



## Mangrove Ecotourism Management Strategy in the Mayangan Fishery Port Area, Probolinggo City, East Java, Indonesia

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### Abstract

Ecotourism is a form of activity that integrates the principles of environmental conservation with educational recreational activities and provides economic benefits for the community. The management of mangrove ecotourism in Indonesia still requires the formulation of a comprehensive strategy that takes into account the integration of ecological, social, and economic aspects. This research aims to identify problems and formulate a strategy for managing mangrove ecotourism in the Mayangan Fisheries Port, Probolinggo City. The research method used is a qualitative and quantitative descriptive approach with primary data collection through field observation, questionnaire distribution, and stakeholder interviews, as well as secondary data obtained from literature studies. Data analysis was carried out using the SWOT (Strengths, Weaknesses, Opportunities, Threats) method through the stages of determining weights and ratings, calculating scores, and preparing a SWOT matrix to determine the strategy position. The results of the analysis showed a strength value of 2.74, weakness 0.37, opportunity 2.54, and threat 0.53, which placed the management of mangrove ecotourism in the Mayangan Fisheries Port environment of Probolinggo City in quadrant I with an aggressive strategy (growth-oriented strategy). These conditions show that the development of ecotourism has great internal strength and external opportunities, so the recommended strategies include the use of natural areas as a means of tourism education, biodiversity conservation, optimization of mangrove rehabilitation activities, and strengthening cooperation with the government and policy makers in promotional efforts. The sustainability aspect is the main focus in maintaining and improving the quality of mangrove ecotourism management in a sustainable manner.

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### 1. Introduction

Mangrove ecosystems are a vital component in aquatic resource management because they provide high-value ecosystem services to coastal communities. Mangrove forest management strategies need to pay attention to ecological, economic, and social aspects in order to achieve sustainability (Utomo & Pulungan, 2023) <sup>[1]</sup>. The management of mangrove ecosystem conditions and the environmental carrying capacity of marine tourism areas must be integrated into sustainable development. Mangrove restoration strategies also require a comprehensive approach that involves the active participation of local communities (Prihadi *et al.*, 2018) <sup>[2]</sup>.

Research on mangrove ecotourism in Indonesia still has a wide scope to be developed, especially in integrating ecological, social, and economic aspects. Some studies only emphasize the analysis of the suitability and carrying capacity of the area without looking deeper into local governance mechanisms (Pratiwi *et al.*, 2022) <sup>[3]</sup>. There is also research that highlights the

importance of institutions in the development of mangrove ecotourism, but it is still limited to the perspective of community perception (Sukuryadi *et al.*, 2021) <sup>[4]</sup>. Other studies discuss the potential of mangrove ecotourism, but have not provided implementation guidelines that are in accordance with the socio-cultural conditions of the local community (Wardhani, 2011) <sup>[5]</sup>. Most of the research focuses more on land suitability and tourism activities, so it has not produced a comprehensive management strategy (Rini *et al.*, 2018) <sup>[6]</sup>. Therefore, this study seeks to fill this gap by formulating a mangrove ecotourism management strategy based on SWOT analysis in the Mayangan Fisheries Port, Probolinggo City, so that it can be a reference in maintaining the sustainability of the ecosystem while improving the welfare of the community.

In the Mayangan Fisheries Port environment, Probolinggo City has strategic potential for the development of sustainable mangrove ecotourism due to its distinctive geographical and socio-cultural characteristics. The location of the Mayangan Fisheries Port between the Java Sea and the Madura Strait creates hydro-oceanographic conditions that support the growth of mangroves with high biodiversity (Farid *et al.*, 2023) <sup>[7]</sup>. The innovation of ecotourism tour programs in coastal areas has been proven to be able to increase tourist attraction while maintaining environmental sustainability (Erfayana *et al.*, 2024) <sup>[8]</sup>. The maritime tradition of the ethnic Madura community and local wisdom in managing coastal resources are also important social capital that can strengthen community-based management. The active role of the community in the conservation of mangrove ecosystems serves as a key element to maintain the sustainability of the region (Suraningsih, 2020) <sup>[9]</sup>. By paying attention to these potentials as well as challenges, SWOT analysis becomes relevant to map internal and external factors that affect the development of mangrove ecotourism in the Mayangan Fisheries Port, Probolinggo City. This research aims to find out the problems that exist in mangrove ecotourism in the

