Tourism Village Business Development for Benteng Edu Agrotourism Village in the Geopark Pongkor Area, Bogor Regency, Indonesia

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Abstract. Edu agrotourism is an effort to boost the economy by attracting visitors through local products, landscapes, and cultivation science, while promoting sustainable environmental, economic, and social development. Benteng Edu Agrotourism Village, located in the Pongkor Geopark area, offers agricultural diversity and recreational services. The village's proximity to urban areas leads to high demand for its products and recreational offerings. This study aims to assess the potential for Edu agrotourism development, prepare a business plan using the Triple Layer Business Model Canvas (TLBMC), and analyze its sustainability. A purposive sampling method was used, involving seven respondents from the Pentahelix framework, including officials from the Ministry of Tourism, Detik Travel, village chair, and Small and Medium Enterprises Community. Data analysis was conducted through big data analysis, SWOT analysis, the One Score One Criteria (OSOC) system, TLBMC, and village SDGs. The findings indicate that Benteng Edu Agrotourism can serve a market of 60,412 tourists per month. The SWOT analysis shifted the strategy, and the TLBMC identified ten optimal factors for village SDGs. OSOC ranked Benteng Edu Agrotourism among the top seven out of the 40 platforms, aiding the design of the agrotourism UI prototype. This study contributes to a comprehensive framework for the development of Edu agrotourism by emphasizing strategic planning and sustainability. This underscores the need to integrate business models with local SDGs, foster stakeholder collaboration, and ensure the viability of long-term tourism.

Keywords: Edu Agrotourism, Sustainable Tourism, Strategy, SWOT Analysis, TLBMC.

1 Introduction

The global tourism sector has experienced significant growth over the past decade, with service industries, including tourism, contributing substantially to global economic development [1]. The tourism sector in Indonesia, known for its vast biodiversity and unique ecological features, offers a rich foundation for sustainable tourism initiatives [2]. However, despite the country's abundant natural assets, there remains a significant gap in integrating these resources into sustainable tourism models, especially in rural

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areas, where tourism development can support local economies while conserving the environment.

Agrotourism, a subsector of tourism that blends agricultural activities with tourism experiences, has emerged as a promising solution. In the context of Indonesia, agrotourism can not only help preserve local ecosystems, but also enhance the livelihoods of farmers by providing new economic opportunities. However, research on the specific impact of agrotourism in geopark areas, particularly in relation to education-based agrotourism (edu agrotourism), remains limited. This gap is particularly evident in regions such as Benteng Village, located in the Geopark Pongkor area, West Java, which has yet to fully capitalize on its agrotourism potential.

The development of edu agrotourism in this area presents both opportunities and challenges, particularly in aligning agricultural diversification with educational tourism. The term "edu agrotourism" refers to the integration of agricultural practices with educational activities that aim to enhance visitors' understanding of sustainable farming techniques and local culture. This concept has been implemented in the Benteng Edu Agrotourism Village to create a model of sustainable and inclusive tourism that can contribute to local economic development while preserving the natural environment. However, empirical data on the effectiveness and sustainability of such models are scarce, which makes it crucial to study this emerging sector in detail.

Benteng Edu Agrotourism Village has introduced agricultural diversification and is positioning itself as a hub for education-based tourism. This model is particularly significant for the community, as tourism in the region is expected to grow significantly, contributing to both economic and social development [3]. The pandemic has disrupted global tourism patterns, and villages now face the challenge of adapting their business models to respond to post-pandemic trends. This requires the development of a new business model that harmonizes community economic growth with the sustainability of the geopark area.

This study aims to bridge the gap in research by providing a comprehensive analysis of edu agrotourism development in Indonesia, focusing on the Benteng Edu Agrotourism Village. Specifically, it seeks to assess the potential of this village for further agrotourism development using the Triple Layer Business Model Canvas (TLBMC) to propose an innovative business model and evaluate its sustainability. By employing big data analysis, SWOT analysis, and One Score One Criteria (OSOC), the study provides empirical evidence on the strategic positioning of Benteng Edu Agrotourism Village and its capacity to serve as a sustainable model for rural agrotourism development.

This study contributes to the growing body of literature on sustainable tourism in Indonesia and offers practical insights for policymakers, tourism planners, and local stakeholders. These findings will help inform the development of robust, adaptable, and environmentally sustainable tourism strategies that can be replicated in other geopark regions.

2 Methods

This study was conducted from June 2023 to December 2023. The object of this study

was the Benteng Edu Agrotourism Village in Ciampea District, Bogor Regency, West Java. This study focuses on the development of edu-agrotourism as a sustainable business model, analyzing both the potential and challenges in this specific geographic and cultural context.

2.1 Data Collection

Data collection for this study was conducted using both primary and secondary sources. Primary data were gathered through direct observation, semi-structured interviews, and data validation via email and telephone. Interviews were conducted with key stakeholders, including the chairman of Benteng Edu Agrotourism Village, the chairman of the Benteng SME community, the Director of Special Interest Tourism from the Ministry of Tourism and Creative Economy, and representatives from Detik Travel. These stakeholders provide insights into the current challenges, opportunities, and strategies for the development of edu agrotourism. Respondents were selected using purposive sampling to ensure their expertise and relevance to the study's focus on sustainable agrotourism development.

The research sample consisted of seven individuals directly involved in agrotourism management and development. The sample was selected based on their expertise in tourism, agriculture, and community development, thus ensuring a diverse range of perspectives. This purposive sampling technique was chosen to ensure the relevance and quality of the collected data. The criteria for selecting these respondents included their roles in the tourism sector, expertise in agrotourism, and involvement in sustainability initiatives of the region. The data size was small but sufficient for exploratory research in a niche area, such as edu-agrotourism in the Geopark Pongkor area.

