

## Ecotourism Clusters and Circular Economy Practices for Sustainable Regional Development

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**Abstract:** This study addresses the national agenda for inclusive economic growth in underdeveloped and border regions by proposing ecotourism-based development strategies in South Papua Province. The research aims to identify key challenges faced by tourism enterprises and to formulate a locally grounded, sustainable tourism framework that strengthens indigenous communities and MSMEs while balancing economic, environmental, and cultural sustainability. An exploratory case study with a descriptive qualitative approach was employed, focusing on Merauke Regency as a strategic tourism gateway characterised by high biodiversity and cultural diversity, yet with limited development of tourism enterprises. Data were analysed to capture local dynamics, community participation, and the integration of ecotourism, community-based entrepreneurship, and circular-economy principles. The findings reveal that districts in South Papua possess complementary tourism potentials that can be integrated into thematic clusters, enabling a “one-stop destination” model based on community-based ecotourism (CBET). Frugal innovation, local wisdom, and community-led digital promotion emerge as key competitive strategies. Policy implications highlight the need for adaptive regulations that recognise indigenous governance systems, incentivise community-based investment, support green infrastructure development, and strengthen inter-district collaboration. Overall, the study contributes both theoretically and practically to sustainable tourism and collaborative governance in eastern Indonesia.

**Keywords:** Indigenous Communities; Community-Based Tourism; Frugal Innovation; Tourism Enterprises; Collaborative Governance; Border and Underdeveloped Regions.

**Cite as:** S. E. M. Phoek and L. Lauwinata, “Ecotourism Clusters and Circular Economy Practices for Sustainable Regional Development,” *AVE Trends in Intelligent Social Letters*, vol. 2, no. 4, pp. 173–183, 2025.

**Journal Homepage:** <https://avepubs.com/user/journals/details/ATISL>

**Received on:** 16/12/2024, **Revised on:** 08/03/2025, **Accepted on:** 19/06/2025, **Published on:** 11/12/2025

**DOI:** <https://doi.org/10.64091/ATISL.2025.000238>

### 1. Introduction

Tourism has become a key driver of regional economic growth, particularly in areas rich in natural resources that remain underutilised, such as South Papua Province. As a newly established province carved out from Papua Province, South Papua comprises four regencies: Merauke, Asmat, Mappi, and Boven Digoel, each with unique characteristics and significant potential to be developed into ecotourism destinations [1]. In the early 1970s, the Asmat Museum of Culture and Progress was established in Agats with support from the Rockefeller III Foundation and the Asia Foundation to preserve Asmat cultural heritage [8]. International attention to Asmat culture, particularly wood carvings and traditional dances, emerged after the disappearance of

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Michael C. Rockefeller in Asmat waters in 1961, which later became a catalyst for sustained cultural preservation efforts [10]. Merauke Regency hosts Wasur National Park, a vast conservation area with rich biodiversity [14].

Meanwhile, Boven Digoel holds historical significance as an exile site for Indonesia's Independence Figures, such as Bung Hatta, and Mappi Regency is renowned for its exotic swamp landscapes [15]. This wealth of natural and cultural assets aligns well with the core principles of ecotourism, namely environmental conservation, local community empowerment, and cultural education. Despite these tremendous potentials, they have yet to be fully realised due to various structural barriers. Challenges such as inadequate basic infrastructure (road access, electricity, internet connectivity), low human resource capacity, institutional fragmentation, and the risk of environmental degradation if not managed sustainably remain the main obstacles. Global studies affirm that developing sustainable tourism in remote regions requires a holistic approach that integrates ecological, economic, and social dimensions [4]; [12]. The community-based ecotourism (CBET) model has proven effective in improving communities' economic well-being while protecting the environment, as evidenced by successful cases in several developing countries. In both Brazil (e.g., among Xingu or Jalapão indigenous communities) and Papua, CBET has the potential to enhance local economies while preserving the environment. However, its implementation in Brazil is better documented in academic studies, whereas in Papua it remains very limited, offering opportunities for comparative research. Given the uniqueness of its natural and cultural resources, ecotourism is a highly relevant development strategy for South Papua.