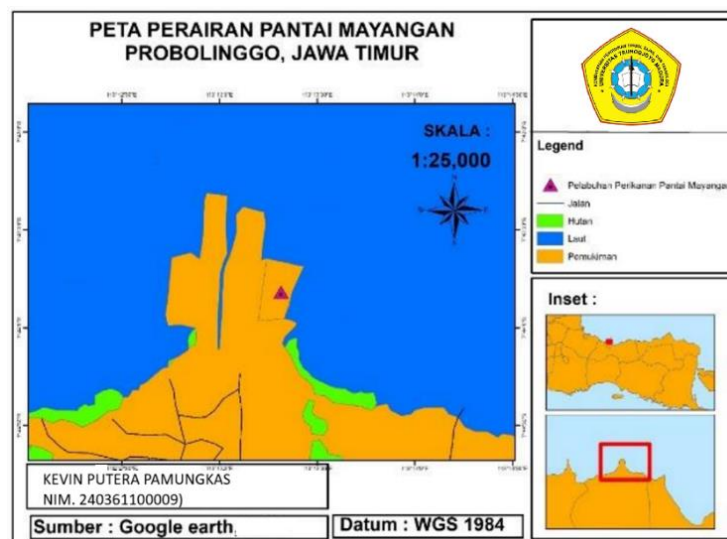
Mayangan Fisheries Port, Probolinggo City, and to formulate the right management strategy in managing mangrove ecotourism in the Mayangan Fisheries Port, Probolinggo City.

## 2. Research method

The research location is in the Mayangan Fisheries Port, Probolinggo City, East Java Province, Indonesia. The research was conducted for 3 months from March 1, 2025, to May 31, 2025. The research was conducted by purposive sampling, namely 7 respondents represented by 2 visitors (5% of the average number of visitors for one week) with the criteria of being over 18 years old and with a minimum of high school education, 2 local communities who actively participate in mangrove ecotourism management, 1 fisherman who makes a daily living in the mangrove ecotourism area, 1 student who often visits and understands the condition of mangrove ecotourism, as well as 1 person from the Perhutani management who is actively involved in management.

Data was collected through direct observation and interviews to explore information that supports the formulation of appropriate management strategies. The method carried out for this interview was with the following criteria for the interviewees:

- The resource person is an expert in his field regarding ecotourism.
- Resource persons are representatives or can be representatives of the pentahelix element for information needs regarding development efforts that have been carried out.
- The resource persons have interacted with or been directly involved with activities or businesses and ecotourism actors.
- The resource persons were representatives from academia, experts, managers, and the community.



(Source: google earth & arcgis, 2025)

Fig 1: Research Location Map

### 2.1. Data analysis

The research method was carried out in 4 stages, including the preparation stage, observation stage, qualitative descriptive data, and SWOT analysis. This study applies a case study that applies a qualitative descriptive approach.

This research is a step in analyzing and presenting objective situations based on the existing situation and atmosphere. The strategy for making policies for the management of mangrove ecosystems in the Mayangan Fisheries Port, Probolinggo City area, was formulated using SWOT analysis. This matrix can

clearly illustrate how external opportunities and threats are faced by fishermen. It can be adjusted according to its strengths and weaknesses. The SWOT matrix is an important matching tool to help managers develop four types of strategies as follows:

#### 1. Strength Opportunities Strategy (SO)

This strategy uses the internal strength of the agency/company to achieve opportunities that exist outside agencies/companies.

#### 2. Weaknesses Opportunities Strategy (WO)

It is a strategy that aims to minimize internal weaknesses by taking advantage of existing external opportunities.

#### 3. Strength Threats Strategy (ST)

It is a strategy that uses the power possessed by the agency/company to overcome all threats.

