

## **Sustainable Coastal Tourism: A Comprehensive Development Strategies (*Tanjung Bira* and *Lemo-lemo* Tourism Area as a Case Study)**



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### **ABSTRACT**

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*sustainable tourism, tourism development, SWOT analysis, Tanjung Bira, Lemo-lemo*

Tourism development has become an effective way to improve the economy and welfare of local communities in many areas, especially areas with high tourism potential. This research aims to formulate a tourism management strategy using SWOT Analysis and provide recommendations based on sustainable coastal tourism in the *Tanjung Bira* and *Lemo-lemo* tourism areas. The data collection method in this research uses primary and secondary data. Primary data was obtained by participatory observation and interviews. Secondary data was obtained by document review, which collected information related to policies, history, journals, and literature related to tourism. Data analysis was conducted using SWOT analysis, descriptive-qualitative, and comparative study to determine strengths, weaknesses, opportunities, and threats in formulating tourism strategies. Moreover, descriptive-qualitative analysis is used to formulate policies related to strategy based on sustainable coastal tourism. Based on an analysis of 35 internal and external factors, the coastal tourism development strategy can be carried out with the S-O Strategy (Integration between tourist locations, increasing the role of government and fulfilling vegetation), W-O Strategy (Improving facilities and infrastructure, Community-government cooperation, tourism promotion). S-T strategy (Improvement of regulations, accessibility, and community empowerment), W-T Strategy (Arrangement and direction of planning tourist areas).

## **1. INTRODUCTION**

The development of tourism is the fastest-growing sector in the world. It is recorded that it can create employment opportunities for around 10% of the total workforce or around 300 million jobs globally, making tourism one of the economic sectors contributing to the largest employment opportunities. According to the World Travel and Tourism Council's annual research in 2019, before the pandemic, the travel and tourism sector accounted for 10.5% of all jobs (334 million) and 10.4% of global GDP (US\$ 10.3 Trillion). However, the latest WTTC annual research shows that in 2023, the travel and tourism sector contributed 9.1% to the global GDP, and there were 27 million new jobs [1]. Tourism development, an important sector, must be carried out sustainably to ensure continuous contribution in the future [2].

Sustainable tourism development is an idea that is quite well-known in tourism development. Sustainable tourism considers current and future economic, socio-cultural, and environmental impacts [3]. Sustainable tourism considers current and future economic, social, and environmental impacts, meets the needs of visitors, industry, the environment, and local communities, and can be applied to all tourism activities in all tourist destinations [4]. The

development of sustainable coastal tourism and eco-friendly implementation has been proven to have a significant impact on the environment [5]. Moreover, another opinion emphasizes the involvement of society and communities in tourism planning and practices to ensure sustainability [6]. Furthermore, Education, community participation and environmental awareness in promoting tourist attractions can have implications for long-term tourism education [7]. Additionally, coastal tourism emphasizes the importance of the government's role and the creation of effective regulations in creating sustainable coastal tourism [8]. Another opinion emphasizes the role and collaboration of multi-stakeholder engagement and multi-sectoral cooperation in managing sustainable tourism [9].

Effective tourism development strategies emphasize harmony between organizations and the environment, maximize resource use, and promote environmental sustainability [10]. SWOT analysis can help prioritize sustainable tourism development in the Pasargad region, using internal strength to realize external opportunities [11]. Through the SWOT approach, the strengths of the study location can be maximized, and threats and challenges can be minimized. SWOT analysis in tourism planning helps evaluate internal and external factors that influence the industry,

including the tourism industry. The strengths of coastal tourism are usually biodiversity and natural beauty. Acar et al. [12] identified cultural heritage and geographical location in supporting coastal tourism potential. Additionally, Nezha et al. [13] emphasize the importance of tourism infrastructure and facilities in supporting the development of coastal tourism development. Apart from that, weakness, according to Miandehi and Masrouri [14], explains that lack of infrastructure and environmental problems are obstacles to the development of tourism. Moreover, the implementation of strategies and policies by the government and stakeholders can become a weakness in the process of developing sustainable coastal tourism [15].

According to Shao and Sun [16], opportunities in tourism development can take the form of the promotion of ecotourism and market development. Additionally, Singh et al. [17] explained that the integration of technology and tourist areas is a factor to be considered. Nevertheless, treatment in developing tourist areas can include economic instability and policy challenges that can increase risks in tourist areas. According to Mondal [18], economic instability can have a negative impact on tourism growth.

In the Bulukumba Regency Spatial Plan for 2018-2038, *Tanjung Bira* and *Lemo-lemo* are designated as tourism destination development planning areas [19]. With its strength and tourism potential, this area can be developed into a leading national tourist destination if it is developed. However, this tourist area still has obstacles, such as land conversion and the threat of natural disasters [20]. However, this tourist area still has many shortcomings, including the unavailability of tourism facilities and accessibility, lack of infrastructure, non-integration of tourist locations, and the threat of natural disasters, lack of concern for the environment [21]. There are no specific regulations yet, which makes it necessary to develop strategies for sustainability in the tourism area. Seeing that this area has important tourism potential, it is important to apply sustainable concepts to ensure the sustainability of this tourist attraction in the future.

The objectives of this research include: 1) formulating a tourism management strategy using SWOT analysis and 2) providing recommendations for tourism management based on sustainable coastal tourism development. Hopefully, this research can develop in-depth strategies for developing sustainable tourism using the SWOT approach. Furthermore, this research can contribute to the local government, academics, tourism actors, researchers, and related stakeholders in making policies for developing tourism in *Tanjung Bira* and *Lemo-lemo*.

This research analyses tourism potential and provides direction for tourism development strategies in two main locations: the *Tanjung Bira* and the *Lemo-lemo* (Figure 1). These two locations have their own characteristics and tourism potential. The choice of location was based on these two locations' very diverse tourism potential. Apart from that, this tourist area has become a tourism strategic plan in the Regional Spatial Planning that the Bulukumba Regency government has determined.

