Potential and Strategy of Ecotourism Development in Lae Mbilulu Pakpak Bharat Regency

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ABSTRACT

Ecotourism is one of the tourism sub-sectors that are visited by many tourists. The government and local communities must cooperate in the development of ecotourism. Pakpak Bharat Regency, with an area of 80.51% is forest area, has great potential for the development of the ecotourism sector. Lae Mbilulu Waterfall is an ecotourism that has great potential in improving the welfare of local communities while taking into account the ecological, economic and sociocultural factors of the community. This research was conducted from September to October 2021 in Lae Mbilulu, Prongil Village, Pakpak Bharat Regency. This study aims to explain the potential, perceptions and strategies of ecotourism development in Lae Mbilulu. The research method was carried out with a qualitative descriptive which was a case study. Data was collected by means of field surveys and interviews using questionnaires to 100 respondents consisting of 50 community respondents and 50 tourist visitor respondents. Data were analyzed using the SWOT method. The results of the analysis show that community participation in tourism activities is still relatively low (33%), because ecotourism is managed directly by the Department of Tourism and Culture. The participation of visitors in maintaining cleanliness is good (74%). Respondents' perceptions of ecotourism development including access, facilities, cleanliness, promotion are still not optimal. All respondents agreed to immediately repair road access to tourist objects. Utilization of media as a means of promotion must be done immediately to increase tourist arrivals to Lae Mbilulu. The results of the SWOT analysis for the Lae Mbilulu ecotourism development strategy are in Quadrant I by implementing the Strength-Opportunities (SO) strategy. The priority of SO's strategy is the development of ecotourism by involving local communities more. Its management, must be carried out in terms of preserving the environment, increasing educational value and maximizing local wisdom.

Keywords: *Ecotourism, Mbilulu, SWOT, Potential, Strategy*

1. INTRODUCTION

The development of the tourism industry will have an impact on improving the community's economy, and the birth of the industry will create jobs. Ecotourism is one of the tourism sectors that is interesting to visit because of the attractiveness of its landscape. The concept of ecotourism is to be responsible for environmental sustainability and community welfare [1]. Infrastructure acts as a tourism support [2].

Ecotourism plays a role not only in providing economic benefits but also in maintaining the ecosystem and in its management empowering local communities [3], [4]. In addition, local community-based ecotourism management provides an alternative source of income for residents in optimizing sustainable land use [5] [6] [7].

The development of ecotourism raises the possibility of problems between the government and local communities, as well as the occurrence of environmental degradation. The involvement of local communities from planning to management will create a climate of the tourism industry that can minimize conflicts [8]. Therefore, tourism management must be carried out seriously by involving related parties [9].

Pakpak Bharat Regency is one of the districts in North Sumatra Province. Based on Ministry of Forestry Regulation, SK. Menhut No. 44/Menhut-II/2005 concerning the Designation of Forest Areas in North Sumatra Province, Pakpak Bharat Regency has a Forest Area of 132,865.08 Ha. With these conditions, ecotourism has a great potential to be developed. The Lae Mbilulu waterfall area is very important to be developed in order to preserve its natural, social and cultural potential. The potential of Lae Mbilulu Waterfall as an

ecotourism is supported by beautiful and sustainable geographical factors. The development of ecotourism will provide economic benefits for the community and play an active role in preserving the forest. The considerable tourism potential and infrastructure available in Lae Mbilulu are expected to be developed and maximized to improve the welfare of the community.

According to [10], waterfall tourism is currently important for economic growth, tourists come to gain experience regarding the natural and social environment. The forest management system carried out by the Pakpak Bharat community must have proper planning and organization and needs to evaluate and monitor the management of ecotourism objects. The group dynamics are a decisive factor in the development of a group in order to achieve common goals [11]. With this state of affairs, it is necessary to conduct a study on the potential and strategy of ecotourism development so that perceptions, potentials and strategies are obtained in the development of the sustainability of Lae Mbilulu ecotourism.

