The development strategy of durian fruit-based ecotourism: A case study of Rancamaya Village in Bogor, Indonesia

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ABSTRACT

Legok Petir place in Rancamaya Village, South Bogor District, has a strategic role in efforts to improve the surrounding community's welfare sustainably. With a long history of durian fruit, Rancamaya has the nickname of "Rancamaya Durian Village". The purpose of this study is to evaluate the feasibility of ecotourism development and find strategies that can be carried out related to how to develop it. The analysis method used the guidelines of the Operation Area Object and Object of Natural Tourism Attractions (Analisis Daerah Operasi Objek dan Daya Tarik Wisata Alam / ADO-ODTWA) of the Director General of Forest Protection and Nature Conservation-2003, Community-Based Ecotourism Enterprise (CBEE) to produce aspects that have a high feasibility category, as well as SWOT analysis to determine the effective strategy to maximize the existing potential and prepare to face challenges. The aspects analyzed are 1) tourist attractions, 2) conditions around the area, 2) management and services, 4) accessibility, and 5) facilities and infrastructure. The results of the study show that the Rancamaya area has feasibility as a tourist area of Durian Village with a tourist attraction scoring of 81.0%, the condition around the area of 66.7%, management and service of 65.5%, accessibility of 90 % and facilities and infrastructure of 61.1%. Meanwhile, the development strategy of the Rancamaya tourist area is influenced by policies, institutions, coaching, and socialization.

Keywords: *ADO-ODTWA, CBEE, durian, Rancamaya tourism village, sustainability, SWOT*

INTRODUCTION

Racamaya is a subdistrict in the south of Bogor City, which possesses several unique characteristics that make it particularly suitable for durian tree cultivation. The region's soil composition, climate, and biodiversity contribute significantly to the successful growth of durian trees. The soil in Racamaya Bogor is enriched with organic materials such as crop straw and animal waste, which provide essential nutrients for durian trees. The tropical climate of Bogor, characterized by high humidity and consistent rainfall, is ideal for durian cultivation, as these conditions support the growth cycle of the fruit (Tan, 2022). This Subdistrict is also home to a diverse range of durian germplasm, which includes various cultivars with distinct flavors and characteristics, enhancing the potential for high-quality durian production (Retnoningsih et al., 2017; Solikin et al., 2017).

Based on data from the Bogor City Government, Rancamaya Subdistrict has an area of 184 hectares, consisting of 10 hamlets (Rukun Warga/RW) and it has 30 neighbourhood (Rukun Tetangga/RT), with a demographic of 1,598 families (BPS Kota Bogor, 2024). In this village there is a 20 hectares of fertile agricultural land with the flat landscape at an altitude of 300-400 meters above sea level, experiencing 3,000-4,000 mm of rainfall each year. Furthermore, this area is pupported by the region's temperature range is conducive to the

flowering and fruiting stages of durian trees, which thrive in warm conditions (Tan, 2022).With fertile soil conditions for agriculture, this can support durian and vegetable crops which can increase the potential of ecotourism and agritourism (Wardhani et al., 2024).

However, the challenges are the community's knowledge of poor agriculture, inadequate infrastructure, and limited community understanding of the economic potential of tourism. In 2021, durian seedlings were distributed, but the need to highlight better cultivation education to produce quality production. The need for the support of local governments and stakeholders in efforts to improve infrastructure and promote Rancamaya as an ecotourism destination to maximize green open houses and as a strategic area, with the hope the region is expected to be environmentally friendly, beautiful and comfortable for residents and tourists (Wardhani et al., 2024).

The purpose of this research is to explore the potential of Rancamaya Village in Bogor, West Java, as a location for ecotourism development, especially through the revitalization of the durian cultivation industry. Rancamaya, historically known as the "Durian Village", is currently facing challenges due to reduced durian production. Rancamaya Village has ever to have around 10,000 trees in 1986, but it became only 1,500 mature trees in 2020. Nonetheless, the region has a strong

agricultural base, fertile soils, and a long-standing tradition of durian cultivation, which provides the basis for ecotourism or agrotourism.

