

Strategic Development of Agro-tourism Villages in Sungai Geringging, Kampar Regency: An Analytical Hierarchy Process (AHP) Approach

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Abstract

This study explores the strategic development of agro-tourism villages in Sungai Geringging, Kampar Regency, focusing on optimizing local natural resources and promoting sustainable tourism. Utilizing the Analytical Hierarchy Process (AHP), the research identifies key criteria for development, including natural resource potential, accessibility, socio-economic conditions, and public facilities. The findings highlight the importance of government and private partnerships in fostering agro-tourism, enhancing local infrastructure, and improving community welfare. The study concludes with recommendations for maximizing economic and social benefits through targeted tourism strategies.

Keywords: *Agro-tourism, Sustainable tourism, Rural development, Analytical Hierarchy Process (AHP).*

Introduction

Agro-tourism, also known as agricultural tourism, combines the agricultural industry with tourism to create unique travel experiences that educate and immerse visitors in farming and rural life. This form of tourism has become increasingly valuable for rural development worldwide, as it provides farmers and local communities with diversified income sources and promotes rural sustainability. By attracting tourists to agricultural regions, communities can boost local economies while preserving their natural landscapes and cultural heritage (Gunn, 2002; Damanik & Weber, 2006).

The potential for agro-tourism in Indonesia is vast, supported by the country's abundant agricultural resources, rich biodiversity, and cultural diversity. The Indonesian government has recognized agro-tourism's capacity to foster rural development and alleviate poverty, particularly in economically marginalized areas. Sungai Geringging village in Kampar Regency, Riau Province, offers a prime example of this potential, with 307 hectares of agricultural land and a local economy heavily reliant on farming. Approximately 42% of the village's population is employed in agriculture, primarily cultivating rice, horticultural products, and fish (Baiquni, 2006). However, there remains a critical need to transform these agricultural assets into marketable and sustainable tourism experiences.

Agro-tourism has benefits that extend beyond economic advantages, as it serves as a powerful tool for environmental conservation and cultural preservation. By fostering a connection between visitors and local agricultural practices, agro-tourism allows rural communities to share their customs and knowledge with tourists. This type of tourism encourages visitors to experience and appreciate sustainable farming practices, thereby enhancing community pride and identity. Research highlights that community-based agro-tourism can significantly improve local livelihoods, maintain agricultural practices, and support environmental stewardship (Budiarti, 2013).

In Sungai Geringging, developing agro-tourism could provide a pathway to addressing various socio-economic challenges, including limited job opportunities and persistent poverty. Agro-tourism could provide alternative employment for the local population, particularly for women and youth, and stimulate demand for local products and services. Siregar (2021) notes that agro-tourism initiatives can reduce unemployment and create new economic opportunities in related sectors, such as hospitality, guiding, and

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artisanal crafts. These initiatives can enhance social cohesion by involving different community members in tourism-related activities, fostering a collective sense of purpose.

Despite its promising prospects, the development of agro-tourism in Sungai Geringgong is hindered by significant challenges, particularly in terms of infrastructure and accessibility. Limited road networks and unpaved pathways make it difficult for tourists to reach the village, especially during rainy seasons. Furthermore, there are few public transportation options available for visitors, which significantly limits tourist accessibility. Indrawan (2014) emphasizes that accessibility is crucial in tourism development, as ease of access directly influences tourist interest and satisfaction. As Muttaqin et al. (2013) argue, improving infrastructure is essential for Sungai Geringgong to realize its full tourism potential.

Effective agro-tourism development in Sungai Geringgong also requires collaboration among multiple stakeholders, including local governments, private investors, and community groups. This study employs the Analytical Hierarchy Process (AHP) to prioritize key factors influencing agro-tourism, namely natural resource potential, accessibility, socio-economic conditions, and public facilities. AHP is a multi-criteria decision-making tool developed by Saaty (1980) that facilitates a systematic analysis of complex issues. By applying AHP, this research aims to identify strategic priorities for sustainable tourism development that maximize local benefits while protecting Sungai Geringgong's unique environmental and cultural assets.