#### 4. Weaknesses Threats Strategy (WT)

This strategy is based on defensive activities by minimizing existing weaknesses and avoiding threats.

### 3. Results and discussion

Geographically, Mangrove Ecotourism in the Mayangan Fisheries Port of Probolinggo City is an area affected by estuary, marine, and human activities. Based on BPS 2024 data, it is noted that the Mayangan Fisheries Port environment of Probolinggo City has a population of 4062 people. Mangrove ecotourism in the Mayangan Fisheries Port, Probolinggo City, has an area of 68.06 hectares of mangrove forest (Prihantini *et al.*, 2022) <sup>[10]</sup>.

#### 3.1. SWOT Analysis

SWOT analysis is an identification instrument as a systematic shaping factor that is used to formulate management strategies. This analysis approach is based on strengths, opportunities, weaknesses, and threats (Prabawa, 2017) <sup>[11]</sup>. In short, SWOT analysis can be applied by analyzing and sorting out the things that affect the four factors, thus the results of the analysis can form the basis of the mangrove ecotourism management strategy in the Mayangan Fisheries Port, Probolinggo City. The following are the results of the SWOT analysis for Mangrove Ecotourism in the Mayangan Fisheries Port, Probolinggo City:

##### A. Strength

Strength is a condition that gives an advantage to a condition. These strength factors are an added value or competitive advantage of the condition. Based on the analysis that has been carried out, the strengths of ecotourism in the Mayangan Fishing Port environment of Probolinggo City are as follows:

1. **Have good and maintained mangrove ecotourism management:** Mangrove ecotourism in the Mayangan Fisheries Port environment of Probolinggo City has quite good management, but it needs to be further developed to be more efficient and structured.
2. **Has a positive impact on the sustainability of mangrove ecotourism:** In addition to being a habitat for various types of fauna, with the existence of Mangrove Ecotourism in the Mayangan Fisheries Port environment of Probolinggo City, the existence of mangrove trees is more preserved, so that it has the potential for educational and conservation ecotourism.
3. **Clean environment and beauty of mangrove ecotourism:** The environment is one of the indicators required for clean, mangrove ecotourism in maintaining the cleanliness and beauty of Mangrove Ecotourism. The

Mayangan Fisheries Port environment of Probolinggo City is already relatively good, but it needs to be paid more attention so that conditions are maintained as they are now.

4. **Providing useful education for visitors:** Mangrove Ecotourism in the Mayangan Fisheries Port environment of Probolinggo City not only offers local cultural scenery and attractions, but visitors can also add new insights packaged in a fun ecotourism journey.
5. **Have biodiversity in tourist areas:** Biodiversity in the Mangrove Ecotourism area in the Mayangan Fisheries Port environment of Probolinggo City is very diverse and is still maintained, this is in accordance with the natural environmental conditions.
6. **Rehabilitation of damaged mangrove areas:** The enthusiasm of the surrounding community in participating in repairing and maintaining the mangrove ecosystem in the area is quite good, as they replant and do not throw household waste or garbage carelessly to build a sustainable mangrove ecosystem.
7. **Supporting the preservation of local culture:** Mangrove ecotourism in the Mayangan Fisheries Port environment of Probolinggo City not only contributes to environmental preservation, but also becomes very important to preserve local culture. With the right strategy, ecotourism can revive traditions, empower the community's economy, and increase pride in existing cultural heritage.
8. **Affordable entrance ticket price:** the crowd of visitors to Mangrove Ecotourism in the Mayangan Fisheries Port environment of Probolinggo City is due to the relatively low and affordable price set by the surrounding community.
9. **There are garbage containers in the location area that are adequate:** garbage collection in the location area is very adequate, and there are several garbage cans along the mangrove ecotourism road.