Grounded in environmental conservation, community empowerment, and cultural education, ecotourism provides a sustainable framework that preserves local assets while fostering inclusive, locally based economic opportunities. The development of local tourism enterprises in South Papua continues to face fundamental constraints. Limitations in physical and digital infrastructure reduce accessibility for tourists and weaken the distribution of tourism products. Studies in remote areas highlight the importance of digital infrastructure for strengthening connectivity and enabling local community participation in the tourism value chain [17]. Limited access to capital and managerial training also constitute major obstacles, particularly for MSMEs and indigenous communities. Without support in innovation and marketing, they struggle to build competitive businesses [7]. Yet, South Papua's ecosystem has significant potential for fostering eco-innovation, ranging from environmentally friendly homestays to cultural tour packages. Moreover, the lack of coordination among key stakeholders, government, businesses, indigenous communities, and conservation organisations hampers the consolidation of large-scale programs such as community-based ecotourism. The absence of collaborative platforms leads to sustainable development initiatives operating in a fragmented, unsynergized manner. The use of digital technology and internet-based marketing strategies is also still very limited [12].

Studies show that digital marketing can shape destination images, enhance tourist interaction with the environment, and strengthen conservation awareness. Another study, through European inter-university collaboration, demonstrates that digitalisation can expand markets, increase transparency, and ensure that economic benefits remain within local communities [13]. This research is significant because there is an empirical gap between the tourism resource potential in eastern Indonesia, particularly South Papua, and the contextual, adaptive, and sustainable tourism development practices. Most existing studies have focused more on western and central Indonesia, such as Bali, Yogyakarta, or Labuan Bajo [19]. At the same time, the socio-ecological context of South Papua has not been systematically explored. This study addresses the national agenda for inclusive economic growth in underdeveloped and border regions such as South Papua by proposing ecotourism-based strategies that balance economic development with environmental and cultural sustainability. Focusing on a newly established province with limited empirical research, the study integrates ecotourism and community-based entrepreneurship to identify key challenges facing tourism enterprises and to develop a locally grounded, sustainable tourism framework that strengthens indigenous communities and MSMEs. The findings contribute to the global literature on sustainable tourism and regional development while offering practical policy recommendations for local stakeholders and development partners.

## **2. Literature Review and Theoretical Framework**

### **2.1. Local-Based Tourism Development and Social Business**

Tourism Social Entrepreneurship (TSE) plays a crucial role in empowering local communities through a dual mission of economic sustainability and environmental conservation. In ecotourism, TSE emphasises that tourism success should be measured not only by economic gains but also by long-term benefits for local livelihoods and environmental preservation. Community-Based Tourism (CBT) serves as an important model for inclusive and sustainable tourism by positioning local communities as active actors in tourism development [20]. By strengthening community involvement across tourism activities, CBT supports cultural and environmental preservation while aligning with the Sustainable Development Goals, particularly the Goals on poverty reduction and decent work. Community-led sustainable tourism further highlights the value of direct community participation in planning and management to enhance destination competitiveness, cultural heritage management, and local self-reliance. Grounded in circular economy principles, this approach promotes efficient resource use and integrated

management, making it highly relevant for regions such as South Papua that require adaptive and participatory development strategies.

## **2.2. Regional Entrepreneurship Theory and Microenterprise Innovation**

Within the framework of Regional Entrepreneurship Theory and Microenterprise Innovation, various studies highlight how small and medium enterprises (SMEs) in the tourism sector can build resilience and create value through innovation. Sánchez and Oskam [5] note that Europe promotes digital transformation as a step toward building resilience and achieving a more sustainable future by adopting digital innovations, forging strategic collaborations, and quickly adapting to market changes. These findings provide an important reference for South Papua, where coastal and marine tourism SMEs can enhance their competitiveness through similar strategies, particularly by reaching global tourists online and managing local business networks. Liñeiro et al. [3] distinguish between necessity-driven and opportunity-driven entrepreneurs, noting that tourism businesses in South Papua are largely necessity-based, which limits innovation and risk-taking. Evidence from Vietnam and Thailand shows that shifting toward opportunity-driven entrepreneurship by packaging local coastal and marine experiences can generate new sources of growth. Furthermore, the literature emphasises that entrepreneurial orientation, collaboration, and leadership are critical success factors for tourism SMEs, as demonstrated in Thailand, Vietnam, and Raja Ampat, where multi-stakeholder synergy has enabled conservation-based tourism to increase local income while preserving ecosystems and cultural identity [9]; [18].