Collaboration is essential for the successful implementation of agro-tourism initiatives. Support from local government, through policies and funding, is crucial for developing the necessary infrastructure and regulatory frameworks that guide sustainable tourism. Similarly, private sector involvement can accelerate the provision of tourism facilities, marketing initiatives, and infrastructure investments, thereby expanding tourism capacity (Pitana & Surya, 2009). Partnerships with universities and local organizations also play a role, as they can offer training, research, and development programs to empower local communities and improve tourism management. Engaging local communities directly in the tourism industry not only fosters economic resilience but also ensures that tourism development aligns with community values and priorities, preserving the local culture and natural environment (Sumantra, Yuesti, & Sudiana, 2015).

This study contributes to the body of literature on rural development and sustainable tourism by examining how agro-tourism can be leveraged as a sustainable economic model in Sungai Geringgong. By analyzing key factors and providing strategic recommendations, this research offers insights into how rural communities can develop agro-tourism while promoting economic growth, cultural preservation, and environmental conservation. This approach aims to serve as a model for similar rural communities in Indonesia seeking to capitalize on their agricultural heritage for sustainable tourism.

Literature Review

Agro-tourism combines agricultural activities with tourism to create sustainable economic opportunities for rural communities. It has been recognized as a key strategy to support economic diversification and rural development worldwide, especially in regions where agriculture plays a significant role in local livelihoods. Gunn (2002) emphasizes that agro-tourism provides rural communities with diversified income streams and promotes environmental and cultural conservation by highlighting the value of traditional agricultural practices. This integration is increasingly essential in the face of rural economic challenges, as agro-tourism not only fosters economic resilience but also strengthens community identity and environmental stewardship (Damanik & Weber, 2006).

In Indonesia, the push towards agro-tourism has gained momentum due to the nation's extensive agricultural landscape and cultural richness. The Indonesian government has identified agro-tourism as a sustainable alternative to conventional agriculture and a means to alleviate poverty in rural regions. According to Baiquni (2006), successful rural development hinges on effectively mobilizing local resources, engaging communities in the tourism process, and ensuring that the economic benefits of tourism are equitably distributed. Agro-tourism in this context is particularly promising, as it allows communities to monetize agricultural assets while preserving their cultural heritage and fostering environmental awareness among tourists.

Agro-tourism not only offers economic benefits but also promotes environmental conservation and cultural preservation. As Budiarti (2013) points out, involving local communities in agro-tourism activities can help sustain traditional farming practices, create a sense of pride, and improve local welfare. In regions like Sungai Geringging, where agricultural practices form the core of daily life, agro-tourism can act as a catalyst for sustainable development. By incorporating tourists into agricultural activities, communities can educate visitors on sustainable farming methods, thereby strengthening both environmental protection and cultural exchange.

Challenges in Agro-tourism Development

Despite its potential, agro-tourism development is often constrained by infrastructural and accessibility issues, particularly in rural and remote areas. In many Indonesian villages, poor road conditions and limited transportation options hinder the accessibility of tourist sites, reducing the attractiveness of these destinations (Muttaqin, Purwanto, & Rufiqo, 2013). According to Indrawan (2014), accessibility is a critical determinant of tourism success, as it directly affects tourist numbers and satisfaction. Without adequate transport infrastructure, even regions with significant natural and cultural appeal, like Sungai Geringging, may struggle to attract and retain visitors.

Another major challenge in agro-tourism development is the need for adequate public facilities, such as accommodations, dining options, and recreational amenities, to enhance the tourist experience. Sumantra, Yuesti, and Sudiana (2015) note that the presence of eco-friendly accommodations and cultural centers can encourage longer tourist stays and contribute to local economic growth. In addition, local governments and communities must work together to ensure that these facilities are sustainable and align with the rural character of agro-tourism destinations. Developing infrastructure that is both functional and environmentally responsible is crucial for maintaining the integrity of agro-tourism areas and for providing tourists with a satisfying and culturally enriching experience.

The Role of Partnerships in Agro-tourism Development

Effective agro-tourism initiatives require the active participation of multiple stakeholders, including government entities, private investors, and local communities. Pitana and Surya (2009) argue that tourism development relies on partnerships across sectors to ensure resources are maximized, and benefits are widely shared. Government support, in the form of policy incentives, funding, and regulatory frameworks, can facilitate sustainable tourism practices and enable local communities to fully participate in tourism activities. Likewise, private sector involvement is essential for funding infrastructure, creating marketing campaigns, and providing expertise in tourism management. The role of universities and non-governmental organizations (NGOs) is also significant, as they can offer capacity-building programs, conduct research, and support community education initiatives.