*Tanjung Bira* is known as a tourist spot with beautiful white sand beaches, making it one of the main tourist destinations in this area. Activities such as snorkeling, underwater biodiversity, and crystalline rock waters provide tourism potential for divers to see its beauty.

*Lemo-lemo* is known as a cultural tourism area, and the beauty of the natural landscape, which is still very well

preserved, is a unique tourist attraction at this location. This area is the primary reference for tourists to experience local community culture and an exciting adventure destination.

The selection of these two locations based on the potential and uniqueness of each location makes them ideal case studies to be developed into a sustainable tourism area.

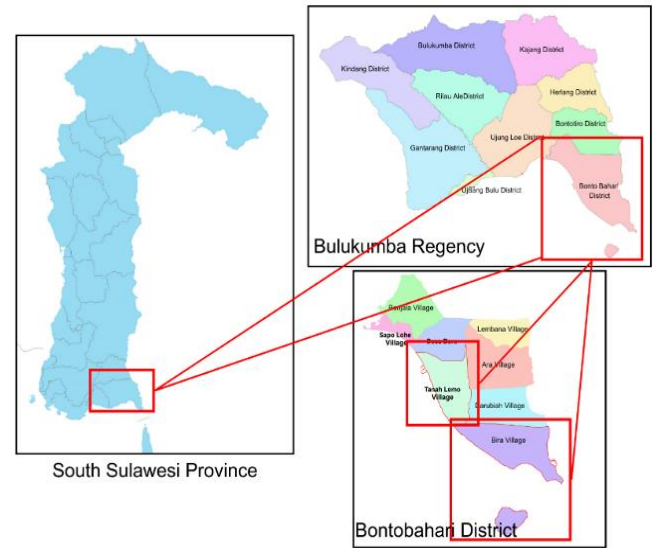


Figure 1. Study area

## 2. MATERIAL AND METHOD

### 2.1 Materials

The white sand beach of *Tanjung Bira* is located about 40km from the city of Bulukumba or about 200km from Makassar City, with a travel time of around 3-4 hours. This is one of the leading tourist attractions in southern Sulawesi. The superior tourist attraction in this place is the stretch of white sand beach with obvious sea water, very far from rubbish contamination. Additionally, visitors can also snorkel and dive while enjoying the underwater beauty. Another spot is a small island, Liukang Loe Island, located west of *Tanjung Bira*.







*Tanjung Bira* Beach is a fantastic tourist destination in Bulukumba, South Sulawesi, Indonesia. This beach is famous for its stunning natural beauty, clear seawater, and soft white sand (Figure 2). With charming views, *Tanjung Bira* Beach offers visitors a calm and peaceful atmosphere. Tourists can enjoy a vast and stunning beach panorama, with calm waves and coconut trees lining the coast. This beach is also a paradise for divers and snorkeling lovers. Extraordinary underwater biodiversities, such as beautiful coral reefs and colorful fish, can be enjoyed by visitors who want to explore the beauty of *Tanjung Bira's* Sea. Apart from that, *Tanjung Bira* Beach is also an ideal place to relax and sunbathe in the sun. Visitors can lie on the soft white sand while enjoying the soothing sound of the waves. *Lemo-lemo* and *Tanjung Bira* have a variety of tourist attractions along their coasts; this is due to their geography, which borders directly on the sea, and the plains consist of karst cliffs with different elevations. This makes this area a designated tourism area in Bulukumba Regency. The list of tourism potential can be seen in the table below (Table 1), and the mapping is shown in Figure 3.

The site's locations are in two administrative areas: *Tanah Lemo* and *Bira*. This site is located in a coastal area with a



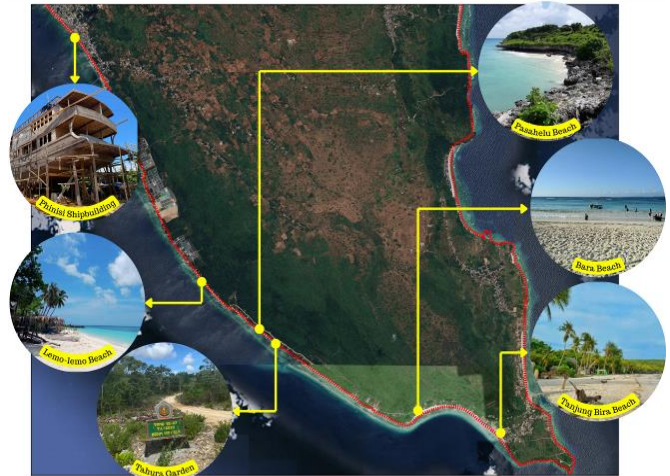
beach border of 26km. The height of the site location is below 500 meters above sea level. Until now, there are still no public transportation facilities to access tourist locations from the capital of Bulukumba district, so people can only use private vehicles.

**Table 1.** Tourism potential in *Tanjung Bira* and *Lemo-lemo*

No.	Name	Description
1	<i>Phinisi</i> Shipbuilding	The most famous potential in <i>Tanah Lemo</i> is the <i>Phinisi</i> Shipbuilding industry, where this potential is encouraged because of the expertise of the local community in making <i>Phinisi</i> ships from generation to generation.
		
2	<i>Lemo-lemo</i> Beach	On this beach, tourists will be pampered with expansive white sand with a cool beach atmosphere. Moreover, the stretch of white sand and enchanting beach are advantages of this beach. Around <i>Lemo-lemo</i> Beach, visitors can also visit a cave with clear fresh water.
		
3	<i>Pusahelu</i> Beach	The beach, with its stretch of white sand, is surrounded by cliffs, which makes it look even more charming. Apart from that, the underwater views are also extraordinary. This tourist area is used as a camping site.
		
4	<i>Bara</i> Beach	The beach, with its stretch of white sand, is surrounded by cliffs, which makes it look more charming, and the underwater views are also extraordinary.
		
5	<i>Tanjung Bira</i> Beach	The beach has a wide and stunning panoramic view of the beach, with calm waves and coconut trees lining the coast. This beach is also a paradise for divers and snorkeling lovers.
		
