DEVELOPMENT OF INTEGRATED AND SUSTAINABLE COMMUNITY BASED ECO-TOURISM ON SIPELOT BEACH, INDONESIA

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Abstract: Tourism is one of the most important industries because it can create jobs and economic development. Malang is one of the districts in Indonesia that has the potential to be developed as a beach tourism, one of which is Sipelot Beach. This study aims to identify the potential of Sipelot Beach as a sustainable and community-based ecotourism. This study uses a descriptive method with qualitative analysis techniques. Primary data were collected through interviews and observations as well as field measurements. There are two data analyzes used in this study, namely the tourism suitability index and SWOT. The results show that based on the tourism suitability index, the physical condition of Sipelot Beach has potential, while the results of the SWOT analysis show that Sipelot Beach has considerable potential to be developed as community-based ecotourism. Community-based and integrated sustainable ecotourism development can be implemented through improved management and human resources.

Key words: Development, Community-Based Eco-tourism, Tourism Suitability Index, SWOT, integrated, Sustainable

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INTRODUCTION

Tourism is one of the most substantial industries around the world because they represent one of the primary sources of job creation and economic development in coastal regions worldwide (Caparrós-Martínez et al., 2022). The tourism sector contributed 10.3% to the world's gross domestic product in 2019, which decreased to 5.3% due to the mobility restriction during the COVID-19 pandemic in 2020 and bounced back by 6.1% in 2021 (Philipp, 2022). When the attractiveness of the coastal landscape and seascape is attractive, there is an increase in economic activity in the area (Cabrera and Lee, 2022).

Rapid urbanization and expansion of cities into the coastal zone has been associated with the degradation of coastal ecosystems (Cabrera and Lee, 2022). The main human activities affecting coastal zones include large-scale waste disposal which can bring contaminants to coastal waters (Bajt et al., 2019), pollution (Cochard, 2017), overfishing (Sumaila and Tai, 2020), deforestation (Ury et al., 2021), reclamation (Li and Zhang, 2021), sand and oil mining, tourism, trade, energy production (Cabrera and Lee, 2022) and construction of seawalls and other structures. In addition, engineering activities, such as diversion of waterways and coastal structures, alter circulation patterns and alter the natural means of sediment transport (Cabrera and Lee, 2022). Indonesia is one of the countries with the most significant coastal potential. Indonesia is an archipelago state that has immense coastal and shore areas, with 81.000 km of coastline (Suleman and Rachman, 2018). Its relatively long coastline results in great coastal and beach potential. Therefore, Indonesia has wide opportunities to establish significant coastal tourism (Koroy et al., 2017). Linearly, Malang Regency also develops its coastal potential.

Malang is one of the regencies in Indonesia that has coastal tourism potential. One of its coastal tourisms is Sipelot Beach. This beach presents peculiarities in its sandy and bay morphology. A sandy beach can be regulated into an eco-tourism site using integrated environmental management that combines physical, biological, socio-cultural, and economic values (Román et al., 2022). An eco-tourism site that is developed using conventional mass tourism may harm the tourism destination (Mondino and Beery, 2019; Rybchenko et al., 2022). Ecotourism is a tourism development approach aiming for conservation and sustainable development (Baloch et al., 2022; Jamaliah and Powell, 2018; Jurkus et al., 2022). Essentially, eco-tourist's purpose is to preserve the environment, maintain society's well-being, and teach tourists (Bricker, 2017). Research related to community-based tourism development, such as research (Rocca and Zielinski, 2022), shows that community-based tourism development hardly benefits communities when social capital is insufficient and unstructured governance due to low government presence. According research from (Untari and Devi, 2022), Onrust Island is one of the cultural heritage-

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based ecotourism destinations that has a fairly high historical value. In its current management, Onrust Island has not been maximized so it needs a tourism marketing development program, direct promotion activities in potential markets, Onrust Island tourism exhibition activities, Onrust Island tourism image development program, and building a brand image of Onrust Island Tourism through analysis of internal and external factors. According research from (Kurniawati et al., 2022), the development of marine tourism will be successful if it is supported by various parties.

The community, in this case the youth and members of MSMEs, becomes a supporter in the development process. A tourist attraction at Bangsring Beach, Banyuwangi, was established and developed with the help of youth. Research related to ecotourism is also available from (Iswandi, 2017), Mandeh Beach which is located in Pesisir Selatan Regency with natural panoramas and beautiful beaches that develop into ecotourism by protecting the environment. Meanwhile, other research examines the development of Lovina Beach into ecotourism through coral reef cultivation, involving the community and environmental awareness training for the surrounding community (Purwita amd Suryawan, 2018).

