



Sustainability analysis and development strategy of crystal guava tourism: An evidence from Bojonegoro Regency, Indonesia

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ABSTRACT

Tourism in Indonesia holds immense potential for bolstering national income and fostering economic growth. Agrotourism, an emerging sector, intertwines tourism activities with agriculture, exemplified by the guava crystal orchards in Padang Village, Bojonegoro Regency. Despite its promise, the full potential of this agrotourism destination remains untapped. A mixed-method approach was employed in a study to assess its sustainability comprehensively. Quantitative data was initially collected and analyzed using multidimensional scaling (MDS), followed by SWOT analysis. Findings indicate that while the ecological dimension demonstrates strong sustainability, other aspects such as the economy exhibit room for improvement. Consequently, various sustainability formulation strategies are proposed. The S-O strategy advocates collaboration with external stakeholders under favorable terms, while the W-O strategy emphasizes heightened promotional efforts and collaborative ventures to enhance human resource quality. Moreover, the S-T strategy entails intensifying promotional activities to counter competitors, whereas the W-T strategy focuses on enhancing accessibility, diversifying product offerings, and fostering collaborations to tackle challenges effectively. Implementation of these strategies is anticipated to furnish managers and policymakers with a pragmatic framework to enhance the sustainability. In essence, stakeholders can propel the crystal guava orchard agrotourism towards greater sustainability, thereby contributing significantly to the economic advancement of the region.

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INTRODUCTION

Agrotourism is a combination of tourism and education activities that focus on the agricultural sector. Through agrotourism, farmers have the opportunity to improve their standard of living by utilizing the agricultural resources they possess, while tourists can gain firsthand understanding of the lives of farmers and the agricultural processes (Kader &

Radjak, 2020). The objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results. With the presence of Agrotourism, the development of a country will improve, especially for the local government where Agrotourism operates. The growth of the Agrotourism sector in a country can be a magnet and trigger the development of other sectors because products from sectors such as agriculture, livestock farming,

plantations, folk crafts, increased employment opportunities, and others will be needed to support the Agrotourism industry.

Tourism plays a significant role in the Indonesian economy. The natural beauty, culture, and unique traditional heritage are valuable assets that need to be continually promoted. Tourism is an activity that directly touches and involves the community, thus bringing various impacts to the local population. Indeed, tourism is said to have extraordinary effects, capable of causing the local community to undergo metamorphosis in various aspects (Mustamin et al., 2016). The growth of tourism in East Java is highly appropriate as it will have an impact on the economic activities of rural communities, especially those that serve as supporting areas for tourist destinations. This will undoubtedly improve the welfare of the communities living near these tourist spots. The ideal model for the creation of a tourist village is the training and empowerment of the local community in the vicinity of the tourist destination, providing them with control over the implementation of tourism activities (Mujanah, 2016).

Sustainable Tourism is a theory that explains the development and management of tourism by maintaining economic, social, cultural, and environmental well-being while preserving sustainability for future generations and the future (Ciptari et al., 2022). In the theory of Sustainable Tourism, several important aspects include the development of tourism potential, the management of tourist destinations, the development of tourism products, infrastructure development, human resource development, as well as policy testing and evaluation. Firstly, the development of tourism potential involves the discovery and development of tourist attractions in a region to build sustainable tourism (Safitri et al., 2022). Secondly, the management of tourist destinations becomes a focus in maintaining sustainability through effective management, including tourism packaging and marketing, as well as maintaining cleanliness and environmental comfort (Sutrisno et al., 2023). Thirdly, the development of tourism products involves creating attractive products, such as spiritual tourism, cultural tourism, and nature tourism. The process of developing these products typically involves identifying core resources, selecting stakeholders, and designing transformative tourism experiences that can attract and engage visitors (Santos et al., 2020).

Fourthly, infrastructure supporting tourism development, such as transportation facilities, amenities, and tourist information, also takes center stage. The formation of tourism infrastructure significantly contributes to the complexity of the tourism phenomenon and affects the increase in functional complexity and territorial, destination, and competitiveness (Jovanović & Ilić, 2016). Fifthly, human resource development includes the identification and development of communities, entrepreneurs, and governments to support sustainable tourism development. Human resource development is essential for sustainability-oriented tourism development initiatives, as it has been observed that the demand for more educated and specialized personnel in the travel industry is increasing (Katunian, 2019). Finally, policy testing and evaluation involve the use of qualitative and quantitative research methods to test and evaluate the effectiveness of policies and strategies in sustainable tourism development.

Bojonegoro is a city that has numerous agrotourism attractions, one of which is the crystal guava agrotourism. This city is known as the producer of the finest crystal guavas, especially in the East Java region. In this crystal guava agrotourism, there are dozens of crystal guava orchards managed by local people. Every tourist who purchases crystal guavas is welcome to choose and pick them directly from the trees. Additionally, visitors can also taste crystal guavas for free before making a purchase. This is what attracts tourists, as they can personally select and pick their own guavas, choosing the desired ripeness and size. The crystal guava orchard is located in the Padang Village, Trucuk Subdistrict. The crystal guava orchard is unique for its transparent and sparkling crystal guavas.

