

Ecotourism Strategy and Potential of *Delleng Simpon*, Ulumerah, Pakpak Bharat Regency

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Abstract: Ecotourism can be developed into a sustainable development model because its management concept is oriented to the economy and maintaining forest preservation and community empowerment. *Delleng Simpon* is a forest area with a beautiful panoramic expanse. The *Delleng Simpon* area is critical and has the potential to be developed. This study aims to find strategies and potentials in the management of *Delleng Simpon* ecotourism by considering the community's ecological, economic, and socio-cultural conditions. This research used the qualitative descriptive case study method. Data collection was carried out through surveys and interviews in the field. The data was analyzed using the SWOT method. The analysis results showed that (42%) of respondents were not involved in tourism management because ecotourism is managed directly by the Tourism Office, visitor participation in maintaining cleanliness is still low, and only (14%) always dispose of garbage in its place. Respondents' perceptions of ecotourism development, including access, facilities, cleanliness, and promotion, are still less than optimal; all respondents agreed to build public facilities and support facilities immediately. The SWOT analysis results for the *Delleng Simpon* ecotourism development strategy are in Quadrant I by implementing the Strength-Opportunities (SO) strategy. The priority of the SO's strategy is the development of ecotourism by involving more local communities; its management must be carried out with the principles of preserving the environment, increasing educational value, and maximizing local wisdom.

Keywords: Ecotourism; Mountain; Potential; SWOT.

Introduction

The tourism business in Indonesia continues to develop. The development of tourism will bring economic growth to the community. Ecotourism is a subsector of tourism that tourists demand because it offers beautiful landscape conditions for recreation and tranquility [1]. The concept of ecotourism is responsible for the preservation of nature and improving the welfare of people living around tourist areas [2].

Ecotourism development needs to be supported by the government as part of regional development efforts [3]. The government must empower the community to manage territory to improve welfare [4]. In the interaction process between the government and the community, there are sometimes conflicts of interest and a lack of clear communication, which results in opportunities for environmental degradation [5]. Local communities must be involved in ecotourism management from planning to implementation to realize good ecotourism management [6]. Empowering local communities will help them avoid land degradation and overcome poverty [7].

Travel activities have now become a necessity for the community [8]. Areas that have tourist attractions will provide additional income for their people. The quality of the travel experience can increase the loyalty, image, and attractiveness of ecotourism destinations [9].

Individuals or groups in tourism management must know how to use their attractions well and collaborate with various tourism-related parties [10]. Tourism is moral from

the people, by the people, and for the people, so tourism management must not leave the role of local communities. Inland communities have a traditional area management style [11], [12]. Local people understand more deeply the area in their area [13]. Pakpak Bharat Regency is one of the regencies in North Sumatra Province. Based on [14], 80.51% of the area of Pakpak Bharat District is forest. With these conditions, ecotourism has the potential to be developed.

Delleng Simpon has potential as ecotourism due to supporting geographical factors. The *Delleng Simpon* area must be developed to preserve local natural, social, and cultural potential. The development of *Delleng Simpon* ecotourism will provide benefits to improve the economy and preserve the forest. This is in line with what was conveyed by [15] [16], [17] that sustainable development plays a role in preserving natural and cultural resources.

Sustainable ecotourism development will preserve forest areas and provide optimal economic benefits for managers and tourist satisfaction for visitors [17]. Communities around forest areas must be sensitive enough to use their areas for sustainable economic improvement [18]. Ecotourism competitiveness is supported by internal and external interrelated factors in building a beautiful, safe, and comfortable ecotourism concept [19].

In forest management, the Ulumerah Pakpak Bharat community needs support to formulate potential strategies for ecotourism development. In ecotourism management, it is necessary to evaluate and monitor to discover the shortcomings and advantages. This is in line with [20],

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which says that it is necessary to understand group dynamics in society to achieve collective progress. Therefore, this research aims to discover the potential and determine the most appropriate strategy for developing *Delleng Simpon Ulumera Pakpak Bharat* ecotourism. It is essential to carry out this research so that the benefits of *Delleng Simpon* can be felt by the local community and contribute to improving the welfare of the local community.

