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Development strategy of the Matang Keladan ecotourism object at Taman Hutan Raya Sultan Adam in South Kalimantan Province

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Abstract

Natural resources should be managed well so that they increase income of local communities. One way of managing natural resources is developing ecotourism objects. An ecotourism object in South Kalimantan that can be developed to increase the income of the local communities is the Matang Keladan. The study of how to develop the Matang Keladan ecotourism object has never been done. This study aims to analyze the strengths, weaknesses, opportunities, and threats in the development of Matang Keladan ecotourism objects, then formulate strategies for developing ecotourism by minimizing weaknesses and threats and maximizing the utilization of opportunities and strengths. Data were collected through literature studies, observations and interviews with stakeholders such as the Forest Service of the Province of South Kalimantan, Technical Implementation Unit of Tahura Sultan Adam, universities/managers of special-purpose forest areas, village heads, members of the Forest Farmer Group or the Pesona Riam Kanan Tourism Conscious Group, Matang Keladan Ojek Association, villagers and visitors. Data were analyzed descriptively using SWOT analysis to determine the Matang Keladan ecotourism object development strategy. Based on the results of the study it can be concluded that the development strategies of Matang Keladan ecotourism object are to complement the supporting infrastructure of ecotourism activities; develop other types of tourism; enhance promotion; provide proper garbage bins and toilets to maintain cleanliness, and waste treatment; and increase cooperation between local communities, tourism actors and the government optimally.

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Introduction

Indonesia has the potential of beauty and natural wealth which is of high value in the nature tourism industry market, especially ecotourism. As a form of tourism that is a trend, ecotourism has its specificities, namely giving priority to environmental conservation, environmental education, the welfare of residents and respect for local culture (Nugroho, 2012). The Tahura Sultan Adam Technical Implementation Unit, under the Forestry Service of South Kalimantan Province, has a 112,000 ha conservation forest management area with a legal determination through the Presidential Decree (Keppres) No. 52 of 1989 dated 18 October 1989 as a Conservation Area. Thus the Tahura conservation area provides an understanding for all stakeholders and the community not to carry out all exploitation activities within the area. Therefore, with the government's policy on Social Forestry Number P.83/MENLHK/SETJEN/KUM.1/10/2016 can support the preservation of the area and the use of forests by the community. Based on these rules, Tahura Sultan Adam is developing ecotourism areas in several places, including the Matang Keladan tourist spot.

Matang Keladan Ecotourism offers various tours that can be developed such as educational tourism, conservation tourism, photography tourism, and nature tourism. Now the Matang Keladan ecotourism management is developed by the Forest Farmer Group or the Tourism Awareness Group Pesona Riam Kanan together with the provincial government, in this case, the Forest Service through the Technical Implementation Unit of Tahura Sultan Adam to develop various public facilities. Sultan Adam Forest Park/Taman Hutan Raya (Tahura) is a valuable asset of the Forestry of South Kalimantan for the government, the community as well as those who benefit from the existence of this area. Many parties depend directly or indirectly on the quality of this area. The parties are Hydroelectric Power Plant Ir. P. H. M. Noor, Regional Water Supply Company, local communities, bottled mineral water companies, and plant cultivation practitioners.

Administratively, the Matang Keladan tourism object is located in Tiwingan Lama Village, Aranio District, which has an advantage, namely, it has a strategic location. All activities of the local community or people from outside the area/outside cross the village. In accordance with the location and topography with an area of 29.41 km² which consists of dry land 25%, mountains 45% and lake 30%, the village government center is adjacent to the dam of the Riam Kanan Hydroelectric Power Plant which makes Tiwingan Lama Village a transit / stopover travel before heading to destination (port of Riam Kanan). The Matang Keladan ecotourism object is located not far from the center of the Tiwingan Lama Village, with a distance of 530 m or only takes approximately 45 minutes to the Matang Keladan summit. The Matang Keladan has a relatively steep topography with a slope of 60 degrees.

Forest Farmer Group/Tourism Awareness Group of Pesona Riam Kanan is a group engaged in the utilization of environmental services in the Conservation area of Sultan Adam Tahura in Tiwingan Lama Village, Aranio Subdistrict, Banjar Regency, which is stipulated by the Decree of the Tiwingan Lama Village (Pembakal) with Number 3/SK/I/2016 dated January 20, 2016.

Starting from the initiative of young people in the Tiwingan Lama Village with a strong desire for adventure to climb the mountains that belong to the Tiwingan Lama region, precisely in April 2015, they were inspired that the Mount of Matang Keladan deserves to be a tourist spot due to the highest mountain among the surrounding mountains and is located in the middle of the Tiwingan Lama Village and adjacent to residential areas. When we are in the peak of Matang Keladan, many natural panoramas can be seen as a view. And the unique view at the top of Matang Keladan is described as being very similar to the very famous landscape in the eastern region, which is Raja Ampat, which consists of clusters of islands. This tourism management is a movement to increase the income of surrounding communities in the Tiwingan Lama Village.

This is very related to the economic activities of the community, which is expected to the activity of managing these attractions will provide a significant contribution to the economic life of the people in the countryside. The object of Matang Keladan ecotourism has a significant impact not only on its managers but on society in general. The community can sell food at these places so that the wheels of the economy run well.