Secondary data were collected through an extensive literature review focusing on previous studies on agrotourism, sustainable tourism models, and the role of edu-agrotourism in rural economic development. Sources included academic journals, reports from governmental and non-governmental organizations, and tourism development plans relevant to the study area.

2.2 Data Analysis

The analysis was conducted in several stages to ensure a comprehensive understanding of the edu-agrotourism system in the Benteng Edu Agrotourism Village. First, a descriptive analysis was conducted to provide a comprehensive picture of the current agrotourism system. This analysis helped to understand the current situation, challenges, and opportunities in the village's tourism offerings.

The primary approach for data analysis was big data analysis of agrotourism in Indonesia, which was used to measure the market size of Benteng Edu Agrotourism. This approach allowed for the identification of key market segments and the potential reach of the village's tourism offerings. Additionally, a systematic approach was used to analyze the complex factors influencing the behavior and success of the agrotourism system in the region [4]. By analyzing internal and external factors through SWOT analysis, this study identified the most effective development strategies for the village.

To assess the sustainability of Benteng Edu Agrotourism, the Triple Layer Business Model Canvas (TLBMC) was applied to evaluate the economic, environmental, and social dimensions of the tourism business model [5]. This tool helped to identify both the benefits and drawbacks of the current business model, enabling a more comprehensive understanding of the sustainability challenges faced by the village. Additionally, the Sustainable Development Goals (SDGs) approach was used to assess how the village's tourism initiatives align with global sustainability goals, ensuring that the business development plan supports long-term environmental and community welfare.

The One Score One Criterion (OSOC) system was used to compare Benteng Edu Agrotourism against other agrotourism platforms in Indonesia. The OSOC uses a big data analysis platform to assess the reliability of agrotourism platforms based on seven criteria: utility, convenience, accessibility, affordability, user-friendliness, focus (integration), and ease of follow-up [6]. Comparative data collected from the OSOC system were used to inform the design of a user interface (UI) prototype for Benteng Edu Agrotourism, enhancing the platform's competitiveness in the digital tourism market.

2.3 Literature Review Process

The literature review was conducted using a systematic approach to ensure that relevant academic, industrial, and policy-related sources were included. This review covered topics such as agrotourism, edu agrotourism, sustainable tourism, and the role of geoparks in promoting local economies. Key databases, including Google Scholar, Scopus, and other academic repositories were used to identify peer-reviewed articles, conference papers, and books. This review focuses on sources that provide empirical evidence of the impact of agrotourism on rural economies and sustainable development. The inclusion criteria for the literature were based on the relevance of the study to agrotourism development, especially in geopark areas, as well as its contributions to the understanding of sustainability and business models in tourism.

3 Results and Discussions

3.1 Potential Market Demand

The Indonesian Tourism Index of Bogor Regency ranks 10th in terms of tourism potential, a critical indicator of the region's ability to attract both domestic and foreign visitors. According to the data, there are 53,203,387 domestic tourists and 2,930,000 foreign tourists annually [7], making the tourism market in Indonesia significant, especially for niche segments such as agrotourism. This aligns with the findings that domestic tourism growth, especially in rural and agricultural tourism, has seen a steady increase in recent years [8].

Market aspects are fundamental to project feasibility because they directly influence the viability of a business. This section explores the demand for agrotourism in Benteng Edu Agrotourism Village by analyzing the Potential Available Market (PAM), Total

Available Market (TAM), Serviceable Available Market (SAM), and Serviceable Obtainable Market (SOM). Davalas [9] showed that identifying these market segments is crucial for predicting tourism growth and successfully positioning tourism businesses.

The Potential Available Market (PAM), representing the total availability of the global tourism market in Indonesia, comprises 53,203,387 domestic tourists and 2,930,000 foreign tourists. This figure is consistent with the findings of Rahayuningsih et al. [10], who also highlighted the rising interest in nature-based tourism in Indonesia, particularly in lesser-known regions, such as Bogor Regency. The Total Available Market (TAM) is based on government tourism targets, which include a range of agrotourism markets across Indonesia. The Serviceable Available Market (SAM), estimated at 787,500 tourists annually, reflects government efforts to boost rural tourism by targeting sustainable and eco-friendly tourist activities. The Serviceable Obtainable Market (SOM) is calculated using a target of 15,103 tourists per week, which mirrors Landgate [11], who found that such agrotourism destinations often attract a steady stream of visitors due to their educational and ecological offerings.

Additionally, the identification of potential international and domestic tourists for Benteng Edu Agrotourism aligns with the findings of Hidayah [12], who also noted a growing interest in experiential travel that blends learning and sustainability, particularly in geopark areas. This market trend is consistent with global shifts towards more immersive and educational forms of travel, as discussed by Hidayah et al. [13], who emphasized the increasing demand for destinations that provide both cultural enrichment and environmental awareness.

The findings indicate a significant demand for agrotourism, particularly in geopark areas, which aligns with global trends that show a rising interest in nature-based tourism. This study builds on the existing research that emphasizes the importance of market demand in the sustainability of tourism projects [13]. However, this contrasts with studies showing that agrotourism markets are often underdeveloped because of inadequate infrastructure and marketing efforts.

3.2 Identification of Edu Agrotourism System

The edu agrotourism system in Benteng Edu Agrotourism Village was identified using descriptive-qualitative analysis based on opinions from practitioner experts, field observations, and literature studies as supporting information. The identification process was performed to explain the concept of agrotourism, including the location and accessibility of edu agrotourism. Accessibility is related to transportation access for customers to reach the location. The geographical condition of the plantation area was mainly agrotourism. Demographic conditions of the surrounding agrotourism area. Agrotourism activities in which visitors can undertake the infrastructure and facilities of agrotourism and the development process of edu agrotourism were designed as potential concepts.