Research Methods

Data Collection

This research was conducted to formulate strategies and potentials that can be explored to improve ecotourism development in *Delleng Simpon*. The approaches taken to achieve this truth are qualitative and quantitative. The quantitative approach is carried out using a survey method.

The survey method is carried out to clearly and accurately see the research variables according to the circumstances and conditions in the field. Survey methods can be descriptive, associative, comparative, or a combination of associative-comparative and structural relationships [21].

The main characteristic of survey research is that data is collected from respondents (samples) selected as population representatives [22]. The survey method in this study was conducted to determine the strategy and potential of *Delleng Simpon's* ecotourism development using a scale Likert. The qualitative approach is carried out through observation, interviews, and review of documents. A qualitative approach is carried out to find the character of the research subject's social community. The data collected in the study includes primary data and secondary data. Data collection techniques that will be carried out are interviews, field observations, and literature studies.

Interview

The collection of respondents from local communities uses purposive sampling techniques based on researchers' specific goals and considerations. In contrast, determining visitor respondents uses accidental sampling techniques where sampling is picked by chance [21]. Proper retrieval of respondents is a critical factor in using survey methods. The respondents must represent the population so that the results are correct. The respondents of this study were the community around *Delleng Simpon*, visitors to *Delleng Simpon*, and the Government.

The respondents of the community around *Delleng Simpon* are people who live in the village of Ulumerah, where *Delleng Simpon* is located. Visitor respondents come to *Delleng Simpon* to climb Mount *Delleng Simpon* or see Air Eluh Berru Tinambunen. According to [23], the sample is a representation of the population to be studied; where if the research subject is less than 100 respondents, a census method will be carried out taking all respondents, and if the research subject is large, it is enough to take a sample of 10% - 15% or 20% - 25%.

Data Analysis

Analysis to develop a strategy for developing *Delleng Simpon*, Pakpak Bharat District's ecotourism was carried out with SWOT (Strength, Weakness, Opportunity, and Threat). Ecotourism potential as part of the internal environment (IFAS) to discover various possible strengths and weaknesses of the *Delleng Simpon* ecotourism environment. External environment analysis (EFAS) determines various potential opportunities and threats obtained through the perceptions of stakeholders, communities, and tourists.

SWOT analysis measurably identifies various factors to develop ecotourism management strategies. SWOT analysis systematically optimizes strengths and opportunities and minimizes weaknesses and threats. To determine the SWOT matrix as the primary strategy in ecotourism management, you must know the internal strategy factors (IFAS) and external strategy factors (EFAS).

Factors and weights are obtained from interviews with people who are competent in ecotourism and adjusted to conditions in the field. SWOT analysis stages according to [24] a. SWOT assessment is carried out after interviews and data collection. b. Factors are weighted and rated to make it easier to identify critical strategic factors. c. Each factor is scored with a number between 1-4. d. strategies are chosen with paired matrices S-O (strength-opportunity), S-T (strength-threat), W-O (weakness opportunity), and W-T (weakness-threat).

Table 1. SWOT Matrix Diagram [25]

IFAS	Strengths (S)	Weaknesses (W)
EFAS	Determine the factor Internal strength	Determine the factor Internal weakness
Opportunities (O)	S-O Strategy (Optimizing power to seize opportunities)	W-O Strategy (Minimize weaknesses to optimize opportunities)
Threats (T)	S-T Strategy (Optimizing strength to overcome threats)	W-T Strategy (Minimize weaknesses to avoid threats)

Results and Discussion

The Attraction of *Delleng Simpon's* Ecotourism Potential

Delleng Simpon at the coordinate point 2027'43.393"LU-98023'16.384"BT in the administrative area of Ulumerah Village, Sitellu Tali Urang Julu District, about 19 kilometers from Salak city, the capital of Pakpak Bharat Regency. The *Delleng Simpon* area is still maintained by its natural ecosystem. This condition has excellent potential for the sustainability of ecotourism development. The journey to the foot of Mount *Delleng Simpon* can be taken by motorbike or car. The sound of

birds chirping and animals welcomes visitors when entering the *Delleng Simpon* area. Looking at the *Delleng Simpon* mountains' green expanse, the eye unfolds beautifully. Some of the potentials that can be utilized in the *Delleng Simpon* area include Eluh Berru Tinambunan, which has a legendary story that is closely related to the local community, the diversity of types of flora and fauna that can be an arena for education, rock climbing, mountain climbing, culinary with beautiful landscape views and also souvenirs of local community crafts both types of local games and musical instruments and other carvings.

