

Application of the IFE and EFE Matrix in Formulating a Strategy: A Case Study Eco Tourism of Tanjung Piai National Park Johor Bahru Malaysia

Bisma Azmi Ardana¹

¹Department of Industrial Engineering, Faculty of Engineering, Diponegoro University,
Jl. Prof. Soedarto, SH, Undip Tembalang Campus, Semarang, Indonesia 50275

Abstract

Tourism plays a key role in Malaysia's economy by generating income, creating jobs, and supporting infrastructure. One of the fastestgrowing segments is ecotourism, which focuses on sustainability, nature conservation, and community empowerment. A good example is Tanjung Piai National Park, known for its rich mangrove ecosystem and strategic location as the southernmost point of mainland Asia. This site has been recognized internationally as a Ramsar wetland, showing its ecological importance. Despite its potential, ecotourism in Tanjung Piai faces challenges such as poor infrastructure, limited digital promotion, and lack of strategic planning. To address this, the study uses the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices to assess strengths, weaknesses, opportunities, and threats. This strategic approach helps identify what needs to be improved and how to use the park's strengths to overcome barriers. This research aims to develop a welltargeted and sustainable tourism strategy for Tanjung Piai National Park. By combining environmental knowledge with business strategy tools, the study offers a new way to enhance the area's competitiveness while protecting its ecosystem. The goal is to help the park become a leading ecotourism destination that balances economic benefits with longterm environmental sustainability.

Keywords: Ecotourism, IFE and Efe Matrix, Mangrove Tourism, Tanjung Piai National Park

1. Introduction

Tourism is of great importance to the economy of most countries including Malaysia. The growth of this sector not only increases foreign exchange earnings but also creates jobs, strengthens cultural identity, and supports the development of regional infrastructure. Tourism is defined as the activity of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, or other purposes (Sekarani et al., 2023).

In 2024, Malaysia's tourism sector experienced a strong recovery, with nearly 38 million tourist arrivals. This number is much higher than in 2023, which recorded around 28 million visitors. The increase proves that tourism is helping to improve Malaysia's economy. As the economy grows, more tourists also bring more job opportunities, better infrastructure, and a chance to introduce Malaysian culture to the world. Tourism in Malaysia comes in many types, including cultural, religious, adventure, and eco tourism. As awareness about the environment increases, eco-tourism has become more popular. This type of tourism focuses on sustainability, nature conservation, and education, while also supporting local communities (Donohoe & Needham, 2006). According to The International Ecotourism Society (TIES), global ecotourism is growing at a rate of about 20% every year, making it one of the fastest-growing sectors in tourism. In Malaysia, the government has supported this trend with the National Ecotourism Plan 2016–2025, which aims to promote tourism.

Eco tourism is seen as a solution to the negative effects of mass tourism, which often harms the environment. Ecotourism not only provides visitors with nature-based experiences but also supports the well-being of local communities. One popular form of eco-tourism is mangrove tourism, which takes place in coastal areas with mangrove forests. Mangrove trees are very useful as they protect coastlines from strong waves and prevent erosion. They are home to many unique species of plants and animals and can absorb large amounts of carbon dioxide, helping to reduce climate change. Because of these benefits, mangrove forests are excellent locations for eco-friendly and educational tourism. One example of mangrove tourism in Malaysia is Tanjung Piai National Park, located in Johor. Tanjung Piai is not only known as the southernmost point of mainland Asia but is also rich in biodiversity. This makes it an important destination for mangrove conservation and education in Southeast Asia.

However, despite its great potential, Tanjung Piai National Park has not been fully developed. There are still many challenges in managing its ecotourism. Internal problems include poor road access, limited public transport, few accommodation options, lack of tourist information services, and a shortage of modern technologies like interactive boards for bird and plant species. These weaknesses reduce tourist satisfaction and the destination's competitiveness. Externally, the park also faces challenges such as weak online promotion and limited presence on digital platforms. In today's digital age, tourists often rely on the internet to choose destinations, so the lack of strong digital marketing

makes it harder to attract both local and foreign tourists. These problems show that Tanjung Piai National Park does not yet have a good strategy to fully use its ecotourism potential.