6	<i>Tahura</i> Garden	In this area, tourists can carry out various activities such as culinary activities, camping, relaxing, visiting the <i>phinisi</i> museum, and seeing deer.
		



**Figure 2.** The white sand beach of *Tanjung Bira*



**Figure 3.** Mapping of tourism potential

This tourist area can be accessed via several routes, including: 1) Sultan Hasanuddin Airport is 203km away with a travel time of 4 hours 19 minutes; 2) The port and center of Makassar City are approximately 193km with a travel time of 4 hours 8 minutes; 3) The capital city of Takalar district is approximately 149 km with a travel time of 3 hours 15 minutes; 4) The capital city of Jeneponto district is approximately 96 km with a travel time of 1 hour 58 minutes; and 5) The capital city of Bantaeng district is approximately 63 km with a travel time of 1 hour 17 minutes.

Topographic conditions at the planning location vary in height from 0 to 200 meters above sea level (masl) with a dominant slope of 0%-8% so that it can be classified as a lowland area (Figure 4). Topographic conditions tend to be flat, considering that this area is a coastal area; this condition can experience geological disasters like floods and typhoons.

As a place to develop tourist areas, *Tanjung Bira* and *Lemo-lemo* already have basic tourism infrastructure that allows visitors to enjoy tourist areas with existing facilities. This area has at least accommodation facilities, shopping, public toilets, gazebos, and visitor parking lots. Lodging facilities in tourist areas are spread around the coast (Figure 5). Accommodation conditions are generally excellent and adequate for tourists. Shopping facilities are available in both tourist areas to accommodate the domestic needs of basic commodities for visitors, spread widely around the tourist locations. The existing facilities are quite adequate but need the development of several tourist facilities at the location.

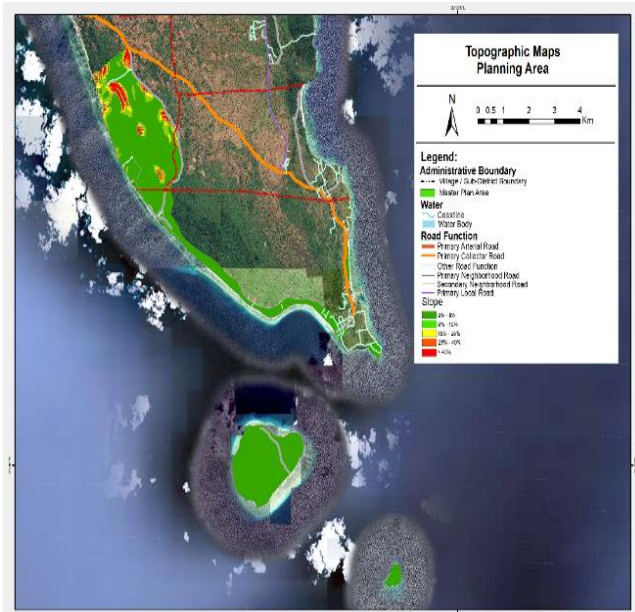


Figure 4. Site topographic map



Figure 5. Tourism facilities in Tanjung Bira and Lemo-lemo

## 2.2 Methods

### 2.2.1 Research design

This research uses a qualitative research design; research is carried out by formulating potentials and problems, analyzing using SWOT descriptively, and providing strategies for the study area to provide comprehensive information from formulating data to providing strategies for sustainable tourism development.

### 2.2.2 Data collection

Primary and secondary methods carry out Data Collection. Primary data collection is done by:

- 1) Participatory observation is used to obtain actual field data regarding tourism conditions and the condition of tourism infrastructure at the study location. Direct observation provides accurate information about the research location.
- 2) Interviews were conducted with stakeholders to obtain a general overview of the characteristics of the local community and the regulations and rules that apply to the study location. Interviews were conducted with regional beautifiers, tourist site managers, local communities, and tourists. The results of

interviews were conducted to indicate the strengths, weaknesses, opportunities, and threats faced at each study location.

Secondarily, data collection was carried out by Document Review; this activity was carried out by tracing policies, history, related journals, and literature related to tourism, which became the basis for thinking and a reference in determining strategies for developing tourism at the study location.

### 2.2.3 Data analysis

Data analysis was done using the following method: 1) a comparative method by comparing each location and its potential and then analyzing it descriptively in a table. 2) Internal and external factor analysis: This method is used to identify factors at each study location for SWOT analysis. 3) SWOT analysis carried out to determine the direction strategy for developing sustainable tourism locations at the study location based on the results of interviews, observations, and document reviews by categorizing them in the form of strengths, weaknesses, opportunities, and threats. 4) descriptive-qualitative analysis to formulate a development strategy based on coastal tourism development.

## 3. RESULTS AND DISCUSSION

### 3.1 Determination of strategy factors

In a SWOT analysis, the first thing that must be done is to identify the internal and external factors in the case study. This analysis comprehensively determines the tourism conditions in *Tanjung Bira* and *Lemo-lemo*. As shown in (Table 2), The internal and external factors in this research include:

#### Internal Factors

- 1) **Strengths:** This strength element includes internal positive aspects, which are advantages or attractions for tourism in *Tanjung Bira* and *Lemo-lemo*. This aspect can be in the form of tourism potential, beautiful natural landscapes, local wisdom, biodiversity at the study location, adequate facilities, and infrastructure at the research location.
- 2) **Weakness:** Includes internal negative aspects that can limit tourism development in *Tanjung Bira* and *Lemo-lemo*. This aspect can be in the form of inadequate tourism-supporting infrastructure, irregular vegetation conditions, poor regional contours, and deficiencies in the tourism management system.

#### External Factors

- 1) **Opportunities:** External aspects can be used in tourism development at the study location. This aspect can be in the form of an increase in the trend of tourist visitors in the region, government policies in tourism development, connectivity in the region, regulations, and other aspects.
- 2) **Threats:** External aspects that can hinder or threaten tourism development at the study location. This aspect can be in the form of the threat of natural disasters at the study location, changes in regulations from the government regarding tourism, competition in attracting tourist visitors, serious climate change, the ability of local communities to adapt to technology, and other aspects.