Ecotourism Infrastructure Facilities *Delleng Simpon*

In general, the ecosystem in the *Delleng Simpon* area is still well maintained. It can be seen from unspoiled trees, birds still free to fly, and cool air. Amenities or public facilities and infrastructure must be provided at the foot of Mount *Delleng Simpon*, such as bathrooms, places of worship, gazebos, game arenas, and scenic spots. These facilities need to be equipped to make visitors more interested in this ecotourism area because it has a variety of alternative activities.

The *Delleng Simpon* ecotourism area still lacks ancillaries, which are supporting services but have been forgotten. Small essential things are information boards in the form of a brief history, information on buildings and towers in *Delleng Simpon*, names of trees, names of animals, and souvenir traders. This shows that *Delleng Simpon's* management institution is still ineffective.

Accessibility to Ecotourism Areas

Accessibility is one of the main factors in developing ecotourism; it will affect tourist visits to tourist attractions. *Delleng Simpon* has quite good accessibility because access to the foot of *Delleng Simpon* has an excellent road to be passed by two-wheeled or four-wheeled vehicles through Ulumerah Village, Sitellu District, Tali Urang Julu. It can be seen that 100% of respondents agree on good access to the foot of *Delleng Simpon*. But the tracking path to climb *Delleng Simpon* needs to be improved. As many as 80% of visitors say the trekking to climb *Delleng Simpon* is still not so good. The ease of reaching tourist sites will affect the development of the tourist area.

Based on the results of an interview with an Ulumerah community leader, Tamen Berutu, "Eluh Beru Tinambunan exists because of events in ancient times between a Berutu clan and a Tinambunan clan. The two older men work daily playing gambling. In gambling games, the Tinambunan clan often loses. They then promised to determine when the Tinambunan clan should pay its debts. The Berutu clan came to collect the debt, but the Tinambunan clan had no money or property to settle. Only a daughter becomes the most precious treasure. Finally, the Berutu clan said that if Tinam's daughter married him, all his debts would be paid off. The girl was forced to marry and taken to Marga Berutu village in

Ulumerah. Tinambunan Marga Village is located in Kelasen, to get to Ulumerah you have to pass through *Delleng Simpon*.

Arriving at *Delleng Simpon*, the girl sat on a rock, crying and lamenting the fate she had to receive while dredging the stone with Rabimunduk (a typical knife of the Pakpak Tribe) so that her tears were collected in the niche of the dredge of her knife. The journey then continued, and we arrived at Marga Berutu's house. The house is on stilts because it is near the river. Women of the Tinambunan clan then climbed the stairs. Arriving at the stairs, the three women fell and died.

Cultural attractions such as merodong-odong activities (singing in the jungle when climbing frankincense) and natural game arenas are great opportunities to be developed as alternative visitor activities to *Delleng Simpon*. Based on interviews, 70% of visitors who come to *Delleng Simpon* can only enjoy the view from the foot of Mount *Delleng Simpon*, and the other 30% continue to climb the peak of *Delleng Simpon*. With cultural activities and natural playgrounds, visitors have alternative activities. This activity will invite more visitors to come to *Delleng Simpon*.

This potential can be explored and developed to add to the attractiveness of alternative visits to *Delleng Simpon*. Following the statement of [2], the great potential of ecotourism can be seen from the diversity of geological landscapes, diversity and preservation of flora and fauna, and other ecological elements that support it.

Public and Visitor Perceptions

The surrounding community considers *Delleng Simpon's* existence has not positively impacted economic addition. However, interaction with visitors provides new knowledge and views to the community to develop agriculture, which can later become souvenirs for visitors. The public and visitor perceptions are built from social capacity, namely the ability to absorb commercial objectives and accommodate various local economic interests.

