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Tourism Development Potential and Strategy at Molino Beach (Matano Lake) Sorowako Village, East Luwu Regency, South Sulawesi

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ABSTRACT

Molino Beach is a tourist destination located in the Matano Lake area, Sorowako Village, East Luwu Regency, South Sulawesi. This area has high potential for ecotourism-based water tourism, but has not been optimally managed due to minimal government attention. This study aims to analyze the Tourism Suitability Index (IKW) parameters and formulate a strategy for sustainable ecotourism-based area development. The method used is a descriptive method with an IKW calculation approach, SWOT analysis, and IFE and EFE matrix analysis. The results show that Molino Beach is categorized as Very Suitable (S1) for ecotourism activities with an IKW value of 88.75%. The SWOT analysis identified various internal and external factors that influence area management, while the results of the IFE and EFE analysis showed values of 2.672 and 2.962, respectively. Based on the IE Matrix, the development position is in quadrant V (hold and maintain), which indicates the need for a strategy to strengthen existing potential accompanied by a measurable and sustainable growth direction.

Keywords: Molino Beach; Lake Matano; Ecotourism; Tourism Suitability Index (IKW); SWOT Analysis; Sustainable Tourism

INTRODUCTION

Lake Matano, located in East Luwu Regency, South Sulawesi, is the deepest lake in Indonesia, reaching a depth of 625 meters (1,969 feet) and standing at an elevation of 382 meters above sea level. Boasting endemic biodiversity and captivating landscapes, the lake represents both an ecological asset and a significant natural tourism potential. To encourage sustainable tourism and improve the well-being of the surrounding community, the government and academics have emphasized the need for ecotourism-based management, combining environmental conservation with local community empowerment.

Tourism, as part of the national economic activity, demonstrates strategic relevance in the context of sustainable development. For a developing country like Indonesia, this sector is a top priority, supported by its rich natural resources, historical cultural heritage, and unique social diversity (Patra & Tri, 2018). Ecotourism development at Lake Matano aims to balance environmental conservation with increasing economic value for local residents. However, implementation on the ground faces various challenges, particularly in maintaining consistency with the basic principles of ecotourism.

One challenge arises from the presence of Molino Beach, which is currently developing as a new tourist destination on the shores of Lake Matano. Various facilities such as playgrounds, artificial swimming pools, and paved pedestrian paths demonstrate an artificial tourism approach laden with concrete infrastructure and spectacular designs. This model contradicts the principles of ecotourism, which prioritize minimal intervention in

nature and the inclusion of local wisdom. The lack of integration of local values in the area's development reinforces the perception of Molino Beach as a purely commercial tourism project.

Molino Beach is a tourist destination located on the shores of Lake Matano in Sorowako Village, East Luwu Regency, South Sulawesi. With its clear waters and serene natural scenery, this area reflects the meaning of "Molino" in the Sorowako language, which means "clear." The beautiful landscape, water rides such as banana boats and katinting boats, and typical East Luwu cuisine make Molino Beach a recreational space with cultural and educational value. Basic facilities such as gazebos, prayer rooms, dining areas, and camping areas are available, managed by the village government with a commitment to comfort and environmental sustainability. As its popularity increases, Molino Beach has become an attractive alternative for tourists seeking a recreational experience amidst the beauty of Lake Matano. However, during its development, conservation and environmental impact issues need to be a primary concern so that this destination can be developed sustainably and based on community participation.

The mismatch between the Lake Matano ecotourism concept and the Molino Beach development approach poses several risks. First, pressure on the coastal ecosystem and water quality degradation due to the intensity of development and construction material runoff. Second, the lack of a participatory governance system leads to an unequal distribution of economic benefits and has the potential to alienate local communities from their cultural identity. Third, if the artificial tourism pattern at Molino continues without a review of the concept and policy direction, the ecotourism image of Lake Matano could be degraded.

To date, academic studies on Lake Matano have not produced a comprehensive strategic framework for transforming Molino Beach into a community-based ecotourism destination. Existing studies focus primarily on identifying general potential or describing existing facilities, without formulating a collaborative governance model and integrated environmental conservation programs. This lack of strategic direction weakens the synergy between stakeholders—including the government, the private sector, NGOs, and the community—in balancing conservation and economic empowerment goals.

As its popularity as an alternative tourist destination in Sorowako grows, Molino Beach offers a relaxing experience and captivating visuals. However, to maintain the sustainability of Lake Matano's ecosystem, tourism management that prioritizes environmental preservation and sustainable community empowerment is essential. With this approach, Lake Matano will not only be sustainable but also thrive as a leading ecotourism destination in South Sulawesi.