In contrast to previous research, this study begins by evaluating the coast for structuring tourism locations by taking into account internal and external factors and then formulating a development strategy. In addition, Sipelot Beach which is unique as a tourist spot and a place for fish auctions causes this location to be very potential for tourism development, so this study aims to examine the management of Sipelot Beach into an integrated community-based sustainable ecotourism.

METHOD

This study used the descriptive method and quantitative analysis technique (Sumarmi et al., 2020). The data relating to the beach potential developed in the last five years were obtained through interviews and observation. Meanwhile, the secondary data of the local government regulations pertaining to tourism development were obtained from government institutions. Our research participants were 21 people from Pujiharto village who were involved in tourism activities on Sipelot Beach. All of our participants were involved in tourism activities and lived in surrounding areas for at least years after Sipelot Beach was used as a tourism site. Through an interview with these participants, we garnered the community's opinion on the selection of priorities site in the Sipelot Beach development. The data analysis was carried out through two stages, namely 1) data analysis using the scoring technique to determine the indicators of Sipelot Beach's land suitability and 2) SWOT analysis to determine the beach's potential and development strategy.

Table 1. Indicators for Assessing the Physical Condition of Sipelot Beach for Ecotourism Suitability (Source: Researcher, 2022)

No	Indicators	Descriptor	Score	Data Collection Technique	Description
1	Coastline Width	>75 m	4	Observation	The scoring was modified. A suitable beach tourism site should obtain a score higher than four.
		50-74 m	3		
		25-49 m	2		
		<25 m	1		
2	Types of Beach	Sandy	4	Observation	
		Sandy but has rocks	3		
		Rocky	2		
		Muddy	1		
3	Morphology of Beach	Sloping beach	4	Observation	
		Sandy and hilly beach	3		
		Rocky beach	2		
		Rocky steep beach	1		
4	Slope of Beach	< 10%	4	Observation	
		10-25%	3		
		26-45%	2		
		> 45%	1		
5	Distance to fresh water, in the form of springs, from nearshore beach	< 500 m	4	Observation	
		500-1000 m	3		
		1001-1500 m	2		
		> 1500 m	1		
6	Cover of beach land	Coconut trees, open land	4	Observation	
		Shrubs, savanna	3		
		High scrub	2		
		Mangrove forest	1		
7	Dangerous Biota	None	4	Interviews	
		Sea urchins, jellyfish	3		
		Sea urchins, jellyfish, stingray	2		
		Sea urchins, jellyfish, stingray, lionfish, shark	1		

Assessment of physical indicators is used to map the strategic location of Sipelot Beach for ecotourism development. The assessment of this physical indicator by (Yulianda, 2007) where the parameter is appearing in 100% which is then changed by the author to the Linkert scale. Likert scale, is a very flexible and intuitive tool to measure the level of individual agreement (Vonk, 2022). The indicators of physical assessment are shown in Table 1. Following the indicators of physical conditions, the scoring and classification were carried out to identify the physical condition conformity as a tourism object, with a lower score of 7 and the maximum score of 28. The total score from all of the variables was added up and classified to identify Sipelot Beach's suitability as a tourist object. The score classification is presented in Table 2. The second stage of data analysis was carried out using SWOT analysis. SWOT analysis was selected to bolster strategic

planning in various management applications (Amirshenava and Osanloo, 2022; Helms and Nixon, 2010; Sumarmi et al., 2020), including tourism management (Zhang et al., 2011). A SWOT analysis consists of a comparison of positive and negative factors that influence a particular project. It was divided into internal and external strengths, as shown in Table 4. In this study, the internal strength consisted of the beach's quality and attraction, while its external power was the community support and threat of disaster. However, the implementation of SWOT faced a number of challenges. First, for the analysis process, SWOT provides no strategic instruction. Therefore, the SWOT analysis in this study followed a number of experts' opinions (Helms and Nixon, 2010; Sumarmi et al., 2020). Further, the results of the SWOT analysis were analyzed using Analysis Hierarchy Process (AHP) to determine the prioritized potential to be developed. These analyses were carried out to prioritize the management and development design suitable for the Sipelot beach's potential, as mapped in Table 3. The research flowchart is shown in Figure 1.