Ecotourism highlights natural conditions and, combined with the community's social conditions in the form of local wisdom, will provide different things to tourist attractions. [7] Community-based ecotourism management and capacity building are economic improvement strategies based on alternative livelihood availability.

In some ecotourism activities related to aesthetic, cultural, and recreational aspects, the community can be fostered to be more creative in making an item that can be sold in the ecotourism area as a souvenir or souvenir for visitors [1]. This involvement can improve the economy and shape people's sense of belonging to ecotourism so that they will maintain and play a role in the development of ecotourism. The results of interviews with the public and visitors at *Delleng Simpon* ecotourism are presented in the following table:

Table 2. Public and visitor perception assessment scores

Questions	A				B				C			
	1	2	3	4	1	2	3	4	1	2	3	4
Community	26	7	9	8	15	20	15	35	8	7		
Percentage (%)	52	14	18	16	30	40	30	70	16	14		
Visitors	5	7	28	10	8	17	25	35	9	6		
Percentage (%)	10	14	56	20	16	34	50	70	18	12		

A. Do you know the term ecotourism?
 (1. lack of know, 2. know enough, 3. know, 4. know very much)
 B. Is access to ecotourism supported?
 (1. Lack of support, 2. Support, 3. Support, 4. Very supportive)
 C. Are the infrastructure facilities adequate?
 (1. Lack of support, 2. Support, 3. Support, 4. Very supportive)

The results of interviews regarding the perception of ecotourism development show that 52% of people do not know the term ecotourism. For this reason, it is necessary to understand the concept of ecotourism in the local community so that the community better understands the potential that must be maintained and preserved by the community. Regarding road access to the location of *Delleng Simpon*, it can be seen that no community says it is less supportive, although several locations need improvement. Based on this, access is not to be an obstacle in the development of *Delleng Simpon*.

It has not been carried out optimally from the aspect of tourism object management, which includes cleanliness, promotion, and tourism services. As many as 85% of respondents said the *Delleng Simpon* area was not clean. This can be seen around the tourist attractions, where garbage is littered. According to respondents, tourism promotion is unsuitable because it has not maximized promotion through media such as leaflets, posters, websites, social media, or YouTube. 78% of travelers say they learned about attractions from friends or relatives, not the media.

Regarding security, respondents said that security in *Delleng Simpon* is still low because no one guards and is legally responsible for vehicles deposited at the foot of Mount *Delleng Simpon*; only regional youth make security guarantees, which are not yet reassuring visitors. Several times, damage was done to the climber's motorbike while parked at the foot of *Delleng Simpon*. As many as 46% said visitors feel less safe when leaving a vehicle. In addition,

community housing quite far from the foot of Mount *Delleng Simpon*, such as a hiking trail area and a place to leave vehicles, makes people unable to supervise anyone who climbs the mountain and cannot pay attention to the safety of climbing vehicles. The public and visitors also said that it is necessary to explore the addition of tourist activities or attractions that can be seen and or done when visiting *Delleng Simpon*. Based on the interview results, 85% of respondents stated that the only activities that can be done are looking at the panorama of *Delleng Simpon* and Eluh Berru Tinambunan.

Participation of the Community, Visitors, and Government

The current routine community involvement on weekends is only one family selling snacks at the foot of Mount *Delleng Simpon*, and two *ulumerah* youths guard vehicle parking. Local people have not been able to make work in tourist attractions as their primary job. Community participation in development is still minimal because the management of tourist attractions is directly under the local government through the Tourism Office. A Tourism Awareness group has been formed in *Ulumerah Village*, but they have not yet become the manager of the *Delleng Simpon* tourist attraction in their village. The village is trying to take over the ecotourism management of *Delleng Simpon* so that the town can manage it through the Tourism Awareness group.