Based on the results of surveys, questionnaires, and interviews with the community, the management of guava crystal orchards tourist attractions faces several challenges due to a lack of funds and manpower. With the development of the crystal guava orchard into agrotourism, it has an impact on the economic conditions of the communities around the tourist attraction. Post the establishment of this tourist attraction, it can certainly increase income for the surrounding communities by providing business opportunities and job opportunities that can uplift the economic livelihood of the people in the village of Padang. Therefore, an in-depth study is needed

regarding the sustainability and development strategies of agrotourism in Padang Village. With the existence of this research, it is hoped to provide effective sustainability strategies for the development of agrotourism in Padang Village, Trucuk District, Bojonegoro Regency.

RESEARCH METHOD

This research employs a mixed-methods methodology. The mixed research strategy combines qualitative and quantitative research components (Schoonenboom & Johnson, 2017). Mixed research methods involve integrating both quantitative and qualitative techniques simultaneously in research efforts to obtain comprehensive, accurate, valid, and objective data (Ponce & Pagán Maldonado, 2015). In this study, a sequential or phased mixed-methods strategy is utilized, specifically employing a sequential explanatory strategy. The sequential explanatory strategy involves sequential steps, starting with the collection and analysis of quantitative data, followed by the collection and analysis of qualitative data (Bowen et al., 2017). Qualitative data is developed based on the initial findings from quantitative analysis, emphasizing or prioritizing quantitative data.

The initial step in this research involves collecting and analyzing quantitative data based on a survey with research participants in the agrotourism of crystal guava orchards in Padang Village. This can be observed from the objective of the research, which aims to understand the development strategies of the crystal guava orchard tourism village. In this research, one of the quantitative methods used is multidimensional scaling (MDS) analysis with the aim of analyzing the sustainability of the development of crystal guava orchard agrotourism in Padang Village. Multi-dimensional scaling (MDS) is an analytical technique employed to depict complex data from numerous dimensions in a reduced-dimensional framework, all the while maintaining the relative distances between individual data points (Miller et al., 2022). After conducting the analysis using multidimensional scaling, the next stage in the research is to perform qualitative data analysis. The qualitative analysis model used in this research employs the Strengths, Weaknesses, Opportunities, and Threats (SWOT) method. According to (Sastrohadiwiryono & Syuhada, 2021), SWOT analysis aims to guide strategic analysis by focusing on the

identification of strengths, weaknesses, opportunities, and threats, considered critical factors influencing the success of strategies. Thus, in this research, the method is used to focus on the analysis of development strategies for crystal guava orchard agrotourism in Padang Village. Research design and method should be clearly defined.

RESULT AND DISCUSSION

Characteristics of Respondents

Padang Village is one of the villages in Trucuk Subdistrict, Bojonegoro Regency, East Java, Indonesia. The village is situated to the south of the center of Bojonegoro City, covering an area of approximately 8.67 km². Geographically, Padang Village is located in a lowland area with some hilly highland regions. The majority of its area is utilized for agriculture, particularly for cultivating rice, corn, and vegetables. Taking into account the mentioned criteria of respondents, 5 levels were then established with a total population of 182 individuals. The sample was determined using purposive sampling method with a Participatory Rapid Appraisal (PRA) approach, involving 65 respondents consisting of managers, business practitioners, community members, and visitors. The selected respondents for this study are presented in Table 1.

Table 1. Characteristics of Respondents

No	Item	Number of respondents
1	Head of Padang Village	1
2	Managers of crystal guava orchard tourism in Padang Village	5
3	Business practitioners in the tourism area	8
4	Tourists or visitors to the tourism site	40
5	Community around the tourism area	128
	Totals	182

Sustainability Index

In this research, the sustainability of crystal guava orchard tourism in Padang Village is evaluated through five dimensions of sustainable development, namely ecology, economy, social institutions, technology, and infrastructure. The analysis of sustainability indices in various dimensions of sustainable development for crystal guava tourism in Padang Village reveals a diverse picture (Figure 1). The ecological dimension achieves an index of 69.79, indicating a good level of sustainability in the ecological aspect. Meanwhile, the

economic dimension shows a value of 51.82, suggesting the potential for improvement in the economic contribution of the village tourism. The social institutional aspect has an index of 62.09, indicating relatively good sustainability but still allowing room for improvement. The technology and infrastructure dimensions have indices of 50.48 and 57.63, respectively, suggesting that the implementation of technology needs further attention, while the infrastructure aspect is at a relatively good level but can still be enhanced. This analysis provides a comprehensive view for policymakers to determine priority areas that require further attention to enhance overall sustainability in the crystal guava tourism destination in Padang Village.