##### B. Weaknesses

Weakness is everything that is a weakness or deficiency contained in a condition. Basically, a weakness is a natural thing in an organization. However, it can minimize existing weaknesses. Based on the results of the analysis carried out, the weaknesses of ecotourism in the Mayangan Fisheries Port environment of Probolinggo City are as follows:

1. **Scattered land waste caused by tourists coming:** There are also many tourists who visit with inorganic waste and do not dispose of garbage in the appropriate place.
2. **There is no signboard to guide tourists to a suitable and reachable location:** Mangrove Ecotourism in the Mayangan Fisheries Port area of Probolinggo City already has a signboard, but it is not clearly visible to tourists who want to visit.
3. **Inadequate facilities:** Lack of tourist support facilities, such as toilets, parking lots, roads that are in poor condition, gazebos that have begun to be fragile, electricity, so that there is no internet access, and no *food court/canteen*.
4. **Lack of branding related to mangrove ecotourism:** The lack of an effective promotional strategy makes the tourism potential not widely known, and the lack of activity on social media about mangrove ecotourism education.

### C. Opportunities

Opportunity is a favorable external condition that can be used to advance a company or organization. Based on the analysis that has been carried out, the opportunities that can be had by ecotourism in the Mayangan Fisheries Port environment of Probolinggo City are:

1. **There is coordination between institutions related to ecotourism:** A regional ecotourism must collaborate with stakeholders, governments, community leaders, and traditional stakeholders. In this case, mangrove ecotourism has done well to cooperate to further develop.
2. **Government attention to developing tourist areas:** There are government programs that support the development of sustainable ecotourism and environmental conservation.
3. **Community support in the management of Mangrove Ecotourism in the Mayangan Fisheries Port, Probolinggo City:** community support is very important because it can support good sustainability for the development of Mangrove Ecotourism in the Mayangan Fisheries Port, Probolinggo City.

### D. Threats

A threat is an external condition that can hinder the operation

of an organization or company. This threat can be an environmental factor that is unfavorable to the company. Based on the data analysis that has been carried out, the threats faced by ecotourism in the Mayangan Fisheries Port environment of Probolinggo City are as follows:

1. **Competition with surrounding ecotourism:** Risks in the development of ecotourism in Probolinggo City, in particular, are hampered when not keeping up with today's times, especially promotions on social media, such as ecotourism around the Mayangan Fishing Port, Probolinggo City.
2. The destruction of coastal ecosystems is caused by natural disasters such as abrasion. Mangrove ecotourism in the Mayangan Fisheries Port environment of Probolinggo City is more active for mangrove rehabilitation to prevent these problems from occurring.
3. Poor accessibility to ecotourism locations can threaten a drastic decrease in the level of tourist visits.

### 3.2. Internal Strategy Factor Analysis Summary (IFAS)

The results of the identification of internal factors of the Mangrove Ecotourism management strategy in the Mayangan Fisheries Port, Probolinggo City, were obtained from the results of the analysis contained in the following Table 1:

**Table 1: IFAS Score Assessment Results**

Strength	Weight	Rating	Score
Have good mangrove ecotourism management and awake	0.09	3	0.27
Has a positive impact on the sustainability of mangroves in the Mayangan Fisheries Port environment, Probolinggo City	0.10	4	0.40
Having a clean environment and the beauty of mangrove ecotourism in the Mayangan Fisheries Port, Probolinggo City	0.08	3	0.24
Providing education that is beneficial to the community and tourists	0.10	4	0.39
It has biodiversity in the mangrove ecotourism area in the Mayangan Fisheries Port, Probolinggo City	0.08	3	0.26
Rehabilitation of damaged mangrove areas	0.10	4	0.39
Supporting the preservation of local culture	0.08	3	0.26
Affordable admission prices	0.09	3	0.28
There is adequate waste and waste management in the location area	0.09	3	0.27
<b>Total Strength</b>	<b>0.81</b>		<b>2.74</b>
<b>Weakness</b>			
Most of the scattered land waste is caused by tourists coming	0.05	2	0.09
There is no signboard to the appropriate and reachable location	0.05	2	0.09
There are inadequate facilities and infrastructure	0.04	2	0.08
Lack of branding related to mangrove ecotourism	0.05	2	0.11
<b>Total Weaknesses</b>	<b>0.2</b>		<b>0.37</b>
<b>Total Strengths and Weaknesses</b>	<b>1.00</b>		<b>3.11</b>

The results of the analysis above the IFAS Matrix of strength and weakness factors have a score of 3.11 with the formula of total strength plus total weakness. Because a total score above 2.5 means that this identifies the internal position on the ecotourism management strategy so strongly. The IFAS table shows that the main strength of this strategy is to provide useful education to the community and tourists, with a score of 0.39, and the next strength is to have a positive

impact on the sustainability of ecotourism and rehabilitation of damaged mangroves, with a score of 0.39.

