



## Mangrove Forest Development Strategy in Muara Tourism Village, Teluk Naga District, Tangerang, Indonesia

Deby Aini Saputri<sup>1</sup>, Uud Wahyudi<sup>2</sup>, Alexander M.A Khan<sup>3</sup>

<sup>1,2,3</sup>Universitas Padjadjaran, Indonesia

Correspondent: [deby22001@mail.unpad.ac.id](mailto:deby22001@mail.unpad.ac.id)<sup>1</sup>

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**ABSTRACT:** One kind of ecotourism makes use of the resources already present in a destination's natural and cultural landscapes. Muara Village in Tangerang Regency is home to a mangrove forest that could be transformed into an ecotourism hotspot. The purpose of this study is to investigate the feasibility of creating an ecotourism destination in Muara Village's mangrove forest, as well as the obstacles that may be in the way, and to provide solutions. The study used a descriptive qualitative approach, gathering data via in-depth interviews, literature reviews, and field observations. Mangrove woods in Muara Village have enormous untapped potential in terms of biodiversity and educational value, according to the study. The main challenges faced are the lack of public awareness about the importance of preserving mangrove forests and the limited tourism support facilities. The proposed ecotourism development strategy includes increasing the capacity of local communities, developing supporting infrastructure, and sustainable promotion.

**Keywords:** Ecotourism, Mangrove Forest, Muara Village, Tourism, Development,



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## INTRODUCTION

Ecotourism is a form of sustainable tourism with a primary focus on environmental conservation, empowerment of local communities, and education about nature ([Nijamdeen et al., 2023](#)). Sustainability and alternative travel practices are at the heart of ecotourism ([Tjahjono et al., 2022](#)). Ecotourism refers to a type of tourism that focuses on nature as its primary attraction, with an emphasis on improving local communities and preserving them through educational opportunities ([Luom et al., 2021](#)).

This concept is increasingly developing in various parts of the world, including Indonesia, due to the increasing global awareness of the importance of maintaining ecosystem balance and environmental sustainability ([Luom et al., 2021](#)). Indonesia, which is rich in biodiversity and has various unique ecosystems, is one of the strategic choices for developing tourism. One of the ecosystems that is very important and has great potential to be developed as an ecotourism destination is the mangrove forest ([Bhowmik et al., 2022](#); [Limbong & Ahmad, 2023](#)).

Coastal ecology depends on mangrove forests to maintain balance ([Luom et al., 2021](#)). Mangrove forests function as natural barriers that keep coastlines safe from erosion and storms and are also home to a variety of plants and animals, some of which are endangered ([Luom et al., 2021](#)). In Indonesia, the existence of mangrove forests is widespread in various regions, and one of them is in Tangerang Regency, Banten Province.

Muara Village, Tangerang Regency, has a fairly large and relatively well-maintained mangrove forest. This area has biodiversity with various types of mangroves that are home to various species of birds, fish, and other organisms. It also functions as a buffer zone for coastal ecosystems that are important for the lives of local communities that mostly depend on marine products and other natural resources.

Despite its great potential, the utilization of mangrove forests in Muara Village as an ecotourism destination is still relatively minimal. Many factors influence the low development of ecotourism in this area, including the lack of public awareness of the value and benefits of the mangrove ecosystem, the lack of supporting tourism infrastructure, and the lack of promotional and marketing efforts for the destination ([Purwanti et al., 2020](#)). There are threats to the sustainability of mangrove forests due to the activities of the surrounding community such as illegal logging, land conversion, and environmental pollution ([Arfan, Maru, et al., 2021](#); [Surya & Manaf, 2021](#)).

Muara Village mangrove ecotourism may require a holistic and long-term plan to overcome these constraints and reach its full potential. For ecotourism development to comply with sustainability principles, this plan must include several relevant stakeholders, such as commercial companies, academic institutions, and local communities ([Buncag, 2021](#)). A participatory approach in ecotourism planning and implementation is essential so that local communities can be an active part of the process and experience the economic, social, and environmental benefits of ecotourism development ([Debrot et al., 2020](#)).

Education and increasing public awareness of the importance of mangrove forest conservation are also the keys to the success of ecotourism development ([Dahdouh-Guebas et al., 2022](#)). Thus, ecotourism is not only a tool to drive the local economy but also an effective means of education for the community and tourists. Good ecotourism development is also expected to be a model for the management of other coastal areas in Indonesia, which have similar potential but face the same challenges ([Putra et al., 2021](#)).