The Tiwingan Lama Village Ojek community association can also increase income by bringing visitors to the top of Matang Keladan in a short time. This can be seen from the number of visitors and the number of netizens who post their photography activities through social media so that on weekends many visitors spend time visiting this place. The activities carried out either is just for tracking or releasing stress and looking for fresh air above the peak of Matang Keladan area. Visitors also came from various regions and various ages.

The study of the South Kalimantan Provincial Government's policy, in this case, the South Kalimantan Provincial Forestry Service through the Tahura Sultan Adam Technical Implementation Unit in the Matang Keladan ecotourism development activity is being carried out by inventorying the various potentials of the Matang Keladan ecotourism. Besides that, the perception of the community and visitors, as well as the role of the parties (provincial government, private parties and universities), has not been done much so that the data relating to this matter is not yet known.

Based on this description, the author conducted a study to obtain information relating to all of these matters and in the end provided a strategy that could be used in the development of the Matang Keladan Ecotourism which is also part of the Tahura Sultan Adam conservation area. Now many visitors have started coming to this ecotourism object. If promotion activities are more intense, this tourism object can develop rapidly so that it can increase regional income and improve the economy of the

surrounding community. For this reason, in-depth studies need to be carried out to determine strengths, weaknesses, opportunities, and threats through SWOT analysis as a formulation of the Matang Keladan tourism object development strategy. For this reason, the aims of this study are: (1) to study the current conditions in Matang Keladan ecotourism area, and (2) to formulate strategies for development of the Matang Keladan ecotourism area.

Materials and methods

Study area

Matang Keladan Ecotourism is one of the ecotourism areas in the Sultan Adam Forest Park (Tahura) precisely in Tiwingan Lama Village, Aranio Subdistrict, Banjar District, South Kalimantan Province.

Research object

The research objects are as follows:

- a. The Government of the Province of South Kalimantan, in this case, the Forestry Service of South Kalimantan Province and the Sultan Adam Forest Park (Tahura) involved in the management of Matang Keladan ecotourism, which is used as informants regarding government policies in developing Matang Keladan ecotourism;
- b. The Matang Keladan ecotourism area which is used as an object of observation of various potentials;
- c. The village government, the private sector and the University of Lambung Mangkurat were used as informants regarding their involvement in the development of the Matang Keladan ecotourism;
- d. Tourism Awareness Group, Matang Keladan Ojek Association, and Tiwingan Lama Village Community and visitors/tourists who were used as informants in exploring perceptions of the development of Matang Keladan ecotourism.

Research equipment

The equipment used is:

- a. Questionnaire and interview guide for the interview process and information gathering for respondents
- b. The camera for the visual documentation process
- c. Global Positioning System (GPS) for taking location coordinates

- d. Ropes for vegetation analysis plot making
- e. Compass to aim the direction of the wind when making vegetation analysis plots
- f. Phiband to measure stand diameters in vegetation analysis plots
- g. Calculator for data calculation
- h. Computers for data processing and writing instruments
- i. Guide to identifying flora and fauna.

Data

The data used in the study of the Matang Keladan Ecotourism Development Strategy consisted of two types namely primary data and secondary data. Primary data were data that was directly obtained in the field from interviews, observations, and surveys. Secondary data were data obtained from literature study results such as documents, research reports, articles, media (print/electronic), maps and other documents. Secondary data were obtained from the manager of Matang Keladan ecotourism, South Kalimantan Provincial Government (Regional Planning and Development Agency/Bappeda, Tourism Office, Forest Service, Sultan Adam Forest

Park), Central Statistics Bureau (BPS) and Non-Governmental Organizations (NGOs).

Primary and secondary data used in this study include:

1. Data on the general condition of the study site consisting of physical conditions, biological and social conditions, economic and cultural community as well as the Matang Keladan ecotourism map and regional tourism map;
2. Ecotourism potential data in Matang Keladan ecotourism consisting of flora and fauna potential, as well as landscape potential;
3. Data on community and visitor perceptions regarding the development of Matang Keladan ecotourism;
4. Central and provincial government policies related to the management of natural tourism in Matang Keladan ecotourism and regional tourism.

Types of primary and secondary data along with data sources and detailed data collection techniques can be seen in Table 1.

Table 1. Primary and Secondary Data used in the Research.

No.	Objectives to be achieved	Data Collection Method	Data Analysis	Output
1.	Analyzing the potential of the Matang Keladan ecotourism area that can be used for the development of Matang Keladan ecotourism;	Scoring and field survey	Scoring methods	Attraction objects and tourism potential map of the Matang Keladan ecotourism object.
2.	Analyzing the perceptions of tourists and the community around the Matang Keladan ecotourism area;	Perception and preference of tourists and community	Qualitative Descriptive	The perception of tourists and the community towards the development of the Matang Keladan ecotourism area
3.	Analyzing policies and the role of institutions and stakeholders in the management and development of tourist destinations in the Matang Keladan ecotourism area	Qualitative, systematic and quantitative techniques.	Policy Analysis	Description of whether or not support for regulation
4.	Formulate a tourism development strategy in the Matang Keladan ecotourism area	Interview and Observation in the Field	Qualitative Descriptive Analysis and SWOT Analysis	Strategy for developing the Matang Keladan ecotourism area

The type of research used in this study was descriptive qualitative. Iskandar (2008) explained that qualitative descriptive research is a systematic and subjective approach in explaining everything in the field (empirical) and oriented to efforts to understand phenomena comprehensively.