### 3.3. External Strategy Factor Analysis Summary (EFAS)

The results of identifying external factors of the Mangrove Ecotourism management strategy in the Mayangan Fisheries Port, Probolinggo City, were obtained from the results of the analysis contained in the following Table 2 :

**Table 2: EFAS Score Assessment Results**

Opportunities	Weight	Rating	Score
There is coordination between institutions related to ecotourism mangroves in the Mayangan Fishing Port, Probolinggo City	0.25	4	0.99
The government's attention to the management of mangrove ecotourism area in the Mayangan Fishing Port, Probolinggo City	0.21	3	0.63
There is community support in the management of mangrove ecotourism in the Mayangan Fisheries Port, Probolinggo City	0.23	4	0.92
Total Opportunities	0.69		2.54
Threats			
There is competition with other ecotourism in the region surroundings	0.11	2	0.22
Damage to coastal ecosystems caused by natural disasters, such as abrasion	0.09	1	0.09
Poor accessibility to ecotourism locations can threaten a drastic decrease in the level of tourist visits	0.11	2	0.22
Total Threats	0.31		0.53
Total Opportunities and Threats	1.00		3.07

The results of the analysis in the EFAS table show that the opportunity and threat factors have a total score of 3.07 with the formula of total opportunities plus total threats. The EFAS table shows that the main opportunity for the management strategy of Mangrove Ecotourism in the Mayangan Fisheries Port environment of Probolinggo City is the existence of good coordination between institutions in maintaining and preserving Mangrove Ecotourism in the Mayangan Fisheries Port environment of Probolinggo City, so that it is maintained with a score of 0.99. The next opportunity is the need for support from the government to develop mangrove ecotourism management to be better than before, with a score of 0.63.

The most important threat factor in the management strategy of Mangrove Ecotourism in the Mayangan Fisheries Port environment of Probolinggo City is the existence of other ecotourism competition in the vicinity, with a score of 0.22. Then the damage to the coastal ecosystem caused by disasters such as abrasion also greatly affects with a score of 0.09.

### 3.4. Grand strategy matrix

Based on the calculation of the SWOT analysis, four alternative strategies were produced, where the value of the internal analysis coordinates was obtained by subtracting

from the total strength and weakness score value, while the external analysis coordinate value was obtained by subtracting from the total opportunity and threat score value. The calculation of the internal factor (S-W) is the strength of 2.74 minus the weakness of 0.37, obtaining a value of 2.37 (positive), and the external (O-T) chance of 2.54 minus the threat of 0.53, resulting in 2.01 (positive). A high S-W value shows that *strengths* are much more dominant than weaknesses, showing that Mangrove Ecotourism in the Mayangan Fisheries Port environment of Probolinggo City has much more dominant strengths compared to its weaknesses. This indicates that the internal potential, such as natural resources, education, biodiversity, and tourist attractions, can be the main factor in the development of ecotourism. Meanwhile, the relatively small O-T value indicates that opportunities and threats are in an almost balanced condition, but there are still opportunities that can be leveraged for growth, where the use of dominant internal forces must be optimized to capture existing opportunities and mitigate threats that may arise. This is in accordance with the research of Nugroho *et al.* (2013), the strategy that must be carried out according to quadrant I is aggressive (*Growth Oriented Strategy*), a very favorable condition because it has strength and potential opportunities.