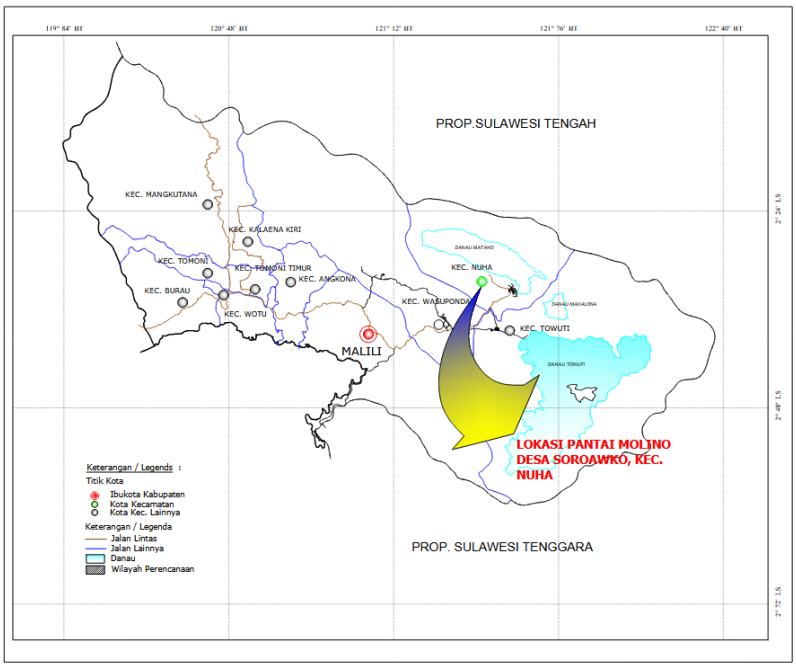

Figure 1. Location Map of Molino Beach , Sorowako Village

LITERATURE REVIEW

Ecotourism is a form of tourism activity that emphasizes environmental conservation, empowering local communities, and increasing understanding of biodiversity and culture. According to the International Ecotourism Society (TIES), ecotourism was first defined in 1991 as "travel to natural areas with the aim of supporting environmental conservation and improving the well-being of local communities." This definition was expanded in

2002 to "responsible tourism to natural areas that conserves the environment, maintains the socio-cultural sustainability of local communities, and contributes to improving their standard of living."

In line with this definition, Fennell (1999) states that ecotourism is responsible travel to natural areas, prioritizing environmental conservation and the well-being of local communities, and encompassing educational and interpretive aspects. Meanwhile, Lindberg and Hawkins (1993) emphasize that ecotourism contributes to cultural and environmental conservation with low impact and direct benefits for local communities. Nationally, Law of the Republic of Indonesia Number 10 of 2009 concerning Tourism states that tourist attractions encompass all uniqueness, beauty, and value—whether natural, cultural, or man-made—that are the main reasons for tourists to visit.

In assessing tourist attractions, Lew (1987) developed four approaches: ideographic, organizational, cognitive, and cross-approach. These four approaches can be used to analyze tourist perceptions of destinations, including in assessing the ecological potential of Lake Matano.

As the deepest lake in Southeast Asia, Lake Matano boasts unique geological characteristics, exceptional water clarity, and endemic biodiversity. This potential makes the area—including Molino Beach—a prime candidate for ecotourism development. With proper management, this area can generate local economic benefits while supporting environmental conservation. In the context of regional development, Christiani and Adikampana (2014) stated that community involvement and the use of SWOT analysis are crucial elements in designing sustainable ecotourism. Their study of the Ngurah Rai Nature Reserve (Tahura Ngurah Rai) demonstrated the importance of ecological strength-based management and mitigating weaknesses and threats through active community participation. This approach is highly relevant to the characteristics of Lake Matano, which is rich in local ecological and cultural values.

To strengthen the social aspect, Ardianti and Sulistyowati (2024) propose a management approach based on Sharia values, such as fairness, transparency, and social responsibility. This approach aligns with the principle of community empowerment, which is at the heart of the ecotourism concept. Standardization of terms in academic documents and public policies is important to pay attention to, as expressed by Alwi (2007) through the Big Indonesian Dictionary (KBBI), which is a reference in the use of terms such as "ecotourism," "conservation," and "empowerment."

Yulianda (2007) also provided a conceptual basis that ideal marine ecotourism involves local communities, considers environmental carrying capacity, and provides direct economic benefits. Although focused on coastal ecosystems, these principles remain relevant for application to freshwater areas such as Lake Matano. An empirical study by Achmad et al. (2020) directly demonstrates the importance of community-based and conservation approaches in developing Lake Matano ecotourism. This study identifies biophysical and sociocultural potential and recommends management strategies based on local wisdom.