There are several anticipated benefits to developing ecotourism in the mangrove forests of Muara Village, these include generating much-needed funds for residents, educating the community about the importance of protecting natural areas, and strengthening the cultural identity of coastal communities. The purpose of this study is to identify the strengths, weaknesses, opportunities, and threats facing Muara Village, and to provide recommendations on how ecotourism in the mangrove forests can be developed responsibly and sustainably.

Unlike previous studies, this research uniquely focuses on the integration of community-driven strategies and local environmental conditions to develop a tailored ecotourism model for the Muara mangrove forest. This study aims to develop a sustainable ecotourism strategy for mangrove forests in Muara Village by addressing the following research questions: (1) What are the key challenges and opportunities for ecotourism development in Muara Village? (2) How can local

stakeholders be effectively engaged in promoting environmental conservation and community welfare?

### **Ecotourism Concept**

Ecotourism is a form of tourism that aims to support environmental conservation, empower local communities, and educate visitors. Ecotourism emphasizes responsible interactions between tourists and relatively undisturbed or uncontaminated natural environments, to minimize negative impacts on ecosystems and increase environmental awareness. According to The International Ecotourism Society (TIES 1990), ecotourism is "responsible travel to natural areas that maintains the environment and improves the well-being of local people" ([Arfan, Nyompa, et al., 2021](#)).

For ecotourism to thrive, several standards must be met ([Srivastava & Mehta, 2023](#)):

- a) Minimizing the negative impacts of tourism on ecosystems and indigenous communities.
- b) Increasing understanding and respect for the environment while benefiting the destination as a place to visit and the people who live there.
- c) Providing enjoyable opportunities for visitors to participate in conservation and improvement.
- d) Offering financial benefits for conservation efforts through donations or more tourist spending.
- e) Creating tourism goods that prioritize local values as a means of providing financial benefits and empowering local communities.
- f) Raising awareness of the impacts of the tourism industry on local communities, the environment, and politics.
- g) Adhering to fair and mutually agreed standards in organizing tourism activities; including respecting employment contracts and the freedom of residents and visitors to enjoy tourist locations.

### **Mangrove Forest Ecotourism**

([Ramandey et al., 2023](#)) stated that Indonesia is an archipelagic country with a coastline of 81,000 Km. The country's coastal areas are home to a variety of rich natural resources and unique ecosystems that include terrestrial and marine life. Among them, mangrove and seagrass ecosystems stand out for their crucial function in coastal protection. Mangroves act as buffers for waves and currents, and seagrass thrives in the center of coral reef ecosystems. Mangroves, on the other hand, are a series of shrubs that grow along the coast and function as an impenetrable barrier. Its physical protection from abrasion, its biological role as a home for various types of biota, and its economic role as a source of raw materials for paper are its three main objectives ([Arifanti et al., 2022](#); [Harto et al., 2021](#)).

Mangrove forests are special coastal ecosystems that play an important role in regulating the interaction between land and sea ([Natsir et al., 2022](#)). In addition to protecting coastal areas from storms and erosion, these forests are also home to various species of plants and animals. The development of ecotourism in mangrove areas has become a focus of research because of its high ecological and economic potential ([Dahdouh-Guebas et al., 2021](#)). Mangrove forests can attract tourists interested in nature activities such as bird watching, educational ecotourism, and scientific research, which in turn can support conservation and improve the local economy.

The potential of ecotourism in mangrove areas includes natural beauty, biodiversity, and opportunities for environmental education ([Alam et al., 2022](#)). Mangrove ecotourism can provide economic benefits to local communities through job creation, small business development, and increased income from tourism activities ([Sulis Tya Rani, et al., 2022](#)). In addition, ecotourism also has an important role in conservation, by diverting the use of natural resources from destructive exploitation to sustainable and responsible use ([Maulidah et al., 2023](#)).

Despite having a lot of potential, ecotourism development in mangrove areas also faces various challenges ([Akbar et al., 2021](#); [Sattayapanich et al., 2022](#)). The main challenges in ecotourism development include low public awareness of the importance of environmental conservation, limited supporting infrastructure, and lack of coordination between stakeholders ([Syahza & Siregar, 2021](#)). In some cases, unplanned ecotourism development can also cause environmental damage, such as cutting down mangroves to open tourist routes or building environmentally unfriendly facilities ([Chamberland-Fontaine et al., 2022](#)).

### **Sustainable Ecotourism Development Strategy**

To address these challenges, various sustainable ecotourism development strategies have been proposed in the literature. One approach that is often mentioned is the participatory approach, where local communities are actively involved in the planning, development, management, and evaluation of ecotourism activities ([Darma et al., 2020](#)). Capacity building of communities through training and education on conservation and ecotourism is also considered important to ensure long-term success ([Indra Gumay, 2022](#)).