**Table 2.** Internal and external strategy factors

Code	Descriptions
<b>Strengths</b>	
S1	There is an alternative road that connects <i>Lemo-lemo</i> Beach and <i>Tanjung Bira</i> Beach so that the tourist areas can be integrated.
S2	The primary road access to the location is asphalt, concrete, and paving, with two lanes to access in and out of the tourist area.
S3	It is dominated by high and lowlands (0-200 meters), which are a unique attraction, especially for tourist areas.
S4	View coastal areas and large forest areas through sunrise and sunset backgrounds.
S5	The sea breeze from morning to late afternoon originating from the east of the site provides a unique coolness in this area.
S6	The large amount of local vegetation that grows abundantly in this area supports the greening of the planning area and provides natural mitigation and shade for coastal areas.
S7	There are health, worship, and education facilities at tourist locations.
S8	All coastal tourist areas have been facilitated with accommodation/resorts, kiosks, and other supporting facilities such as gazebos, public toilets, clean water reservoirs, and parking areas.
S9	The quality of the telecommunications network is considered good.
S10	All tourist areas have good electricity networks;
S11	There is a waste processing system, where waste is transported by rubbish trucks every week in the tourist area.
S12	The community's economy is engaged in services and providing tourist facilities, as well as in the maritime and fisheries sectors.
<b>Weakness</b>	
W1	There were five strong wind disasters and one abrasion disaster from 2018 to 2023.
W2	There are no Middle and High School facilities (SMP and SMA).
W3	Vegetation growth and untidy layout of accommodation buildings.
W4	Several facilities, such as public toilets, mosques, and resorts on <i>Lemo-lemo</i> Beach, are in poor condition, and there is no parking space on this beach.
W5	The alternative road connecting the tourist areas is still in the asphalt stage, and most of it still needs to be paved so public tourists do not pass this route.
W6	There is only one clinic for Health facilities in this area.
W7	The layout of the accommodation buildings could be more regular.
W8	Not all roads have pedestrian paths or green lanes.
W9	Providing adequate clean water is difficult, so people who manage tourist areas buy tanked water privately.
W10	The quality of the telecommunications network at <i>Lemo-lemo</i> Beach still needs to improve because there is no BTS close to this tourist area.
W11	There is no good waste management in the <i>Lemo-lemo</i> Beach tourist area, so people burn their piles of rubbish.

INTERNAL FACTORS

Code	Descriptions
W12	There is no special breeding for local endemics (black monkeys, wild boars, deer).
W13	Lack of dissemination of information/promotion related to existing tourist locations.
<b>Opportunities</b>	
O1	Previously, a free tour bus was intended for Bulukumba residents from Bulukumba City to Bira Beach.
O2	The Bulukumba Regency Government fully supports the development of integration of these three tourist attractions utilizing their tourism potential.
O3	Residents are highly enthusiastic to manage the tourist area, which is their hometown.
O4	There are efforts to mitigate the abrasion disaster at the beach.
<b>Threats</b>	
T1	Potential for flooding (abrasion) and strong winds.
T2	several locations that are a point of view still require structuring and development.
T3	Lack of knowledge regarding efforts to optimize land potential around tourist areas that can support existing tourism activities.
T4	A lack of concern for the environment can be seen in the large amount of rubbish on the beach, dirty public toilet facilities, and the absence of rubbish facilities in tourist areas.
T5	There needs to be strong government regulation to limit the movement of tourism services.
T6	No government or community institution accommodates villa managers and facilities in tourist areas.

EXTERNAL FACTORS

### 3.2 SWOT analysis

The SWOT matrix clearly describes how the opportunities and threats can be adjusted to existing strengths and weaknesses [22]. To use SWOT analysis, the results and analysis are conducted through the concept of Strengths, Weaknesses, Opportunities, and Threats [23]. The matrix can also produce strategies that maximize strengths and opportunities while minimizing weaknesses and threats. This matrix can produce four possible alternative strategies as follows: 1) SO Strategy by utilizing all existing strengths to seize and make maximum use of existing opportunities; 2) ST Strategy This strategy uses existing strengths to overcome threats; 3) WO Strategy Implementation of this strategy takes advantage of existing opportunities by minimizing existing weaknesses; 4) WT Strategy This strategy is based on defensive activities and tries to minimize existing weaknesses and avoid threats. SWOT analysis provides a comprehensive framework for organizations to evaluate their internal and external landscapes [24].

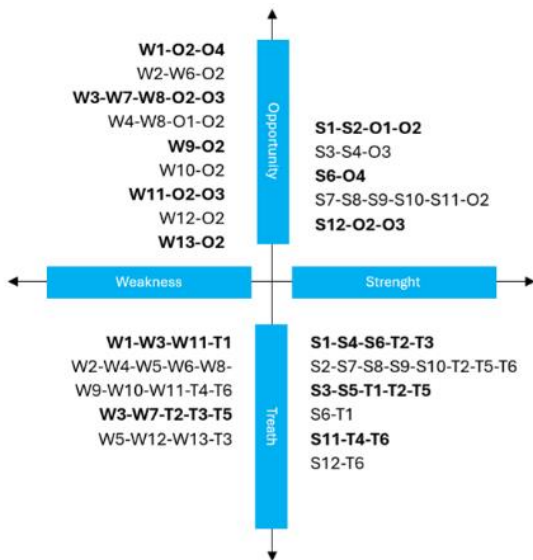
In the SWOT matrix (Table 3), each component must first determine the strengths, weaknesses, opportunities, and threats faced in the location under study; then, each component is given a code and description to make it easier to determine indications of the strategy used in subsequent analysis. Details can be seen in the following Table 3.

The first SWOT matrix analysis, namely Strengths (S) and opportunities (O) is used to take advantage of opportunities available in the external environment. The second SWOT

matrix analysis, Weakness (W) and Opportunities (O) aims to improve internal weaknesses by taking advantage of opportunities from the external environment. The third SWOT matrix analysis, Strengths (S) and Threats (T) aims to minimize the impact that will occur from the external environment. Moreover, the SWOT matrix analysis, Weaknesses (W), and Threats (T), aim to strengthen from within efforts to minimize internal weaknesses and reduce external challenges. Details can be seen in the following Table 4.