Table 2. Classification of Physical Condition Scoring (Source: Researcher, 2022)

Class	character	Score
I	Very suitable	≥ 27
II	Suitable	21-27
III	Less suitable	14-20
IV	Not suitable	7-13

Table 3. Matrix of SWOT (Source: Sumarmi et al., 2020)

SWOT Analysis			
External Audit		Internal Audit	
		Strengths	Weakness
	Opportunities	SO	WO
	Threats	ST	WT

Figure 1. Research flow chart Sipelot Beach Development as Community Based Ecotourism (Source: Researcher, 2022)

RESULTS AND DISCUSSION
Illustration of Sipelot Beach Area

Sipelot Beach is located at Pujiharo Village, Tirtoyudo District, Malang Regency, Indonesia, with a 1,132 m coastline. Sipelot is a sandy beach that has mangrove, Casuarina equisetifolia, and coral reef ecosystems (Khouroh and Pamungkasih, 2019).

Sipelot Beach also has fish poison trees and coast cottonwood, making the Sipelot coastal areas become convenient. The trees in the coastal regions enhance the convenience of the areas (McCreanor et al., 2006).

The convenience offered by a tourist site allows the tourists to relax and play with sand, sea, and sun (Dodds and Holmes, 2019). In addition, Sipelot Beach carries relatively great fishery potential.

According to data from the Badan Pusat Statistik Kabupaten Malang *[Central Bureau of Statistics, Malang Regency]*, in 2022, Sipelot Beach is reported to have relatively high fish production between 2014 – 2020, as illustrated in Figure 2. The caught fish are gathered in the fish auction on Sipelot Beach (Khouroh and Pamungkasih, 2019).

Figure 2. Map of Sipelot Beach, Located at Tirtoyudo District, Malang Regency (Source: Researcher, 2021)

The fish were gathered and distributed to other small and medium industries to be processed, as well as to merchants to be marketed. The Sipelot fishery area is a center of primary and secondary product distribution, as well as the input for
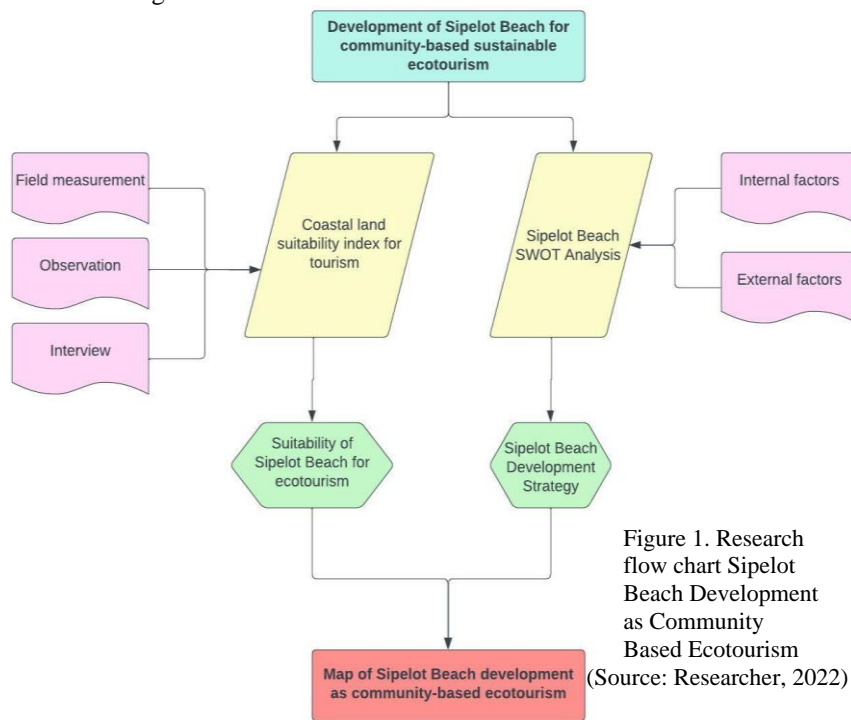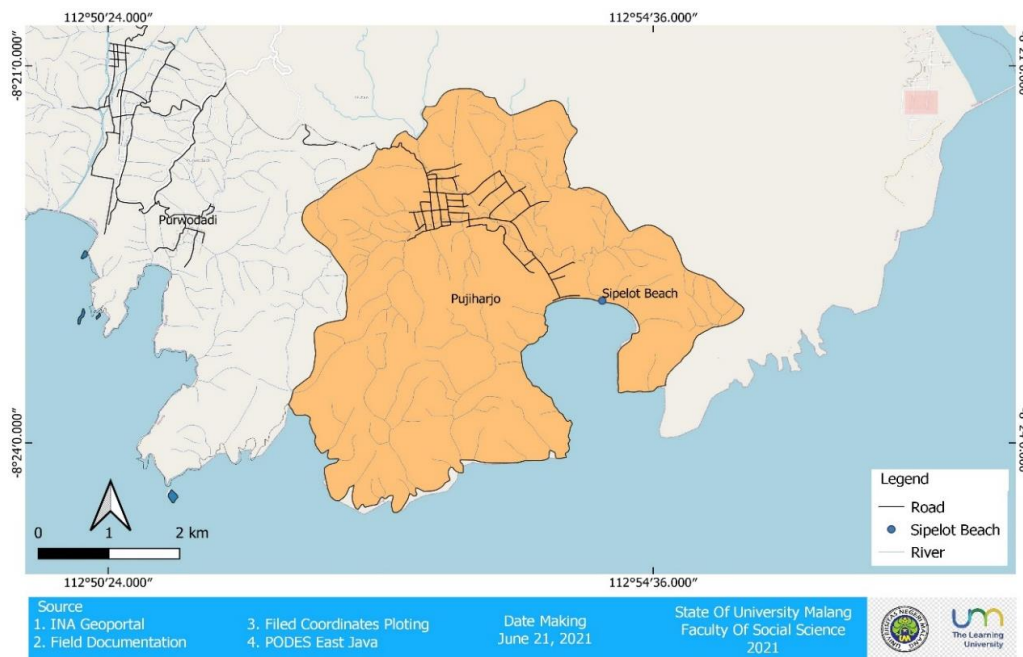
the tourism sector development (Khouroh and Pamungkasih, 2019).