Table 3. Community participation assessment score

Questions	A				B				C			
	1	2	3	4	1	2	3	4	1	2	3	4
Community	21	14	10	5	27	13			10	15	25	
Percentage (%)	42	28	20	10	54	26			20	30	50	

Note:
 A. Involvement in the ecotourism management of *Delleng Simpon*
 B. Involvement in institutional/tourism-conscious group activities
 C. Participation in maintaining resources in *Delleng Simpon*
 1. Never, 2. Ever, 3. Sometimes, 4. Always

Table 4. Visitor participation rating score

Questions	A				B				C			
	1	2	3	4	1	2	3	4	1	2	3	4
Visitors	5	37	7		5	10		35	10	5	35	
Percentage (%)	10	74	14		10	20		70	20	10	70	

Note
 A. Availability of trash thrown in the trash
 B. Participation in maintaining the integrity of the *Delleng Simpon* ecosystem
 C. Participation in promoting *Delleng Simpon* ecotourism after traveling

Information:

1. Never, 2. Ever, 3. Sometimes, 4. Always

Based on the results of interviews, visitor participation shows that only 14% always throw garbage in its place, and 70% actively promote it every time they visit *Delleng Simpon*.

Government Participation

In an interview with the Head of the Tourism Office of Pakpak Bharat, it was stated that *Delleng Simpon's* ecotourism management is under the Tourism Office. Regarding facilities and infrastructure, tracking roads have been built for climbers, although there are still some paths to be improved and no directional signs for visitors.

Another effort that can be made by the government in development is to add alternative activities in ecotourism, such as the addition of public facilities in *Delleng Simpon*. In addition, the government, as a manager, needs to add educational facilities so that visitors can increase their knowledge when coming to *Delleng Simpon*, for example, by making information boards about the potential of flora and fauna and giving names of trees and their benefits so that visitors know the flora and fauna in the ecotourism area. From the aspect of community management and capacity building, the government should conduct training for the community to understand better and utilize the existence of tourist attractions.

Development Factors

Based on the results of research on tourist perceptions, community involvement, and government involvement, ecotourism development factors can be determined. These development factors include aspects of infrastructure, management, and community involvement in ecotourism management.

In the future development of ecotourism, exploring and developing aspects of education, economy, culture, and conservation is necessary. Some regions have done so, such as those carried out in Rumbia ecotourism in Jeneponto Regency, Kinarum ecotourism in Tabalong District,

Pahawang Island ecotourism in Lampung, and Karangsong Mangrove ecotourism in Indramayu Regency. According to a statement [26, the educational aspect can be developed by naming activities and providing information on the trees passed when climbing *Delleng Simpon*. From the economic aspect, providing business funding and training assistance to local communities to create souvenirs.

From a cultural aspect, it can introduce and present traditional food, namely *pelleng*, and cultural activities such as *merodong-odong*. From the conservation aspect, the government must make banners prohibiting the community from cutting trees and littering and routinely monitoring the *Delleng Simpon* area.

Strategies Based on SWOT Analysis

From the IFAS and EFAS analysis that has been carried out, the S-O strategy is a strategy that is considered to have a high and top priority to be implemented by all relevant stakeholders. These strategies are:

- a. Optimizing tourism potential and attractiveness while maintaining the naturalness of the ecosystem. The development of facilities in ecotourism areas must go through good analysis and planning so that the sustainability of the ecosystem is maintained.
- b. Community-based ecotourism development, providing management to tourism awareness groups with government assistance. Local people who constantly interact with attractions and visitors will understand more and pay more attention to the existence of ecotourism.
- c. Provide business capital assistance to local communities. For example, the government empowers local communities by providing aid and efforts to utilize the potential of tourist attractions for economic development.
- d. Promoting tourism more widely, both locally, nationally and internationally. Social media is one of the main factors that can be used to reach more tourists.