Fandeli (2002) offers a planning framework for nature tourism areas that emphasizes zoning, environmental carrying capacity, and community participation. Supporting this, Humphrey (2005) suggests that SWOT analysis can be used to formulate strategies based on internal strengths and external opportunities in a participatory manner. In supporting social sustainability, Kurniawati (2013) emphasized the importance of environmental education and the integration of three main aspects—ecology, social, and economy—which are highly contextual to Lake Matano. Kwanda and Chrestella (2018) highlighted that the design of recreational facilities must consider local character and visitor comfort, including the use of vernacular architecture and accessibility principles.

Concluding this study, Lew (1987) once again emphasized the need for a holistic evaluation of tourist perceptions of destination attractiveness. This approach could support the development of indicators that reflect local values and tourist experiences at Lake Matano. Based on this overall thinking, a development strategy that integrates environmental conservation, community participation, and a comprehensive conceptual approach is crucial to realizing Lake Matano and Molino Beach as leading ecotourism destinations. The principle of regional autonomy provides an opportunity for East Luwu Regency to optimally manage and develop local potential, thereby becoming a model for sustainable, community-based ecotourism development.

METHOD

This research uses a descriptive method with complementary quantitative and qualitative approaches. The primary objective is to describe the current condition of Molino Beach in the context of tourism suitability and to formulate a strategy for sustainable destination development.

A quantitative approach was used to calculate the Tourism Suitability Index (TSI) based on physical and environmental parameters. Meanwhile, a qualitative approach was utilized to conduct a SWOT analysis and interpret the results of the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices, which reflect the perceptions and insights of various key informants.

Data collection techniques in this study include:

a. Field observations were conducted to measure IKW parameters such as water depth, clarity level, current strength, and level of accessibility of tourist areas.

b. In-depth interviews were conducted with community leaders, tourism managers, and village government officials to obtain local perspectives and relevant contextual information.

c. Distribution of questionnaires, aimed at visitors and local communities to identify their perceptions of the strengths, weaknesses, opportunities and threats of tourist destinations.

Literature studies are used as a basis for strengthening theory and as support in the process of analyzing and interpreting research results.

The data analysis techniques used include:

a. Calculation of the Tourism Suitability Index (IKW) based on measured physical and environmental parameters.

b. SWOT analysis, to identify internal and external factors that influence the management of tourist destinations.

c. The preparation of the IFE and EFE Matrix aims to provide weight and ranking to each SWOT factor to support the formulation of effective and participation-based development strategies.

RESULT

Tourism Suitability Index a with Freshwater Tourism and Ecotourism Activities of Molino Beach

To assess the Tourism Suitability Index (TSI) in freshwater ecotourism areas such as Molino Beach, the approach generally refers to the method developed by Yulianda (2007). This assessment considers a number of biophysical and social parameters relevant to freshwater tourism activities, such as swimming, water sports, or outdoor recreation.

Table 1. General Parameters for Tourism Suitability Index (IKW) Assessment for Freshwater Tourism and Ecotourism Activities

No	Parameter	Unit	Weight (%)	Measurement Description
1	Water depth	meters	15%	Measured using sonar or manual measuring tools; ideal: 1–3 m for water tourism
2	Water clarity	meters	15%	Using a transparency tool (Secchi disk); visibility >1.5 m indicates a good fit.
3	Surface currents	m/sec	10%	Measured using a current meter or manual method; low currents support tourism.
4	Surrounding vegetation cover	%	10%	Through field observations and satellite imagery; tall vegetation supports the ecology
5	Biodiversity	Qualitative	15%	Assessed from the number and distribution of biotic species; the higher the number, the more potential.
6	Location accessibility	Qualitative	15%	Assessed by ease of access, road conditions, and transportation facilities
7	The beauty of the scenery	Qualitative	10%	Visual assessment based on landscape integrity, natural aesthetics and visual appeal
8	Availability of tourist facilities		10%	Assessed by the presence of toilets, prayer rooms, stalls, play areas and tourist spots

Scoring of Each Parameter

For example, scale 1–4:

1. Score 4: Very appropriate (S1)
2. Score 3: Quite appropriate (S2)
3. Score 2: Less appropriate (S3)

4. Score 1: Not suitable (N)

The formula used to calculate the marine tourism suitability index is:

$$IKW = \sum_{i=1}^{n} (BixSi)$$

n = The number of parameter suitability

Bi = Weight parameter ke- i

Si = Score parameter to- i

Information:

Very Suitable: IKW ≥2.5

In accordance: 2.0≤IKW<2.5

It is not in accordance with: 1≤IKW<2.0

Totally Inappropriate: IKW

Table 2. Results of the Tourism Suitability Index (IKW) Assessment for Swimming Activities IKW field assessment:

No	Parameter	Actual Value	Score	Weight	Score x Weight
1	depth (2-4 m)	3 m	4	15	60
2	clarity (≥2 m)	2.5 m	4	15	60
3	Current surface (≤0.5 m/s)	0.3 m/s	4	10	40
4	Vegetation cover	>85%	3	10	30
5	Diversity biological	Tall	4	15	60
6	Accessibility location	Enough Good	3	15	45
7	Beauty view	Beautiful	4	10	40
8	Facility tour	Limited	2	10	20
	Total			100	355

Molino Beach Ecotourism Criteria Tourism Suitability Index:

Category	IKW Value (%)
Very Appropriate (S1)	80 – 100
Quite Suitable (S2)	60 – <80
Less Suitable (S3)	40 – <60
Not Suitable (N)	<40

Molino Beach = Very Suitable (S1) if the IKW is 88.75%

Analysis Internal and External Environment Molino Beach Ecotourism, Lake Matano

Analysis Internal Environment

Analysis internal environment is carried out For identify strengths and weaknesses in management area Molino Beach ecotourism, Lake Matano. Focus main lies in the aspect management management tourism , infrastructure , promotion , services and capacity organization . Identification results show that strength management moment This lies in the potential nature , accessibility , support policies , as well as involvement public local .

a. Aspect Management

Management of Molino Beach is under coordination group managers who involve chairman , treasurer , and member active from public local . System management nature simple and role - based community .

Although collaborative , it is not yet there is structure management professionals who guarantee efficiency operational in a way comprehensive .

b. Aspect Services and Facilities

A number of point Destinations in the Molino Beach area still have minimal facilities general such as toilets, places rinse , place trash , and gazebo. Weaknesses This influence comfort tourists and at risk lower level satisfaction visit .

c. Aspect Promotion and Marketing

Promotion Molino tourism is still limited and not yet integrated digitally . During This only depend on visit direct , word of mouth, and information local . The lack of promotion become constraint in reach a wider market wide .

d. Aspect Infrastructure and Accessibility

Access from Mother city regency heading to Molino Beach is quite good , but connectivity between destination tourism inside area Still limited infrastructure base like lighting , roads steps , and pointers direction not optimal.

e. Aspect Social and Cultural

Support public very strong local hospitality resident be one of Power pull itself that strengthens nuances ecotourism based wisdom local .

f. System Information and Technology

Use technology information in management and service Still limited . There is no system online reservations , integrated digital promotions , or utilization of social media in a way active .

Analysis Environment External

Analysis environment external covers factors opportunities and threats from outside system potential management influence sustainability ecotourism .

a. Demographic and Social Factors

Increasing interest public to activity ecotourism as well as increase amount resident age productive in East Luwu Regency provides opportunity improvement visit to Molino Beach. However , the changes style modern life can become challenge Because tour based natural tend considered not enough prestige by some segment .

b. Economic and Tourism Factors

Growth trend sector tourist in a way national open opportunity big . The existence of the Matano Lake Geopark program is also a runway strategic development . However , the economy local that has not evenly distributed and dependent on the season holiday certain can hinder sustainability visit .

c. Technology Factors

Progress digital technology and transportation give opportunity big For promotion and service tourism . However, the low utilization technology by management become threat to Power competition destination This .

d. Environmental Factors

Increasing visit traveler cause risk damage environment If No managed in a way sustainable . Problems waste and pressure on the ecosystem become threat Serious .

e. Competition Factors

Competition with destination tour similar in South Sulawesi, which has facility more complete and promotional more strong , become challenge alone . Without innovation and improvement services , Molino Beach can lost compete .

f. Regulatory and Policy Factors

Support policy from government very strong areas , including determination as a Special Economic Zone and integration in the Geopark. This provides opportunity development term strategic length .

Identification and Analysis Internal and External Environment

a. Matrix (Internal Factor Evaluation)

Analysis internal environment is carried out through identification internal destination factors For know existing strengths and weaknesses . After identified , carried out weighting and rating of each variable . Based on results weighting and rating using IFE matrix , total score obtained of 2.672. This score show that internal management of Molino Beach is in a position currently in utilise strength For overcome weakness .