The following is a graph related to fishery production at Sipelot Beach (Figure 3). Sipelot Beach presents a number of exciting tourist attractions, such as swimming, boating, fishing, beach, playing with sand, taking pictures, and beach sport. These attractions can be used as Sipelot Beach's central tourist attractions (Fandeli, 2000). Meanwhile, for the facilities, this beach provides gazebos, a campsite, a fish auction, stalls, toilets, parking, and a camp area. Sufficient and excellent tourism facilities are the most influential factors for the success of a tourism object. Recently, infrastructure development has been the featured program of the Indonesian government. Excellent infrastructure can enhance tourism and other sectors supporting tourism (Khouroh and Pamungkasih, 2019). Excellent infrastructure eases the tourists' accessibility.

Infrastructure is one of the essential elements that enhance the number of tourist visits (Rebelo et al., 2022).
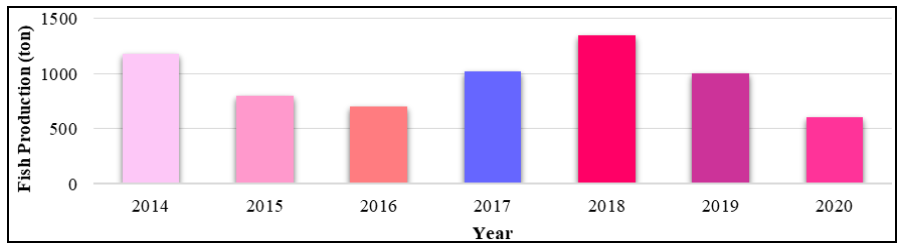

Figure 3. Fish Production Year 2014-2020 (Source: Badan Pusat Statistik Kabupaten Malang Central Bureau of Statistics, Malang Regency, 2022)

Figure 4. Fish Auction in Sipelot Beach (Source: Researcher, 2022)

Figure 5. Landscape of Sipelot Beach (Source: Researcher, 2022)

Figure 6. Landscape of Lagoon in Sipelot Beach (from the Center) (Source: Researcher, 2022)

Physical Condition of Sipelot Beach Tourism to support ecotourism development

An examination of Sipelot Beach's physical condition aims to determine its suitability for a tourism site. The physical circumstance of an area is one of the influential factors for sustainable tourism (Akliyah and Umar, 2013). The physical condition includes coastline tilt, coastline width, distance to available freshwater, wind velocity, type, morphology, wavelength, type of wave, biota, and the beach land cover. The physical condition of Sipelot Beach is shown in Table 4.