Furthermore, to determine the strategy for developing tourism objects was done by applying SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats). The informants of this research consisted of: (1) South Kalimantan Province Forestry Service, (2) Technical Implementation Unit

of Tahura Sultan Adam, (3) Aranio Sub-District Head, (4) Head of Tiwingan Lama Village (5) Ojek Matang Keladan Association, (6) the community around the object tourism, (7) tourists of the tourism object, (8) the university/managers of Forest Areas with Special-Purposes, and (9) holders of a permit to use forest area of PT. Tunas Inti Abadi (TIA).

SWOT analysis

The data analysis technique is a systematic process of searching and organizing interview transcriptions, field notes, and other materials that have been collected to increase understanding of the materials and be able to present what researchers have found to others (Emzir, 2008). Data analysis techniques in this study can be done through a procedure or several stages as follows:

1. Reduction; the data obtained is collected and selected, which is needed as the main data and supplementary data. Then written in the form of description, focused on things that are important systematically so that it is easier to understand.

2. Data model (data display); This data model is a collection of information that is composed of description and action. The shape of the data model is more narrative by using a SWOT matrix. The SWOT matrix is a tool used to develop a tourism development strategy. This SWOT matrix can clearly illustrate how the opportunities and threats faced so that it can be adjusted to the strengths and weaknesses of tourism. Through the SWOT matrix, an appropriate development strategy can be established. This matrix can produce four possible alternative strategic cells as in Table 2 (Rangkuti, 1998).

Table 2. SWOT Analysis Matrix used in Data Analysis.

Internal factor		Strength (S) Determining 5-10 strength internal factors		Weakness (W) Determining 5-10 weakness internal factors	
External factor		Strategy SO		Strategy WO	
Opportunity	5-10	weakness	Creating strategies using strengths for utilizing opportunities	Creating strategies minimizing weaknesses for utilizing opportunities	
Threats (T)		Strategy ST		Strategy WT	
Determining	5-10	weakness	Creating strategies using strengths for reducing threats	Creating strategies minimizing weaknesses for avoiding threats	

Based on Table 2 it can be explained that SO is utilizing all strengths by calculating opportunities, WO utilizes weaknesses by considering opportunities, ST is utilizing strengths by considering threats, and WT utilizes weaknesses by considering threats.

3. Classification; Existing data are then grouped according to emerging themes, making it easier to analyze.

4. Conclusions; the obtained data is searched for meaning and conclusions which are initially vague and doubtful. But if it has been added to the conclusion, it will be perfect so that researchers can explain by the facts that exist in the field systematically and perfectly.

Results and discussion

Achmad (2017) stated that the importance of assessing ecological indices in assessing ecotourism objects and interpretation materials to provide

scientific information to tourists. Besides that, the data can be used to measure the impact of changes in ecosystems, both positive and negative impacts, by looking at the changes that occur to be able to take further management actions. Ecotourism provides many opportunities to introduce tourists to the importance of protecting nature and biodiversity. Biodiversity protection programs can also be a means or model for community empowerment to improve welfare (Gunawan and Sugiarto, 2015).

This tourism management is a movement to increase the income of surrounding communities in the Tiwingan Lama Village. This is very related to the economic activities of the community, it is hoped that the existence of this tourism object management activity will provide a significant contribution to the economic life of rural communities. It can be seen from the potential that the Matang Keladan

ecotourism object has such a huge impact not only on its management but on society in general. The public can sell food at the place so that the economy runs well here. The income increase of communities can be seen from the sale of food and beverage stalls. Community respondents who owned a stall said that

on Saturday and Sunday holidays their sales increased with a net income range of Rp500,000 - Rp1,000,000. Respondent data with the profession of trading food/drink to household supply stores and camper equipment rental. An increase in income can be seen in Table 3.

Table 3. The Increase of Community Income.

No.	Respondent Name	Age (year)	Occupation/job	Income at working days (million)	Income in the weekend/holiday (million)
1	Mukaromah	31	Selling household equipment and camping tool renting	2.5	3.5
2	Dasuki	33	Selling food/drink	1.5	2.0
3	Hamdi	50	Selling food/drink	1.5	2.3
4	H. Aspan	53	Selling household equipment and food/drink	2.0	2.8
5	Yusriansyah	52	Selling household equipment and food/drink	2.0	3.0
6	Sofkani	38	Selling food/drink	1.4	2.0
7	Arbayah	39	Selling food/drink	1.0	1.5

This can be seen from a number of visitors and netizens who post their photography activities through social media so that on weekends it was found that many visitors spend time visiting here just for tracking or releasing stress and looking for fresh air above this peak. Visitors also came from various regions and in various ages. In terms of the cost of visiting Matang Keladan ecotourism, it does not make a deterrent visitor because the costs incurred were very cheap. The total cost incurred by a visitor was Rp8,000 which consisted of a parking fee of Rp5,000/car or Rp2,000/motorcycle, and a ticket of Rp3,000/person. If we use a motorcycle taxi service to the top of Matang Keladan, we must spend Rp20,000/person. To get off the top of Matang Keladan, most visitors did not use motorcycle taxi services anymore or just walk.

The management of the Matang Keladan peak tourism object is highly correlated with government policies that always involve the community in all forms of forestry activities, and we can also hear the slogan that is often launched to illustrate the government's concern and seriousness about community involvement in sustainable forest management, namely the Community Prosperous and Sustainable Forest.