2. Research Methodology

In this study, the following is the flowchart of research

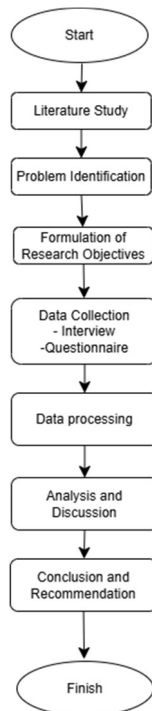


Figure 1. Flowchart of research

Flow chart of research **Figure 1** applied in this This research began with a preliminary observation of Tanjung Piai National Park and a literature study on tourism, ecotourism, and IFE-EFE Matrix methods to build foundational knowledge. Problems identified include weak infrastructure, limited digital promotion, minimal community involvement, and underdeveloped strategies. Based on these issues, the research objective was to analyze ecotourism development strategies using the IFE and EFE Matrix. Data was collected from January to April 2025 through direct observation, interviews with park managers, and online surveys. The data was then classified into internal (strengths and weaknesses) and external (opportunities and threats) factors, assigned weights and ratings, and processed using the IFE-EFE Matrix to identify the park's strategic position. The analysis interpreted these results to suggest development strategies, which were then concluded with final recommendations for tourism improvement and future research.

In this study using the IFE and EFE Matrix study approaches This study uses a direct survey technique. In

addition, data for this study were collected through offline interviews. Interviews were conducted with gardeners from Tanjung Piai National Park. In addition, questionnaires were distributed online using Google Forms. The following is the sample table calculation that use in IFE and EFE Matrix.

Table 1. IFE EFE Calculation Table

Internal Factors	Respondent 1	Respondent 2	Respondent 3	Total	Weight	Rating
Strength 1				FS1	FS1/Total	WS1xRS1
Strength 2				FS2	FS2/Total	WS2xRS1
		Total		FS1+ FS2	WS1+WS2	RS1+RS2
Weakness 1				FW1	FW1/Total	WW1xRW1
Weakness 2				FW2	FW2/Total	WW2xRW1
		Total		FW1+FW2	WW1+WW2	RW1+RW2
Overall Total				Total		

IFE EFE calculation table **Table 1** will be use in formula to calculate the score

3. Result and Discussion

Based on the results of the analysis that has been carried out, the following results were obtained:

A. SWOT Analysis

SWOT ANALYSIS OF TANJUNG PIAI NATIONAL PARK

Strengths <ol style="list-style-type: none"> 1.The uniqueness of the mangrove ecosystem in Tanjung Piai National Park. 2.Tanjung Piai National Park provides an educational experience that promotes awareness of ecotourism and environmental conservation. 3.Tanjung Piai National Park offers potential to maximize the birdwatching experience for visitors. 4.Tanjung Piai National Park as a tourist destination with affordable prices. 		Weaknesses <ol style="list-style-type: none"> 1.Tanjung Piai Park experiences a lack of tourism promotion and branding. 2.A shortage of supporting transportation facilities connecting park to city. 3.Visitor discomfort affected high and low tides and unpredictable weather. 4.The park has not utilize digital technology (bird and plant information) boards as interactive media.
	<div>S</div> <div>O</div>	<div>W</div> <div>T</div>
Opportunities <ol style="list-style-type: none"> 1.Increasing Educational Tourism awareness from various schools, universities, and environmental lovers. 2.Easy promotion through social media to increase branding. 3.Local community culture could be a new uniqueness. 		Threats <ol style="list-style-type: none"> 1.The public tends to show greater interest in visiting more modern and well developed tourist destinations compared to Tanjung Piai National Park. 2. There is resistance from the local community toward development. 3.Tanjung Piai National Park faces intense competition from other tourist destinations.