The actual conditions and concepts of Benteng Edu Agrotourism Village provide a broad picture of the attributes that affect sustainability, and develop a strategy for agrotourism in the future.

Location and Accessibility. Benteng Edu Agrotourism is located on the plantation of Benteng village. There are plantations of cassava, soybean, sweet potato, passion fruit, taro, organic vegetables, black soldier fly, and catfish located in the Benteng Edu Agrotourism village in Ciampea District, Bogor Regency, West Java.

The fastest route accessibility from Bogor is via the Atang Sanjaya route, which has a distance of 18.1 km. Benteng Edu Agrotourism can be passed using a four-wheeled vehicle, but it cannot be passed by a bus. All types of transportation facilities that support the commute of tourists are essential. In addition, the location met the criteria for the Pongkor Geopark area. Benteng Eduagrotourism in Ciampea District is included in the Pongkor Geopark. The Pongkor Geopark was designated a National Geopark and was established by the Indonesian National Geopark Committee on November 29, 2018 [14].

Benteng Eduagtoroutsim village area is formed from quaternary volcanic material; the physiography is slightly sloping to flat, and the dominant soil type is latosol [15]. The total geographical area is 82 ha of agriculture and 152.5 hectares of land. The temperatures of the Benteng Eduagtoroutsim village area range from to 25-30°C. This temperature is suitable for cassava, sweet potato, and soybeans.

Geographical and demographic conditions. Benteng Edu Agrotourism village area is formed from quaternary volcanic material. The physiography is slightly sloping to flat, and the dominant soil type is latosol [15]. The total geographical area is 82 ha of agricultural fields and 152.5 hectares of land. The temperature of the Benteng Edu agrotourism village area ranges from 25°C to 30°C. This temperature is suitable for cassava, sweet potato, and soybeans.

Demographic conditions were identified to determine the number of people around the Benteng Edu agrotourism village and the available educational institutions. These data serve to determine the carrying capacity of human resources to determine decision-making for stakeholders in the continuity of sustainable educational development of Benteng Edu Agrotourism Village in geopark areas, with demographic data based on the Central Bureau of Statistics (Indonesia) 2020 until 2022 [7], as shown in Table 1.

Table 1. Population of sub-districts around Benteng Edu Agrotourism Village [7].

Years	Dramaga	Ciampea	Cibungbulang	Pamijahan
2022	112,265	173,460	150,792	163,186
2021	111,112	170,206	147,554	159,236
2020	110,374	168,359	145,706	157,113

The number of educational institutions located in the geopark area plays an important role and contributes to the demand for edu agrotourism. From 2020 to 2022, there were 32, 176, 82, and 20 Kindergarten, Elementary School, Junior High School and Senior High School institutions, respectively [7]. In addition, education and population growth that has increased from 2020 to 2022 each year is an opportunity to support the continuity of agrotourism in geopark areas.

Infrastructure and facilities: The infrastructure system, including water availability, electricity, road accessibility, and telecommunications, is vital in developing sustainable edu agrotourism. The hydrological conditions of Benteng Edu agrotourism are classified as very good for fulfilling the water supply needs of agrotourism activities, namely the water availability from wells and PDAM (water provider).

Since the area is quite broad, the number of facilities for Benteng Edu agrotourism needs to be increased. Therefore, toilets, trash bins, and gazebos should be added. The electricity source was a cable installation connected to the Benteng Edu agrotourism village. There were no significant obstacles to providing electricity to the location. Other infrastructure aspects include internet connectivity and broadband connections. Internet connectivity in the agrotourism area is good, and it has an Internet-independent village program that provides cheaper Internet connections to all communities. The road infrastructure for edu agrotourism has been paved, and agricultural land and settlements have been carefully managed.

While the findings highlight the essential role of infrastructure and location in developing successful edu agrotourism, they also diverge from previous studies that point to the importance of community involvement in tourism development [16]. This suggests that while infrastructure plays a critical role, there may be overlooked potential for integrating community development programs into the project.

3.3 The Priority of Development Direction

The plan for Benteng Edu agrotourism development involves diversifying the products of cassava, sweet potato, and soybean-based tourism. The main targets of visitors were local residents. Potential tourists include residents of the Dramaga, Ciampea, Pamijahan, and Cibungbulang sub-districts.

Edu Agrotourism Development will focus on education-based tourism. This is based on the promotion of soybean, cassava, and Cilembu sweet potato education from upstream to downstream, considering that there are not many education tours in West Java. In addition, students demand an educational concept and new students will always be recruited. Fig. 1 shows that support facilities and infrastructure are prepared around tourist sites to improve the comfort of tourists.

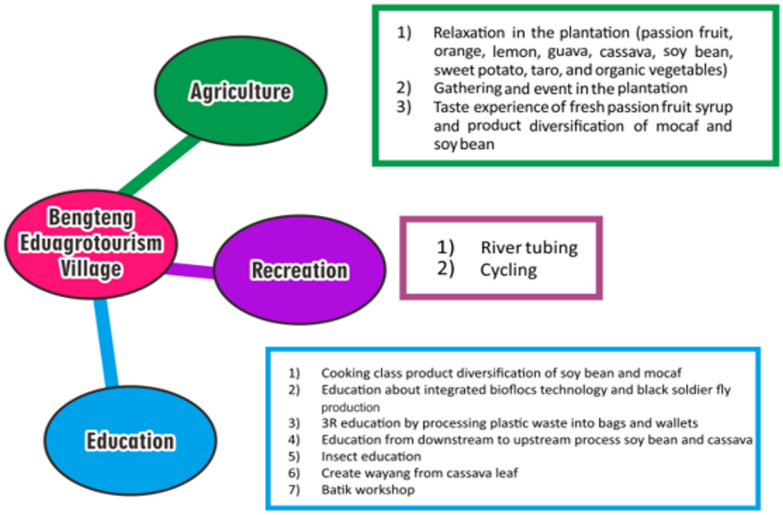


Fig. 1. Representation of the edu agrotourism concept in Benteng Edu Agrotourism Village.