Community engagement is a cornerstone of successful agro-tourism. As Sumantra et al. (2015) observe, involving local communities in planning and development not only ensures that they benefit economically from tourism but also fosters a sense of ownership and pride. This approach can encourage locals to actively participate in conservation efforts and tourism services, thereby preserving their cultural and environmental assets for future generations. Involving local residents in tourism decision-making processes can also reduce potential conflicts between tourism activities and traditional lifestyles, creating a harmonious balance that benefits both the community and tourists.

Analytical Hierarchy Process (AHP) in Agro-tourism Development

The Analytical Hierarchy Process (AHP) is widely recognized as a powerful tool for decision-making in tourism development. Saaty (1980) developed AHP as a structured method for organizing and analyzing complex decisions based on multiple criteria. In the context of agro-tourism, AHP allows stakeholders to prioritize factors critical to successful development, such as natural resource potential, socio-economic conditions, accessibility, and public facilities. Research shows that AHP is particularly effective in balancing

diverse stakeholder interests, as it enables decision-makers to systematically compare the relative importance of various criteria (Saaty, 1980).

Using AHP in agro-tourism planning provides a structured approach to evaluating strategic priorities and addressing potential challenges. By applying AHP, this study identifies natural resource potential as a key driver of agro-tourism development in Sungai Geringging, followed by socio-economic conditions, accessibility, and public facilities. This ranking helps to guide policymakers, investors, and community leaders in focusing their efforts and resources on areas that will maximize economic, social, and environmental benefits.

The literature thus underscores the importance of several key factors in agro-tourism development: local resource utilization, accessibility, public infrastructure, and cross-sector partnerships. This study builds on these foundational elements to examine how they apply in the context of Sungai Geringging and provide a roadmap for sustainable agro-tourism that benefits the local community and aligns with environmental conservation efforts.

Methodology

This research employs the Analytical Hierarchy Process (AHP) to evaluate and prioritize strategies for the development of agro-tourism in Sungai Geringging, Kampar Regency. AHP is a structured technique developed by Saaty (1980) that is widely used in decision-making processes involving complex criteria. The methodology allows for a systematic comparison of various factors by organizing them into a hierarchy and assigning relative weights to each criterion based on their importance to the overall goal.

Research Design

The study follows a quantitative approach, using the AHP method to structure the decision-making process. The main objective is to identify and prioritize the factors that are critical to the sustainable development of agro-tourism in Sungai Geringging. The four key criteria selected for analysis are:

- *Natural Resource Potential*
- *Accessibility*
- *Socio-economic Conditions*
- *Public Facilities*

These criteria were identified through a combination of literature review and consultations with local experts, including government officials, tourism practitioners, and community leaders. The criteria represent the most important aspects of agro-tourism development that need to be addressed for the village to become a successful tourist destination.

Data Collection

The data for this study was collected using a combination of primary and secondary sources:

- *Primary Data*

Surveys and interviews were conducted with local stakeholders, including village leaders, tourism operators, and community members. The surveys focused on gathering perceptions of the importance of the selected criteria and the current state of tourism development in Sungai Geringging. A total of 50 respondents participated in the surveys, providing a diverse range of perspectives.

- *Secondary Data*

Secondary data was gathered from government reports, academic publications, and previous studies on agro-tourism and rural development. These sources provided additional context and support for the criteria and sub-criteria used in the AHP analysis.

Analytical Hierarchy Process (AHP)