Figure 2. SWOT Analysis In Tanjung Piai National Park

SWOT Analysis **Figure 2** Tanjung Piai National Park has many strengths. One of its main strengths is the unique mangrove ecosystem located at the meeting point of three countries Malaysia, Indonesia, and Singapore. This makes the park different from other places and interesting for visitors who enjoy nature. The park also provides educational experiences that help people learn about protecting the environment and the importance of ecotourism. Birdwatching is one of the main attractions, especially during the bird migration season. In addition, the entrance fees are low, which makes the park affordable for students, families, and local tourists.

However, there are also some weaknesses and challenges. The park does not have enough promotion, so many people do not know about it. Public transportation to the park is limited, which can make it hard to reach. Weather and tides can also affect visitors' comfort. Also, the park does not yet use modern technology like digital information boards for birds and plants. On the other hand, there are good opportunities, such as increasing interest in educational tourism, the use of social media for promotion, and the chance to involve the local community in tourism activities. Still, the park faces threats, such as competition from more modern tourist

spots, lack of community support for development, and visitors who prefer places with better facilities. To succeed, the park needs to improve its services and promote its special natural and cultural values.

B. IFE EFE Matrix Analysis

Table 2. IFE Matrix Analysis

No	Dominant Internal Factors	Respondent 1	Respondent 2	Respondent 3	Total	Weight	Rating	Weight x Rating
Strength								
1	The uniqueness of the mangrove ecosystem in Tanjung Piai National Park	2	3	1	6	0,140	2	0,279
2	Tanjung Piai National Park provides an educational experience that promotes awareness of ecotourism and environmental conservation	2	3	2	7	0,163	2,333	0,380
3	Tanjung Piai National Park offers potential to maximize the birdwatching experience for visitors	1	2	1	4	0,093	1,333	0,124
4	Tanjung Piai National Park Park as a tourist destination with affordable prices	2	3	2	7	0,163	2,333	0,380
TOTAL								1,163
Weakness								
1	Tanjung Piai National Park Park experiences a lack of tourism promotion and branding	1	3	1	5	0,116	1,667	0,194
2	A shortage of supporting transportation facilities connecting park to city	1	1	1	3	0,070	1	0,070
3	Visitor discomfort affected high and low tides and unpredictable weather	2	3	1	6	0,140	2	0,279
4	The park has not utilize digital technology (bed and plant information) boards as interactive media	1	2	2	5	0,116	1,667	0,194
TOTAL								0,736
OVERALL TOTAL					43	1		1,899

Table 3. EFE Matrix Analysis

No	Dominant Internal Factors	Respondent 1	Respondent 2	Respondent 3	Total	Weight	Rating	Weight x Rating
OPPORTUNITIES								
1	Increasing Educational Tourism awareness from various schools, universities, and environmental lovers	4	4	1	9	0,209	3	0,628
2	Easy promotion through social media to increase branding	3	3	2	8	0,186	2,667	0,496
3	Local community culture could be a new uniqueness	3	3	1	7	0,163	2,333	0,380
TOTAL								1,504
THREATS								
1	The public tends to show greater interest in visiting more modern and well developed tourist destinations compared to Tanjung Piai National Park.	2	4	1	7	0,163	2,333	0,380
2	There is resistance from the local community toward development	2	1	2	5	0,116	1,667	0,194
3	Tanjung Piai National Park Park faces intense competition from other tourist destinations	2	4	1	7	0,163	2,333	0,380
TOTAL								0,953
OVERALL TOTAL					43	1		2,457