The results of our field observation showed that the physical condition of Sipelot Beach is highly suitable for tourism objects, as illustrated in Figure 6. The coastal regions highly rely on beach tourism, resulting in a wide socio-economic implication (de Sousa et al., 2017). The beach's morphology is one of the influential factors of beach tourism (de Sousa et al., 2018). Morphologically, Sipelot Beach is sloping, so it is suitable as a tourism site. Beach with a flat slope helps the tourists to feel safe (Arinta and Sumarmi, 2022; Sumarmi et al., 2020; Yulianda, 2007). The beach's morphology, slope, and width determine the type of beach relevant to the ideal beach location, where the tourists can enjoy sunbath, exercise, or play games (Yulianda, 2007). As Sipelot Beach is sandy, it is very suitable as a tourist site.

Table 4. Physical condition of Sipelot Beach (Source: Researcher, 2022)

| No	Indicator	Measurement Results	Description	Score
1	Beach Slope	12.13^0	Very suitable	4
2	Width beach	52 meters	Suitable	3
3	Type of Beach	Sandy	Very suitable	4
4	Beach Morphology	Slopy beach	Very suitable	4
5	Distance from fresh water availability	210	Very suitable	4
6	Beach land cover	Coconut trees, cluster vegetation and open area	Very suitable	4
7	Dangerous biota	None	Very suitable	4
	Total			**27**
	Category			**Very Suitable**
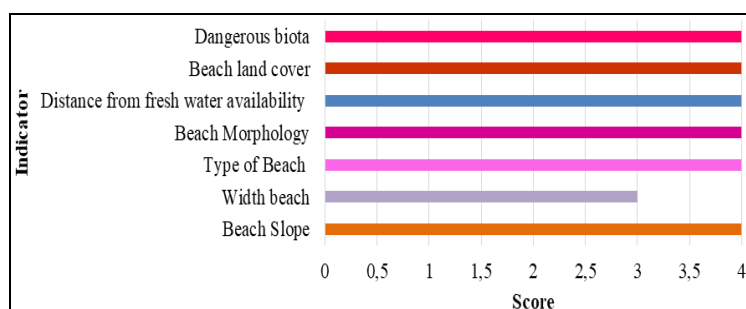
Figure 7. Physical condition of Sipelot Beach for Ecotourism (Source: Researcher, 2022)

Figure 8. Quadrant position of Sipelot Beach (Source: Researcher, 2022)

In addition, the other influential factor is the beach area cover. On the east side of Sipelot Beach, the land area is covered by coconut trees and clusters, while the west side is used by tourists to take shelter. Besides, the distance to fresh water is 210 meters. A beach suitable for tourist destinations should have <0.5 Km distance to fresh water (Akliyah and Umar, 2013). Also, Sipelot Beach has no dangerous biota. The absence of dangerous biotas, such as Sea urchins, jellyfish, lionfish, and sharks, places a beach to be a safe beach (Akliyah and Umar, 2013).

SWOT Analysis on Tourism Potentials of Sipelot Beach

To identify its tourism potential, we analyzed the eco-tourism development in Sipelot Beach. In this analysis, we used SWOT analysis as it measured the strength, weaknesses, opportunities, and threats of tourism potential. The results of the SWOT analysis are shown in Table 5. The IFAS and EFAs matrixes were scored following the criteria presented in Table 1. Subsequently, the quadrant of the Sipelot Beach tourism site was established through the x and y value. The 0.70 x value was obtained through the internal factor by subtracting the weakness (W) from the strength (S) scores. Meanwhile, the y value of 0.40 was attained from the external factor by subtracting the threat (T) from the opportunity (O) value. Therefore, quadrant I was illustrated based on the 0.70 x and 0.40 y values, indicating that Sipelot Beach tourism is still developing, as presented in Figure 8. Sipelot Beach is at quadrant I, SO (Strength-Opportunity), or white area, signifying that the beach carries excellent potential that can be further developed. Thus, the beach should adopt a growth-oriented strategy. Therefore, it determined suitable community-based tourism strategies. Examples of those strategies are improvement of road access, an increase of tourism facilities, and improvement of infrastructure, enhancing tourist access to Sipelot Beach. The road in Sipelot Beach. In addition, the W-O policy includes the improvement of Sipelot Beach's layout to help the tourists know its two parts, the fish auction, and tourism areas. Meanwhile, the S-T policy addresses the tourists' limited awareness of maintaining hygiene. Lastly, for the W-T policy, the community increases the tourism attractions to enhance its promotion. The results of the SWOT analysis showed that Sipelot Beach carries the substantial potential to be developed as a community-based eco-tourism. The development of community-based eco-tourism is an essential part of a country's revenue as it potentially offers wide opportunities for the local people (Keerin et al., 2022). Besides, community-based eco-tourism also brings benefits for environment preservation and enhancement of people's well-being and socio-economy status (Keerin et al., 2022). The establishment of eco-tourism relies on a number of factors, consisting of (1) eco-tourism potential, (2) the participation of local people in the tourism planning, (3) the local people's involvement in the tourism implementation, and (4) environment preservation (Keerin et al., 2022). The implementation strategies based on the SWOT analysis results are shown in Figure 9. The implementation strategy consists of improving tourism management and human resources.