METHOD

Data collection is the first step followed by data analysis to get the results and validation process (Firmansyah et al., 2024). This study uses a type of quantitative descriptive data. The descriptive research aims to find out the conditions and phenomena in Rancamaya Village through observations that will be explained in the paper. Meanwhile, the quantitative research uses figures from questionnaires and observations analysed by mathematical methods through the Guidelines for Operation Area Object and Object of Natural Tourism Attractions (ADO-ODTWA) (PHKA, 2003) in accordance with the recommendation from Rudiyanto & Hutagalung (2022). Meanwhile, the Community-Based Ecotourism Enterprise (CBEE) guideline are in accordance with the research of Canalog et al. (2012) in the Philippines and presented in a SWOT analysis to identify opportunities for ecotourism development. The study used primary and secondary as data sources. Primary data was obtained directly from the research location or informants, such as through questionnaires, focus group discussions, and observations. Secondary data is in the form of documents and information from various agencies, including population and socio-economic from Rancamaya Village, Bogor City's Food Security and Agriculture Agency (DKPP), farmers, and previous researches.

Data to determine the factors that affect the decline in the performance and popularity of durian villages in Rancamaya Village, South Bogor District,were obtained through various research instruments such as check lists, interviews, questionnaires, observations, and focus group discussions. Primary data were collected through field observations, questionnaire distribution, and interviews.

The sampling technique used is simple random sampling, in accordance with the explanation of Sugiyono (2019), which states that this method selects samples randomly regardless of the population level. In the survey, a sample was taken at random to assess the residents' knowledge of the problems in their area. For example, if the total number of heads of families is 1500 families and the respondents are only 40 people, then the probability is P = n/N or 40/1500 = 3%, while secondary data is obtained from various sources such as literatures, documents, and information from Rancamaya Village, DKPP (Bogor City's Food Security and Agriculture Agency), area manager /Pokdarwis (Tourism Awareness Group), and nursery companies. Furthermore, the data compiled using predetermined variables. The relationship between variables analysed

using the SWOT method to achieve the research objectives.

Analysis of the feasibility of Rancamaya Village for ecotourism − According to Murdiyanto (2020), assessed natural resources using ADO-ODTWA guidelines (PHKA, 2003). According to Ardiansyah & Iskandar (2022) that every aspect of ADO-ODTWA has the amount of weight varies adjusted to the importance of the object and tourist attractions (Zerlina et al., 2020). According to Nugroho et al. (2021) the aspects that are assessed have their own weight according to the criteria. The research in Rancamaya includes nature observation and the application of 5 (five) of the 15 criteria to assess the potential can be seen in Table 1.

Table 1. Criteria and weight parameters.

Criteria	Weight
Tourist Attarctions	6
Accessibility	5
Conditions around the area	5
Management and service	4
Facilities and infrastructure	3

The scale of consideration in compiling feasibility is 10 – 30, the scale is the same scale used in weighting in the research of Sihite et al. (2018) (Table 2).

Table 2. consideration in compiling feasibility.

Answer	Score	Eligibility level
Strongly agree	30	Very potentials
Agree	25	Potentials
Not sure	20	Need a strategy for development
Disagree	15	Need extra strategy for development
Strongly disagree	10	Difficult to develop

Source: Processed (2024)

The results of the analysis are arranged in a matrix of Internal and External factors to determine future strategies. The data were visualized in SWOT diagrams and feasibility analysis compared with other ecotourism objects and modification of the feasibility index using CBEE which used in the Philippines (Table 3).

Table 3. CBEE Eligibility Index.

Eligibility level	Score
Worth developing	>66,6%
Not yet feasible to develop	33,3% - 66,6%
Not feasible to develop	<33,3%

Scenario Analysis of ODTWA and CBEE assessed the object to identify problems in Rancamaya Village. The assessment uses observations, questionnaires, and

interviews and involves ODTWA and accessibility criteria (Zerlina, 2020). Analysis of factors influencing the development of ecotourism in Rancamaya Village - using descriptive analysis that aims to identify strengths and weaknesses in community-based ecotourism. Strategy analysis to develop Rancamaya Village into an ecotourism area - using SWOT analysis aims to identify the strengths, weaknesses, opportunities, and threats faced by the institution (Figure 1).