2. RESEARCH METHODS

This research was conducted from September to October 2021 in Lae Mbilulu (N: 02036'41.8", E: 098020'55.4") Prongil Village, Pakpak Bharat District. The determination of local community respondents was carried out using a purposive sampling technique based on certain goals and considerations of the researcher, while the determination of visitor respondents used an accidental sampling technique in which the sampling determination was determined by chance [12].

The respondents from this study were 50 people from Prongil Village, the community around Lae Mbilulu waterfall, 50 visitors to Lae Mbilulu and To Prongil Village and Head of Tourism Office Pakpak Bharat as key respondents in the study. According to [13], the sample is a representation of the population to be studied, where if the research subject is less than 100 respondents, the 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%. Data collection was carried out by interviews, field observations and literature studies.

The data analysis technique used in this study is qualitative descriptive analysis. Surveys are conducted to obtain field data. The analysis of ecotourism development strategies, was carried out with a SWOT (Strength, Weakness, Opportunity, and Threat) approach. The descriptive analysis begins with identifying the potential of ecotourism, accessibility, and facilities that are part of the internal environment (IFAS). Furthermore, an analysis of the external environment (EFAS) was carried out to determine the opportunities and threats obtained through the perception of visitors, the public and the government towards the potential development of Lae Mbilulu ecotourism.

3. RESULTS AND DISCUSSION

3.1. Attractions of Lae Mbilulu's Ecotourism Potential

Lae Mbilulu waterfall is at coordinate point N: 02036'41.8", E: 098020'55.4" in the administrative area of Prongil Village, Tinada District, Pakpak Bharat. The area of Lae Mbilulu is around 8.18 hectares. The journey to the location of the waterfall can be through the road with a cement hardener and the second with a wooden ladder. There are two beautiful waterfalls and side by side when we arrive at the waterfall location.

Based on the results of interviews with traditional figures, the Lae Mbilulu waterfall series consists of seven levels, but six levels are still not explored. Another series of waterfalls is a potential that can be developed to increase the attractiveness of Lae Mbilulu. In accordance with the statement of [1], the great potential of ecotourism can be seen from the diversity of geological landscapes, the diversity and preservation of flora and fauna as well as other ecological elements that support it.

The culture of *mendokdak* activities is a great opportunity to be developed as an alternative to visitor activities to Lae Mbilulu. The hiking activity is a traditional crab fishing community activity around the Lae Mbilulu stream. The activities of doing so will add to the peculiarities of ecotourism and preserve the surrounding environment. Based on the results of the interview that 95% of visitors who come to Lae Mbilulu can only enjoy the view of the waterfall and the other 5% dare to swim the waterfall. With the activities of the mendokdak package, visitors have alternative activities.

The Lae Mbilulu ecotourism area still lacks ancillaries which are a supportive service but forgotten. The important little thing to exist is an information board in the form of a brief history, information on the seven-level series of waterfalls, tree names, names of animals and souvenir vendors. This shows that there is still no effect of the Lae Mbilulu management institution. [2] building facilities and infrastructure are part of the tourist attraction package to meet the needs of visitors. Adequate infrastructure does not have to be of high quality but needs to be sufficient to function properly and provide benefits for visitors.

3.2. Accessibility to Ecotourism Areas

Accessibility is one of the main factors in the development of ecotourism. Unfortunately, Lae Mbilulu tourist driveway access is less strategic. Currently, the road conditions are damaged, the stones on the road are scattered, the road is potholes, making it prone to falling for visitors who drive. From the interview results, 100% of respondents said the road was not good and gave

suggestions for immediate improvement. In accordance with [14], the level of ease of reaching tourist sites will affect the development of the tourist area.

3.3. Public and Visitor Perceptions

Ecotourism not only highlights natural conditions but also includes the social conditions of the community in the form of local wisdom to provide different things to tourist attractions. Community-based ecotourism management and capacity development is a strategy to improve the economy with the availability of alternative livelihoods [6] [7].

In some ecotourism activities, both related to aesthetic, cultural, and recreational aspects, people can be fostered to be more creative in making an item that can be sold in the ecotourism area as souvenirs or souvenirs for visitors [15]. The results of interviews with the public and visitors at the Lae Mbilulu ecotourism are presented in Table 1 with the list of question below.