As with any other agrotourism, Benteng Edu agrotourism utilizes the agricultural aspect as its content, not only in the form of agriculture-related activities such as planting, harvesting, and processing the commodity, but also utilizes its agricultural area as a tourism area to do things such as relaxing, gathering, and holding events in the plantation area, as well as offering visitors agricultural products.

3.4 SWOT Analysis

SWOT analysis is used to analyze an object and tourist attraction, especially edu agrotourism, in the development of Benteng edu agrotourism in the geopark area. In the research process, the author conducted several stages, such as observation of the condition of the community and interviews with the Chairman of Benteng Edu Agrotourism Village and the Chairman of SME's Community, and conducted a literature study to see theories and some references to research that the objective of the research may have been carried out.

Data were collected through questionnaires, followed by analysis and discussion using the SWOT method, incorporating the calculation process for the Internal Factor Analysis Summary (IFAS) (Table 2) and the External Factor Analysis Summary (EFAS) (Table 3). These methods were employed to quantify the strengths, weaknesses, opportunities, and threats of Benteng Edu Agrotourism Village. The scoring process was based on structured questionnaires distributed to selected respondents who were familiar with the village's development, including local government officials, SME leaders, and tourism stakeholders.

Each factor (strength, weakness, opportunity, or threat) was assessed based on two main components: Weight: This indicates the relative importance of each factor to project success. The weights ranged from 0.00 (not important) to 1.00 (very important),

with the total weight in each category summing to 1.00. Rating: This reflects the degree to which the factor is effectively addressed (IFAS) or is likely to occur (EFAS). The ratings used an ordinal scale ranging from 1 to 5:1 = very poor, 2 = poor, 3 = moderate, 4 = good, and 5 = very good, respectively.

The score for each factor was obtained by multiplying the weight by rating. The total score represents the overall strategic condition. These methods are consistent with the standard SWOT analysis model suggested by Rangkuti [17] and David [18], who emphasize quantification for strategic positioning.

Table 2. IFAS (Internal Factor Analysis Summary) calculation.

A	Internal Factor of Score Calculation			
No.	Strengths Indicator	Weight	Rating	Score
1	Benteng Village owns non-productive land that is used for edu agrotourism development.	0.09	4.66	0.42
2	Diversity of tourism activities (agro-industrial farming, leisure and education).	0.07	4.00	0.29
3	Benteng's edu agrotourism management staff have a high level of education.	0.09	4.66	0.42
4	The location of the Benteng edu agrotourism is completely strategic and It's part of the strategic zone of the Pongkor Geopark.	0.070	4.00	0.29
5	Agricultural products are already licensed to distribute products, halal licensed and good packaging.	0.07	3.33	0.22
6	Successfully managing bioflocs technology from rain-fed water management systems.	0.09	4.66	0.42
	Subtotal Strengths	0.48		2.05
B	Weakness Indicator			
1	Lack of integrated website and social media (website or social media/tourism attraction).	0.10	4.80	0.480
2	Insufficient infrastructure to support agro-education.	0.08	4.33	0.360
3	Substantial capital needs for Benteng Edu agrotourism Village development.	0.09	4.66	0.42
4	The Benteng village community's lack of awareness of Edu agrotourism development efforts.	0.08	4.33	0.36
5	Reliance on government funding is fairly high (less independent).	0.08	4.33	0.363
6	The human resources experienced in edu agrotourism research and development (R & D) are very limited.	0.08	4.33	0.363
	Subtotal Strengths	0.52		2.35
	Total IFAS	1.00		-0.30

Table 3. EFAS (External Factor Analysis Summary) calculation

A	External Factor of Score Calculation			
No	Opportunities Indicator	Weight	Rating	Score
1	Interest from foreign tourists that want to visit Benteng Edu agrotourism Village	0.09	4.33	0.38
2	Support from the central government (Ministry of tourism & Creative Economy) and local governments	0.07	4.00	0.38
3	Numerous offers of collaboration with academics, government, Travel Agency & MICE Office, Media and the private sector in the planning of the development of tourist attractions and facilities and infrastructure	0.09	4.33	0.38
4	There is no similar tourist attraction around the location	0.09	4.66	0.43
5	The numerous educational establishments around the location	0.09	4.33	0.38
6	The category of the tourism sector in demand, particularly within the educated segment of society	0.09	4.33	0.38
7	Easy to reach from Bogor city center	0.07	4.00	0.30
	Subtotal Opportunities	0.59		2.54
B	Threats Indicator			
1	The possibility of the emergence of a new educational agrotourism that has a similar concept	0.09	4.33	0.38
2	Numerous of tourist attractions to choose from for the surrounding Benteng edu agrotourism Village	0.09	4.33	0.38
3	Transport from main road to places that are not accessible by bus	0.09	4.66	0.43
4	There are external organization trying to disrupt the existence of Benteng edu agrotourism with programs that are not aligned with the needs of the community.	0.07	3.66	0.25
5	The temperature at midday is hot in the summer day, it is less relevant to the brand of agrotourism.	0.07	4.00	0.30
	Subtotal Threats	0.41		1.74
	TOTAL EFAS	1.00		0.80

The results of identifying internal and external factors can be plotted in the SWOT position matrix of Benteng Eduagrotourism village development. The relative position of Benteng Edu agrotourism development is (-0.30, 0.80) in Quadrant III, which is a combination of weaknesses and opportunities. The development strategy following the position of Benteng Agrotourism Village needs to change to support the growth of agrotourism and optimize opportunities to achieve the optimum strategy.