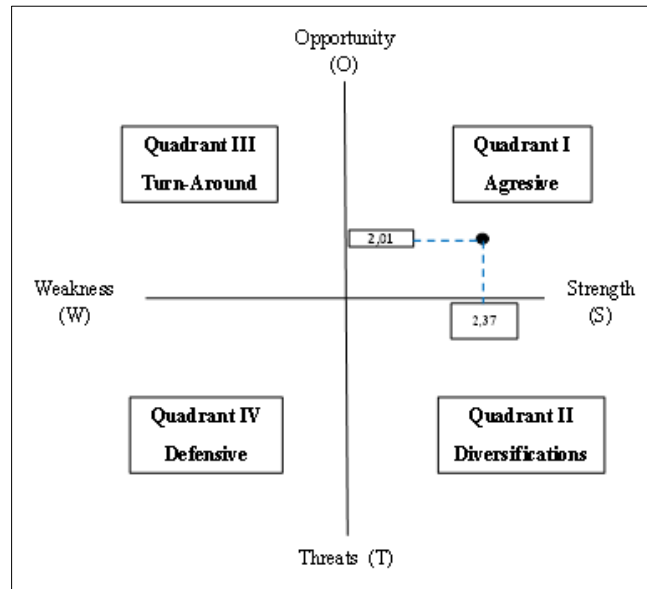


Fig 2: SWOT Matrix Diagram

**3.5. SWOT Matrix**

The SWOT matrix is a blend of internal factors (strengths and weaknesses) and external factors (opportunities and threats). This combination results in four alternative strategies: S-O (Strengths-Opportunities), S-T (Strengths Threats), W-O (Weakness Opportunities), and W-T (Weakness Threats). Systematic identification of internal conditions that are the strengths and weaknesses of the business, as well as the

external environment that are opportunities and threats faced by a business. The purpose of making the SWOT matrix is to collect several strategies that can be used in mangrove ecotourism management strategies in the Mayangan Fisheries Port environment of Probolinggo City. Furthermore, the results of the identification of external and internal factors were analyzed using a SWOT matrix. The results of the analysis can be seen in the following table:

Table 3: SWOT Matrix of Mangrove Ecotourism Management Strategy in the Mayangan Fishing Port, Probolinggo City

Internal Factors (IFAS) / External Factors (EFAS)	Strengths (S)	Weaknesses (W)
Opportunities (O)	<p><b>SO Strategy</b></p> <ol style="list-style-type: none"> <li>Utilizing the natural area to develop mangrove tourism education in the Mayangan Fisheries Port, Probolinggo City</li> <li>Utilizing local culture as an ecotourism attraction.</li> <li>Coordination with the government and stakeholders as a form of promotion</li> <li>Maintain and add to the quality of the current mangrove ecosystem to be sustainable.</li> <li>Waste management by being used as a creative craft</li> </ol>	<p><b>WO Strategy</b></p> <ol style="list-style-type: none"> <li>Improving facilities and infrastructure and facilities.</li> <li>Update all updates regarding Mangrove Ecotourism in the Mayangan Fisheries Port, Probolinggo City, through digital media.</li> <li>Collaboration with the government for the installation of signage that is easier for tourists to reach</li> <li>Increase Cooperation to develop convenient, safe, and sustainable tourism.</li> </ol>
Threats (T)	<p><b>ST Strategy</b></p> <ol style="list-style-type: none"> <li>Develop and invite the community to conservation programs to preserve mangrove ecosystems and overcome the threat of pollution.</li> <li>Increase competitiveness through more effective promotion and branding to face competition from other tourist destinations</li> <li>improve good management in developing the same ecotourism in Probolinggo City</li> </ol>	<p><b>WT Strategy</b></p> <ol style="list-style-type: none"> <li>Reduce dependence on natural resources by diversifying tourism products based on local culture.</li> <li>Strengthen collaboration with the government and stakeholders to receive consistent and sustainable policy support.</li> <li>Forming a team that focuses on digital marketing or social media.</li> </ol>

Based on the analysis of Table 3. The above shows that the management strategy can be determined by a combination of internal and external factors. The combination of these two factors is shown in the results of the SWOT analysis as follows:

**3.6. SO Strategy (Strengths - Opportunities)**

This strategy is a combination of internal factors (strengths) and external factors (opportunities). This strategy is made based on thinking by utilizing all the strengths to make the most of opportunities. The SO strategies obtained by

Mangrove Ecotourism in the Mayangan Fisheries Port environment of Probolinggo City are:

1. Develop educational tourism that utilizes biodiversity and mangrove ecosystems, such as mangrove conservation educational tours and fauna observations.
2. Introducing cultural tourism that elevates local traditions of Javanese ethnicity, especially Madura, such as typical art and culinary performances, to attract tourists interested in authentic cultural experiences.
3. Exploring the potential of mangrove ecotourism as a tourist attraction in Probolinggo City.