Another important strategy is the development of environmentally friendly infrastructure that is by ecotourism principles, such as walking paths that do not damage natural habitats and interpretive facilities to educate tourists about the importance of mangrove ecosystems ([Singgalen, 2020](#)). Effective promotion through social media and collaboration with travel agents can help raise the profile of ecotourism destinations and attract more tourists ([Trialfhianty et al., 2022](#)).

### **METHOD**

The descriptive qualitative research method is an approach used to understand social, cultural, or natural phenomena in depth and holistically by collecting detailed data. This research focuses on describing phenomena based on the perspective or experience of the subjects studied without manipulating variables or experiments ([Puyt et al., 2023](#)). In the context of developing mangrove forest ecotourism in Muara Village, Tangerang Regency, this method is very relevant to explore information about the potential, challenges, and strategies for developing ecotourism from the perspective of various stakeholders.

### **Research Subjects**

According to ([Benzaghta et al., 2021](#)), research subjects are believed to have a good understanding of the subject matter and can articulate their thoughts and feelings clearly when acting as research

subject informants. The informants act as the subjects of this research. The informants for this research are as follows:

a) Local community

Local communities living around the mangrove forest of Muara Village are one of the main subjects of this study. They were chosen because they have a direct relationship with the mangrove ecosystem and have the potential for ecotourism development.

b) Tourism Managers and Local Business Actors

Local tourism managers and business actors, such as tour operators, tour guides, and small business owners around Muara Village, are also important subjects in this study. They were chosen because of their role in ecotourism development and the direct impact they feel from tourism activities.

c) Government Officials and Stakeholders

Local government officials related to the tourism and environmental sectors, such as the Tangerang Regency Tourism Office and Environmental Office, as well as other stakeholders such as non-governmental organizations (NGOs) engaged in environmental conservation, were also included in the research subjects. They were selected to provide perspectives on policies, planning, and regulations that influence ecotourism development. Interviews with government officials and stakeholders focused on government policies regarding ecotourism development, environmental conservation efforts, and community empowerment programs that have been or will be implemented.

d) Traveler

Tourists visiting the mangrove forest in Muara Village were also selected as research subjects to understand their perceptions and experiences of ecotourism in the area. Tourists were randomly selected based on their presence at the tourist location during the research. Interviews with tourists helped identify the main attractions of mangrove ecotourism, their level of satisfaction, and their suggestions and expectations for improving tourism facilities and services.

### **Research Object**

To obtain conclusions from a study, researchers need items or subjects that have certain qualities and a predetermined amount ([Benzaghta et al., 2021](#)). Muara Tourism Village in Teluk Naga District, Tangerang Regency, which is the location of the Mangrove Forest research.

### **Research Instruments**

Data collection techniques include observation, in-depth interviews, and documentation. This study utilizes primary and secondary sources of information. Primary data are obtained from field studies, such as conversations with local residents and tourists, as well as observations of the actual location of the mangrove ecosystem. The materials used in this study are taken from secondary sources, and information was collected from other sources, such as relevant literature reviews, and used in the study.

### **Data Analysis**

This study uses SWOT analysis as its data analysis approach. By using the long-known SWOT analysis, executives can quickly assess the strategic state of their organization (Devi et al., 2022). The main premise of this study is that successful strategies are born from a mutually beneficial relationship between the organization's internal resources (such as strengths and weaknesses) and the external environment (such as opportunities and threats). Proper implementation will allow the organization to maximize its strengths while minimizing its weaknesses and dangers. Having the skills, resources, and capacities necessary to achieve organizational goals is the organization's strength, which is its energy element. Internal weaknesses of the organization, such as lack of talent, funding, or other resources, pose significant challenges to the development of effective organizational performance. Possibilities are external factors that cause delays in company operations, environmental hazards are unfavorable variables.

## **RESULT AND DISCUSSION**

### **Analysis of Mangrove Forest Ecotourism Profile in Muara Village**

The mangrove forest in Muara Village, Tangerang Regency, is one of the important mangrove ecosystems on the north coast of Java Island. This mangrove forest is located at the mouth of a river that flows into the Java Sea, providing various ecological, economic, and social benefits for local communities and the surrounding environment. The mangrove forest in Muara Village has quite a high biodiversity, with various types of unique flora and fauna (Hagger et al., 2022). In addition to being a habitat for biodiversity, the mangrove forest in Muara Village has important ecological functions, such as protecting the coast from abrasion, absorbing carbon, and filtering pollutants from river water before entering the sea (Firdaus et al., 2021). The mangrove forest in Muara Village is rich in opportunities for tourism development. Proper management of this potential can have a positive impact on the local economy and increase environmental protection.