Table 5. Identification of internal strategy factors

No	Internal strategy factors (Strengths)	Rating	Weight	Score
1	Ecotourism Potential	3.95	0.15	0.59
2	Community support in sustainability development Ecotourism	3.73	0.15	0.56
3	Sources of knowledge for education sites	3.93	0.12	0.47
4	Cheap entrance and accommodation prices	4.51	0.14	0.63
	Sum	16.12	0.55	2.26
No.	Internal strategy factors (Weakness)	Rating	Weight	Score
1	Mileage	4.0	0.11	0.44
2	Public facilities are not available	4.0	0.12	0.48
3	Lack of game infrastructure and supporting knowledge information boards	3.5	0.11	0.39
4	Security	3.6	0.11	0.40
	Sum	15.1	0.45	1.70
	TOTAL	31.22	1.00	3.96

Strengths-Weaknesses = 2.26-1.70= 0.65

Table 6. Identify external strategy factors

No	External strategy factors (Opportunities)	Rating	Weight	Score
1	Introducing culture	3,95	0,14	0,55
2	Boosting the economy	3,75	0,15	0,56
3	Attracting tourists and academics	3,65	0,13	0,47
4	Creating eight jobs	3,2	0,12	0,39
Sum		14,48	0,54	1,96

No.	External strategy factors (Threats)	Rating	Weight	Score
1	Competition with other ecotourism that have more access to good	3,6	0,12	0,43
2	Ecosystem damage due to ecotourism activities	3,65	0,12	0,44
3	Slippery rocky hiking trails	3,6	0,11	0,40
4	Disturbed animals	3,45	0,11	0,38
Sum		14,3	0,46	1,65
TOTAL		28,78	1,00	3,61

Opportunities - Threats = 1,96-1,65= 0,31

Internal factors obtained from interviews with respondents and supported by direct observations in the field can be seen in Table 5. The accumulated results of interviews related to external factors in the development of *Delleng Simpon* ecotourism can be seen in Table 6.

The results of the analysis of internal factors (IFAS) and external factors (EFAS) are then used to create a graph of the location of the SWOT quadrant to determine the

location of the strategy quadrant that is considered to have a high priority and to be implemented immediately. Graphs The quadrant of SWOT analysis is formulated as the X and Y axes, where the X axis is IFA (Strength - Weakness) while the Y axis is EFAS (Opportunity - Threat). From this analysis, the graph is in quadrant I with the strength-opportunities (SO) strategy.

Table 7. SWOT Matrix Results

IFAS	Strength (S)	Weaknesses (W)
EFAS	Optimizing the potential and attractiveness of tourism while maintaining the naturalness of the ecosystem.	Procurement of public facilities Procurement of supporting infrastructure
	Development of community culture-based ecotourism and assistance from the government and related institutions.	Explore culture Improving the quality of management resources through training.
	Provide capital assistance to help businesses in local communities	
	Promoting tourism more widely through mass media	
Opportunities (O)	Strategy S-O	Strategy W-O
1. Introduce visitors to local culture.	Optimizing the potential and attractiveness of tourism while maintaining the naturalness of the ecosystem.	Procurement of public facilities Procurement of supporting infrastructure
2. Improve the economy of local communities.	Development of community culture-based ecotourism and assistance from the government and related institutions.	Explore culture Improving the quality of management resources through training.
3. Attract tourists and academics to research	Provide capital assistance to help businesses in local communities	
4. Create eight jobs	Promoting tourism more widely through mass media	
Threats (T)	Strategy S-T	Strategy S-T
1. Competition with other ecotourism that are closer to the city	Involving the community to monitor tourism Raising awareness and strengthening community institutions.	Carry out conservation activities by identifying flora and fauna Preparation of building spatial planning and tourist zoning by considering environmental sustainability.
2. Ecosystem damage due to tourism activities	Involving all government agencies, non-governmental organizations, and communities.	
3. Slippery rocky hiking trails		
4. Disturbed animals		

Conclusion

Delleng Simpon has potential that can be developed, not just a panorama. In Delleng Simpon, there is Eluh Berru Tinambunan, which has a legendary story that is closely related to the local community, the diversity of types of flora and fauna that can be an arena for education, rock climbing, mountain climbing, culinary with beautiful landscape views and also souvenirs of local community crafts both types of local games and musical instruments and various kinds of handicrafts. The best strategy in the development of Delleng Simpon is to implement the Strength-Opportunities (SO) strategy. The priority of the SO's strategy is the development of ecotourism by involving more local communities, developing community-based ecotourism through assistance from the government, increasing educational value, and procuring facilities.

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