C. IFE EFE Matrix Result

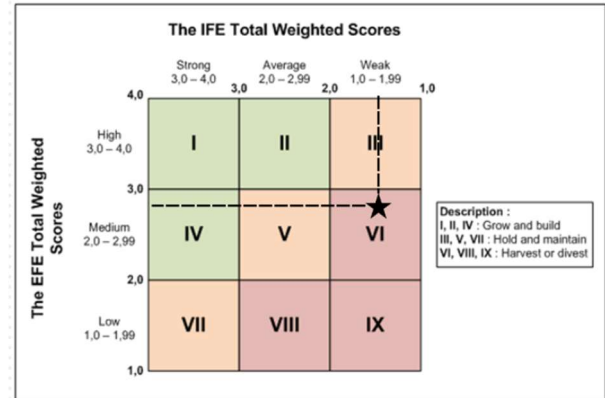


Figure 3. IFE EFE Matrix Analysis Result

Based on the IFE and EFE matrix data analyzed, the position of Tanjung Piai National Park National Park can be determined using the Internal-External (IE) Matrix. With **Table 2** an IFE score of 1.899 and **Table 3** an EFE score of 2.457, **Figure 3** Tanjung Piai National Park placed in quadrant 6 of the IE Matrix, indicating that the park is in the "Harvest and Divest" category. This means that while the national park has some strengths and opportunities, in terms of competitiveness and development, it needs to optimize its existing resources, focus on more efficient management, and consider reducing certain less profitable activities.

This positioning implies that Tanjung Piai National Park National Park is at a critical point where it needs to make strategic decisions to optimize its strengths and mitigate its weaknesses. While the park has potential due to its unique ecotourism offerings and educational opportunities, it struggles with infrastructural limitations and increasing competition from more developed tourist destinations.

D. Ecotourism Strategies for Tanjung Piai National Park

Several strategies are proposed to be applied in Tanjung Piai National Park. These strategies are divided into three stages: short term, medium term, and long term.

Short Term Strategies (0-6 Months)

1. Develop Guide Tour Training

The park can improve its educational value by training tour guides. Training should include knowledge about mangroves, storytelling, hospitality, and communication skills. Regular feedback sessions can help guides improve over time.

2. Community Involvement

Local communities can join park activities through cultural shows, food stalls, and local crafts. This not only improves the visitor experience but also supports local businesses and cultural preservation.

3. Ecotourism Campaign

Promotion through social media, influencers, and educational content (e.g., videos, virtual tours) can attract more visitors. Hashtags like #VisitTanjungPiai and fun challenges like photo contests can increase online engagement and awareness.

Medium Term Strategies (6-12 Months)

4. Develop Tourism Packages

Firstly, boat mangrove tour package allows visitors to explore the mangrove forest. With boat will stops at birdwatching place. Additionally, the community local cultural package with visits to nearby local communities, where tourists can engage with traditional crafts and sample local foods. Lastly, sunset tour package offers an evening to enjoy the sunset over the mangroves.

5. Collaborate with Schools and Universities

Tanjung Piai National Park can work with schools and universities to provide simple and hands-on learning programs. These may include study visits where students join guided walks, plant mangroves, and observe birds to learn about ecosystems and coastal protection. Students will use worksheets with tasks like matching pictures and short quizzes. After the activities, students can join group discussions to share what they have learned. At the end, they will receive a certificate and small souvenir, such as a book or sticker, to encourage learning.

Long Term Strategies (1-3 Years)

1. Develop Ecotourism Education Center

Tanjung Piai National Park can build a medium sized tower in the park to serve as an Ecotourism Education Center. This tower will consist of several information of educations for the visitor. The following is the concept of education center.

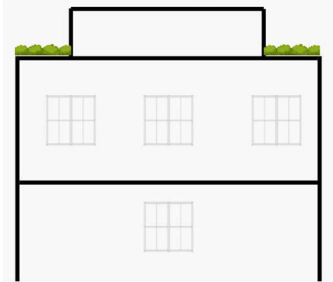


Figure 4. Concept Ecotourism Education Centre

The tower will have three floors like in **Figure 4**, each with a different -themed focus. The first floor will explain mangroves' role in coastal protection and biodiversity through interactive displays in multiple languages. The second floor will highlight bird species, featuring audio stations, photos, and illustrations to help identify birds. The third floor

will offer a garden, observation deck with telescope, seating, and a food stall ideal for birdwatching and relaxing. For safety, the tower will have CCTV and be monitored by security to protect both visitors and park facilities.