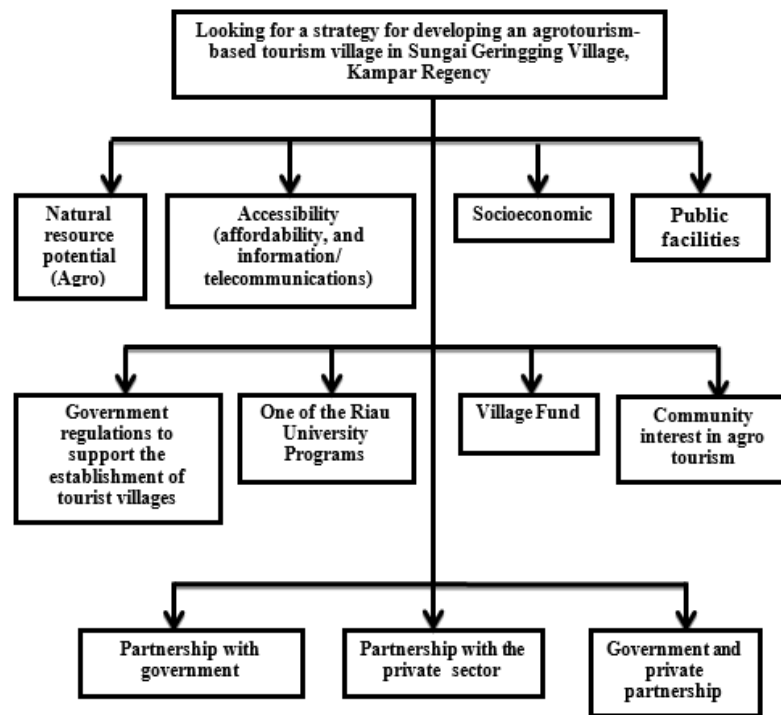


Figure 1. Hierarchical Structure for Agro-tourism Development

The AHP process begins with structuring the problem as a hierarchy, which in this case consists of four levels:

- Level 1: The overall goal, which is to develop a sustainable agro-tourism model for Sungai Geringging.
- Level 2: The four main criteria (natural resource potential, accessibility, socio-economic conditions, public facilities).
- Level 3: Sub-criteria under each of the main criteria (e.g., specific natural resources, types of public facilities).
- Level 4: The alternatives or strategies for development (e.g., infrastructure improvements, tourism marketing campaigns).

The pairwise comparison method is then used to compare the relative importance of each criterion. Respondents were asked to compare each pair of criteria on a scale from 1 to 9, where 1 indicates equal importance and 9 indicates extreme importance of one criterion over the other (Saaty, 1980). The comparisons were input into an AHP matrix, which was then analyzed to calculate the weight of each criterion.

The consistency ratio (CR) was also calculated to ensure the reliability of the pairwise comparisons. A CR value of less than 0.1 indicates acceptable consistency in the judgments (Saaty, 1980). In this study, the CR values for all comparisons were below 0.1, confirming the reliability of the results.

Data Analysis

The AHP analysis was conducted using specialized software designed for multi-criteria decision-making. The software calculates the relative weights of the criteria and sub-criteria, producing a ranking that indicates their importance in the decision-making process.

- Natural Resource Potential emerged as the most important criterion, with a weight of 0.556, underscoring the significance of the village's agricultural assets in attracting tourists.
- Socio-economic Conditions followed, with a weight of 0.247, reflecting the importance of improving local livelihoods and ensuring that tourism development benefits the community.
- Public Facilities (0.100) and Accessibility (0.097) were identified as critical factors that require further enhancement to support the village's tourism infrastructure.

Validation and Expert Review

To validate the results of the AHP analysis, the findings were reviewed by a panel of experts consisting of tourism professionals, local government representatives, and academics specializing in rural development. The experts confirmed that the identified priorities align with the practical challenges and opportunities for agro-tourism development in Sungai Geringging.

The insights from these experts were incorporated into the final strategic recommendations, ensuring that the proposed strategies are feasible and grounded in local realities.

The AHP methodology provides a robust framework for evaluating and prioritizing the factors that influence agro-tourism development in Sungai Geringging. By combining quantitative analysis with expert input, the study offers a comprehensive approach to decision-making that can guide policymakers and stakeholders in promoting sustainable tourism in the village. The findings highlight the importance of natural resource management, socio-economic improvement, infrastructure development, and strategic partnerships in realizing the potential of agro-tourism in rural areas.

Results and Discussion

Table 1. Criteria and Weights for Agro-tourism Development in Sungai Geringging

Criteria	Weight
Natural Resource Potential	0.556
Socio-economic Conditions	0.247
Public Facilities	0.100
Accessibility	0.097

Source: Primary Data (2020)

The results of the Analytical Hierarchy Process (AHP) analysis highlight the critical factors influencing the development of agro-tourism in Sungai Geringging, Kampar Regency. By evaluating the four main criteria—natural resource potential, accessibility, socio-economic conditions, and public facilities—the study provides a clear framework for understanding the strategic priorities necessary for sustainable tourism development.