**Table 3.** SWOT matrix

Defining Factor		Internal Factors	
		Strength (S)	Weakness (W)
External factors	Opportunity (O)	SO	WO
	Threat (T)	ST	WT



**Figure 6.** SWOT Diagram

In preparing development strategies for the *Tanjung Bira* and *Lemo-lemo* tourist areas, the SWOT matrix is used to make it easier to analyze appropriate strategy based on 4 SWOT indicators: strength, weakness, opportunity, and treatment. This SWOT analysis can be visualized as a diagram to show each quadrant between strength-opportunity, opportunity-weakness, weakness-threat, and threat-strength. By compiling a relevant SWOT matrix, strategic programs can be indicated that can be implemented for each tourism component. In this case, it can be seen in (Figure 6).

The SWOT matrix, as seen in the SWOT Diagram, is divided into four different quadrants:

**Quadrant I (Strength-Opportunity):** This quadrant explains the external forces utilized to exploit external opportunities. This quadrant can take the form of a tourism strategy by utilizing superior destinations to attract visitors or direct government involvement in tourism promotion at the study location.

**Quadrant II (Weakness-Opportunity):** This quadrant explains strategies that can be developed from internal weaknesses that external opportunities can fill. This quadrant can contain strategies regarding tourism promotion or increasing accessibility at the study location.

**Quadrant III (Strength-Threat):** This quadrant contains tourism strategies based on internal strengths that can be used to overcome the impact of external threats. In this case, this quadrant can contain measures regarding the threat of natural disasters or existing tourism facilities.

**Quadrant IV (Weakness-Threat):** contains internal weaknesses that can threaten or exacerbate external weaknesses. This quadrant contains strategies for improvements that must be made to the problems and threats, such as climate change, which can exacerbate internal weaknesses.

In formulating strategies for these four components, a detailed table is made based on quadrants containing the steps or strategies that must be overcome based on each existing component. Table 4 refers to a matrix of tourism development strategies in *Tanjung Bira* and *Lemo-lemo*.

**Table 4.** Tourism development strategy matrix

	Strength (S)	Weakness (W)
<b>Opportunity (O)</b>	<ul style="list-style-type: none"> <li>S1-S2-O1-O2 There is support from the government to integrate the three tourist locations by constructing new roads that connect the tourist locations, thereby facilitating access to mass transportation.</li> <li>S3-S4-O3 The government plays a role in developing tourist areas by utilizing the existing potential atmosphere (view and comfort), as well as the enthusiasm of the community in managing the tourist area.</li> <li>S6-O4 The availability of local vegetation that grows abundantly in tourist areas can be an effort to mitigate abrasion disasters and provide shade in tourist areas.</li> <li>S7-S8-S9-S10-S11-O2 The government plays a role in developing facilities and infrastructure, as well as existing facilities in tourist areas And</li> <li>S12-O2-O3 There is a role for the government in empowering communities engaged in tourism services and facility providers, as well as maritime affairs and fisheries, considering the high enthusiasm of the community in managing the potential of their area to improve the local community's economy.</li> </ul>	<ul style="list-style-type: none"> <li>W1-O2-O4 The government provides information about abrasion disasters and disaster mitigation efforts at planning locations.</li> <li>W2-W6-O2 Providing additional facilities, such as education and health, to improve human resources and health at the planned location.</li> <li>W3-W7-W8-O2-O3 Cooperation between the community and the government in managing a good and neat building layout and prioritizing existing vegetation at the planning location.</li> <li>W4-W8-O1-O2 Repairing the roads connecting these three tourist areas, adding green lanes and pedestrian paths, and integrating the roads of the three tourist locations using tourist bus transportation to facilitate accessibility to the three tourist locations.</li> <li>W9-O2 Create a suitable clean water system to support activities in tourist areas.</li> <li>W10-O2 Addition of BTS so that a good telecommunications network can improve tourist services.</li> <li>W11-O2-O3 Develop a waste system based on 3R (reduce, reuse, recycle) by involving the community at the planning location.</li> </ul>

<b>Threat (T)</b>	<ul style="list-style-type: none"> <li>• S1-S4-S6-T2-T3 Opening a new/alternative route as access that connects tourist locations can open opportunities for developing and optimizing the potential of land around tourist areas.</li> <li>• S2-S7-S8-S9-S10-T2-T5-T6 The need for the role of government and institutions that can accommodate tourist areas considering the availability of adequate infrastructure and facilities in this area.</li> <li>• S3-S5-T1-T2-T5 The government can provide regulations and direction for the development of potential utilization of tourist areas and planning related to mitigation that can be applied to planning areas classified as disaster-prone.</li> <li>• S6-T1 Planting vegetation to prevent abrasion disasters, a non-structural mitigation effort, is made easier by the land's ability to grow these plants.</li> <li>• S11-T4-T6 Forming community institutions that can synergize with the government to manage coastal areas, especially to maintain the environment of tourist areas And</li> <li>• S12-T6 The government empowers the community by establishing business groups or community institutions/organizations tasked with optimizing the potential of tourist areas operating in the maritime sector, both fishermen and tourism service providers.</li> </ul>	<ul style="list-style-type: none"> <li>• W12-O2 Create a particular breeding facility for local endemics to create new activities for visiting tourists And</li> <li>• W13-O2 Disseminate information related to tourist areas and carry out promotional cooperation with private parties.</li> </ul>
	<ul style="list-style-type: none"> <li>• W1-W3-W11-T1 There is a need to arrange vegetation and residential areas according to abrasion and strong wind disaster mitigation planning, as well as carry out environmental care efforts by processing waste as a disaster prevention effort.</li> <li>• W2-W4-W5-W6-W8-W9-W10-W11-T4-T6 Community institutions need to collaborate with the local government to improve and add to existing infrastructure and facilities to manage tourist areas well.</li> <li>• W3-W7-T2-T3-T5 Provide planning direction regarding building and vegetation layout in tourist areas by optimizing the potential of tourist locations And</li> <li>• W5-W12-W13-T3 There is a need to develop tourist areas and surrounding areas, such as creating special breeding facilities for local endemics and expanding marketing and information about tourist areas.</li> </ul>	

### 3.3 Sustainable tourism planning strategy

- Environment Strategy

Sustainable tourism not only pays attention to economic and social culture but also considers environmental aspects [25]. And promote pro-environmental behaviors [26]. A sustainable environmental strategy is carried out by 1) conservation program, implementation of this strategy by ensuring that the entire coastal ecosystem is maintained, including endemic plants, and the green belt at each tourist location is maintained. 2) eco-friendly infrastructure, ensuring waste management and use. Water is environmentally friendly energy use from planning to implementation. And 3) environmental education and awareness, carried out by engaging local communities in conservation efforts through training and awareness programs and providing complete information to tourist visitors.