After knowing the potential of mangrove forests, we can draw some conclusions about internal and external elements that influence the management strategy and opportunities for ecotourism expansion in the mangrove forests of Muara Village. The performance of a project or organization and its capacity to achieve its goals can be influenced by internal variables, which are within its control. Internal elements, such as the strengths and weaknesses of the organization, fall into this category.

In the context of mangrove forest ecotourism in Muara Village, internal factors include:

- 1) Strengths consisting of a) High Biodiversity; b) Local Community Participation; c) Attractive Natural Beauty; and d) Potential for Education and Research
- 2) Weaknesses consisting of a) Inadequate Infrastructure; b) Lack of Human Resource Capacity; c) Limited Promotion and Marketing; and d) Minimal Environmental Education Facilities.

External factors are elements outside the direct control of an organization or project that can affect the success or failure of a strategy. These factors include opportunities and threats that come from the external environment. In the development of mangrove forest ecotourism in Muara Village, external factors include:

- 1) Opportunities consisting of: a) Increasing Interest in Mangrove Ecotourism; b) Support from Government and Nonprofit Organizations; c) Advances in Information and Communication Technology; and d) Increasing Environmental Awareness.
- 2) Threats consisting of a) Climate Change and Natural Disasters; b) Pollution and Environmental Damage; c) Competition with Other Tourist Destinations; and d) Changes in Policy and Regulation.

**SWOT Analysis of Mangrove Forest Ecotourism in Muara Village**

The ecotourism enhancement project in the Muara Village mangrove forest was evaluated using SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, a strategic technique. This analysis is needed to take advantage of opportunities and overcome obstacles.

<b>IFAS</b>	<b>Strength (S)</b> Determine 2-10 internal strength factors	<b>Weakness (W)</b> Determine 2-10 internal weakness factors
<b>EFAS</b>		
<b>Opportunities (O)</b> Determine 2-10 external opportunity factors	<b>Strategy (SO)</b> Create a Strategy that uses strengths to take advantage of opportunities	<b>Strategy (WO)</b> Create strategies that minimize weaknesses to take advantage of opportunities
<b>Threat</b> Determine 2-10 external threat factors	<b>Strategy (ST)</b> Create strategies to use strengths to avoid threats	<b>Strategy (WT)</b> Create strategies that minimize weaknesses and avoid threats.

**Figure 1. SWOT Analysis Framework**

Source: [\(Puyt et al., 2023\)](#)

**Discussion: Mangrove Forest Ecotourism Development Strategy in Muara Village**

The development of mangrove forest ecotourism in Muara Village, Tangerang Regency, has great potential to improve the economic welfare of local communities while preserving the environment. The discussion of this development strategy is based on a SWOT analysis that identifies the strengths, weaknesses, opportunities, and threats related to it.

**Table 1. SWOT Analysis Implementation**

<b>Strength (S)</b>	<b>Weakness (W)</b>
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**Mangrove Forest Development Strategy in Muara Tourism Village, Teluk Naga District, Tangerang, Indonesia**

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	IFAS	High Biodiversity Local Community Participation Attractive Natural Beauty Potential for Education and Research	Inadequate Infrastructure Lack of Human Resource Capacity Limited Promotion and Marketing Lack of Environmental Education Facilities
	EFAS		
<b>Opportunities (O)</b>	<b>SO Strategy</b>	<b>WO Strategy</b>	
Increased Interest in Mangrove Ecotourism Government and Nonprofit Support Advances in Information and Communication Technology Increased Environmental Awareness	Developing Biodiversity-Based Education and Nature Tourism Programs Increasing Digital Promotion and Destination Branding Collaborating with Government and Nonprofit Organizations	Improvement of Tourism Infrastructure and Facilities Development of Human Resource Capacity Diversification of Tourism Products	
<b>Treats (T)</b>	<b>ST Strategy</b>	<b>SW Strategy</b>	
Climate Change and Natural Disasters Pollution and Environmental Damage Competition with Other Tourist Destinations Changes in Policy and Regulation	Environmental Conservation and Rehabilitation Mitigation of Climate Change Impacts Partnership with Academics and Researchers	Strengthening Local Policies and Regulations Risk Management and Contingency Planning Increasing Environmental Awareness and Education	

The development of mangrove forest ecotourism in Muara Village, Tangerang Regency, requires a careful strategic approach by considering the results of the SWOT analysis. This analysis shows that Muara Village has several main strengths, such as high biodiversity, attractive natural beauty, and active community participation in environmental conservation efforts. In addition, the potential for ecotourism is strengthened by global trends that increasingly support sustainable and environmentally friendly tourism, as well as support from the government and various non-profit organizations. By utilizing these strengths and opportunities, Muara Village can develop ecotourism that is attractive to domestic and international tourists who are interested in nature tourism and environmental education.