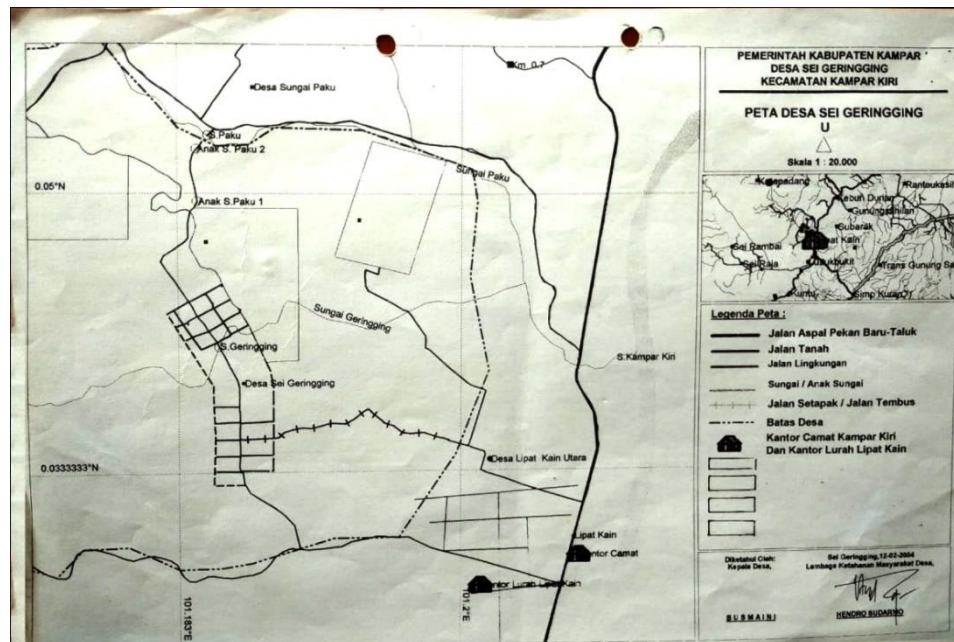
Natural Resource Potential

Figure 2. Agro-Tourism Potential in Sungai Geringging

Natural resource potential emerged as the most influential criterion, with a weight of 0.556. Sungai Geringging's abundant agricultural land and biodiversity position it as a prime candidate for agro-tourism development. The village's key agricultural outputs, including rice, horticultural crops, and fish farming, offer opportunities to create immersive tourism experiences. These can include farm tours, hands-on agricultural activities, and education about sustainable farming practices. As emphasized by Budiarti (2013), leveraging local agricultural resources not only promotes tourism but also contributes to the sustainability of local farming systems.

However, the full potential of these natural resources can only be realized through proper management and marketing. Promoting agro-tourism packages that showcase the village's agricultural diversity and engaging both local and international tourists are crucial steps. Moreover, creating partnerships with tour operators and integrating Sungai Geringging into regional tourism circuits will help attract more visitors.

Accessibility

Accessibility was found to be the least influential criterion, with a weight of 0.097. This reflects the current challenges associated with reaching Sungai Geringging. The village's road infrastructure is underdeveloped, with many unpaved roads that become difficult to navigate during the rainy season. Additionally, there is a lack of regular public transportation to and from the village, which further limits tourist access.

Muttaqin et al. (2013) highlight that accessibility is a fundamental aspect of tourism development. Without adequate transport infrastructure, even the most attractive destinations can struggle to attract visitors. To address this issue, it is imperative that local governments prioritize infrastructure improvements, such as paving roads, installing better signage, and introducing reliable public transportation options. These developments will not only make the village more accessible to tourists but will also improve the quality of life for residents.

Socio-economic Conditions

The socio-economic conditions of Sungai Geringging were the second most important factor, with a weight of 0.247. The village has a strong agricultural base, and agro-tourism offers an opportunity to diversify the local economy and create new income streams. Siregar (2021) found that agro-tourism initiatives could reduce unemployment and boost local incomes by generating employment opportunities in tourism-related sectors, such as hospitality, guiding, and local handicrafts.

Moreover, tourism can foster social cohesion by bringing together different groups within the community to work toward a common goal. By involving local residents in the planning and development of agro-tourism activities, the village can ensure that the economic benefits are distributed equitably. This involvement can also lead to a greater sense of ownership and pride in the community, as residents see the positive impact of tourism on their livelihoods.