Following are the supporting elements of the Matang Keladan tourism object:

Motorcycle taxi (ojek)

Upon arriving at the Tiwingan Lama port site, visitors use motorcycle taxi to get to the top of the Matang Keladan tourist object. This is because it is not allowed to drive in private vehicles due to security and safety reasons, which are caused by the narrow road and up to a slope of 60 degrees. In addition, visitors must have the ability and special skills in riding a motorcycle. The cost of the motorcycle taxi was Rp20,000 for one way to the top of Matang Keladan. The number of the motorcycle taxi available was 36 which has a group called "Persatuan Ojeck Matang Keladan". With this large number of motorcycle taxis, visitors need not be afraid to not find transportation to the top of Matang Keladan.

The existence of the Matang Keladan motorcycle taxi has two impacts, namely the positive side and the negative side. From the positive side, the existence of this motorcycle taxi will increase income and alternative employment for the community, but the motorcycle taxi activity that takes visitors to the top of Matang Keladan gives the impact of air pollution from exhaust fumes. Besides, it can cause noise pollution/noise so that the fauna around the Matang

Keladan forest area becomes disturbed by the noise from the motorcycle taxi. And no less important is the motorcycle taxi driver does not use safety standards and the type of vehicle used does not meet the driving standards. This will later lead to the possibility of an accident that can occur given the narrow and steep road conditions. A choice for other means of transportation might be a consideration for regulators such as the cable car. With this means of transportation, visitors will easily enjoy the surrounding scenery without any doubt about the dangers of traveling. Also, the cable car will make the trees that are passed will be safe from disturbances and damage so that they can be preserved properly. Especially in this area, there are species of keruing (*Dypterocarpus retusus*) which are endemic vegetation in the Matang Keladan region and the Kalimantan region in general. According to Achmad (2017), endemic and protected species are the types that need to be informed to tourists. If the potential of flora and fauna together with the physical potential of the area is developed into a tourism object, it will bring huge economic value benefits without having to do the destruction of the ecosystem.

Ticket fees

To enter the tourism object of Matang Keladan, visitors only need to pay Rp 3,000/person. These retribution tickets are managed by village institutions and the Tourism Management Group. The results of this levy are collected by village institutions which are then shared with tourism managers with a percentage of 25% for villages and 75% for the Tourism Management Group. This is because the construction of infrastructure in the place is funded independently by the Tourism Management Group and is supported by a small proportion of village institutions. However, there are some infrastructure facilities assisted by the local government through the Technical Implementation Unit of Tahura Sultan Adam Mandiangin as manager of the Tahura Conservation Forest.

Road tracking

This road was built by the association of Matang Keladan ojek which is a community of Tiwingan Lama Village so that access to the road to the top of Matang

Keladan is easy and can be enjoyed by visitors perfectly. This road is about 1.5 m wide which can only be passed by two-wheeled vehicles. For visitors who like tracking by foot, this is very possible, but it takes quite a long time, which is about 30 minutes with a road that climbs almost 60 degrees in certain parts.

The Peak of Matang Keladan

Arriving at this peak, visitors will be surprised to see such an enchanting scenery because from the top of this peak can be seen various sights such as small islands in the Riam Kanan reservoir, ships moored in the Tiwingan Lama port, community rubber gardens planted following the contour to Meratus mountain trails are green and dense.

Spot photography

The Matang Keladan peak has its uniqueness with a variety of properties built by the Tourism Awareness Group tourism managers who will certainly add to the existence of visitors photos. Spot photos that can be used are miniature bamboo boats, giant bird nests, mushroom houses, bamboo bridges, and treehouses.

Keruing forests

The forest around the peak of Matang Keladan is overgrown with various vegetation floran which is dominated by keruing/keladan, as the name of this peak is certainly due to the vegetation cover is keruing/keladan. However, there is a visible threat that is the existence of illegal loggers/illegal logging in that place. From interviews with local communities, the loggers belong to the community, the results of which are only used to make stalls, but this is very contrary to the principles of Conservation Forest set in the Tahura area of Sultan Adam. For this reason, it is necessary to conduct socialization to the public so that they do not exploit vegetation to protect their diversity.

The atmosphere of the height of the peak Matang Keladan allows tourists to enjoy the sunrise and sunset. This attraction presents a campsite and photography spot with a variety of natural attractions outstretched. Also offers various areas for education and training. The landscape has an important role

and position in a tourist destination. The combination of various physical components of ecosystems with plants creates a very beautiful panorama as part of tourist objects and attractions (Muttaqin *et al.*, 2011).

The development strategy of Matang Keladan Keladan is determined based on management indicators covering ecological, economic and social aspects. Based on this, internal and external factors are determined including strengths, weaknesses, opportunities, and threats. Based on the identification of internal and external factors, weighting, ranking and score of each element were then carried out and followed by the determination of management strategies using the SWOT Matrix. Strategy, in general, is a tool used to achieve goals (Rangkuti, 1998). The formulation of the Matang Keladan Ecotourism development strategy produces variables

that were summarized to obtain alternative development strategies through an internal-external matrix and find out the business position. The results and discussion are detailed below.

Formulation of the Matang Keladan Ecotourism management strategy through a SWOT analysis approach by selecting perceptions and assessments of internal and external factors that can influence the management of the Matang Keladan Ecotourism. To obtain strength factors, weakness factors, opportunity factors, and threat factors.