The development strategy must also face several existing weaknesses and threats to achieve this success. The main weaknesses that need to be addressed include inadequate infrastructure, lack of human resource capacity, and limited promotion. Poor infrastructure can reduce tourist comfort



and reduce the quality of the tourism experience, so serious efforts are needed to improve road access, build adequate public facilities at the Mangrove Ecotourism location, and provide environmental education facilities such as information centers and interpretation paths. Increasing human resource capacity is also important so that local communities can manage ecotourism professionally, including in tourism services, digital marketing, and environmental conservation. Promotional efforts must be increased through the use of more effective digital media and social media, to increase the visibility and attractiveness of Muara Village as an attractive ecotourism destination.

In the face of the threat of climate change, pollution, and environmental damage, ecotourism development strategies must focus on environmental conservation and rehabilitation efforts. Active participation of local communities in conservation activities, such as mangrove planting and environmental cleaning, can be an important step in protecting the mangrove ecosystem from further damage. In addition, Muara Village needs to raise public and tourist awareness of the importance of environmental conservation through comprehensive education programs, awareness campaigns, and conservation training. Adaptation strategies to climate change and natural disasters also need to be developed, including building disaster-resistant infrastructure, early warning systems, and comprehensive contingency planning.

The SWOT analysis-based plan to build ecotourism in the Muara Village mangrove forest must utilize what already exists while addressing and reducing its negative impacts. With a holistic and sustainable approach, Muara Village can optimize its ecotourism potential, improve the economic welfare of local communities, and preserve the environment for future generations. The implementation of this effective and integrated strategy is expected to make Muara Village an example of a leading ecotourism destination that successfully combines economic benefits with environmental conservation.

Our findings emphasize the need for infrastructure improvement, particularly in transportation and visitor facilities, to enhance the ecotourism potential of Muara Village. This is consistent with the work of ([Arifanti et al., 2022](#); [Harto et al., 2021](#)), who argued that accessible infrastructure is a cornerstone for successful ecotourism, as it increases visitor satisfaction and promotes repeat visits.

The study underscores the importance of active community involvement in the management of ecotourism activities, this aligns with the findings of ([Dahdouh-Guebas et al., 2021](#)), who demonstrated that community-led initiatives are more sustainable in the long term and result in stronger environmental stewardship. By integrating local knowledge and participation, the ecotourism model becomes more adaptable and resilient, echoing the principles set forth by ([Alam et al., 2022](#)) y. in her work on community-based tourism.

The study's focus on balancing ecotourism with environmental conservation reflects previous findings by ([Sulis Tya Rani, et al., 2022](#)), who argue that sustainable tourism practices must prioritize ecosystem protection to ensure long-term viability. This study further adds to the literature by demonstrating how targeted conservation efforts in mangrove forests can both enhance biodiversity and create economic opportunities, a conclusion supported by the work of Nguyen and ([Maulidah et al., 2023](#)). in coastal regions of Southeast Asia.

The results highlight the need for capacity-building programs to train local stakeholders in sustainable tourism management, these programs contribute to long-term community resilience, which is echoed in the work of (Dahdouh-Guebas et al., 2021), who showed that capacity-building fosters economic independence while protecting the environment

From a practical perspective, this study offers actionable insights for local governments and NGOs in designing community-based ecotourism initiatives. Specifically, improving infrastructure and fostering capacity-building programs can significantly boost tourism potential while preserving the mangrove ecosystem.

## CONCLUSION

The development of mangrove forest ecotourism in Muara Village, Tangerang Regency, Indonesia, holds significant potential for enhancing community welfare and preserving the environment. Based on the SWOT analysis, key strategies include improving infrastructure, developing human resource capacity, and effective promotion, conservation efforts and climate change adaptation are critical to protect the mangrove ecosystem. Future research could focus on assessing the long-term impacts of these strategies on local economies and ecosystems. For stakeholders, collaboration between local communities, government, and the private sector will be essential in implementing these strategies. A holistic, sustainable approach can ensure that Muara Village optimizes its ecotourism potential, attracts more tourists, and secures both environmental sustainability and long-term economic benefits.

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