- Economic Strategy

Sustainable tourism ensures that all aspects are integrated at all levels, including economic integration [27]. A sustainable economic strategy is carried out by 1) Local Economic Development. This strategy helps the local economy to grow by providing business training, marketing assistance, and policies that favor the local economy. 2) Infrastructure investment, emphasizing green and sustainable investment in infrastructure such as electric buses and priority development of pedestrian and bicycle paths. And 3) Diversification of tourism products; promote and encourage the concept of eco-tourism, which emphasizes environmental sustainability by supporting local products.

- Socio-Cultural Strategy

Culturalization strategies can help overcome barriers to sustainable tourism development [28]. Sustainable socio-cultural strategies are carried out by 1) Cultural preservation, which ensures the presence of tourist locations to support local culture. In *Lemo-lemo* and Tanjung Bira, the only remaining

phinisi shipbuilding culture in Indonesia must be maintained. 2) Community engagement, which is carried out by involving the community in decision-making, ensuring community representation, and managing tourist areas. And 3) capacity building, which is carried out through training and education by ensuring the involvement of all levels of society, including the empowerment of youth and women.

Sustainable tourism is a concept that looks at it from an economic perspective and pays attention to ecological, economic, and social aspects of society (Figure 7). Sustainable tourism aims to improve the quality of life by sustainably managing resource provision, development, utilization, and maintenance. In planning based on sustainable coastal tourism in *Tanjung Bira* and *Lemo-lemo*, approaches that can be used include:

- 1) Participation

This principle prioritizes community participation in controlling tourism development. This can be expressed through participation in determining the tourism vision, areas of focus for increasing resources, goals, and strategies for developing and implementing strategies.

- 2) Stakeholder Involvement

The stakeholders involved include non-governmental organizations (NGOs), volunteer groups, tourism associations and businesses, and other parties with a significant interest and role in tourism activities.

- 3) Local Ownership

This principle prioritizes benefits for the community around the tourism area, such as community ownership in tourism-supporting facilities ranging from accommodations to restaurants in tourism areas. This can be demonstrated by the ease of access that local communities must have to these supporting facilities.

- 4) Sustainable use of resources

This principle prioritizes using resources in moderation to avoid non-renewable resources becoming scarce. For this reason, coordination in planning, development, and

implementation is needed to realize a fair distribution of benefits.

5) Accommodating community goals

This principle assesses tourism as a forum for implementing various community goals. So that tourism activities are harmonious with visitors or tourists. This can be done through collaboration with local communities in the planning, management, and marketing stages.

6) Carrying capacity

This principle explains that things need to be considered, such as natural, physical, social, and cultural carrying capacity. The planning process needs to be in line with local and environmental constraints. Continuous evaluation is carried out to ensure better program sustainability. There needs to be limits on the use of tourist facilities that are deemed to be tolerable (limits of acceptable use).

7) Monitoring and Evaluation

This principle explains that monitoring and evaluation activities include the preparation of guidelines, evaluation of the impacts of tourism activities, and the development of indicators and limits to regulate tourism impacts. The guidelines developed must cover national, regional, and local scales.

8) Accountability

Tourism planning must pay great attention to opportunities for employment, income, and improved health of local communities, as reflected in development policies. Management and utilization of natural resources such as land, water, and air must ensure accountability and that existing resources are not overexploited.

9) Training and Promotion

Sustainable tourism development requires education and training programs to equip the community with knowledge

and improve business skills and professionalism. Training should cover topics on sustainable tourism and hospitality management, as well as other relevant topics.

Sustainable tourism development also includes promoting land use and activities that strengthen the character of the landscape, sense of place, and identity of local communities [29]. These activities and land use should create a quality tourism experience that satisfies visitors. Sustainable development generally aims to benefit the current generation without harming or reducing the benefits for future generations [30].

Planning for sustainable tourism in *Tanjung Bira* and *Lemo-lemo*, the location of the site, and the arrangement of the *Tahura* (Community Forest Park). The planning area consists of 2 priority areas that need to be designed, including:

- *Lemo-lemo* (Dope Village)

In this area, tourists can experience the beauty of *Lemo-lemo* Beach with white sand. Several supporting facilities include a theatre, a weaving house, a camping ground, and local endemic breeding. For detail look at Figure 8.

- *Tahura* (Community Forest Park)

In this area, tourists can carry out various activities such as culinary activities, camping, relaxing, visiting the *phinisi* museum, and seeing deer. The *Lemo-lemo* Beach area contains the Dope Village Residential Area, which starts from the entrance post to the beach area to the end of *Lemo-lemo* beach, namely the border of the Shrimp Pond Area, with a total area of 47.85Ha. Planning in this area incorporates existing local wisdom by presenting facilities designed according to local wisdom and existing culture (Figure 9).