Formulation of Internal Factors

Based on the results of the study of documents, literature, questionnaires, socio-cultural conditions, economic conditions of the people in the study area, internal factors were obtained as presented in Table 4.

Table 4. Internal and External Factor Formulation.

Internal Factors					
Strength (S)					
No.	Description	Weight	Relative	Rating	Score
1	Has a very diverse tourism potential, namely beautiful panorama, endemic flora, and fauna riches.	4	0,09	4	0,36
2	People who are very friendly, open and ready to accept tourists.	3	0,07	3	0,21
3	Availability of access roads/trekking to the location of the tourism object.	3	0,07	2	0,14
4	Support of local communities in preserving nature around the area of Desa Tiwingan Lama.	4	0,09	2	0,18
5	Tourism Awareness Group has been formed as manager of Matang Keladan Ecotourism.	5	0,11	2	0,22
6	Support from the Banjar District and Tahura Sultan Adam with the assistance of tourist facilities.	4	0,09	3	0,27
Total S		23	0,52		1,38
Weaknesses (W)					
No.	Description	Weight	Relative	Rating	Score
1	Signs and prohibitions for tourists are not yet available.	3	0,07	-2	-0,14
2	Public transportation to get to the ecotourism location is not yet available.	3	0,07	-3	-0,21
3	Weak promotion of ecotourism for tourists.	3	0,07	-2	-0,14
4	The unavailability of proper supporting facilities for site cleanliness, such as garbage bins, proper toilets, and safety devices.	5	0,11	-2	-0,22
5	The Forestry Partnership program for Social Forestry has not yet been issued as legal access granting in the management of Matang Keladan ecotourism.	4	0,09	-4	-0,36
6	sufficient and reasonable Parking lots are not available.	3	0,07	-3	-0,21
Total W		21	0,48		-1,28
Total S + W		44	1,00		0,10
External Factors					
Opportunities (O)					
No.	Description	Weight	Relative	Rating	Score
1	Conditions that are safe and conducive will cause attraction for tourists.	4	0,11	4	0,44
2	Development of natural tourism as an alternative to natural resources that have the potential to be developed.	4	0,11	4	0,44

Internal Factors					
Strength (S)					
No.	Description	Weight	Relative	Rating	Score
3	Communities have begun to know the effects of damage to the excessive use of natural resources.	3	0,09	3	0,27
4	Community attention to the preservation of nature is increasing, so it is expected to make ecotourism a target where they overcome boredom	3	0,09	3	0,27
5	The permit to use forest areas for watershed rehabilitation by planting endemic Matang Keladan species.	3	0,09	1	0,09
Total O		17	0,49	1,51	
Threats (T)					
No.	Description	Weight	Relative	Rating	Score
1	Ecotourism development will certainly have a negative impact on both the region and the socio-cultural community, such as the existence of environmental pollution from motor vehicle fumes from tourists.	3	0,09	-4	-0,36
2	The influence of foreign culture which is accidentally displayed by foreign tourists will affect the social culture of the community.	3	0,09	-2	-0,18
3	Forest areas around Matang Keladan have not been managed optimally.	4	0,11	-2	-0,22
4	There is still illegal logging by communities around the village.	4	0,11	-1	-0,11
5	The existence of the land of agrarian reform objects activities in Desa Tiwingan Lama will make villagers pay less attention to the preservation of the forest and the environment.	4	0,11	-1	-0,11
Total T		18	0,51	-1	-0,98
Total O + T		35	1,00	0,53	

How to calculate the total weight × score for internal factors, which consists of strengths and weaknesses. The weight value is determined based on the level of importance or urgency of handling, the amount starts from 1 to 5.

- 1 = not important
- 2 = quite important
- 3 = important
- 4 = very important
- 5 = very important.

Information

- 1) How to calculate the total weight × score for internal factors, which consists of strengths and weaknesses. The weight value is determined based on the level of importance or urgency of handling, the amount starts from 1 to 5 (1 is not important, 5 is very important). Strength weights plus weight weights must be 100% or 1.
- 2) How to calculate ratings is our anticipation of changes that will occur next year or the next few years. The value starts from 1 to 4. The value of 1 is given if the current strength indicator is assumed to decrease further next year. While the value 4 is given if we have the assumption that the strength indicator will be stronger compared to the changes that will

occur. If the current power indicator is the same as what will happen next year, a value of 2 is given.

- 3) Rating for weakness indicator is in principle the opposite of giving strength rating, so it can be given a value of -1 to -4. If we feel that the weaknesses we have now will get weaker due to changes that will occur next year, then the rating value is given -4.
- 4) Conversely, if we have the assumption that the current indicator of weakness will be reduced next year, then we give the value -1. A value of -2 is given if we have an assumption that the current weakness indicator will be the same as the change that will occur next year.
- 5) In the same way, we can calculate weights and ratings for external factors.