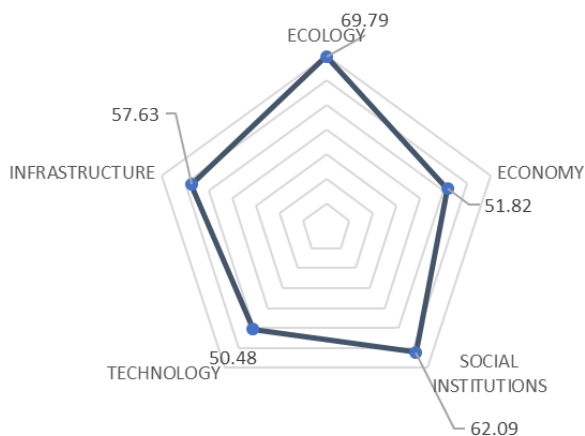


Figure 1. Diagram of crystal guava orchard sustainability dimensions in Padang Village

1. Ecological Dimension

The evaluation of MDS results in the ecological dimension can be conducted by calculating the sustainability index of each attribute included in that dimension, and then representing it in the form of a radar chart. A radar chart is a visualization that illustrates the comparison between several categories in multiple dimensions by connecting points on axes with lines. The analysis of the ecological dimension at the crystal guava orchard tourist destination in Padang Village involves five attributes: crystal guava land suitability, pest management, fertilizer usage, land conservation, and land utilization (Figure 2). With an ecological sustainability index of 69.79, it can be concluded that this dimension is at a relatively positive sustainability level. Attribute evaluation indicates that crystal guava land suitability and land utilization have received adequate attention, reflecting appropriate policies in ecosystem management. However, pest management and fertilizer usage strategies may need improvement to achieve optimal sustainability. The issue of conservation has become a global concern and has become a strategic issue in various countries, including Indonesia (Sambah et al., 2020). While land conservation is assessed positively, it can also be enhanced to ensure efficient and sustainable conservation of natural resources in the long term. By considering each attribute in the ecological dimension, policymakers can design specific measures to enhance ecological sustainability in the crystal guava orchard tourism in Padang Village.