4. Establishing coordination with the government and stakeholders, policy makers, as a form of promotion in the Regency, Province, and even at the national level.
5. Maintaining the image and adding the quality of Mangrove Ecotourism in the current Mayangan Fisheries Port environment of Probolinggo City, so that it can still be enjoyed in the future.
6. Waste management strategies can be used as creative crafts, utilizing the community that can be offered to tourists to increase insight.

### 3.7. WO Strategy (*Weaknesses - Opportunities*)

This strategy is a combination of internal factors (Weakness) and external factors (Opportunity). This strategy is applied based on the utilization of existing opportunities by reducing the weaknesses owned by the company. The WO strategy implemented by Mangrove Ecotourism in the Mayangan Fisheries Port of Probolinggo City is:

1. Improving tourism infrastructure, such as road access, parking facilities, and tourist information centers, by utilizing the support of government and stakeholder programs.
2. Conducting training and collaborating with local communities in the field of hospitality, tour guides, and sustainable ecotourism management, to improve the quality of services.
3. Collaboration with the government to fund and provide signage (education, instruction) and repair of damaged facilities.
4. Increasing Cooperation to further develop ecotourism comfortable, safe, and sustainable for tourists.

### 4. ST Strategy (*Strengths - Threats*)

This strategy is a combination of internal factors and external factors. This strategy uses the strength that the company has to overcome all threats that come from outside. The ST strategy taken by Mangrove Ecotourism in the Mayangan Fisheries Port, Probolinggo City are:

1. Implementation of environmental conservation and education programs to preserve the mangrove ecosystem from the threat of pollution and excessive logging.
2. Improving digital marketing strategies, such as website creation, social media use, and cooperation with ecotourism influencers, to expand the reach of promotions and face competition with other tourist destinations.
3. Improving good management in developing ecotourism, so that it is not less competitive with tourism with the same products as the surrounding ecotourism in the Mayangan Fisheries Port environment, Probolinggo City.

### 5. WT Strategy (*Weaknesses - Threats*)

This strategy is a combination of internal factors and external factors. This strategy is based on activities and seeks to avoid the possibility of external threats to reduce the company's weaknesses. The WT strategy taken is:

1. Diversify tourism products by combining natural, cultural, and educational tourism to reduce dependence on one type of tourist attraction.
2. Build partnerships with conservation organizations and the government to get policy support and sustainable development.
3. Forming a team that focuses on digital marketing or

social media that can report on the condition of mangrove ecotourism.

### 6. Conclusion

There are several obstacles in the management of mangrove ecotourism in the Mayangan fishing port environment, Probolinggo City, namely the lack of adequate facilities and infrastructure, the low awareness of some tourists and the community in maintaining cleanliness and environmental sustainability, and the accessibility of roads to mangrove ecotourism is also not feasible.

Based on the results of the matrix analysis, internal factors showed a total strength score of 2.58 and a weakness of 0.40, while external factors had a total opportunity score of 2.09 and a threat of 0.67, which placed the management of mangrove ecotourism in the Mayangan Fisheries Port of Probolinggo City in quadrant I with an aggressive strategy (growth-oriented strategy). These conditions show that the development of ecotourism has great internal strength and external opportunities, so the recommended strategies include the use of natural areas as a means of tourism education, biodiversity conservation, optimization of mangrove rehabilitation activities, and strengthening cooperation with the government and policy makers in promotional efforts. The sustainability aspect is the main focus in maintaining and improving the quality of mangrove ecotourism management in a sustainable manner.

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