Table 3. Analysis SWOT Matrix of Tourism at Molino Beach, Lake Matano, Sorowako Village, East Luwu Regency , South Sulawesi

No	Internal Factors	Weight	Rating	Weight X Rating
Strengths				
1.	Has a variety of natural and cultural tourist attractions.	0.131	3,333	0.438
2.	Access from the district capital is quick and easy.	0.134	3,667	0.491
3.	Local people are friendly to tourists.	0.120	3,667	0.441
4.	Supported by policies as a Special Economic Zone for Tourism.	0.145	3,333	0.483
Sub-Total		**0.531**		**1,853**
Weakness				
1.	Connectivity between tourist destinations is still low.	0.126	1,333	0.168
2.	Basic infrastructure is inadequate.	0.109	2,333	0.255
3.	Public facilities at the destination are limited.	0.125	2,000	0.251
4.	Depends on weather conditions or season.	0.109	1,333	0.145
Sub-Total		**0.469**		**0.819**
Total (1+2)		**1**		**2,672**

Source : Primary data after processed (2025)

Based on Table 15, the results calculation use The Internal Factor Evaluation (IFE) matrix shows that the total score obtained from analysis Molino Beach's internal factor is 2.672. This score is at a little above threshold neutral (2.5), which indicates that internal position of the region tourist This be at the level moderate . This means that the internal strength possessed Still Enough capable For balance existing weaknesses , however Not yet show significant dominance .

The strengths factor has a total score weighted of 1,853, with strength main is access from Mother city fast and easy district (score highest 0.491). Ease access This give profit alone in interesting tourists , in particular traveler local and regional, because make things easier movement going to location tourism . Strength factors others that stand out is friendliness resident local to tourists (0.441) and support policy government in the form of the determination of Molino Beach as a Special Economic Zone (KEK) for Tourism (0.483), which shows potential big in development destination .

Temporary that , factor Weaknesses get a total score weighted 0.819. Weakness main lies in connectivity between destination tourism that is still low (0.168) and facilities general limited in some point destination (0.251). Weakness This show that although Power pull tour Enough strong , but Not yet supported by adequate infrastructure and connectivity For give experience optimal tourism . Dependence on weather or season certain also become challenge alone (0.145), especially for activity tour outside sensitive space to change weather .

With however , although Molino Beach's internal strength is sufficient promising , improvement connectivity , development infrastructure basic , and provision facility general become priority important in development strategy destination to be able to compete with area tour other .

b. EFE Matrix (External Factor Evaluation)

Analysis EFE matrix is performed For evaluate ability manager in respond factor external in the form of opportunities and threats . Based on calculation , the total score is obtained of 2.963. This score indicates that party manager capable utilise opportunity optimally for overcome existing threats from outside .

Table 4. Identification results factor external

No	External Factors	Weight	Rating	Weight X Rating
Opportunity				
1.	Tourist visits continue to increase.	0.125	4,000	0.500

2.	There is policy support for the Matano Lake Geopark.	0.136	3,667	0.499
3.	The quality of tourism human resources is getting better.	0.130	4,000	0.521
4.	Technology makes digital promotion easier.	0.141	3,333	0.471
Sub-Total		**0.533**		**1,991**
Threat				
1.	The surge in tourists risks damaging the environment.	0.120	2,000	0.239
2.	Garbage is still a serious problem.	0.114	3,000	0.343
3.	Competing destinations are superior in facilities.	0.133	1,667	0.221
4.	Limited service triggers visitor dissatisfaction.	0.100	1,667	0.167
Sub-Total		**0.467**		**0.971**
Total (1+2)		**1**		**2,962**

Source: Primary data after processed (2025)

Based on Table 16, the results analysis use The External Factor Evaluation (EFE) matrix shows that the total score factor externally owned area Molino Beach tourism is 2,962. This score be on top average figure (2.5), which indicates that destination tour This capable respond with Enough Good influences from outside , especially with utilise opportunity For overcome various existing threats .

Opportunity to become aspect dominant with a total score weighted of 1.991, indicating that Molino Beach area has potential big For developed more Continued . Opportunities the biggest indicated by an increase quality of tourism human resources (score highest 0.521), which shows that source Power man local Already start own ability and understanding in support activity tour in a way professional . In addition , the increase visit traveler from year to year (score 0.500) and support Lake Matano Geopark policy (score 0.499) strengthens position strategic Molino Beach as part from destination flagship in South Sulawesi. Support technology in form digital promotions are increasingly easy (score 0.471) also enlarges potential promotion and power reach information about destination This .