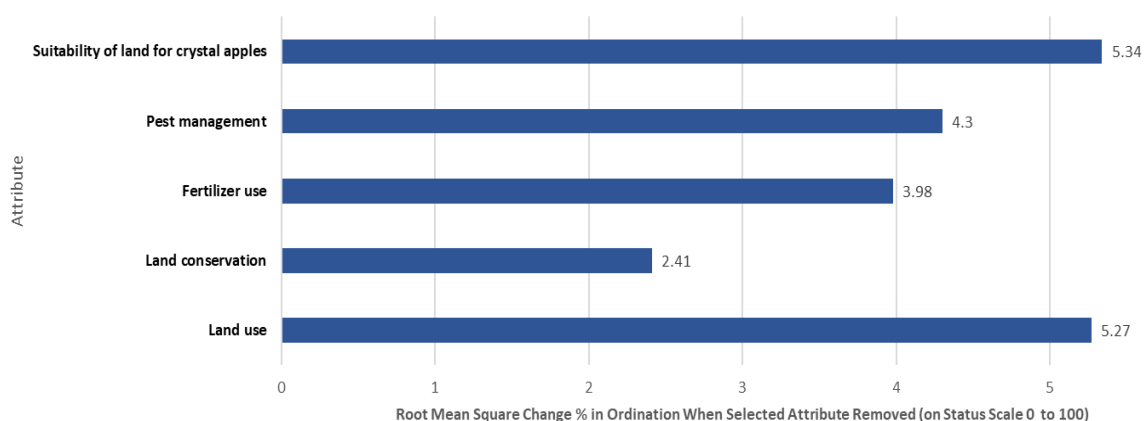


Figure 2. Graph of attributes influencing ecological dimensions

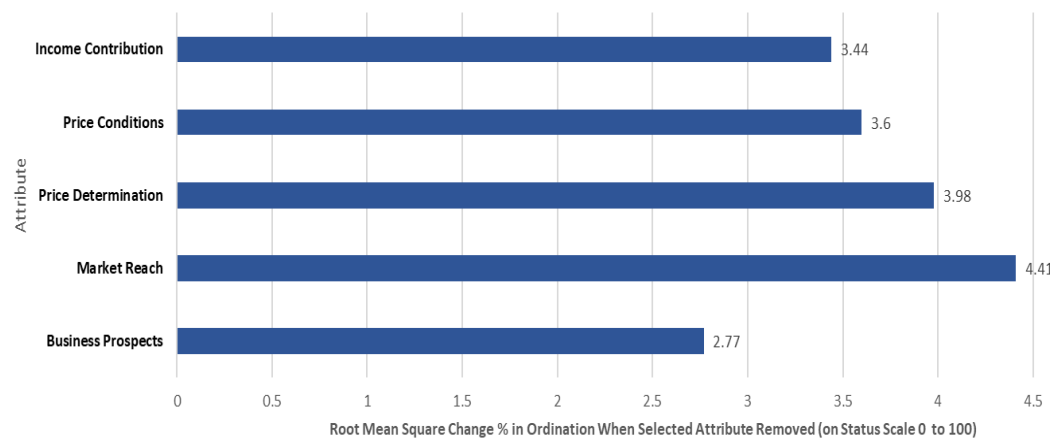


Figure 3. Graph of attributes influencing economy dimensions

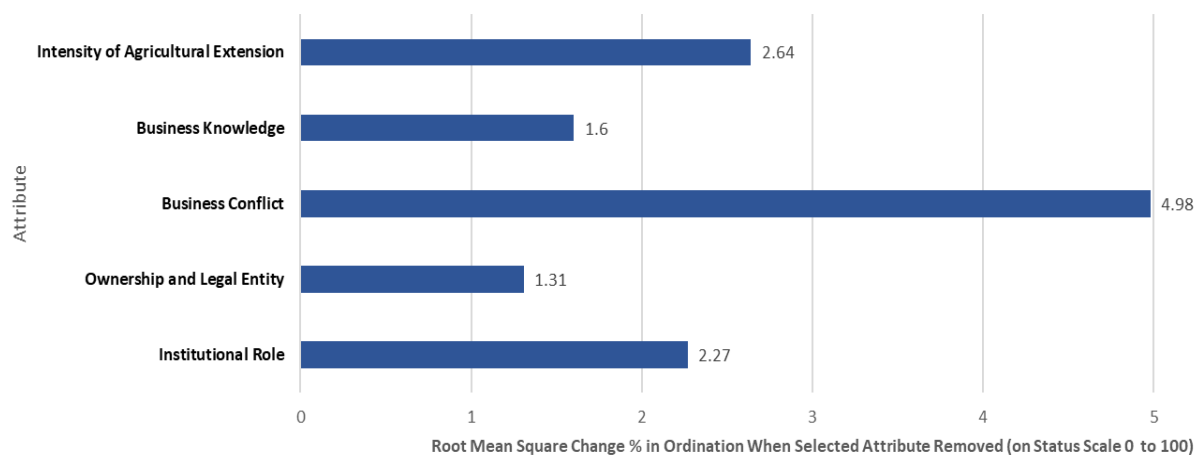


Figure 4. Graph of attributes influencing social and institutional dimensions

2. Economic Dimension

The analysis of attribute leverage in the economic dimension indicates the relative contribution of each attribute to the sustainability of the crystal guava orchard tourism economy in Padang Village. The Market Reach attribute has the highest leverage with a value of 4.41, indicating that changes or improvements in this aspect have a significant impact on the sustainability of tourism economic. The high leverage value on Market Reach (Figure 3) suggests that expanding market coverage and attracting interest from various visitor segments can be key factors in enhancing economic contribution.

Furthermore, Pricing Determination has a leverage of 3.98, indicating that pricing policies can play a crucial role in enhancing the attractiveness of tourism economy. The Price Conditions and Contribution of

crystal guava orchard tourism to local income attributes have consecutive leverage values of 3.60 and 3.44, indicating that price management and direct contribution to local income also have positive impacts on the economic dimension. On the other hand, Business Prospects have a lower leverage with a value of 2.27, suggesting that improvement or development in this aspect may require further attention. By understanding the leverage of these attributes, tourism managers can adjust their strategies to optimize the economic contribution of crystal guava orchard tourism in Padang, focusing on aspects that have the most significant impact.

3. Social and Institutional Dimension

The social and institutional dimension in the crystal guava orchard tourism in Padang Village provides a variety of insights into the important aspects in

understanding sustainability from a social and institutional perspective. First, the attribute of Agricultural Extension Intensity (2.64) shows the level of support and information provided to farmers in the area. This number indicates a relatively high level of extension intensity, which contributes positively to the understanding and development of local agriculture. Next, the attribute of Business Knowledge (1.60) highlights the extent to which knowledge about business aspects has been disseminated within the local community. This number shows that there are efforts to increase business knowledge among local people.

However, special attention needs to be given to the attribute of Business Conflict (4.98), which has a relatively high leverage value (Figure 4). This high number indicates the potential for conflict in business activities in the area. Therefore, the handling and mitigation of business conflict becomes an important aspect to be considered in ensuring social and institutional sustainability. The attribute of Ownership and Legal Entity (1.31) highlights the clarity of ownership and legal status that can affect institutional stability. Meanwhile, the attribute of Institutional Role (2.27) describes the extent to which local institutions are involved and play a role in the development of village tourism. This number reflects that the role of institutions has a positive impact on overall social and institutional sustainability. By analyzing the leverage results of the attributes of the social and institutional dimension, policy makers can identify areas that need further attention, such as handling business conflict and increasing ownership and legal entity to improve the stability and sustainability of the community

around the crystal guava orchard tourism in Padang Village.