2. Develop Transportation System

A collaborative transportation system can be developed involving both local government and the local community. Firstly, collaborate with local government and private transportation companies can help provide small minibuses that run on a fixed schedule. Especially during weekends and holidays when visitor numbers might be higher. These **Figure 5** minibuses will offer a convenient and affordable way for tourists to reach the park from the nearby city.



Figure 5. Concept Transportation

Secondly, collaboration with local community who own vehicles can be encouraged by involving them as transportation service providers.

4. Conclusion

After interviewing and research, a SWOT analysis was produced in ecotourism Tanjung Piai National Park has several notable strengths that support its role as an ecotourism destination. These include a unique mangrove ecosystem, opportunities for environmental education, birdwatching potential, and affordable ticket prices. These aspects offer valuable experiences for visitors while promoting nature conservation. However, the park also faces internal challenges. Limited promotion, inadequate transportation access, and environmental factors such as tides and weather conditions can reduce visitor comfort and accessibility. Despite these weaknesses, there are opportunities for development. The growing interest in educational tourism and the use of social media can be leveraged to increase visibility. Additionally, integrating local cultural elements can enrich the visitor experience. On the other hand, the park must also be aware of external threats, such as competition from more popular tourist destinations, potential resistance from local communities, and the challenge of maintaining relevance in a competitive ecotourism market.

Secondly, Based on the analysis using the Internal-External (IE) Matrix, Tanjung Piai National Park is in quadrant 6, which indicates the

category of "Harvest and Divest." With an IFE score of 1,899 and an EFE score of 2,457, this position illustrates that although the park has several strengths and opportunities, it must focus on managing existing resources more efficiently. This indicates that Tanjung Piai National Park is at a critical point that requires strategic decisions to optimize existing strengths and mitigate existing weaknesses, while taking advantage of available opportunities. One of the main challenges is the limited infrastructure that can hinder the development of the park. In addition, competition from more modern and developing tourist destinations is also a problem that needs to be addressed. Therefore, the park needs to evaluate and restructure several less profitable activities, in order to survive and develop in the long term.

Thirdly, Based on the analysis, several strategic will categorize into short term, medium term, and long term plans. This approach aims to provide improvements while also supporting sustainable development in the future. In the short term, Tanjung Piai National Park should focus on improving the quality of its tour guides through structured training and continuous feedback. This will ensure better communication and service for visitors. Involving the local community in ecotourism activities such as cultural performances, local food stalls, and handicraft can make the experience more meaningful while also supporting the local economy. Promoting the park actively through social media, influencers, and educational content will also help raise awareness and attract more visitors, especially those who are interested in nature and conservation. For the medium term, the park can develop a variety of tourism packages to meet different visitor interests. These can include boat tours through the mangroves, cultural experiences with local communities, and sunset viewing trips. In addition, building partnerships with schools and universities will help the park become a place for environmental education, especially for students and young people. In the long term, Tanjung Piai can build an Ecotourism Education Center to provide information and learning experiences about mangrove ecosystems and biodiversity. Improving transportation to the park by working with the local government and community transport providers will make it easier for visitors to access the park. At the same time, this can create new income opportunities for local people.

5. Expression of Gratitude

I would like to thank the National Tanjung Piai National Park National Park Johor Bahru Malaysia for being the object of research and providing the data needed during the course of this research.

6. Bibliography

Donohoe, H. M., & Needham, R. D. (2006). Ecotourism: The evolving contemporary definition. *Journal of*

Ecotourism, 5(3), 192–210.
<https://doi.org/10.2167/joe152.0>

Sekarani, S. S., Gibran, H. M., Lestari, S. D., Lestari, R., Hardini, R., & Digdowiseiso, K. (2023). Development of Super Priority Tourism Destinations in Indonesia Through Human Resource Planning. *Business and Social Science (IJEMBIS) Peer-Reviewed-International Journal*, 3(1), 215–226.
<https://cvodis.com/ijembis/index.php/ijembishttps://cvodis.com/ijembis/index.php/ijembis/article/view/283>