After the SWOT analysis, the next step is to use the Internal Factors Analysis Summary (IFAS) and External Factors Analysis Summary (EFAS) to link the variables that have been identified. Finally, after the SWOT analysis data was collected, a Focus Group Discussion (FGD) was carried out with related agencies to process the data and determine the score of strategic factors. The results of this analysis are compiled in the IFAS and EFAS matrices, which aim to clarify the position of the institution and make it easier to plan further development steps. The SWOT diagram generated from the calculation applicator weights, scores, and ratings will provide visualizations that help in strategic decision-making.

Source: Purwohandoyo et al. (2020)

Figure 1. SWOT quadrant matrix.

RESULT AND DISCUSSION

In Rancamaya Village there is a special area called Kampung Legok Petir, which functions as a durian tourism centre, equipped with facilities for visitors such as toilets and simple huts for food and lodging. Local communities are hoping for better infrastructure to boost tourism, which aims for sustainable economic benefits. However, challenges arise from the lack of maintenance of distributed durian seedlings, highlighting the need for a better understanding of the potential of local agriculture and ecotourism development. Related to this, data collection is planned to assess the expectations and feasibility of the community in efforts to develop their area.

The development of ecotourism in Rancamaya Village requires community support for creative and productive businesses. According to Kelurahan Rancamaya Bogor (2023) and BPS Kota Bogor (2024), most of the population of Rancamaya Village is 18-30

years old (42%), but many are poorly educated, so strategies for trade and production development are needed. As seen in Table 4, the aspect score of 500 was calculated from interviews and population data, with a low score related to the educational background in Rancamaya Village. The survey to produce the level of education uses recommendations from Babagana-Kyari et al. (2024) namely by categorizing the respondents' education level where many did not graduate and graduated from elementary school, so they only worked as farmers, traders, or labourers. Ecotourism can provide new job opportunities and improve living standards. However, limited awareness and management challenges hamper development efforts. Overcoming these obstacles is essential for effective planning.

Analysis of potential problems, feasibility and direction of development of ecotourism areas by assessing the feasibility of tourism development based on surrounding conditions that have an impact on the community's economy. According to Kodhyat (1996), related to this statement, ODTWA can help attract tourists by ensuring good facilities and services. The recommendations include an ADO-ODTWA analysis to assess the condition of the village and ecotourism that considers livelihoods, education, and public relations. Tourist attractions, such as natural scenery, history of

Table 4. Assessment of DWT aspects for conditions around the area.

No	Variable	Score
1	Livelihood of thhe population	25
2	Educational background	10
3	Relationship between managers, government and community	25
4	Residents' response/awareness regarding ecotourism development	25
5	Planning management	15
	Value	**100**
	Score aspect	**500**

Source: Processed (2024)

durian villages, and natural resources, show a feasibility score of 1020 (Table 5), higher than other regions. However, the challenges in cleanliness and safety that get the lowest scores need to be overcome. In addition, implementing eco-friendly tourism and increasing public awareness of cleanliness is expected to create a cleaner and safer environment for tourists.

Ecotourism management in Rancamaya Village requires integrated planning and community participation. The assessment shows in Table 6 that management is still not good, it is important to involve all parts in development.

The feasibility assessment of facilities and infrastructure in Rancamaya Village was carried out using the DWT aspect, which shows that the current condition is still relatively good even though there are several aspects that need to be improved (Table 7). This

Table 5. Assessment of DWT aspects for tourism attractions.

No	Variable	Score
1	History	30
2	Natural beauty	25
3	Fertile soil	30
4	Prominent natural resources	25
5	Types of tourist attractions	20
6	Hygiene	20
7	Security	20
	Value	**170**
	Aspect score	**1020**

Source: Processed (2024)

Table 6. Assessment of DWT aspects for management and services.