4. Technological Dimension

The analysis of leverage results on the attributes of the technological dimension for the crystal guava orchard tourism in Padang Village provides insights into the extent to which the utilization of technology can affect the sustainability of the tourism. First, the attribute of Organic Technology Utilization (1.44) shows that the use of organic technology is at a positive level but may still need improvement. This attribute could be a focus for optimizing the use of organic technology in the context of agriculture or other tourism activities in the village. Then, the attribute of Shade and Intercropping Technology (1.70) indicates that the application of shade and intercropping technology has a more significant impact on the sustainability of tourism (Figure 5). This attribute could be an area where further development or investment in the technology can provide substantial benefits.

Information Technology (1.99) reflects that the application of information technology in village tourism has a significant and positive impact. Therefore, the management and further development in the use of information technology can be an effective strategy to improve sustainability. Meanwhile, the attribute of Cultivation Technology (1.41) shows a positive impact on the technological dimension. Increasing the application of technology in cultivation aspects can be one of the key steps to improve productivity and sustainability.

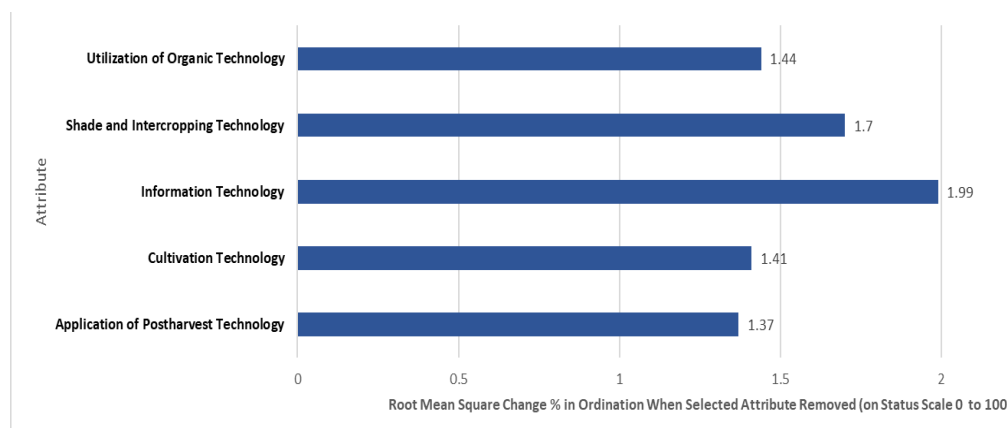


Figure 5. Graph of attributes influencing technological dimensions

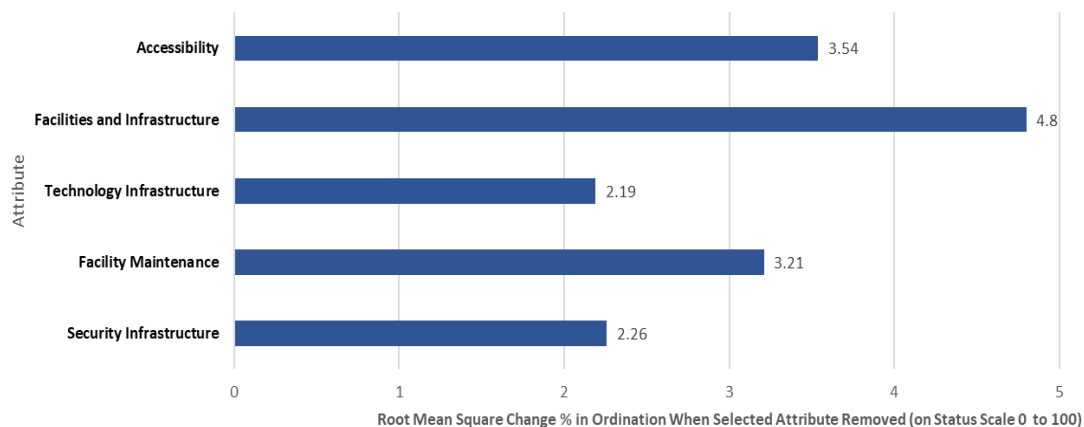


Figure 6. Graph of attributes influencing infrastructure dimensions

Finally, the attribute of Post-harvest Technology Implementation (1.37) highlights the importance of using post-harvest technology to support sustainability after harvest. Improvements in this regard can support resource management and post-harvest product quality. By analyzing the leverage results of the attributes in the technological dimension, policy makers can identify specific areas where investment or technology improvement can have a greater positive impact on the sustainability of the crystal guava orchard tourism in Padang Village.

5. Infrastructure Dimension

The analysis of leverage results on the attributes of the infrastructure dimension of the sustainability of the crystal guava orchard tourism in Padang Village provides detailed insights into the performance and sustainability of the infrastructure that supports the development of the tourism destination (Figure 6). The Accessibility attribute shows a value of 3.54, indicating a fairly good level of sustainability in terms of accessibility for visitors. Facilities and infrastructure reached a high value of 4.80, reflecting the availability of adequate supporting facilities and infrastructure.