## **2.3. Ecotourism Theory and Principles in the Local Context**

Ecotourism theory and principles position tourism not merely as an economic activity but as a sustainable development tool that integrates environmental conservation, community empowerment, and cultural preservation. In this context, Tourism Social Entrepreneurship (TSE) is viewed as an effective means to develop ecotourism that not only maintains ecological balance but also enhances the well-being of local communities. This model integrates social and environmental missions into business practices, creating synergy between economic interests and concern for the preservation of natural resources and local cultural heritage. The definition of ecotourism put forward by the International Ecotourism Society (TIES) in 1990 serves as an important reference for understanding the fundamental philosophy of ecotourism. Ecotourism is defined as “responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education.” This definition is highly relevant to the characteristics of South Papua, which is rich in biodiversity, indigenous cultures, and pristine landscapes. In this framework, tourism is not merely about consuming natural scenery, but a learning process that directly benefits local communities and the surrounding environment.

## **2.4. Business Strategies and Regional Tourism Ecosystem Models**

Regional tourism business strategies emphasise the importance of cross-actor collaboration as the foundation for developing competitive destinations. Various literature supports the view that the active involvement of government, private-sector actors, local communities, and academics can create synergies for more structured and inclusive tourism development [6]. Regional tourism forums or consortia often serve as strategic platforms for harmonising interests and developing joint policies. However, several studies also note that without clear coordination mechanisms and strong leadership, multistakeholder collaboration tends to stagnate or remain symbolic. Differentiation strategies based on local potential, such as ecotourism, cultural tourism, or culinary tourism, have proven effective in building unique destination appeal. Contemporary tourism literature underscores the importance of local narratives as a key selling point, especially in the era of the “experience economy” [16]; [2]. The main challenges in implementation stem from a lack of professional capacity for tourism product design and curation, as well as weak integration among on-the-ground actors. The literature highlights digital marketing through social media, influencers, and online platforms as a key driver of destination visibility and tourist loyalty, particularly among younger markets [11]. However, effective promotion must be accompanied by adequate infrastructure and service quality to avoid gaps between expectations and reality. Integrated tourism ecosystem models linking tourism with agriculture, handicrafts, and the arts can enhance local value creation, but their success depends on regulatory support, fiscal incentives, and digital readiness. Conversely, development strategies that neglect sustainability and local capacity risk overtourism, social conflict, and environmental degradation, underscoring the need for adaptive, data-driven, and sustainability-oriented tourism planning [7].

## **3. Research Methodology**

This research employs an exploratory case study approach with a descriptive qualitative design. This approach was chosen to examine in depth the dynamics of community-based tourism enterprise development, the integration of ecotourism principles, and circular economy practices in a region with complex social, cultural, and ecological contexts, such as South Papua. The case study method enables an in-depth contextual understanding of local strategies and challenges. The research was conducted in Merauke Regency, South Papua Province. This area was selected because it serves as one of the main gateways for tourism

in Papua, possesses high biodiversity and cultural diversity, but still exhibits a low level of tourism enterprise development. Additionally, Merauke is prioritised in regional development programs focused on indigenous territories and on advancing sustainable ecotourism destinations. The research subjects consist of three main groups:

- Local business actors (MSMEs, homestay operators, tour guides)
- Government stakeholders (tourism offices, regional planning agencies, and conservation organisations)
- Tourists (domestic and international)

Data were collected through in-depth interviews with local entrepreneurs and government representatives, as well as questionnaire surveys administered to tourists to explore their preferences, experiences, and perceptions of the ecotourism concept in Merauke. Local policy documents and field observations were also utilised as supporting data. Qualitative data were analysed using NVivo software, which enabled thematic coding of key themes, including local entrepreneurship strategies, community participation, and ecotourism integration. Meanwhile, quantitative data from the questionnaires were analysed using descriptive techniques in NVivo.

## **4. Results and Discussion**

### **4.1. Profile of Local Tourism Enterprises and Regional Characteristics**

The mapping of local tourism potential in South Papua Province reveals four distinct regional characteristics, each with unique opportunities and challenges for sustainable tourism development.