The analysis shows that while Benteng Edu Agrotourism possesses several strengths, such as its strategic location and diverse tourism activities, it faces

challenges, including insufficient infrastructure and lack of awareness within the local community. These factors align with findings from similar tourism studies in rural areas, which have demonstrated that strategic location alone is not sufficient to guarantee success without proper infrastructure and community support.

In line with the literature, the SWOT analysis highlights that the integration of community engagement initiatives could alleviate some weaknesses, such as the lack of local awareness. This finding supports existing research that emphasizes the importance of local community participation in sustainable tourism development [19].

3.5 Sustainable Edu agrotourism Business Development Using the Triple Layer Business Model Method

The triple-layer business model (TLBMC) is a tool that supports creative exploration in a sustainable and sustainability-oriented business model based on broad innovation [11]. The TLBMC presents horizontal coherence, with each layer's canvas focusing on the economy, environment, and society [5].

Sustainability Analysis of Economic, Environment, and Social Dimension. The economic layer in the business model canvas emphasizes the need for agrotourism development in geoparks. The connection between the community, government, academics, media, and practitioners is also needed. As an adaptive value to new ordinary tourism, IT infrastructure improvements such as websites and online platforms are needed, particularly during the pandemic. These concepts are put together in the economic business model canvas, as shown in Fig. 2.

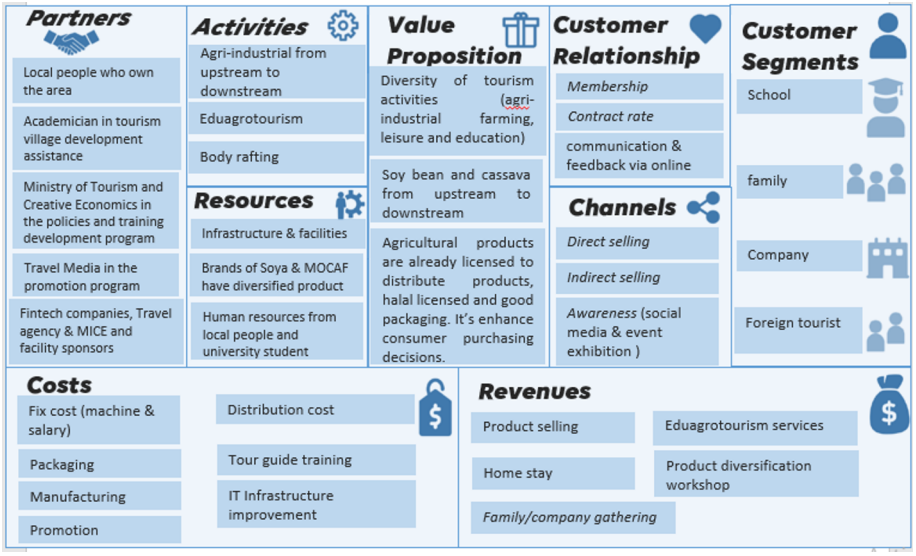


Fig. 2. Economic Business Model Canvas

Benteng Edu agrotourism village can be an educational facility that enlightens people about environmental awareness. Awareness started with the SME's community commitment to recyclable product packaging. Local trees and bamboo were utilized in the benches, and Benteng Edu agrotourism is a typical ornament. The sustainability of the environmental dimension was developed into an environmental business model canvas, as shown in Fig. 3.

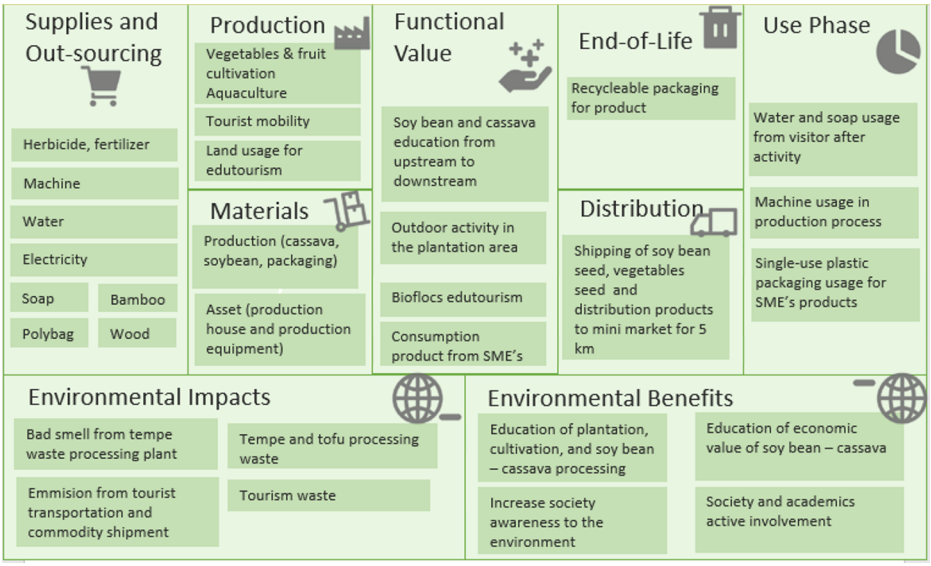


Fig. 3. Environmental Business Model Canvas.

It is indisputable that Benteng Edu agrotourism has experienced a conflict of interest. The management resolved this with discussion and personal approaches to determine the community's desire for sustainability.

To support sustainability programs, cooperation between *Disbudpar, Kemenparekraf*, and academics is required. The absence of conflict ensures the sustainability of the social dimension, which is developed through the social business model canvas, as shown in Fig. 4.