Question
A. Do you know the term ecotourism?
(1. Lack of knowing, 2. Just know, 3. Know, 4. Very Know)
B. Is access to ecotourism already supportive?
(1. Less supportive, 2. Quite supportive, 3. Support, 4. Very supportive)
C. Are the facilities of the infrastructure adequate?
(1. Less supportive, 2. Quite supportive, 3. Support, 4. Very supportive)

The results of interviews regarding the perception of ecotourism development show that 48% of people do not know the term ecotourism. For this reason, it is necessary to understand the local community about the concept of ecotourism so that the community better understands the potential that must be maintained and preserved by the community. Regarding road access to the Lae Mbilulu location, 86% of people said that the access road was less supportive and as many as 90% of visitors stated that the access road was not supportive. Based on this, road access repairs are something that must be done immediately.

Table 1. Assessment score of public and visitor perceptions.

Question	A				B				C			
	1	2	3	4	1	2	3	4	1	2	3	4
Community	24	11	10	5	43	7			5	12	21	14
Percentage (%)	48	22	20	10	86	20			10	24	42	28
Visitors	12	20	6	12	45	5			18	17	13	2
Percentage (%)	24	40	12	24	90	10			36	34	26	4

The aspect of managing tourist attractions, which includes cleanliness, promotion, and tourism services, has not been carried out optimally. As many as 85% of respondents said that the Lae Mbilulu area is not clean. It can be seen that around the tourist attraction, there is garbage scattered.

Regarding security, all respondents agreed that security in Lae Mbilulu is relatively good. This is because during the visit, there has never been a loss or accident in the tourist attraction area. In addition, the local community has hospitality and is open to visitors. The public and visitors also said that it is necessary to explore the addition of tourist activities or attractions that can be seen and carried out when visiting Lae Mbilulu. Based on the interview results, 95% of respondents stated that the activities that can be done are only looking at the panorama of the twin waterfalls of Lae Mbilulu. Only 5% said that apart from looking, they also dare to swim under the waterfall.

3.4. Development Factors

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

In the development of ecotourism in the future, it is necessary to explore and develop aspects of education, economy, culture, and aspects of conservation. Educational aspects that can be developed include adding names and information on trees in ecotourism areas as well as, studying plant and animal species. From the economic aspect, it provides business funding assistance and training to local communities to create souvenirs and souvenirs. From the cultural aspect, it can be in the form of introduction and presentation of traditional food, namely *pelleng* and cultural activities such as poking crabs. Finally, from the conservation aspect, the government needs to make a banner prohibiting the community from logging trees, not littering and routinely monitoring in ecotourism areas.

3.5. 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 main priority to be implemented by all relevant stakeholders.

Table 2. Identify factors of internal strategy

No	Internal strategy factors Strenghs	Rating	Weight	Score
1	The potential of natural tourism is maintained	3.95	0.149	0.59
2	The community fully supports the development of ecotourism sustainability	3.9	0.149	0.58
3	As a source of knowledge, it can be used as a place for education	3.95	0.122	0.48
4	Cheap admission and accommodation prices	4.1	0.138	0.56
	Sum	15.9	0.558	2.21

No.	Internal strategy factors Weakness	Rating	Weight	Score
1	Poor road access	4	0.108	0.43
2	Public facilities available are poorly maintained	3.5	0.124	0.43
3	Lack of game facilities/infrastructure and supporting knowledge information boards	3.5	0.113	0.39
4	There is still limited access road that can only be traveled with one lane	3.45	0.095	0.33
	Sum	14.45	0.44	1.58
	TOTAL	30.35	1,00	3.79
	Strength-Weakness score value = 2.21-1.58= 0.63			

The strategies are:

a. Optimizing the potential and attractiveness of tourism while maintaining the naturalness of its ecosystem. The sustainability of the ecotourism ecosystem is the first factor that must be maintained. Therefore, the construction of facilities that will be carried out in the ecotourism area must be carried out with good planning and analysis so that the sustainability of the ecosystem is maintained intact.