No	Variable	Score
	Management	
1	Planning	15
2	Implementation	15
3	Controlling	15
4	Monitoring	15
5	Organizing	20
	Service	
1	Readiness	15
2	Ability	20
3	Communication skills	25
4	Provision of Information	20
	Monitoring	
1	Sustainability of attraction activities	25
2	Sustainability of Plant Cultivation	20
3	Training results	20
4	Environmental Maintenance	25
5	Nature Conservation	25
	Value	275
	Aspect Score	1100

Table 7. Facilities and infrastructure.

No	Variable	Score
1	Availability of Toilet Facilities and Culinary Huts	20
2	Availability of tools to support cultivation needs	15
3	Availability of outbound venues	20
	Value	**55**
	Aspect Score	**165**

Source: Processed (2024)

Accessibility is a measure of convenience to reach the destination location, including the ease of finding information, road conditions, and access to tourist attractions. Assessment of accessibility focuses on ease of visiting tourist destinations (Sumantri, 2018). The accessibility assessment to Rancamaya Village, especially Durian Village, was carried out based on expert recommendations and using observation and Google Maps. The results show that the accessibility of Rancamaya Village is quite good, especially in terms of distance. However, there are obstacles to access to Kampung Durian (Durian Village) which is narrow, only one vehicle can pass (Table 8).

Table 8. Assessment of DWT aspects for accessibility.

No	Element	Value				
	Weight	Excellent	Good	Average	Less	Bad
		30	25	20	15	10
1	Road Type					
	Asphalt		25			
	Asphalt but potholed					
	Rocky Road					
	Dirt Road					
2	From Bogor to Sukabumi (1 hour 35 min)	30				
3	Travel from the Capital (1 hour 17 min)	30				
	Travel time from Bogor to Tol gate (22.2 km ± 30 minutes)	30				
4	Access to durian village			20		
	Total			135		
	Aspect Score			674		

Source: Processed (2024)

Based on the ODTWA feasibility assessment, several criteria for tourist attractions in Rancamaya Village can be identified. The feasibility assessment was carried out using a scale of 10-30 to determine the value and effort needed so that the development of ecotourism could be achieved. To find out the general feasibility of Rancamaya Village as a tourist attraction, it can be seen in Table 9.

shows that improvements in facilities and infrastructure can increase production efficiency and sustainability. As recommended by Lubis & Haidir (2019), improve infrastructure for ecotourism in Rancamaya Village to enhance durian production. Overall, although the feasibility of facilities and infrastructure in Rancamaya Village is still good, there is an urgent need to improve cultivation support tools. With proper attention to this aspect, it is hoped that it can support the increase in durian production and the development of ecotourism.

This analysis discusses the factors that affect the development of ecotourism in Rancamaya Village. The main problem found is that the government's efforts to empower the community have not been effective enough. Community support is vital for tourism development and quality (Wood, 2002) therefore, more intensive approach is needed to increase community participation. To overcome this problem, it is necessary to make assistance proposals to relevant agencies to support the sustainable development of ecotourism and empower local communities.

Table 9. Eligibility criteria for ecotourism potential according to observation.

No	Criteria	Weight	Value	Score	Max Score	Index (%)	Potential value
1	Tourist attractions	6	170	1020	1260	81	Worth
2	Conditions Around the Area	5	85	500	750	66.7	Less Worthy
3	Management and Service	4	275	1100	1680	65.5	Less
4	Facilities and Infrastructure	3	55	165	270	61.1	Worth
5	Accessibility	5	135	675	750	90	Worth
	Eligibility level					72.8	Worth

Source: Processed (2024)

Table 10. Strengths and weaknesses.