However, the abundance of resources is not entirely a determining factor for income levels. For high profits and productivity to be achieved, businesses need to have better access to technology and improve their technical efficiency (Efani et al., 2022). Important to note that the Infrastructure Technology attribute has a low value of 2.19, indicating the potential for improvement in the application of technology to support the management

and promotion of tourism. The Facility Maintenance and Security Infrastructure attributes have values of 3.21 and 2.26, respectively, describing a fairly good level of sustainability but still requiring further attention. Therefore, this evaluation provides a comprehensive understanding of the state of infrastructure, enabling stakeholders to identify areas that need to be improved to ensure sustainable infrastructure that meets the needs of visitors optimally in the sustainability of crystal guava orchard tourism in Padang Village.

Strategies for Sustainable Agrotourism Development

In this research, a qualitative descriptive analysis approach was employed, along with a SWOT analysis. Qualitative descriptive analysis refers to a research procedure that utilizes descriptive data in the form of written words derived from observable individuals and stakeholders. The SWOT matrix for the crystal guava orchard tourism in Padang Village is presented at Table 2. The formulation process of this SWOT matrix is a crucial foundation for devising strategies that can be implemented. The identification of development strategies aims to provide strategic guidance for crystal guava orchard tourism in addressing the challenges it faces. In the crafted SWOT analysis, various efficient approaches were found that have not yet been applied in the crystal guava orchard agrotourism of Padang Village. The formulation of alternative strategies refers to the results of agreements and interviews, making them aligned with the current conditions.

Table 2. Identification of Agrotourism Development Factors

Internal		External	
Strength	Weakness	Opportunity	Threat
<ul style="list-style-type: none"> • Condition is attractive (S1) • Low entrance fee (S2) • Wide land (S3) • Adequate facilities at the location (S4) 	<ul style="list-style-type: none"> • Accessibility to tourist location (W1) • Inadequate promotion (W2) • Low labor skills (W3) • Lack of diversification of processed guava products (W4) 	<ul style="list-style-type: none"> • Collaboration with other parties (O1) • Infrastructure improvement (O2) • Opportunities for investors in development capital (O3) • Increased interest of tourists in natural and educational tourism (O4) 	<ul style="list-style-type: none"> • Competitors of the same tourist object (T1) • Development of other agrotourism with unique characteristics (T2) • Climate change and natural disasters (T3) • Seasonal dependence (T4)

In the realm of Internal Factors Analysis Summary (IFAS), identified strengths (S) involve collaboration with other parties, infrastructure improvement, opportunities for investors, and the interest of tourists in nature and education tourism. On the other hand, weaknesses (W) are focused on challenges related to access to the tourism site, insufficient promotion, low workforce capabilities, and a lack of diversified processed guava products.

Within the External Factors Analysis Summary (EFAS), opportunities (O) encompass collaboration with other parties, infrastructure improvement, investment opportunities, and an increasing interest of tourists in nature and education tourism. Threats (T) involve competition from similar tourist attractions, the development of other distinctive agrotourism, climate change, and seasonal dependence. The proposed strategies to respond to the combination of strengths and opportunities (S-O) include leveraging attractive conditions for collaborations, enhancing attractiveness with affordable entrance fees, and utilizing extensive land as an investment opportunity. Furthermore, to address weaknesses and leverage opportunities (W-O), strategies involve collaboration with the government to improve accessibility, increased promotion through various media channels, enhancing workforce quality through collaboration with other parties, and diversification of processed guava products.

Strategies for S-T (strengths-threats) encompass increasing promotion to counter similar competitors, maintaining attractiveness with affordable entrance fees, and implementing policies and programs to address climate change and natural disasters. Meanwhile, strategies for W-T (weaknesses-threats) include improving access to the location, maintaining affordable entrance fees to address the development of other agrotourism, increasing promotion, implementing climate change mitigation programs,

enhancing workforce training and skills, and diversifying processed guava products.

Sustainability of Crystal Guava Orchard Tourism

Sustainable development has several goals that must be achieved to realize sustainable development. Firstly, the equitable distribution of benefits between generations should be emphasized, encompassing the use of natural resources while considering ecosystem limits and focusing on renewable resources. It involves avoiding excessive exploitation of non-renewable resources. Secondly, safeguarding the sustainability of natural resources and the environment is crucial, with the aim of preventing ecosystem disruptions to ensure a good quality of life for future generations. Furthermore, the utilization of natural resources should be done with consideration for sustainable economic growth and equitable utilization between generations. The sustainability of the well-being of the people, both in the present and the future, is also a focus, emphasizing the intertemporal aspect in development. Additionally, it is vital to maintain the benefits of development and the management of natural resources that provide long-term and sustainable impacts between generations, while preserving the quality of human life in accordance with its habitat.

In current research, the evaluation was conducted through five dimensions of sustainable development. The ecological dimension achieved a good level of sustainability, while the economic dimension showed potential for improvement. Social-institutional aspects were reasonably good but could be enhanced, while the technological dimension requires further attention. Infrastructure was at a relatively good level but still has room for improvement. This analysis offers a comprehensive view for policymakers to prioritize efforts to enhance the sustainability of the crystal guava orchard tourism destination in Padang Village.