Tourism management subsists of four key elements, namely offering destination (tourists' experience, image of destination, and tourism attraction); a group of tourists (market research); marketing communication (awareness and promotion), and organization responsibility (leadership and partnership) (Morrison, 2013). For the attraction offering, Sipelot Beach has great scenery, but its accessibility is challenging. Great and easy accessibility is one of the influential factors in increasing the number of tourists visiting.

Accessibility covers every aspect that promotes easy access to the tourism destination (Herat et al., 2015). The accessibility to a tourist place should be ensured, such as through the broadening of roads and procurement of public transportation to Sipelot Beach. The accessibility and availability of facilities in a tourist site are one of its attractiveness (Herat et al., 2015).

As accessibility to beach locations is only observed as a tourist aspect, public transportation remains limited (French and Craig-Smith, 1995; Priskin, 2001), while it is essential to ensure the fulfillment of tourists' needs during their stay in the tourism areas (Herat et al., 2015). The provision of excellent facilities is the fundamental element to realizing great service for tourists. In addition, the Sipelot Beach administrators should also improve their tourism promotion. The promotion through printed and digital media can increase the visit from local and international tourists (Wenas, 2021). Advertisement is substantial for Sipelot Beach since it has a great distance to the city center. Besides, all of the tourism destination elements in Sipelot Beach have to be coordinated and planned.

Management
- The tourism adminitrators should collaborate with the village to improve the accessibility.
- They should develop the facilities, such as the guest house, toilet, mosque, restaurant, and boat tour.
- They should construct a community-based ecotourism with a theme of being Sipelot Beach people.
- They should collaborate with tourism agents in promoting the Sipelot Beach tourism.
- They should increase the promotion through website and social media, such as Facebook and Instagram.
- They should enhance the number of public transportation to ease the access to Sipelot Beach.

Human Resources
- Encouraging the community participation through the group that promote the tourism awareness.
- Increasing the local society involvmnet in developing the beach tourism, such asin the boat tour around the lagoon tourism activities.
- Providing training for the local community to develop businesses supporting the tourism activities.

Figure 9. Strategy of Sipelot Beach development (central position) (Source: Researcher, 2022)

Table 5. IFAS and EFAS Matrixes of Sipelot Beach (Source: Research data 2022)