Temporary that is , the threat that is being faced area This have a total score weighted 0.971, with threat the biggest originate from problem garbage that is still become issue serious (score 0.343). Problem This can lower quality experience tourists and cause impact negative to sustainability environment . Other threats that need to be get attention is potential damage environment consequence surge tourists (score 0.239) and lagging behind facility compared to destination competitors (score 0.221). Limitations in service tourism also becomes notes important , because can cause dissatisfaction visitors (score 0.167).

In a way overall , height value on aspects opportunity show that manager can utilise strength external This For overcome various threats , especially with focus on improvement quality services , management waste and conservation environment as form mitigation impact growth visit tour

Formulation and Determination of Development Strategy Tourist Alternatives at Molino Beach

SWOT Curve

A SWOT curve is a visual representation of the results of a SWOT analysis—Strengths, Weaknesses, Opportunities, and Threats. Typically, it's displayed as a quadrant diagram that helps map an organization or project's strategic position based on internal and external factors.

SWOT Curve Structure

The SWOT curve or diagram is divided into four quadrants:

a. Quadrant I (Strengths & Opportunities): Ideal position—aggressive strategy for expansion.
b. Quadrant II (Strengths & Threats): Diversification strategies are needed to overcome threats.
c. Quadrant III (Weaknesses & Opportunities): Focuses on internal improvements to take advantage of opportunities.
d. Quadrant IV (Weaknesses & Threats): Critical situation—defensive strategies and internal efficiency are essential.

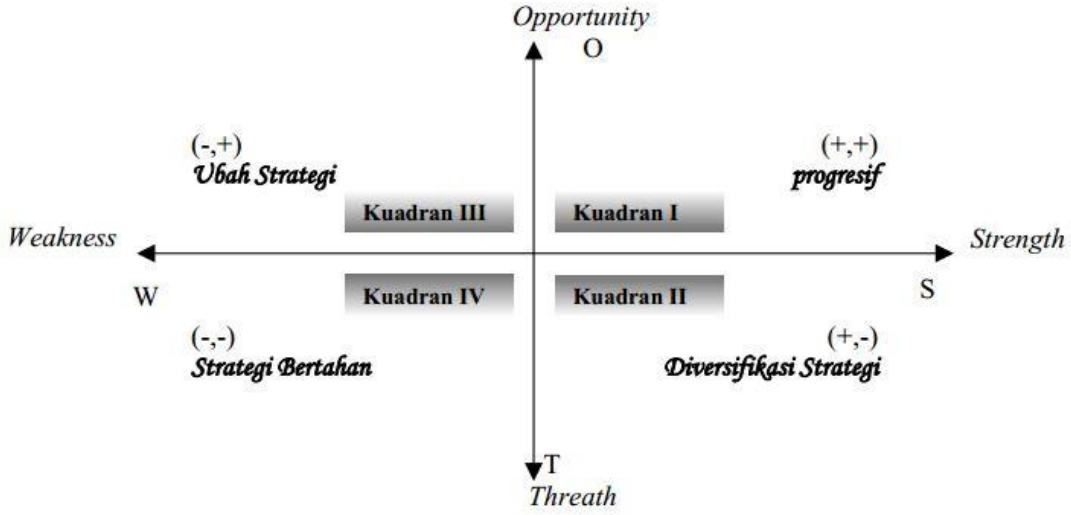

Figure 2. SWOT Curve

IE (Internal External) Matrix

Based on the analysis of the IFE and EFE matrices, an IE (Internal-External) matrix can be constructed to more comprehensively determine the strategic position of the Molino Beach tourist area. This IE matrix is used to determine the most appropriate strategy for developing and managing the tourist destination based on internal strengths and responses to external factors.

The calculation results show that the average IFE score is 2.672, while the average EFE score is 2.962. Based on the position map in the IE Matrix, these scores place Pantai Molino in Quadrant V, which is the growth and stability (resistance and maintenance) position. In this position, the recommended strategies are market penetration and market development strategies.

Market penetration strategies can be implemented by increasing destination promotion through social media, official tourism websites, and partnerships with travel agents. This promotion aims to attract more tourists, both domestic and international. Furthermore, improving tourist facilities, providing environmentally friendly services, and strengthening local identity will increase visitor appeal and satisfaction.

Meanwhile, market development strategies can be implemented through expanding tourism segments, such as educational tourism, family tourism, and special interest tourism (geotourism). Collaboration with educational institutions and environmental communities can also encourage sustainable increases in visits. Optimizing the Lake Matano Geopark policy as a regional branding strategy is also highly strategic for expanding regional and national tourism markets.

By implementing this strategy, Molino Beach has a great opportunity to increase its competitiveness with other tourist destinations in South Sulawesi, while maintaining environmental sustainability and local community involvement in sustainable tourism development.