The calculation system of the SWOT analysis matrix:

The coordinates (X; Y) are determined by:

X = total value of S + W

Y = total value of O + T

The total value of S = 1,38 W = -1,28 O = 1,51 T = -0,98

So:

X = total value of S + W = 1,38 + (-1,28) = 0,10

Y = total value of O + T = 1,51 + (-0,98) = 0,53

Based on the Internal Factor Analysis strategy (IFAS) and External Factor Analysis strategy (EFAS), the following calculations were made: total strengths and opportunities (S + O) = 1.38 + 1.51 = 2.89; number of weaknesses and opportunities (W + O) = -1.28 + 1.51 = 0.23; the amount of strengths and threats (S + T) = 1.38 + (-0.98) = 0.40; number of weaknesses and threats (W + T) = -1.28 + (-0.98) = -2.26. The calculation results show that the greatest amount of strength and opportunity to get the results so that it becomes the chosen strategy, that is the SO strategy or the Strategy utilizing all the strengths to take advantage of the maximum opportunity.

The position diagram of the Matang Keladan ecotourism development strategy (Fig. 1) is illustrated through the following calculation. Determination of the external factor axis = O - T = 1.51 - (- 0.98) = 2.49 and the internal factor axis = S - W = 1.38 - (-1.28) = 2.66. In Fig. 1 it can be seen that the position of the Matang Keladan ecotourism development strategy is in quadrant I, namely SO strategy.

SO strategy was a strategy that utilized all the strengths to take advantage of opportunities as much as possible. The description of SO strategies was contained in the SWOT analysis matrix in Fig. 1.

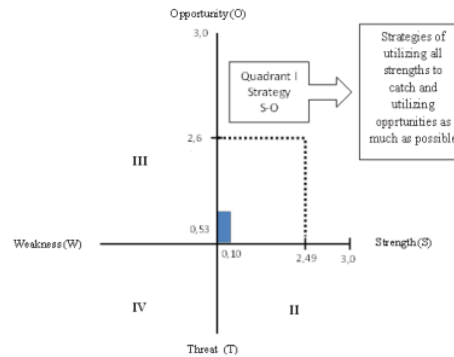


Fig. 1. Positions of the Matang Keladan development strategy.

Furthermore, the SWOT analysis matrix can be seen in Table 5.

Tabel 5. SWOT analysis matrix of Ecotourism development in Matang Keladan.

Factors	Strengths	Weakness
Internal	<ul style="list-style-type: none"> It has very diverse tourism potential, namely beautiful panorama, endemic flora, and fauna riches. Communities that are very friendly, open and ready to accept tourists Availability of access roads/trekking to the location of attractions. Local community support in preserving nature around the Old Tiwingan Village area. Tourism Awareness Group of Matang Keladan has been formed as the manager of Matang Keladan Ecotourism Support from the Banjar and Fahura Regencies of Sultan Adam with the assistance of tourist facilities. 	<ul style="list-style-type: none"> Signs and prohibitions for tourists are not yet available. Public transportation to ecotourism locations is still lacking. Weak promotions for tourists. The unavailability of proper supporting facilities for site cleanliness, such as garbage bins, proper toilets, safety devices. The Forestry Partnership program for Forestry Social Forestry has not been issued as a legal access grant in the management of Matang Keladan ecotourism Parking space that is not yet available adequately and properly.
External	Strategy	Strategy
Opportunities (O)	Strategy (S-O)	Strategy (W-O)
<ul style="list-style-type: none"> Conditions that are safe and conducive will cause attraction for tourists 	<ul style="list-style-type: none"> Completing infrastructure to support natural tourism activities, especially ecotourism, such as roads, sanitation facilities, safety devices and other types of tourism development. 	<ul style="list-style-type: none"> Make rules for tourists. Improve existing infrastructure and prevent landslides by planting trees.

Factors	Strengths	Weakness
<ul style="list-style-type: none"> • Development of natural tourism as an alternative to natural resources that have the potential to be developed. • Communities have begun to show the effects of damage to the excessive use of natural resources. • The attention of the community towards the preservation of nature is increasing, so that it is expected to make ecotourism a target where they overcome boredom • The permit to use forest area holders for watershed rehabilitation by planting endemic Matang Keladan species. 	<ul style="list-style-type: none"> • Conduct intensive promotions to the community both locally and nationally through social media and other media. • Empowering local communities in ecotourism activities and efforts to protect flora and fauna. • Conduct watershed rehabilitation with the permit to use forest area holders with endemic flora species as a form of keruing/keladang plant conservation • Optimizing management by Tourism Awareness Group so that ecotourism can be improved even more because it greatly impacts the community's economy. 	<ul style="list-style-type: none"> • Increase promotion. • Providing adequate transportation facilities. • Provide proper bins and toilets to maintain cleanliness and waste treatment. • No more exploitation of natural resources as a source of regional income.
Threats (T)	Strategy (S-T)	Strategy (W-T)
<ul style="list-style-type: none"> • Ecotourism development will certainly hurt both the region and the socio-cultural community, such as the existence of environmental pollution from motor vehicle fumes from tourists • The influence of foreign culture which is accidentally displayed by foreign tourists will affect the social culture of the community. • Forest areas around Matang Keladan that have not been managed optimally. • There is still sporadic illegal logging by communities around the village. • The existence of the land of agrarian reform objects activities in Tiwingan Lama Village will make villagers pay less attention to the preservation of the forest and the environment 	<ul style="list-style-type: none"> • Establish the district spatial plans as an ecotourism area in Kab. Banjar. • Coordinate among relevant agencies for the development of ecotourism. • Assess the impact that will arise from the development of ecotourism and make strict rules. • Promoting using technology such as social media, radio, leaflets and websites. • Develop institutional management. • Strict regional regulations must be held in preserving nature. • By maximizing the role of Tourism Awareness Group in independent ecotourism management outside the conservation area. 	<ul style="list-style-type: none"> • Increasing cooperation between local communities, tourism actors, and the government optimally. • Increased awareness of the public about the importance of ecotourism development. • Increase cooperation among stakeholders in the development of ecotourism. • Conduct information about tourism awareness on an ongoing basis. • The Tora will facilitate management independently but without supervision will negatively impact management that does not take sides on environmental aspects.