Public Facilities

Public facilities, including accommodations, restaurants, and other amenities, received a weight of 0.100. Although less critical than natural resources and socio-economic conditions, the availability of adequate public facilities is essential to the overall tourist experience. Currently, the village lacks sufficient infrastructure to cater to tourists, particularly in terms of accommodations. Developing homestays and small guesthouses would provide visitors with a comfortable place to stay, while also generating income for local families.

In addition to accommodations, there is a need to develop other tourism-related facilities, such as restaurants, cultural centers, and eco-friendly rest areas. Sumantra et al. (2015) argue that well-designed public facilities can enhance the attractiveness of a destination and contribute to longer stays, thereby increasing tourism revenue. Efforts should also be made to ensure that these facilities are sustainable and in harmony with the village's rural character.

*Strategic Partnerships***Table 2.** Summary of Partnership Strategies

Partnership Strategy	Description
Government-Private Partnership	Collaborating to improve infrastructure and promote tourism
Private Sector Investment	Funding tourism facilities and marketing efforts
Government Support	Providing policy frameworks and financial support for development

The study also underscores the importance of partnerships between the government and the private sector in driving the development of agro-tourism in Sungai Geringging. Pitana and Surya (2009) note that successful tourism development requires collaboration across multiple stakeholders, including local communities, businesses, and governmental agencies. The AHP results indicate that a partnership between the government and private sector, with a weight of 0.559, is crucial for providing the necessary resources and expertise to enhance local infrastructure and tourism services.

Private sector investments can support the construction of essential infrastructure, such as roads and accommodation facilities, while the government can create enabling policies and provide financial support for tourism development. Additionally, engaging local communities in these partnerships ensures that they are active participants in the development process and benefit directly from tourism growth.

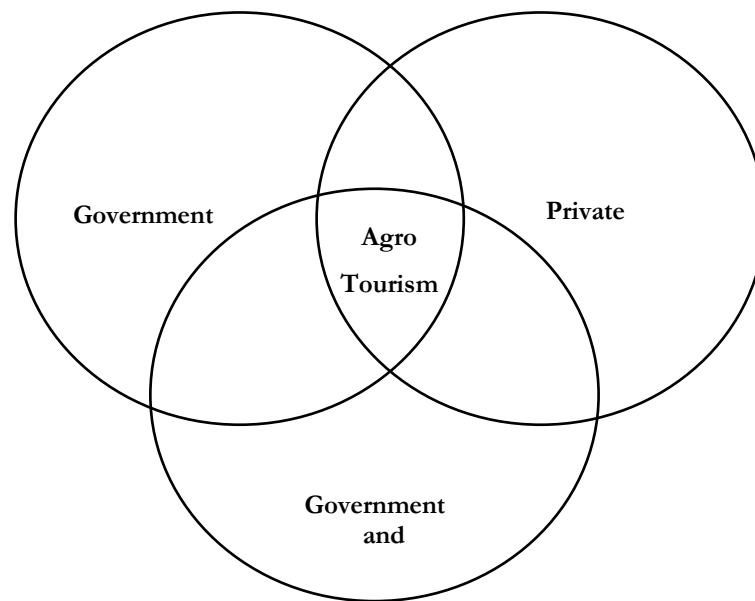
Implications for Policy and Practice

Figure 3. Integrated Agrotourism Based Tourism Village Development Model

The findings of this research provide valuable insights for policymakers and stakeholders involved in the development of agro-tourism in rural areas like Sungai Geringging. To maximize the potential of agro-tourism, it is essential to:

- *Invest in Infrastructure*

Prioritize road improvements and transportation access to make the village more accessible to tourists.

- *Leverage Natural Resources*

Develop tourism packages that highlight the village's agricultural activities and promote sustainable farming practices.

- *Enhance Public Facilities*

Build accommodations, restaurants, and other amenities that cater to tourists, ensuring that they are eco-friendly and in line with the village's rural aesthetic.

- *Foster Strategic Partnerships*

Encourage collaboration between the government, private sector, and local communities to pool resources and share expertise in developing tourism.

By addressing these areas, Sungai Geringging can become a model for sustainable agro-tourism development that benefits both the local community and the broader region.