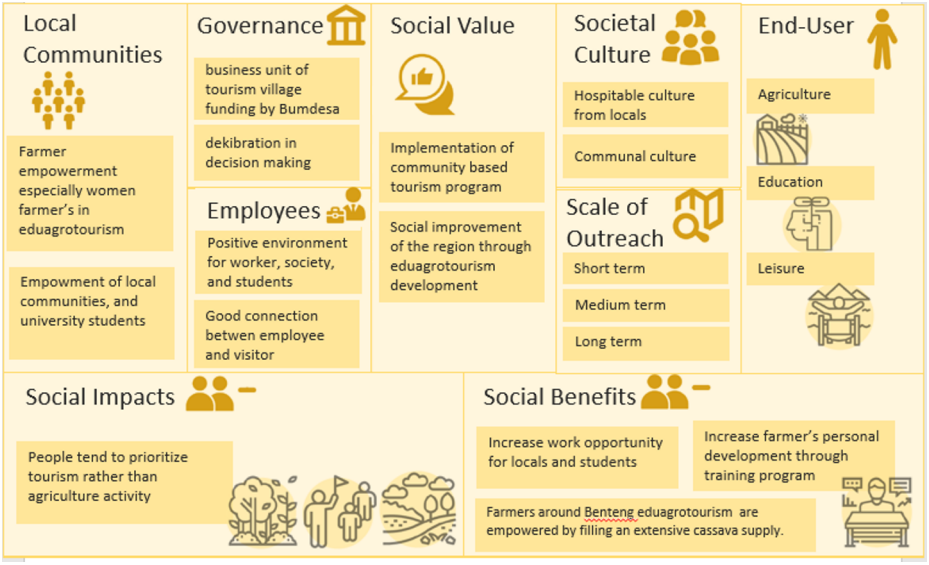


Fig. 4. Social Business Model Canvas

Village SDGs. The village SDGs are 18 program transformation policies derived from global SDGs. The Ministry of Village's policies through the Village SDGs program aim to enhance the economy and human resources through village funds [12].

Village SDGs provide a detailed explanation of the TLBMC Analysis and can be used as a reference for programs that have been running and programs that have been optimized in a village. Village enterprises fund the Benteng Edu Agrotourism Village. Their existence is expected to benefit the community through economic, environmental, and social benefits. Fig. 5 shows the implementation of the village SDGs in the Benteng Edu agrotourism village.

Fig. 5. Implementation of village SDGs in Benteng Edu Agrotourism Village.

Big Data Analysis. Agrotourism data collection throughout Indonesia is based on big data derived from digital information tracking and published research. Community, private sector, and state-owned enterprises manage 310 agrotourism businesses in Indonesia.

Reconfirmation data were validated using actual data and interviews with the Head of Special Interest Tourism, Ministry of Tourism, and Creative Economics. The result is that only two of the 310 leading agrotourisms are recognized by the Ministry of Tourism and Creative Economics, namely Malabar agrotourism and Gunung Mas agrotourism. The Ministry of Tourism and Creative Economics categorizes agrotourism as part of ecotourism.

The development of potential agrotourism in geopark areas is yet to become the government's top priority. The lack of research, pilot projects, and in-depth strategic studies related to agrotourism development in geopark areas have caused regulations for determining geopark areas not to be implemented optimally.

One-score one criteria (OSOC). The One Score One criterion system (OSOC) tests comparative data assessments based on big data agrotourism platforms in Indonesia by measuring the reliability value of a platform in seven criteria: utility, convenience, accessibility, cheap services, user-friendliness, focus (integration), and ease of follow-up.

The results of OSOC agrotourism platform assessments are used as a reference in designing features of the prototype UI Benteng Edu agrotourism to adapt to new normal tourism. In the future, this will be used as a platform for the Benteng Edu agrotourism village. The indicators of the assessment criteria in OSOC are shown in Table 4.

Table 4. Agrotourism Assessment criteria for OSOC.

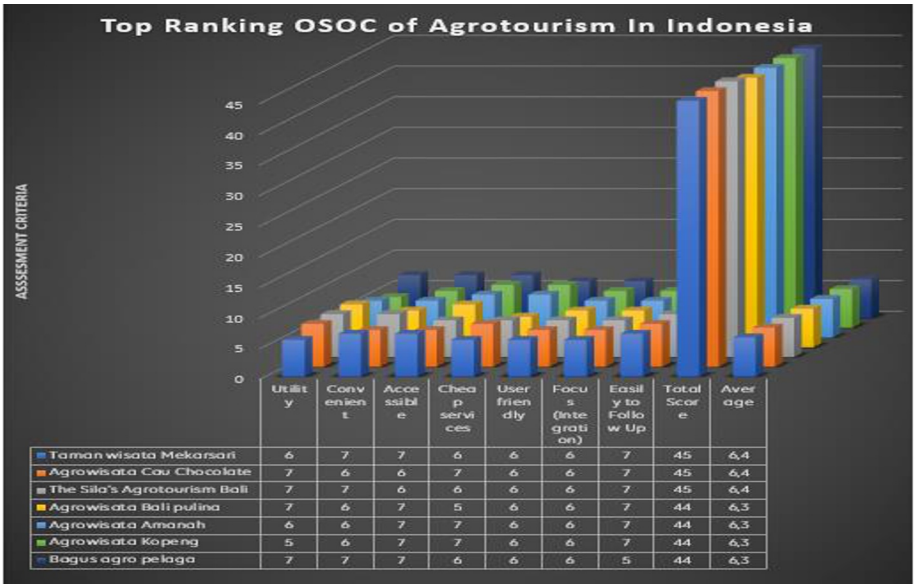
Criteria	Assessment Indicator
Utility	Agrotourism platform utility where the available menu shows the functions it should, and no error occurs.
Convenient	The user's level of convenience in using the platform refers to the display of letters and colors that are clearly readable and visually clear.
Accessible	Length of time required to open an agrotourism platform
Low-cost providers	Indicators of fees charged when using the platform and the cost of a product or service offered.
User friendly	The agrotourism platform can be accessed on mobile devices and computers without the need to download extension applications.
Focus (Integration)	The agrotourism platform provided integration between product and service information (communication information (chat/contact), order information and payment facilities).
Easily follow up	Length of time required to answer the user's question.