	Internal Factor	Weight	Rating	Score
Strength	1. Rancamaya Village is located at the intersection of the Bocimi toll road, in addition it is located between the road to and from Bogor city district and from Bogor district to and from Sukabumi.	0.18	3	0.54
	2. Tourist attractions that can revive the durian village are the history of Rancamaya village, fertile land, natural resources and several agribusiness activities and attractions that already exist.	0.1	4	0.4
	3. The government supports efforts to improve the situation by implementing an environmental development system in the form of involving the community and the private sector, namely by means of assistance, technical guidance and presenting several activities other than durian production as an alternative to generate economic value.	0.1	4	0.4
				1.34
	1. Lack of facilities and infrastructure that support ecotourism activities	0.05	1	0.05
Weakness	2. The condition of the social environment where the educational background of the community in Rancamaya Village is dominated by elementary school graduates which has an impact on the lack of understanding of the community's potential of the area.	0.05	3	0.15
	3. Less intensive training, communication and control to the community	0.17	1	0.17
	4. Weaknesses in aquaculture science that have an impact on production results do not reach the expected targets.	0.18	2	0.36
	5. The management representative has not been determined, so that the program has not been implemented, plus the problem of program socialization to related components because of the obstacles faced.	0.17	2	0.34
	Total	**1**		**1.07**

Source: Processed (2024)

Compiling a potential problem analysis requires an assessment of internal and external factors using the IE Matrix. Based on Table 10 and Table 11, community knowledge and participation in the development of ecotourism in this region need to be increased. Cooperation between managers, communities, and governments must be improved, and integrated planning is needed to achieve sustainable tourism. Rancamaya Village has strong ecotourism potential but needs support from related agencies to empower the local community.

Table 11. Opportunity and Threat Factors.

	External Factor	Weight	Rating	Score
Opportunity	1. Unique durian ecotourism that does not yet exist in the city of Bogor, which is an area with a historical aspect of durian villages.	0.2	1	0.2
	2. There are other agro-business activities and other attactions.	0.1	2	0.2
	3. The existence of this ecotourism can open up job opportunities and new ideas to sell in an effort to increase UKM. (Small and medium-sized businesses).	0.14	2	0.28
	4. Trade and agriculture are the most in-demand sectors in Rancamaya Village	0.14	2	0.28

5. Ecotourism trends are in demand by tourists such as making post-harvest products (durian chips, durian cendol) and outbound and camping activities.	0.12	2	0.24
			1.2
Threat 1. High business competition in the city of Bogor, namely Mulyaharja Agrotourism which is more developed, located in the middle of Bogor city and visited by many tourists.	0.1	3	0.3
2. Crop failure	0.1	2	0.2
3. Lack of government support	0.1	2	0.2
Total	**1**		**0.7**

Source: Processed (2024)

The results of the calculation of IFAS and EFAS values in Rancamaya Village, as shown in Table 12, can help in the development of strategies to take advantage of strengths and weaknesses. According to Rangkuti (2013) and Rangkuti (2015), the company's performance is influenced by a combination of internal and external factors, which will guide the determination of the strategy and be reviewed in the SWOT analysis.

Table 12. Calculation of IFAS and EFAS values.

Internal Factor		External Factor	
X=	Strength - Weakness	Y=	Opportunity & Threat
X=	1.34	Y=	1.2-0.7
X=	0.72	Y=	0.5

Source: Processed (2024)
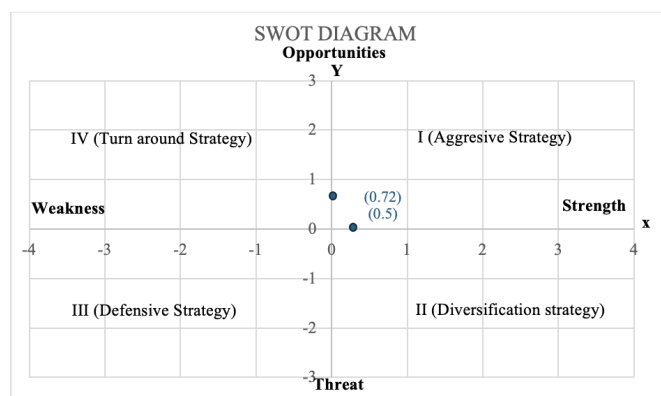
Source: Processed (2024)

Figure 2. SWOT quadrant diagram.