Table 5. Results of the Tourism IE Matrix at Molino Beach

IFE Score (2.672)					
4.0			Strong 3.0-4.0	Currently 2.0-2.99	Weak 1.0-1.99
EFE Score (2.963)	Height 3.0-4.0	3.0	*Growth and build* (I)	*Growth and build* (II)	*Hold and maintain* (III)
	Currently 2.0-2.99	2.0	*Growth and build* (IV)	*Hold and maintain* (V) ★	*Harvest and divest* (VI)
	Low 1.0-1.99	1.0	*Hold and maintain* (VII)	*Harvest and Divest* (VIII)	*Harvest and divest* (IX)

Source: Primary data after processed (2025)

The alternative strategies generated through the IE Matrix are general, conceptual strategies that do not yet describe technical implementation in the field. Therefore, to clarify policy direction and more operational actions, the IE Matrix needs to be supplemented with a SWOT Matrix. The SWOT Matrix presents more concrete strategic steps by identifying the relationship between internal factors (strengths and weaknesses) and external factors (opportunities and threats), thereby generating alternative strategies that are more focused, realistic, and applicable according to the actual conditions of the tourist destination being analyzed.

SWOT Analysis

SWOT Quadrant Position

Determining weights and ratings in a SWOT analysis, as well as in the preparation of the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices, is a crucial step in assessing the strategic position of a tourism destination. Weights represent the relative importance of each strategic factor, which is determined based on the identification of strengths and weaknesses in the IFE matrix, and opportunities and threats in the EFE matrix. Weighting is done through quantitative and qualitative approaches, such as in-depth interviews with experts and stakeholders, and the distribution of structured questionnaires, with a value range between 0 and 1 reflecting the relative importance of each factor.

On the other hand, the rating describes the actual condition or performance of each identified factor. This assessment is conducted through field observations, stakeholder perception surveys, and evaluations based on relevant performance indicators. The rating scale ranges from 1 to 4, reflecting the level of effectiveness or urgency of a factor. The final score for each factor is obtained by multiplying the weight and rating, which are then summed to produce a total IFE and EFE score. This aggregate score is used as a basis for developing development strategies that align with the internal and external conditions of the tourism destination in question.

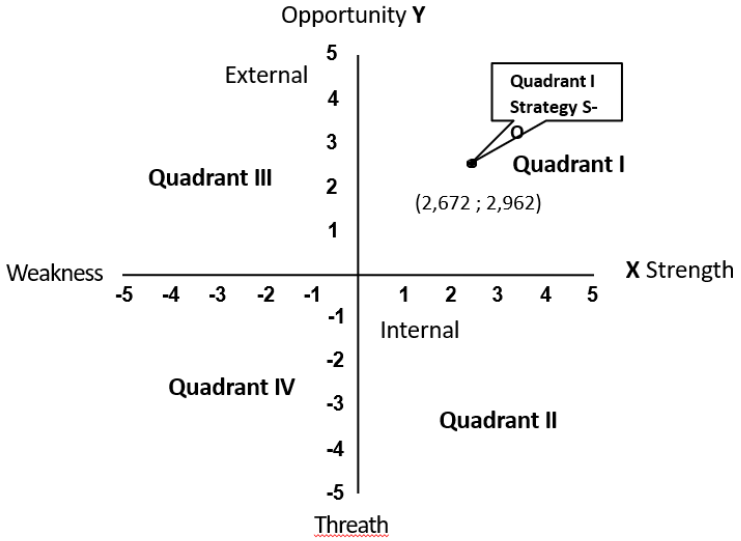

Figure 3. Quadrant Position on the SWOT Curve

Based on the calculations, the total IFAS score of 2.672 indicates that the Molino Beach tourist area's internal strengths are relatively dominant. Meanwhile, the total EFAS score of 2.962 indicates that external opportunities are also significant. Both scores are above the 2.5 threshold, indicating the destination is in Quadrant I of the SWOT curve. This position places Molino Beach in the aggressive strategy category or SO (Strength-Opportunity) strategy, where internal strengths are optimally utilized to capture external opportunities. Recommended strategies include developing digital tourism promotions and regional branding, optimizing its status as a Special Economic Tourism Zone to attract investment, improving the quality of human resources and basic tourism support facilities, and creating thematic tourism packages that combine the uniqueness of local culture and the rich ecology of Lake Matano.

SWOT Matrix

SWOT is an acronym for Strengths, Weaknesses, Opportunities, and Threats, which reflects the internal and external conditions of an organization or region being analyzed. The SWOT matrix is used to formulate strategies based on a combination of these internal and external factors.