The results of the OSOC Agrotourism Assessment revealed that 40 out of 310 agrotourism sites in Indonesia have a blog or website platform. The majority of tourism concentrates on social media platforms such as Instagram, Facebook, and Twitter to offer agrotourism activities.

The assessment of agrotourism using OSOC focused on 40 agrotourism platforms in Indonesia. The top seven rankings out of 40 agrotourism platform assessments were used as a reference in designing features of prototype UI Benteng Edu agrotourism to adapt to the new ordinary tourism, which in the future will be used as a platform for Benteng Eduagrotourism village, as shown in Fig. 6.

The author presents the stages of the Prototype UI Benteng Edu agrotourism to Benteng Edu agrotourism management as a goods and services interchange platform to connect tourists and management through a digital platform in the form of a WordPress-based blog. The first stage was to create a brand named Benteng Edu Agrotourism.

The designation of foreign languages in the word 'agrotourism' is used to achieve the target consumer of tourists among international schools and foreign tourists. This is so that tourists can remember them easily. Benteng Edu agrotoursim is used as a home page on the UI, as seen in Fig. 7.



	Utility	Convenient	Accessible	Cheap services	User friendly	Focus (Integration)	Easily to Follow Up	Total Score	Average
Taman wisata Mekarsari	6	7	7	6	6	6	7	45	6,4
Agrowisata Cau Chocolate	7	6	6	7	6	6	7	45	6,4
The Sila's Agrotourism Bali	7	7	6	6	6	6	7	45	6,4
Agrowisata Bali pulina	7	6	7	5	6	6	7	44	6,3
Agrowisata Amanah	6	6	7	7	6	6	7	44	6,3
Agrowisata Kopeng	5	6	7	7	6	6	7	44	6,3
Bagus agro pelaga	7	7	7	6	6	6	5	44	6,3

Fig. 6. Results of the OSOC Agrotourism Assessment.

Fig. 7. Homepage UI: Benteng Edu Agrotourism.

The second stage of UI design involves determining a strategy to ensure that the interface is convenient and accessible for use in the new average era. The strategy was to provide various menu displays. These tour packages can be selected according to the needs of tourists and the flexibility of tourists in choosing guide specifications supported by two-way communication facilities via the WhatsApp platform by clicking on the "travel with me" column, as shown in Fig. 8.

Fig. 8. Tour guide profile.

The third stage of user interface design involves implementing the technological trends that need to be implemented in the payment system and partner events. The payment system will cooperate with e-wallet platforms, banks, mini-markets, and event platforms such as Eventbrite, as seen in Fig. 9.

Fig. 9. Payment systems and event partners.

The fourth stage ensures that the prototype UI matches the OSOC assessment. The goal set refers to utility, convenience, accessibility, cheap services, user-friendliness, focus (integration), and ease of follow-up, referencing the seven highest agrotourism platforms assessed using OSOC. Fig. 10 shows the features of the prototype UI of Benteng Edu agrotourism.

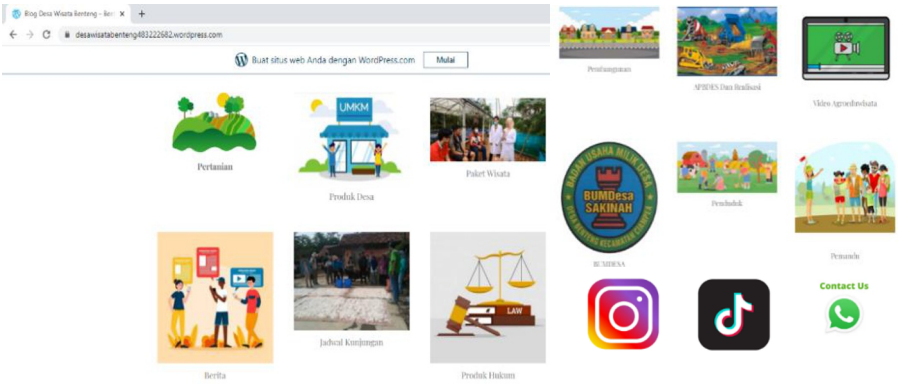


Fig. 10. Features of the prototype UI Benteng Edu Agrotourism.

4 Conclusion

The findings confirm that Benteng Edu Agrotourism has significant potential for further development, with strong market demand and strategic location. The triple-layer business model canvas (TLBMC) revealed opportunities for sustainable growth through the integration of economic, environmental, and social dimensions. Big data analysis and SWOT and OSOC evaluations highlighted the village's strengths, such as its diverse agricultural offerings and educational programs, while also identifying weaknesses related to infrastructure and local community awareness. The findings of this study have several implications for agrotourism development in Indonesia. The use of TLBMC offers a framework for developing a sustainable business model that integrates the community, local government, and private sector. This research also emphasizes the importance of digital platforms and infrastructure in enhancing market reach and supporting long-term sustainability. These insights can inform policies and strategies for expanding rural agrotourism in Indonesia.

Based on these findings, it is recommended that Benteng Edu Agrotourism focus on improving infrastructure, particularly transportation and facilities, and increasing local community involvement in the development process. Establishing an integrated digital platform for marketing and booking could enhance visibility and accessibility, attracting both domestic and international tourists. Diversifying activities and expanding educational programs also contribute to long-term success.

While this study provides valuable insights, it is limited by its focus on a single location and relatively small sample size. Further research with a broader geographical scope and longer timeline is needed to fully evaluate the long-term sustainability and replicability of the proposed business model in other regions of Indonesia.