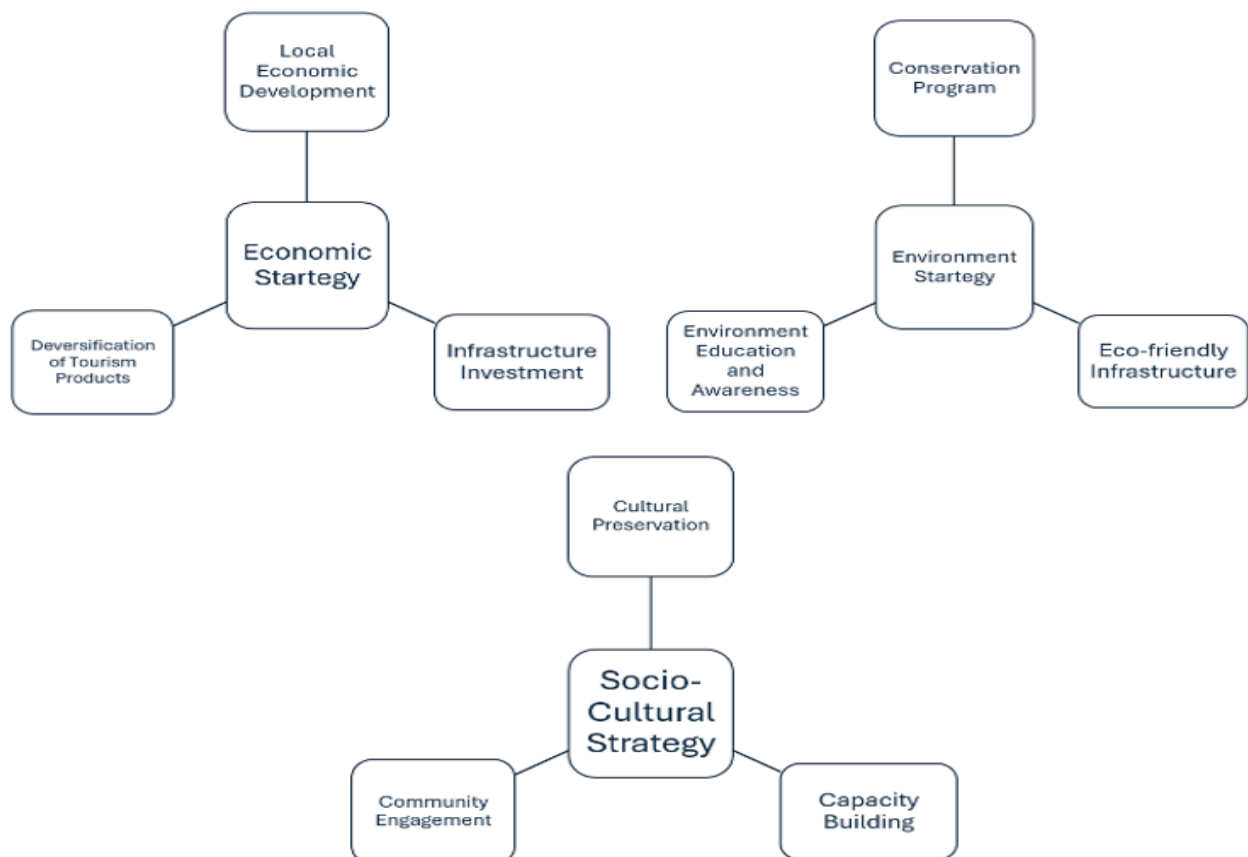


Figure 7. Environmental, economic and socio-cultural strategy



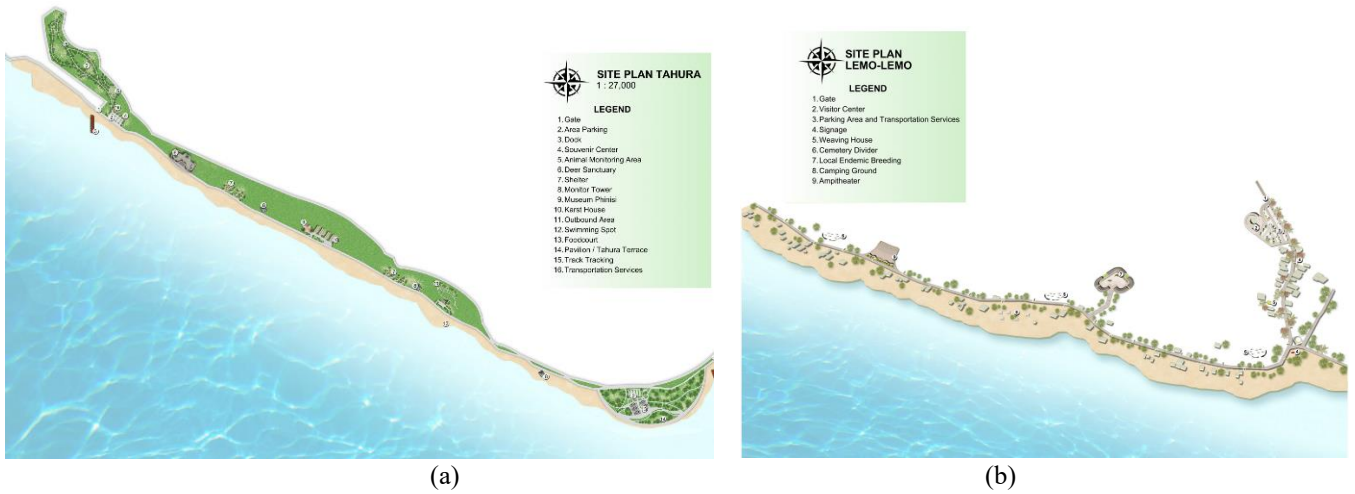


Figure 8. Lemo-lemo beach site plan (a) tahura community forest plan (b)