Strategy Formulation

The internal factor analysis of Matang Keladan ecotourism development in Tiwingan Lama Village Aranio Subdistrict Banjar District was the first step in formulating a management strategy, this analysis was carried out to identify the factors that are the strengths or weaknesses of a business. The results of identifying the strengths and weaknesses of a business can be used as a basis for determining business management and development strategies so that market opportunities can be properly utilized (Rangkuti, 1998). The results of the analysis of internal factors (Internal Factors Analysis Strategy/IFAS) Matang Keladan ecotourism development in the village of Tiwingan Lama Aranio Subdistrict Banjar District each has 4 strength factors and 4 weakness factors that were selected as follows:

Based on Table 5, it can be explained that the Matang Keladan ecotourism development strategy was stipulated in 4 (four) categories while still making Aggressive Strategy as a reference. The description of the strategy is as follows:

SO Strategy (maximizing strengths to take advantage of opportunities):

- Complementing infrastructure supporting natural tourism activities, especially ecotourism, such as roads, sanitation facilities, safety devices and other types of tourism development;
- Conduct intensive promotion to the community both locally and nationally through social media and other media;
- Empowering local communities in ecotourism activities and efforts to protect flora and fauna;

- d. Carrying out rehabilitation of watersheds with the permit to use forest area holders with endemic flora species as a form of conservation of keruing plants;
- e. Optimizing management by Tourism Awareness Group so that ecotourism can be improved even more because it greatly impacts the economy of the community.

ST Strategy (maximizing strengths to reduce threats):

- a. Establish the Matang Keladan area in the regional spatial plan as an ecotourism area in Kabupaten Banjar;
- b. Coordinating between related agencies for the development of ecotourism;
- c. Assessing the impact that will arise from the development of ecotourism and make strict rules;
- d. Carrying out promotions using technology such as, social media, radio, leaflets, and websites;
- e. Developing institutional management.
- f. Establishing strict regional rules in preserving nature.

WO strategy (maximizing opportunities to reduce weaknesses):

- a. Preparing rules for tourists;
- b. Improve existing infrastructure and prevent landslides by planting trees;
- c. Increasing promotion;
- d. Providing adequate transportation facilities;
- e. Providing proper bins and toilets to maintain cleanliness and waste treatment;

- f. No more exploitation of natural resources as a source of regional income.

WT strategy (minimizing weaknesses to avoid threats):

- a. Increasing cooperation between local communities, tourism actors, and the government optimally;
- b. Increasing awareness to the public about the importance of ecotourism development;
- c. Increasing cooperation among stakeholders in the development of ecotourism;
- d. Conducting an extension about tourism awareness on an ongoing basis.

Then the final stage of the SWOT analysis was to determine the key success factors by looking at the relevance of the strategy to the strategic action of developing Matang Keladan ecotourism. The strategic actions referred to are actions carried out based on active behavior, specific actions designed to achieve goals clearly and measurable so that they are related to rationality, maximization, and success-oriented. To determine the key success factors of a strategy the highest value will be chosen from the sum of the linkages of the strategies with the three factors above which will then be determined 4 key success strategies whose ranking ranks highest in each category namely SO, ST, WO and WT strategies that can be seen in Table 6.

Table 6. Determination of the key factors for the success of the management strategy.

No.	Strategy	Relationship with			Total score
		Rationality	Maximization	Success Oriented	
Strategy SO					
1	Complementing infrastructure to support natural tourism activities, especially ecotourism, such as roads, sanitation facilities, safety equipment and other types of tourism development.	4	4	4	12
2	Conduct intensive promotion to the community both locally and nationally through social media and other media.	4	3	4	11
3	Empower local communities in ecotourism activities and efforts to protect flora and fauna.	4	3	3	10
4	Conduct watershed rehabilitation with the permit to use forest area holders with endemic flora species as a form of keruing/keladang plant conservation.	3	3	3	9
5	Optimizing management by the Tourism Awareness Group of Matang Keladang so that ecotourism can be improved even more because it greatly impacts the economy of the community.	4	3	3	10

No.	Strategy	Relationship with			Total score
		Rationality	Maximization	Success Oriented	
Strategy SO					
Strategy ST					
1	Establish in the district spatial plans as an ecotourism area in Banjar District.	3	3	4	10
2	Coordinate among related institutions for the development of ecotourism.	4	3	2	9
3	Assess the impact that will arise from the development of ecotourism and make strict rules.	3	2	2	7
4	Promoting using technology such as social media, radio, leaflets, and websites.	4	4	4	12
5	Develop institutional management.	3	3	3	9
6	Strict local regulations must be held in preserving nature.	4	3	2	9
Strategy WO					
1	Make rules for tourists.	3	2	3	8
2	Improve existing infrastructure and prevent landslides by planting trees.	2	3	3	8
3	Increase promotion.	3	2	2	7
4	Provide adequate transportation facilities.	3	3	3	9
5	Provide proper bins and toilets to maintain cleanliness and waste treatment.	4	3	4	11
6	No more exploitation of natural resources as a source of regional income.	3	4	2	9
Strategy WT					
1	Increasing cooperation between local communities, tourism actors and the government optimally.	3	3	4	10
2	Raising awareness in the community about the importance of ecotourism development.	3	3	3	9
3	Increase cooperation among stakeholders in the development of ecotourism.	2	2	3	7
4	Conducting information about tourism awareness on an ongoing basis.	2	2	2	6

Source: Primary data analysis, 2019.