b. Development of community-based ecotourism by providing management to tourism awareness groups with the assistance of relevant institutions and governments. Local people who constantly interact with tourist attractions and visitors will certainly understand and pay more attention to the existence of ecotourism. Therefore, the handover of ecotourism management to the community through tourism awareness groups is able to increase the development of Lae Mbilulu ecotourism objects.

c. Providing business capital assistance to local communities. The government empowers local communities, for example, by providing assistance and businesses so that they can take advantage of the potential of tourist attractions for economic development.

d. Conducting more massive tourism promotion, both locally, nationally and internationally. Social media is one of the main factors that can be utilized and developed to be able to reach a broader market. Social media can expose the potencies of a particular place locally and globally.

The accumulated results of the interviews related to external factors in the development of Lae Mbilulu ecotourism can be seen in Table 3.

Table 3. Identify factors of external strategy

No.	Factors of external strategy Opportunities	Rating	Weight	Score
1	Improving the economy of local communities	3.95	0.124	0.49
2	Creating eight jobs	3.75	0.136	0.51
3	Attracting tourists and academics to research	3.65	0.121	0.44
4	Sources of regional income	3.2	0.121	0.39
	Sum	14.55	0.502	1.83

No.	Factors of external strategy Threats	Rating	Weight	Score
1	Competition with other ecotourism that has better access	3.6	0.129	0.46
2	Ecosystem damage due to ecotourism activities	3.6	0.122	0.44
3	Destruction of facilities	3.6	0.118	0.42
4	Animal disturbing	3.45	0.129	0.44
	Sum	14.3	0.498	1.76
	TOTAL	28.85	1	3.59
	Opportunity-Threat score value = 1.83-1.76= 0.1			

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

considered to have high priority and to be implemented immediately [16]. The SWOT analysis quadrant graph is formulated as the X and Y axes, where the X axis is IFA (Strengths – Weaknesses) while the Y axis is EFAS (Opportunity – Threat). From this analysis, the graph is in quadrant I with a strength-opportunities (SO) strategy

Table 4. SWOT Matrix Results

IFAS / EFAS	Strenght (S)	Weaknesses (W)
	1. The potential of natural tourism is maintained. 2. The community fully supports the development of ecotourism sustainability 3. As a source of knowledge can be used as a place of education. 4. cheap ticket prices	1. Poor road access 2. Public facilities available are less well maintained 3. Lack of game facilities/infrastructure and knowledge information boards 4. There is still limited road access that can only be traveled
Opportunities (O) 1. Improving the economy of local communities 2. Tourism conscious groups have been formed 3. Attract tourists and academics to research 4. Sources of regional income	**Strategi S-O** 1. Optimizing the potential and attractiveness of tourism while maintaining the naturalness of its ecosystem. 2. Development of community-based ecotourism by providing management to tourism awareness groups with the assistance of relevant institutions and governments 3. Providing capital assistance to help businesses to local communities 4. Promoting tourism more massively both locally, nationally and internationally	**Strategi W-O** 1. Addition of playing facilities/infrastructure 2. Maintenance of existing facilities 3. Improving the quality of human resources through training.
Threats (T) 1. Competition with other ecotourism that has better access. 2. Ecosystem damage due to ecotourism activities 3. Destruction of facilities 4. Disruption of animals	1. Increased awareness and institutional strengthening of the community. 2. Involve all government agencies, non-governmental organizations and local communities.	1. Improvement of conservation activities by conducting flora and fauna inventory activities 2. Preparation of building layout and tourist zoning taking into account environmental sustainability.

CONCLUSION

Lae Mbilulu waterfall has great potential, however, currently the ecotourism potential has not been optimally utilized. For the development of ecotourism, you can not only rely on panoramas but also need to have aesthetic and educational creativity. The manager has not utilized the information center building that has been made available to provide information to visitors. The access road to the attraction needs to be repaired immediately. The use of social media needs to be maximized to increase tourists coming to Lae Mbilulu. Strategy for the development of Lae Mbilulu ecotourism by implementing the Strength-Opportunities (SO) strategy.

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