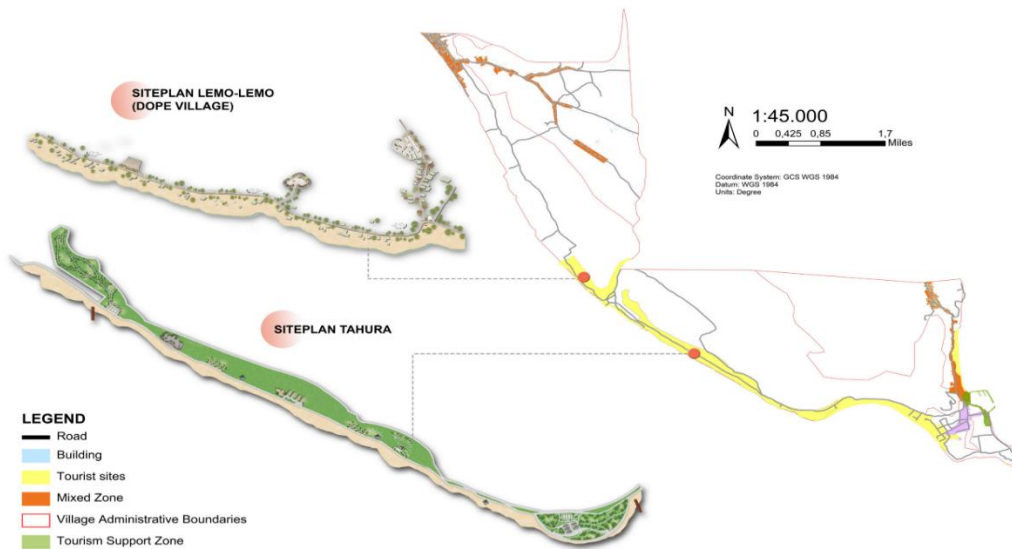


Figure 9. Site priority planning

### 3.4 Implementation strategy

There are three steps that relevant stakeholders can take in implementing coastal tourism development in *Tanjung Bira* and *Lemo-lemo*, including (Figure 10):

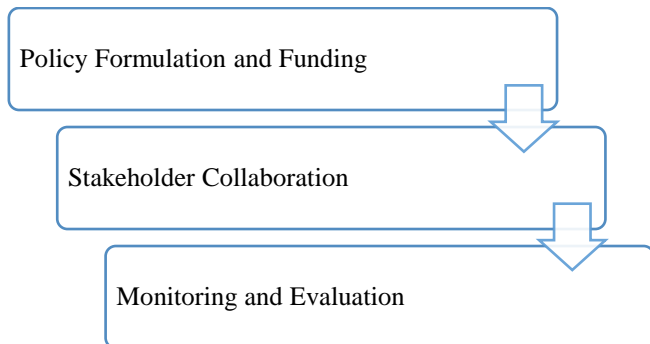


Figure 10. Implementation steps

#### 1) Policy Formulation and Funding

Formulate policies regarding tourism development priorities in *Lemo-lemo* and *Tanjung Bira*, especially on sustainable tourism practices and conservation and provide development funding to support sustainable tourism development.

#### 2) Stakeholder Collaboration

Building cooperation with various stakeholders between local government, NGOs, the tourism worker community, and tourism operators, as well as prioritizing collaboration in joint development of tourist areas. And always build good communication and create platforms/forums for stakeholders to collaborate.

#### 3) Monitoring and Evaluation

Carry out monitoring and evaluation with all stakeholders on programs related to the development of tourist areas, especially in aspects of environmental suitability, economic performance, socio-cultural implications, and the satisfaction of visitors and tourism actors in the surrounding area.

#### 4. CONCLUSION

This research seeks to identify tourism development strategies in the *Tanjung Bira* and *Lemo-lemo* tourist areas based on the analysis carried out using SWOT. SWOT analysis shows: 1) Destination strengths in the form of significant tourism potential in natural beauty, cultural richness, and adequate facilities to be developed into sustainable tourism. 2) Weaknesses that must be considered in developing the region include improving tourism infrastructure and accessibility to tourist locations. 3) There is a huge opportunity for sustainable tourism to develop by taking advantage of opportunities by increasing accessibility and transportation and providing policies that favour tourism actors. 4) Threats and natural disasters in the form of landslides and abrasion can be minimized at the study location, disrupting the tourist location's sustainability. Climate change and competition for tourist destinations must be minimized with well-prepared planning. Coastal sustainable tourism-based planning ensures an important role in the sustainability of tourism in *Tanjung Bira* and *Lemo-lemo* by paying attention to economic, social, and environmental aspects. In holistic planning, tourism in *Tanjung Bira* and *Lemo-lemo* is hoped to contribute positively to national tourism development and is expected to be continuously sustainable.

The results of this research are a matrix of tourism development strategies and coastal tourism development strategies. The tourism development strategy shows that there is a need for a Strength-Opportunity Strategy (S-O Strategy) in the form of integrating tourist locations within the scope of *Tanjung Bira* and *Lemo-lemo*, the need for the government's role in developing existing tourist areas and fulfilling basic tourism infrastructure, and also the need for vegetation in tourist areas for disaster mitigation. The research results in the form of a Weakness-Opportunity Strategy (W-O Strategy) show the need to improve basic facilities and infrastructure such as telecommunications networks, waste facilities, road networks, health and education facilities, and tourism human resource development facilities. There is also a need for cooperation between society and government in managing tourist areas and the need for tourism promotion to increase the number of tourists. The Strength-Treaty Strategy (S-T Strategy) shows the need for regulatory improvements related to the development of potential utilization of disaster-prone tourist areas, optimizing accessibility around tourist areas and the need for community empowerment. The Weakness-Treaty strategy (W-T Strategy) also emphasizes the need for direction and regional planning at tourist locations.

The results of this research provide direction to stakeholders in formulating policy strategies in sustainable tourism areas, which include: 1) increasing the availability of infrastructure, 2) increasing the availability of facilities, 3) developing tourism areas, 4) developing the tourism industry, 5) community empowerment, 6) community institutional management, and 7) tourism promotion.

#### 5. LIMITATION AND FUTURE RESEARCH

The limitation of our study is the possibility of response bias. The participants might provide subjective opinions rather than honest opinions. The participants and stakeholder representation of the survey and interview are challenging to interview due to barriers and level of understanding; some of

them use specific terminologies in their languages. Additionally, secondary data sources can contain incomplete or outdated information that can influence research results. Therefore, we realize that combining future research with a more comprehensive and robust methodology is very important. In providing data and using data collection methods, both primary and secondary, it is necessary to ensure that the data used is the latest and has complete information.

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