The SWOT matrix is a guide to consider the analysis of internal and external factors in decision-making. This method, described by Robbins & Coulter (2018) can help companies identify effective strategies by maximizing strengths and opportunities and minimizing weaknesses and threats, contributing to more strategic planning.

The results of the SWOT Quadrant Matrix for Rancamaya Village show that their strategy is between aggressive and diversified (Figure 2), so it is recommended to use internal forces to pursue opportunities, especially in ecotourism development.

IFAS and EFAS Factors:

• Strengths - Rancamaya Village is known for its durian village history. The location is strategic at the intersection of the Bocimi toll road, which connects Bogor, Ciawi, and Sukabumi. Rancamaya is also located on the road between Bogor and Sukabumi Regencies and the soil there is fertile and suitable for agriculture.

• Weakness - The lack of public understanding of the potential of the area is a problem. In addition, there are weaknesses in the science of durian cultivation and its care, from planting to post-harvest. The management has also not established a clear representative. Finally, government support is still not optimal.

• Opportunities - Durian ecotourism in Bogor City offers a unique experience with the historical aspect of durian villages. In this place, visitors can enjoy agribusiness activities and various other attractions. The presence of this ecotourism can open new opportunities in the area.

• Threat - High competition in ecotourism, poor communication and crop failure issues.

Furthermore, by carrying out an effective strategy according to the guidelines that have been generated from internal and external factors:

• SO Strategy - Increasing the role of the region by disseminating information on social media. Utilizing fertile soil. Increase labour absorption through economic activities. Increase trade with new and quality products.

• WO Strategy - Optimize communication between managers, local governments, and the community. Conduct regular communication, training, evaluation, and control to improve the quality of society and production. Approach with government policy references.

• ST Strategy - Strategic management improves business results and competitiveness (Carreras et al., 2018). Plan actions in detail, monitor progress, and adjust if necessary. The company's management must make better and more informed decisions. Focus on the uniqueness of the product or service offered. Use social media to attract public attention. Make a strong effort to develop the product and according to Hassan (2024) commitment to environmental services will influence policies and practices that prioritize the health of our planet for generations to come.

• WT Strategy – Working with local governments to improve facilities and realize Ecotourism programs. Conducting evaluations related to the issue of quality durian seed production and the intensity of communication with the community. Implement a quality management system. Sustainability management practices are essential to mitigate the challenges (Yuswandi et al., 2024).

The strategy analysis to develop Rancamaya Village into ecotourism involves four alternative strategies based on SWOT analysis. Strengths and opportunities such as strategic location and rich history are essential to increase the popularity of the area. Weaknesses need to be turned into opportunities, and threats must be analysed to formulate effective strategies. Organizations are advised to cooperate with the government, evaluate products, and implement a quality management system. Rancamaya's development strategy as an ecotourism village focuses on utilizing the strength of the location and history to attract tourism, especially by promoting the legendary durian through social media. The goal is to increase ecotourism visits and develop agribusiness, as well as improve workforce skills through training. Community involvement in discussions is essential for sustainable development, and good communication between management, government, and society is a priority. In addition, targeted promotional strategies, including social media campaigns, are planned to make Rancamaya a tourist destination.

CONCLUSION AND RECCOMENDATIONS

The conclusion of this study shows that Rancamaya Village has high potential for ecotourism development, with a tourist attraction value of 81%. This shows that local communities can take advantage of ecotourism, agribusiness, and small industries to improve their economies. However, the success of this development is highly dependent on the support of the government and the community in environmental rehabilitation and poverty alleviation.

A key factor in the development of ecotourism in Rancamaya is the active role of the government in overcoming environmental problems and poverty. Community support is also very important to ensure economic sustainability and good environmental management. In addition, infrastructure improvements are the main target to attract more tourists to the area.

The suggestions provided include focusing on the programs and strategies that have been formulated, as well as the importance of synergy between the government, the community, and managers to improve communication and relationships. This study also suggests conducting further research in the form of a business scheme model for the local community, as well as using the research results as a reference for ecotourism development policies in other regions with similar characteristics.

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