The theory of sustainable development, underlying this research, emphasizes key principles, as outlined by McIntyre (Hidayat, 2017). One of the main principles is Ecological Sustainability, which mandates that development must align with ecological, biological, and diversity processes of existing ecological resources. McIntyre's sustainable development theory, as expressed by Hidayat (2017), asserts one of its main principles, namely Economic Sustainability. It aims to ensure that development is economically efficient and that the resources used can endure for future needs. In the context of tourism sustainability Suwena & Widyatmaja (2017) add that a tourism activity can be considered sustainable if it meets several conditions, including economically beneficial aspects that can improve local welfare. Research results related to the economic sustainability of crystal guava orchard tourism in Padang Village reveal an analysis of attribute leverage in the economic dimension. The Market Reach attribute has the highest leverage, indicating that changes or improvements in this aspect have a significant impact on the economic sustainability of tourism.

Furthermore, Pricing Determination and related attributes such as Price Conditions and Tourism Contribution also have relatively high leverage, signifying that pricing policies and direct contributions to local income play a crucial role in enhancing the economic appeal of tourism. The theory of sustainable development, as articulated by McIntyre (Hidayat, 2017), emphasizes key principles that form the foundation for sustainable development. One crucial aspect of this theory is Social and Cultural Sustainability, aiming to ensure that any development brings positive impacts to the local community's way of life. The significance of this aspect lies in its alignment with the culture and values prevailing in the community. Additionally, the Triple Bottom Line (TBL) theory proposed by Elkington, (1999) can be used as a framework to evaluate development performance from three main aspects: economic, social, and environmental.

The research findings provide a profound understanding of sustainability from social and institutional perspectives. Leverage analysis of attributes in the social and institutional dimensions highlights several crucial aspects. Firstly, the high level of Agricultural Extension Intensity (2.64) reflects strong support and information provided to agricultural practitioners in the region, contributing

positively to the understanding and development of local agriculture.

Attributes in the technological dimension show that the use of organic technology, shading and intercropping, information, cultivation, and post-harvest have a positive impact on the sustainability of village tourism. These attributes can be a focus for further technological development or investment. This understanding can help policymakers identify specific areas that require attention in achieving sustainability goals.

The research results indicate that accessibility, facilities and infrastructure, facility maintenance, and security infrastructure have a reasonably good level of sustainability, but technological infrastructure still requires improvement. This evaluation can help policymakers identify areas that need improvement to ensure sustainable and optimal infrastructure for crystal guava orchard tourism sustainability in Padang Village. In conclusion, this evaluation provides a comprehensive view to policymakers, enabling them to identify areas that need improvement to ensure sustainable and optimal infrastructure for the sustainability of crystal guava orchard tourism in Padang Village.

Sustainable Tourism Strategies for Crystal Guava Orchard

Based on the SWOT analysis results, four types of strategies can be formulated: S-O, W-O, S-T, and W-T. The S-O strategy aims to leverage strengths to exploit opportunities, the W-O strategy aims to address weaknesses by leveraging opportunities, the S-T strategy aims to leverage strengths to confront threats, and the W-T strategy aims to address weaknesses and face threats. These strategies can be elaborated as follows:

First, S-O Strategy: Utilize attractive conditions to establish collaborations with other parties, enhance infrastructure, maintain affordable entrance fees, and develop expansion capital with investors.

Second, W-O Strategy: Improve accessibility through collaboration with the government, enhance promotion through social media, mass media, and tourism promotion events, enhance workforce quality through collaboration with other parties, and diversify guava products with various and innovative offerings.

Third, S-T Strategy: Increase promotion to counter competition from similar tourist attractions, maintain affordable entrance fees with innovations, implement

policies and programs to address climate change and natural disasters, and enhance facilities and services.

Fourth, W-T Strategy: Improve access to the tourism site, maintain affordable entrance fees, enhance promotion efforts, implement programs for climate change mitigation and disaster response, improve training and skills of the workforce, and diversify processed guava products through collaboration with other parties.

By implementing these strategies, it is anticipated that the crystal guava orchard tourism destination in Padang Village can enhance its competitiveness and attractiveness, while achieving desired goals and objectives.

Research Implication

The research identifies strategies for sustainability, employing a SWOT analysis. Strengths include collaboration opportunities and extensive land, while weaknesses involve inadequate promotion and low workforce skills. Opportunities lie in infrastructure improvement and collaboration, while threats include competition and seasonal dependence. The sustainability indices in different dimensions indicate varying levels. The ecological aspect scores well, but economic and technological dimensions require attention. Infrastructure is relatively good, yet improvements are suggested. These findings offer insights for policymakers to prioritize efforts for holistic sustainability. A detailed analysis of attributes in each dimension provides a nuanced understanding. For instance, the economic dimension highlights the importance of market reach and pricing determination. Social and institutional dimensions indicate positive aspects like agricultural extension intensity but also point to challenges, such as potential business conflicts.