#### **4.1.1. Merauke Regency; Coastal, River, and Conservation Tourism**

Merauke, the southernmost regency in Indonesia, offers vast coastal plains, beaches, rivers, and Wasur National Park, home to endemic species such as birds of paradise, cassowaries, pelicans, tree kangaroos, and cuscus. The local community's involvement in conservation within Wasur National Park demonstrates a practical model of community-based ecotourism. Merauke's historical significance, particularly its integration into Indonesia through the 1969 Act of Free Choice (Pepera), provides opportunities for educational and historical tourism. However, challenges remain in improving supporting infrastructure and creating compelling narratives for tourists, which require integrated strategies from government and local communities.

#### **4.1.2. Asmat Regency; Centre for Coastal Arts and Culture**

Globally renowned for its woodcarving art, Asmat has an established export market for its sculptures in Europe and the United States. The deep cultural connection between the Asmat people and nature is a strong foundation for developing authentic cultural tourism products. Initiatives to establish Asmat as a pilot cultural tourism destination focusing on traditional arts, dances, and scenic water tours would diversify income sources. Strengthening local entrepreneurship and market access is crucial, especially to ensure benefits remain with the community rather than external intermediaries.

#### **4.1.3. Boven Digoel Regency; Historical and Highland Tourism**

Boven Digoel's legacy as a political exile site during the Dutch colonial era is a powerful asset for historical tourism. Combined with its rugged mountain landscapes and proximity to Korowai communities famous for their unique tree houses, Boven Digoel holds potential for extreme cultural tourism experiences. Yet logistical challenges stemming from limited road and health infrastructure threaten sustainability unless addressed through adaptive planning and community engagement.

#### **4.1.4. Mappi Regency; Swamp-Based Cultural and Nature Tourism**

Mappi's natural swamps and rivers offer opportunities for river cruises, birdwatching, and adventure tourism. Cultural tourism in villages like Awyu, combined with local culinary traditions and annual events like the Mappi Cultural Festival, could form a holistic tourism package. Additionally, educational tours focusing on traditional sago farming provide unique learning experiences for tourists interested in indigenous food systems. Integrated promotion and community training programs are needed to professionalise these offerings.

## **4.2. Integrated Development Potential**

The synergy of these four regencies presents a unique opportunity to establish a regional tourism cluster anchored on cultural, historical, and conservation themes. However, the findings highlight several key challenges:

- Lack of integrated infrastructure connecting tourism sites.
- Low digital literacy among local tourism actors is hindering online marketing efforts.
- Limited capacity of MSMEs to innovate tourism products competitively, and Weak coordination among local governments, customary communities, and private sector stakeholders.

These challenges align with the issues identified in the NVivo thematic coding, which emphasise sporadic government involvement and the critical role of NGOs in capacity building. Long-term reliance on external actors without institutionalising local capacities risks undermining sustainability. Therefore, stakeholders during focus group discussions (FGDs) suggested establishing a collaborative Digital Village Tourism Centre to improve coordination, skills development, and community-led innovation.

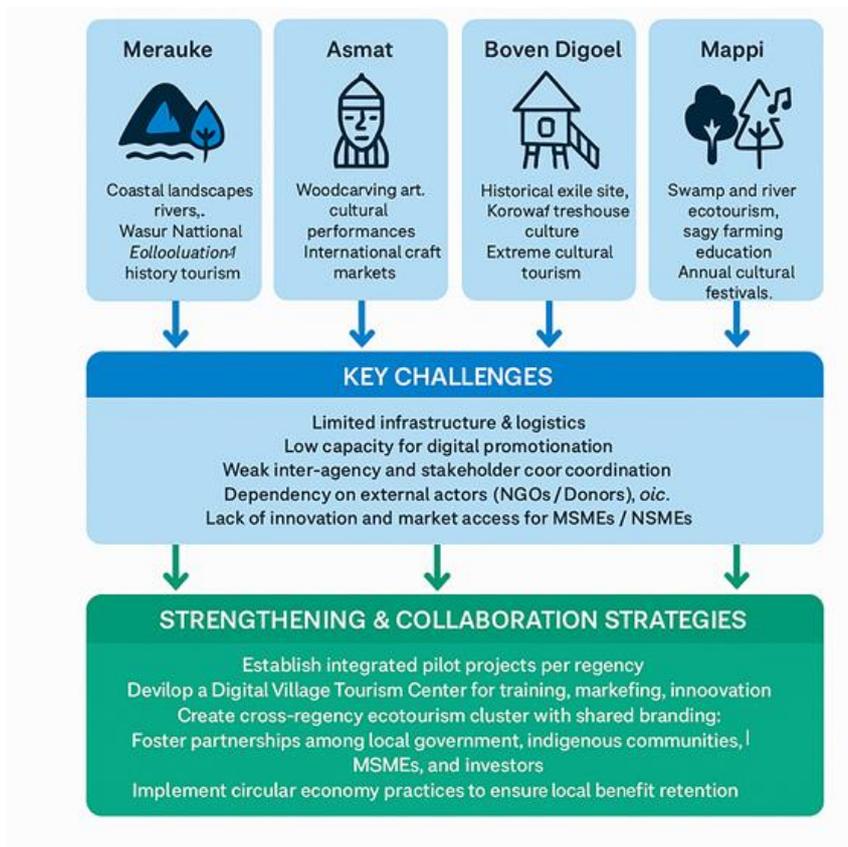
### 4.3. Implications for Sustainable Tourism Development