Table 3. Potential Economic Contributions of Agro-tourism

Economic Activity	Current Value (IDR)	Projected Value (IDR)
Agricultural Production	4,965,830,000	6,000,000,000
Tourism Revenue	-	1,500,000,000

Conclusion

This study demonstrates that Sungai Geringgong has substantial potential to become a prominent agro-tourism destination, leveraging its rich agricultural landscape and natural resources. By applying the Analytical Hierarchy Process (AHP), the study identifies the most critical factors influencing agro-tourism development in the village: natural resource potential, socio-economic conditions, accessibility, and public facilities. Among these, natural resource potential and socio-economic conditions emerged as the top priorities, underscoring the importance of agricultural and community assets in attracting tourists and ensuring sustainable tourism growth.

However, despite its inherent potential, Sungai Geringgong faces significant challenges, particularly in terms of infrastructure and accessibility. The underdeveloped road network and limited public transportation options hinder the village's ability to attract and accommodate visitors. Moreover, the lack of sufficient public facilities, such as accommodations and dining options, limits the capacity of the village to provide a satisfying experience for tourists. Addressing these issues is essential to unlocking the full tourism potential of Sungai Geringgong.

The findings of this study underscore the importance of collaboration between government entities, private sector investors, and local communities in developing a sustainable agro-tourism model. Government support, including infrastructure improvements and favorable policies, is essential to creating a conducive environment for tourism growth. At the same time, private sector involvement can accelerate the provision of facilities and marketing efforts, while active community engagement ensures that tourism development aligns with local values and benefits residents directly. By following a strategic approach that prioritizes environmental sustainability, socio-economic benefits, and cultural preservation, Sungai Geringgong can serve as a model for agro-tourism development in rural Indonesia.

Recommendations

Based on the findings, the following recommendations are proposed to guide the sustainable development of agro-tourism in Sungai Geringgong:

- *Invest in Infrastructure Improvements*

Local governments should prioritize the enhancement of road infrastructure and transportation access to make Sungai Geringgong more accessible to tourists. Paving roads, improving signage, and establishing reliable public transportation options will significantly improve the ease of travel to the village, attracting more visitors and supporting the local economy.

- *Develop Eco-friendly Public Facilities*

To provide a high-quality visitor experience, Sungai Geringgong should develop eco-friendly accommodations and dining options that align with the village's rural character. Creating homestays, small guesthouses, and locally-owned eateries will offer comfortable lodging and dining experiences while generating income for local families. Additionally, integrating sustainable practices, such as waste management and water conservation, will reinforce the village's commitment to environmental stewardship.

- *Leverage Natural and Cultural Assets for Tourism Packages*

Develop tourism packages that highlight Sungai Geringgong's agricultural and cultural heritage. Interactive activities, such as guided farm tours, rice planting sessions, and traditional cooking classes, can provide unique, hands-on experiences that attract both local and international tourists. These activities not only enhance tourist engagement but also allow locals to share their cultural heritage and traditional knowledge.

- *Foster Government-Private Sector Partnerships*

Establish strong partnerships between the government and private sector to fund and manage tourism infrastructure and marketing initiatives. Government support through policies, grants, and training programs will encourage private sector investment in tourism facilities and services. Collaborative efforts with tour operators and regional tourism organizations can also promote Sungai Geringgong as part of broader regional tourism circuits, increasing its visibility.

- *Implement Community Engagement and Capacity-Building Programs*

Encourage community involvement in agro-tourism planning and operations to ensure that local residents benefit from tourism activities. Capacity-building programs, such as hospitality training, business management workshops, and language classes, can empower local residents to participate directly in tourism activities. Involving the community not only supports economic inclusivity but also fosters pride and ownership, helping to preserve the village's cultural and environmental integrity.

- *Establish Monitoring and Evaluation Mechanisms*

Regularly assess the impact of tourism development on Sungai Geringgong's environment, culture, and economy. Implement monitoring systems to evaluate visitor numbers, community satisfaction, and environmental impact to ensure that tourism remains sustainable and does not compromise local values. This information can guide future tourism strategies and adapt development practices as needed.

By implementing these recommendations, Sungai Geringgong can create a sustainable and resilient agro-tourism model that benefits local residents, preserves cultural and environmental assets, and contributes to the broader regional economy. This approach can serve as an example for similar rural communities in Indonesia, demonstrating how agro-tourism can be a powerful driver of rural development and environmental conservation.

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