References

[1] R. Law, D. Buhalis, and C. Cobanoglu, "Progress on information and communication technologies in hospitality and tourism," Int. J. Contemp. Hosp. Manag., vol. 26, no. 5, pp. 727–750, 2014.

[2] Media Indonesia, "RI memiliki megabiodiversity terbesar ke-2 di dunia, ini alasannya," 2023. [Online]. Available: https://mediaindonesia.com/humaniora/361101/ri-miliki-megabiodiversity-terbesar-ke-2-di-dunia-ini-alasannya. [Accessed: Jun. 25, 2023].

[3] Info Publik, "Menpar: Sektor pariwisata tumbuh pesat dan sumbang PDB signifikan," 2023. [Online]. Available: https://infopublik.id/kategori/sorot-ekonomi-bisnis/414865/menpar-sektor-pariwisata-tumbuh-pesat-dan-sumbang-pdb-signifikan. [Accessed: Jun. 25, 2023].

[4] M. Marimin and N. Maghfiroh, Aplikasi teknik pengambilan keputusan dalam manajemen rantai pasok, Bogor: IPB Press, 2010.

[5] A. Joyce, R. Paquin, and Y. Pigneur, "The triple layered business model canvas - A tool to design more sustainable business models," J. Clean. Prod., vol. 135, pp. 1474–1486, Nov. 2016.

[6] G. G. Parker, M. W. V. Alstyne, and P. S. Choudary, Platform revolution: How networked markets are transforming the economy and how to make them work for you, New York, NY: W.W. Norton, 2016.

[7] Central Bureau of Statistics (Indonesia), "Jumlah penduduk," 2023. [Online]. Available: https://bogorkab.bps.go.id/id/statistics-table/2/MjkjMg==/jumlah-penduduk.html. [Accessed: Aug. 8, 2023].

[8] A. N. Hasyyati, R. Indriani, and T. K. Lestari, "Predicting tourism demand in Indonesia using Google Trends data," arXiv, Nov. 2022. [Online]. Available: https://arxiv.org/abs/2211.13938. [Accessed: Jul. 4, 2024].

[9] A. Davalas, "The importance of the TAM-SAM-SOM model and how big data and AI help," Int. J. Soc. Sci. Econ. Res., vol. 8, no. 12, pp. 3936–3944, Jan. 2024. [Online]. Available: https://doi.org/10.46609/IJSSER.2023.v08i12.016. [Accessed: Jul. 1, 2024].

[10] T. Rahayuningsih, E. K. S. Harini, and M. Muntasib, "Nature based tourism resources assessment using geographic information system (GIS): Case study in Bogor," Procedia Environ. Sci., vol. 33, pp. 365–375, 2016. [Online]. Available: https://doi.org/10.1016/j.proenv.2016.03.047. [Accessed: Jan. 3, 2024].

[11] Landgate, "Everything you need to know about agritourism," 2024. [Online]. Available: https://www.landgate.com/news/everything-you-need-to-know-about-agritourism. [Accessed: Feb. 5, 2024].

[12] R. T. Hidayah, "Recovery of post-pandemic tourist visits rates through geopark destination attributes," Int. J. Manag. Dev. Bus. Econ., vol. 1, no. 1, pp. 1–12, 2021. [Online]. Available: https://doi.org/10.54099/ijmdb.v1i1.337. [Accessed: Jul. 9, 2024].

[13] M. Hidayah, A. Juniar, and M. Hidayatullah, "Sustainability marketing and the role of local communities in promoting sustainable tourism at the geotourism destinations of Meratus mountain and river tourism in Banjarmasin," Proceeding of Geo Tourism International Conference, vol. 1, no. 1, pp. 1–12, 2025. [Online]. Available: https://gtic.poltekparmedan.ac.id/. [Accessed: May 8, 2025].

[14] R. S. Hasibuan, I. Lidiawati, F. Ilmi, M. W. Zuhdi, "Potential study of Sibiuk Cave as a directive for special interest tourism in Ciampea District, Bogor," in Proc. Int. Conf. Innov. Soc. Sci. Educ., vol. 1, Bandung, Indonesia, 2020, pp. 623–635.

[15] T. Budiarto, E. Rustiadi, and A. H. Dharmawan, "The Rural Development And Rural Self-Sufficiency In Bogor District, West Java Province," Tataloka, vol. 19, no. 3, pp. 230-241, 2017.

[16] M. Simanihuruk, W. Arafah, and M. Rahmanita, "The role of governance, social welfare, and community participation on sustainable tourism village: A case study in pioneering tourism village, Bogor Regency, Indonesia," Int. J. Res. Rev., vol. 11, no. 6, pp. 432–439, Jun. 2024. [Online]. Available: https://www.researchgate.net/publication/381444403_The_Role_of_Governance_Social_Welfare_and_Community_Participation_on_Sustainable_Tourism_Village_A_Case_Study_in_Pioneering_Tourism_Village_Bogor_Regency_Indonesia. [Accessed: Jul. 4, 2024].

[17] F. Rangkuti, Analisis SWOT: Teknik Membedah Kasus Bisnis, 13th ed. Jakarta: Gramedia Pustaka Utama, 2006.

[18] F. R. David, Strategic Management: Concepts and Cases, 13th ed. Boston: Pearson Education, 2011.

[19] M. Wawo, J. M. S. Tetelepta, F. W. Ayal, J. A. B. Mamesah, R. A. Rahman, and T. B. Hehakaya, "The participation level of the local community towards community-based tourism development in Sopapei tourism destination, Ambon, Indonesia," Med. Konservasi, vol. 30, no. 1, pp. 96–105, 2025. [Online]. Available: https://doi.org/10.29244/medkon.30.1.96. [Accessed: Feb. 5, 2025].

[20] A. Osterwalder and Y. Pigneur, Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers, United States: Wiley & Sons, 2013.