
OPPORTUNITY (O) 1. The trend of green tourism is increasing (Wijayanti & Hadi, 2022). 2. CSR support of local companies. 3. Location near the Bakauheni tourist trail. 4. Potential for academic collaboration. 5. There are no mangrove competitors in the surrounding area	**SO Strategy (Aggressive – Using power to take advantage of opportunities)** 1. Developing the Sumbernadi Edu Mangrove Tour Package which combines conservation, education, and local cultural tourism activities. 2. Utilizing green tourism and education trends for digital promotion through social media, village websites, and collaborations with universities. 3. Optimizing community support in creating nature-based tourist attractions such as eco-trekking, eco-fishing, and Sanghyang Baruna rituals as distinctive attractions. 4. Build a network of partnerships with educational institutions and NGOs to expand research and training activities in mangrove areas.	**WO Strategy (Progressive – Seizing opportunities to overcome weaknesses)** 1. Improving the quality of human resources through tour guide, hospitality, and environmental conservation training in collaboration with universities and tourism offices. 2. Prepare a Village Ecotourism Action Plan to get financial support from local companies' CSR programs. 3. Taking advantage of green tourism trend opportunities to develop environmentally friendly local products (souvenirs made from natural materials). 4. Develop basic infrastructure (information boards, safe trekking trails, public toilets) through village labor-intensive programs.
THREAT (T) 1. Risk of ecosystem damage due to tourism activities. 2. Climate change and coastal abrasion. 3. Low awareness of long-term conservation. 4. 4. Competition with other coastal destinations in Lampung.	**ST Strategy (Diversification – Using power to overcome threats)** 1. Establish a Village Mangrove Guard Unit to maintain the preservation and supervision of activities in tourist areas. 2. Making the Sanghyang Baruna ritual a means of environmental campaigns and social mitigation against the threat of climate change. 3. Encourage the implementation of sustainable tourism practices (green tourism) to maintain ecosystem balance. 4. Develop a conservation funding system from tourism activities (e.g. mangrove planting tickets).	**WT Strategy (Defensive – Reducing weaknesses and avoiding threats)** 1. Implement phased conservation with a pilot project approach prior to large-scale development. 2. Establish Village Regulations (Perdes) on zoning activities and visitor restrictions to prevent damage to the ecosystem. 3. Conduct regular environmental monitoring in collaboration with conservation institutions and academics. 4. Increase public awareness through routine activities such as coastal mutual cooperation and anti-illegal logging campaigns.

(Source: Field Data, 2025)

Based on the results of observations and interviews, the main strength of this area lies in the support of the community and the success of ecosystem conservation. Community participation is a significant social capital in preserving the environment (Rosyid & Pertiwi, 2018). However, there are still weaknesses in the form of limited infrastructure and digital promotion, as also revealed by Ananda and Suharjo (2020), who assess that infrastructure and promotional capacity are common obstacles in coastal ecotourism areas.

A great opportunity comes from the increasing trend of green tourism and education that can be leveraged to expand the tourism market. This is in line with Rahmawati (2021) who stated that mangrove ecotourism can function as a means of environmental education as well as a driver of the local economy. On the other hand, the main threat comes from the potential damage to ecosystems due to uncontrolled tourism activities and climate change.

Regional Development Strategy

The development strategy is prepared based on a combination of internal and external factors as shown in Table 1.

Interpretation and Implications of the Strategy

The analysis shows that Sumbernadi Village is in a progressive strategic position, which has high potential but requires strengthening infrastructure and governance. The SO and WO strategies are short-term priorities, while ST and WT are used as long-term guidelines to maintain a balance of conservation and economics. This approach is in line with the principles of

sustainable tourism development that emphasize a balance between economic benefits, environmental conservation, and social well-being (UNWTO, 2022).

With the consistent implementation of this strategy, the Sumbernadi Mangrove Ecotourism area has the potential to become a community-based green tourism model in South Lampung.

Figure 1. Mangrove Area Trekking Trail
(Source: Field Documentation, 2025)

Figure 2. Trekking Trail Information Board
(Source: Field Documentation, 2025)

D. CONCLUSION

This study concludes that the Mangrove Ecotourism area of Sumbernadi Village, Ketapang District, South Lampung, has high potential to be developed as a community-based green tourism destination. The success of the community in preserving the mangrove ecosystem with a planting success rate of 90% shows the important role of local participation as the main strength of regional sustainability. The SWOT analysis shows that the main strengths lie in a healthy ecosystem and active community engagement, while the main weaknesses are in the form of infrastructure limitations and digital promotion. Development opportunities arise from rising green tourism trends, support for CSR institutions, and potential academic collaborations, while threats include climate change and lack of management regulations. The most relevant strategy

for these areas is a progressive adaptive strategy that integrates community capacity building, improvement of basic facilities, and the implementation of village-based sustainable governance.

In addition, the study emphasizes the importance of developing a long-term ecotourism strategic plan that involves village governments, communities, and conservation agencies to ensure a balance between economic benefits and ecological conservation. Strengthening collaboration with universities and utilizing digital promotions is an important step to expand the reach of tourists, while the implementation of village regulations can regulate tourism activities so as not to damage the ecosystem. Conceptually, this research contributes to the development of a community-based mangrove ecotourism management model in Indonesia's coastal areas, with a positive impact on increasing environmental awareness, ecotourism education, and sustainable local economic empowerment.

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