Based on Molino Beach's position in the IE Matrix, which is in quadrant V (Hold and Defend), the SWOT Matrix plays a crucial role in developing more specific and operational alternative strategies. These strategies are

derived from a combination of strengths to exploit opportunities (SO strategies), strengths to overcome threats (ST strategies), minimizing weaknesses by exploiting opportunities (WO strategies), and minimizing weaknesses and avoiding threats (WT strategies).

The alternative strategy obtained is as follows:

Table 6. Alternative strategies

INTERNAL FACTORS / **FACTOR OUTSIDE**	**Strengths (*Strengths* -S)**	**Weakness (*Weakness* -W)**
	1. Has a variety of natural and cultural tourist attractions. 2. Access from the district capital is quick and easy. 3. The local people are friendly to tourists. 4. Supported by policies as a Special Economic Zone for Tourism.	1. Connectivity between tourist destinations is still low. 2. Basic infrastructure is inadequate. 3. Public facilities at the destination are limited. 4. Depends on weather conditions or season.
***Opportunity* (O)**	**SO Strategy**	**WO Strategy**
1. Tourist visits continue to increase. 2. There is policy support for the Lake Matano Geopark. 3. The quality of human resources in tourism is getting better. 4. Technology makes digital promotion easier.	1. Strengthening destination branding by highlighting the natural richness and friendliness of its people. 2. Leveraging Geopark support and technology for digital promotion 3. Developing local human resources to be more professional in service	1. Overcoming limited facilities by utilizing government programs 2. Improving connectivity between destinations through multi-party cooperation 3. Train train managers in the use of digital media
Threat (*Threat* -T)	**ST Strategy**	**WT Strategy**
1. The surge in tourists risks damaging the environment. 2. Garbage is still a serious problem. 3. Competing destinations are superior in terms of facilities. 4. Limited service triggers visitor dissatisfaction.	1. Improving management capacity to maintain environmental sustainability 2. Implementing a community-based tourism monitoring system 3. Highlighting destination differentiation to overcome competition	1. Developing SOPs for sustainable ecotourism-based services 2. Developing environmentally friendly facilities in stages 3. Developing environmental impact mitigation plans in a participatory manner

Source: Primary data after processing (2025)

The SWOT matrix produces four types of strategies:

1. **SO Strategy (Strengths - Opportunities):**
    a. Strengthening destination branding by highlighting the natural richness and friendliness of its people.
    b. Leveraging Geopark support and technology for digital promotion
    c. Developing local human resources to be more professional in service
2. **WO Strategy (Weaknesses - Opportunities):**
    a. Overcoming limited facilities by utilizing government programs
    b. Improving connectivity between destinations through multi-party cooperation
    c. Train train managers in the use of digital media
3. **ST (Strength - Threat) Strategy:**
    a. Improving management capacity to maintain environmental sustainability
    b. Implementing a community-based tourism monitoring system
    c. Highlighting destination differentiation to overcome competition
4. **WT (Weaknesses - Threats) Strategy:**
    a. Developing SOPs for sustainable ecotourism-based services
    b. Developing environmentally friendly facilities in stages Developing environmental impact mitigation plans in a participatory manner

CONCLUSION

Based on field observations, analysis, and documentation, Molino Beach, located in Sorowako Village, East Luwu Regency, has significant potential as a community-based ecotourism destination. Its strategic location on the shores of Lake Matano, its ecological richness, and its socio-spatial proximity to the local community support its appeal to various tourist segments. Participatory management by the Sorowako Village-Owned Enterprise (BUMDes) reflects inclusive and community-based governance, while the development of tourism spatial zoning is beginning to be directed towards educational, conservative, and recreational functions in accordance with the principles of sustainable development.

However, institutional challenges, limited eco-friendly infrastructure, and low community involvement in environmental conservation need to be addressed to realize the area as a strategic ecotourism model. Based on the SWOT analysis and the IFAS–EFAS Matrix, which showed scores of 2.672 and 2.962, respectively (above the 2.5 threshold), the SO (Strength–Opportunity) strategy is the main approach in developing the area, namely optimizing internal strengths to respond to external opportunities.

Meanwhile, Molino Beach's position in Quadrant V of the IE Matrix (Hold and Maintain) emphasizes the need to maintain existing advantages, while simultaneously encouraging gradual growth through environmental preservation, strengthening community participation, improving regulations, and developing green infrastructure. With the implementation of an integrative and adaptive strategy, based on local potential, and considering external dynamics, Molino Beach has a great opportunity to become a leading ecotourism node in Lake Matano as well as a model for sustainable tourism at the regional and national levels.

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