Internal Factors (IFAS)			
Strength (S)	**Weight**	**Rating**	**Score**
1 Coastline length of 2 km and sloping	0.3	5	1.5
2 White sand panorama separating the sea and lagoon	0.1	3	0.3
3 Relatively wide lagoon, suitable for a boat tour	0.2	5	1
4 Beautiful cliff panorama	0.2	4	0.8
5 A beautiful row of pine trees located between the lagoon and sea	0.2	3	0.6
6 A row of coast cottonwood along the coastline suitable for the tourists' shelter	0.15	4	0.6
7 Beautiful palm and mangrove trees on the edge of the lagoon	0.3	3	0.9
8 There are many food stalls, a mosque, and a homestay	0.1	3	0.3
9 A wide parking area and sufficient number of toilets	0.1	3	0.3
Total			6.3
Weakness (W)			
1 Relative far from the city center and can be accessed through a narrow road	0.2	4	0.8
2 There has not been a clear border between the areas of the fish auction, boat park, and tourism	0.3	4	1.2
3 The surrounding community has not been trained to maintain the hygiene and environmental preservation	0.25	3	0.75
4 There is no clear tourism management	0.25	3	0.75
5 Limited tourism infrastructure	0.2	3	0.6
6 Non-maximum tourism governance	0.2	3	0.6
7 Non-maximum communication network	0.1	3	0.3
8 There is no systemic promotion	0.2	3	0.6
Total			5.6
X = Strength - weakness = 0.70			
External Factors (EFAS)			
Opportunities (O)			
1 Away from the city and its bustle, offering a serene and relaxed atmosphere	0.3	4	1.2
2 It has established disaster resilient villages	0.2	4	0.8
3 Relatively low cost	0.25	3	0.75
4 It has full support from its surrounding communities	0.1	3	0.3
5 It has a relatively close distance to agricultural potentials (coffee bean, snake fruit, and other fruits), supporting the provision of souvenirs	0.1	3	0.3
6 It has abundant of fishes at a relatively low price, supporting the establishment of restaurants	0.2	4	0.8
Total			**4.15**
Threat			
1 High threat of tidal waves and tsunami	0.2	3	0.6
2 The accesses to the beach are prone to landslide	0.1	4	0.4
3 There are other similar beaches at the close distance	0.35	4	1.4
4 The tourists' minimum awareness to maintain the beach's hygiene and sustainability	0.3	3	0.9
5 It has relatively high waves that can be dangerous for children	0.15	3	0.45
Total			3.75
Y = Opportunities – threats = 0.40			

Meanwhile, the provision of public transportation should primarily involve the local people so that the government should only monitor the facilities and service provision. The government's role in monitoring tourism activities results in people's positive perception of tourism management. Further, (Caber et al., 2012; Zhang and Lei, 2012) explained that the participation of local people carries an essential role in the management of eco-tourism, as their experience can significantly help the administration. Notably, their participants and opinions on eco-tourism management are highly substantial. In the end, we suggest that tourism management be improved and the facilities and infrastructure at Sipelot Beach should be improved. The proposed Sipelot Beach development strategy is illustrated in Figure 9. The development plan is prepared based on physical conditions and a SWOT analysis which is planned to be built over the next 5 years because this is in accordance with the Malang Regency tourism planning document. The development of planning for the next five years is expected to be able to improve infrastructure and facilities, such as the development of fish auction areas and docks that facilitate large fish production, construction of resorts, and bridges that can be used as jogging tracks.

CONCLUSION

The results of our analysis show that Sipelot Beach has tremendous potential to be developed into community-based ecotourism. This is evidenced by:

a. The physical condition of Sipelot Beach is very suitable for ecotourism development

b. The SWOT analysis shows that Sipelot Beach has great potential but needs improvement in increasing management capacity and human resources.

c. The development of planning for the next five years is expected to be able to improve infrastructure and facilities, such as the development of fish auction areas, resort construction, and bridges that can be used as jogging tracks.
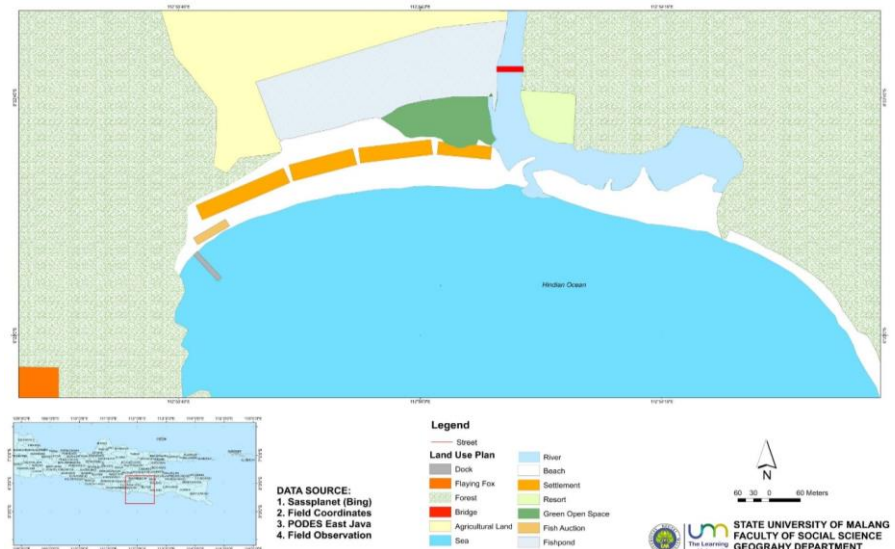

Figure 9. Map of Sipelot Beach development plan 2022-2027 (Source: Researchers, 2022)

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