Furthermore, the research delves into the infrastructure dimension, highlighting the significance of accessibility and facility maintenance. The technological dimension suggests areas for improvement, emphasizing the need for organic technology utilization and better post-harvest technology.

The study concludes with sustainable tourism strategies for crystal guava orchard in Padang Village, aligning with the SWOT analysis. These strategies include leveraging strengths for collaborations and infrastructure enhancement (S-O), addressing weaknesses through improved accessibility and

promotion (W-O), leveraging strengths to counter threats and enhance facilities (S-T), and addressing weaknesses while confronting threats (W-T).

The research on the sustainability and development strategy of crystal guava tourism in Padang Village offers significant implications for various stakeholders, particularly policymakers and industry players involved in tourism development and rural economic growth.

The economic dimension of the study highlights several crucial aspects that require attention for the sustainable development of crystal guava tourism. These include market reach, pricing determination, and workforce skills. Enhancing market reach can involve strategies such as diversifying marketing channels, targeting niche markets, and establishing partnerships with travel agencies or online platforms. Pricing determination should consider factors such as production costs, consumer willingness to pay, and perceived value. Workforce skills improvement can be achieved through training programs, vocational education initiatives, and knowledge sharing platforms. According to (Milovanović, 2017), investing in human capital development can significantly contribute to economic growth and competitiveness in rural tourism destinations.

The social dimension of the research emphasizes the importance of community involvement, cultural preservation, and conflict resolution mechanisms. Community involvement can foster a sense of ownership and responsibility among locals, leading to greater support for tourism initiatives and increased social cohesion. Cultural preservation efforts should be integrated into tourism development plans to safeguard local traditions, heritage, and identity. Conflict resolution mechanisms are essential to address potential tensions arising from resource competition, land use conflicts, or socio-cultural differences. Studies by (Giampiccoli & Saayman, 2018) emphasize the significance of community-based tourism approaches that prioritize social inclusion, empowerment, and equitable distribution of benefits.

Infrastructure development plays a vital role in enhancing the competitiveness and attractiveness of tourism destinations. Improving accessibility, facilities, and service quality can significantly impact visitor satisfaction and overall tourism experiences. Investments in transportation networks, accommodation options, recreational facilities, and sanitation infrastructure are essential to meet the

evolving needs of tourists and support sustainable tourism growth. According to (Almeida & Machado, 2021) infrastructure development can stimulate local economic development, create employment opportunities, and attract private sector investments, thereby contributing to poverty reduction and improved living standards in rural areas.

The research findings offer valuable insights for policymakers tasked with formulating development strategies and regulatory frameworks to support sustainable tourism initiatives. Policies should prioritize environmental conservation, community empowerment, and socio-economic development while ensuring equitable distribution of benefits and minimizing negative impacts on local livelihoods and ecosystems. Implementing incentives, regulations, and monitoring mechanisms can encourage responsible tourism practices, promote entrepreneurship, and safeguard natural and cultural assets for future generations. Collaborative governance approaches involving multiple stakeholders, including government agencies, local communities, businesses, and non-profit organizations, are essential to achieving inclusive and sustainable tourism development outcomes (Ahdiyana et al., 2021).

CONCLUSION AND SUGGESTION

The analysis of sustainability indices indicates variability in each dimension, with the ecological dimension reaching an index of 69.79, indicating good sustainability. On the other hand, the economic dimension shows potential for improvement, while the social institutional dimension indicates relatively good sustainability but requires enhancement. The technology and infrastructure dimensions have indices that reflect areas needing further attention. Through internal and external factor analysis (IFAS and EFAS), it was found that the main strength lies in adequate facilities, while the most significant weakness is the lack of diversification of processed products. The greatest opportunity lies in the potential for collaboration with other parties, while the biggest threat is the visitors' interest in returning.

With the SWOT matrix, it is known that the crystal guava orchard tourism is in quadrant I, indicating a favorable position. Considering the results of the analysis, several sustainable formulation strategies can be proposed. The S-O strategy involves leveraging

attractive conditions to establish collaborations with other parties, while the W-O strategy includes enhancing promotion through social media and collaborating with others to improve workforce quality. The S-T strategy involves increasing promotion to address competitors and the development of other agrotourism, while the W-T strategy includes improving access, diversifying products, and enhancing collaboration to address various emerging challenges. By formulating these strategies, it is expected to provide effective guidance for managers and policymakers to enhance the sustainability of crystal guava orchard tourism in Padang Village.

The research on crystal guava tourism in Padang Village not only provides valuable insights into sustainability challenges and development strategies but also underscores the broader socioeconomic implications for rural development, community well-being, and policy formulation. By addressing these implications comprehensively and integrating them into decision-making processes, policymakers and stakeholders can foster inclusive growth, environmental stewardship, and cultural resilience in tourism destinations. Ongoing dialogue, knowledge exchange, and interdisciplinary collaborations are essential to navigate the complex dynamics of tourism development and ensure positive outcomes for both present and future generations.

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