Information

Linkages were measured based on scores: most related (4), related (3), least related (2), and unrelated (1).

Table 6 showed that based on the sequence of scores from highest to lowest scores, four management strategies with the highest scores were found to be the key to success in formulating the Matang Keladan ecotourism development strategy model. The four strategies are as follows:

1. Completing the infrastructure to support natural tourism activities, especially ecotourism, such as roads, sanitation facilities, safety devices and other types of tourism development. The availability of facilities to visitors is a supporting factor for tourist attraction. Some supporting facilities are not yet available and need to be improved such as increased toilets, garbage, and processing bins, tourist roads,

bridges, trash bins, natural small villas, organic style restaurants and camping equipment and photography spot safety devices. According to Yoeti (2008), visitors are not only interested in the quality of attractions, but are also interested in the quality of facilities and facilities, starting from leaving from the place of origin of visitors to the destination, and during the tour, visitors get satisfaction and ease. The Matang Keladan Ecotourism has been connected to the road network and has also been reached by the telecommunications network. The facility factor gives a boost to visitors in deciding to travel, namely personality, availability of time and income (Damanik and Weber, 2006).

2. Promoting using technology such as social media, radio, leaflets, and websites. According to Witantra (2011), tourism will not become a destination if it is not known by the wider community. To make it known, attractions need promotion. Without

promotion, these attractions will not be known by the wider community. Even if it is known it will take quite a long time. A good promotion strategy is needed so that the tourism object owned is truly a tourist destination by tourists, both local and foreign tourists. Nowadays, the Matang Keladan ecotourism manager namely Tourism Awareness Group has promoted this tour through social media, it just needs to be more intense and focused to update the attractions that are here so that tourists can be even more interested in visiting.

3. Providing proper bins and toilets to maintain cleanliness and waste treatment. The cleanliness of an ecotourism object is one of the factors rating tourists when visiting. In the Matang Keladan ecotourism object, there were scattered rubbish such as drink bottles and plastic food wraps. The availability of garbage disposal facilities and warning boards is the key to handling this problem. The success of a tourist destination, not only relies on good appeal, interesting culture, but can organize in terms of road infrastructure and cleanliness in tourist attractions (Rosita *et al.*, 2017).

4. Increasing cooperation between local communities, tourism actors and the government optimally. Enhancing cooperation among local communities, tourism actors and the government can be done through environmental socialization activities which is the most important things in the utilization of natural ecotourism areas, because in their use they must pay attention to conservation and environmental aspects. Environmental socialization is done to change the understanding of the community and visitors so that it can reduce the negative impact on tourism objects. According to Purwanto (2014), changing understanding can be done through an extension to the community. The extension must be carried out continuously and with high frequency.

Extension activities include socialization regarding the danger of disposing of garbage and its consequences on attractions and legal sanctions for any negative actions taken. In addition, the management and handling of waste from visitors

needs to be monitored extra. All of these environmental socialization activities involve cooperation between local communities as managers, tourism actors as visitors/tourists and the government as education providers in the form of socialization and counseling related to environmental issues and conservation efforts, because without the cooperation of these three parties efforts to preserve nature and the environment will difficult to achieve.

Conclusions

From the results of a SWOT analysis conducted on the Matang Keladan ecotourism area in Tiwingan Lama Village, Aranio Subdistrict, Banjar District, it can be concluded as follows:

1. Current conditions in Matang Keladan ecotourism can be seen that some many weaknesses and shortcomings that require development strategies such as:

a. Signs and prohibitions for tourists were not yet available

b. Public transportation to get to the ecotourism location was still lacking

c. The still weak promotion of ecotourism for tourists (the unavailability of tourist maps/tourist brochures)

d. Not yet available lodging in the ecotourism area even around residential areas so visitors who want to stay a bit difficult

e. The unavailability of proper supporting facilities for location cleanliness, such as trash bins, proper toilets, safety equipment for motorbike riders and photography spots at heights and cliff edges

f. The Forestry Partnership program for Forestry Social Forestry has not been issued as a legal access grant in the management of Matang Keladan ecotourism.

g. The parking lot is not yet available adequately and properly and the area of the tourist area cannot be expanded due to the presence of community rubber plantations so that it is limited when visitors are booming.

2. From the strengths, weaknesses, opportunities and threats resulted in the Matang Keladan ecotourism development strategies in the Tahura area of Sultan Adam. The four strategies are as follows:

- a. Complementing supporting infrastructure for nature tourism activities, especially ecotourism, such as proper retention counters, roads, cleaning facilities, safety standard equipment (motorcycle taxis and spot photography at heights), lodging facilities, camping ground and other types of attractions;
- b. Promoting using technology such as social media, radio, leaflets/brochures and websites;
- c. Providing appropriate bins, places to put out cigarettes and toilets to maintain cleanliness and waste treatment;
- d. Increasing cooperation between local communities, tourism actors and the government optimally.

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