To build a sustainable and inclusive tourism ecosystem, the results underscore the need for:

- Integrated pilot projects highlighting each region’s unique potential.
- Strategic digital marketing campaigns leveraging the local narrative to attract millennial and Gen Z tourists.
- Inclusive collaboration platforms involving indigenous communities, MSMEs, local governments, and strategic investors.
- Policies supporting circular economy practices in tourism, ensuring economic benefits are retained locally while conserving the environment and preserving cultural heritage.

#### 4.3.1. The Results of the Focus Group Discussion (FGD)

Affirm that the concept of Tourism Cluster Synergy is a key strategy for tourism development in South Papua Province. The integration of the unique characteristics of the four regencies, Merauke, Asmat, Boven Digoel, and Mappi, into a single tourism cluster will create strong differentiation in both national and international tourism markets.



**Figure 1:** Tourism assets, challenges, and collaboration strategies in Papua

This concept not only maximises the distinctive potential of each regency but also integrates a variety of complementary tourism themes, ranging from coastal tourism and conservation in Merauke, coastal arts and culture in Asmat, historical and highland cultural uniqueness in Boven Digoel, to wetland ecotourism enriched with local wisdom in Mappi. To realise this strategy, it is necessary to explore and develop a one-stop destination model that connects the four regencies through a series of integrated thematic travel packages. These packages can be designed in a journey sequence: Beach and Conservation (Merauke) → Art and Culture (Asmat) → History and Highlands (Boven Digoel) → Wetland Ecotourism (Mappi). An illustrative Figure 1 is provided below to depict the connectivity and flow of the proposed model. This approach is expected to offer a holistic travel experience for tourists, increase their length of stay, and broaden the distribution of economic benefits to local communities across all regencies. Furthermore, implementing this concept will require cross-sector collaboration, improved infrastructure quality, and a comprehensive digital marketing strategy to attract both domestic and international tourists. The discussion also emphasised the importance of identifying priority tourist destinations and building connectivity through green infrastructure, such as access roads, river ports, and eco-friendly digital communication networks. This approach is anticipated to support sustainable tourism and improve accessibility to destinations in each regency. Additionally, further discussion is needed to determine the central logistics hub for tourism. The city of Merauke is recommended as the primary entry point for tourists. From Merauke, visitors can be distributed to other regencies based on their selected travel packages, thereby ensuring a more integrated and efficient journey while promoting equitable economic benefits across South Papua.

#### 4.3.2. Root Problems and Determining Success Factors in the Development of Local Tourism Enterprises

The development of local tourism enterprises in South Papua Province occurs within a complex landscape characterised by immense potential but also significant structural challenges. This study finds a strong link between key root problems, such as limited infrastructure, weak human resource capacity, and fragmented coordination, and the strategic factors needed for successful, sustainable tourism growth. One major obstacle identified is poor accessibility and connectivity, especially to ecotourism and cultural destinations. Inadequate road networks, unreliable public transportation, and limited digital infrastructure hinder tourist mobility, constrain logistics, and restrict effective destination promotion. Coupled with local entrepreneurs' limited access to capital, these factors severely limit the development of tourism facilities and services. Therefore, the provision of inclusive, integrated infrastructure, physical, digital, and financial emerges as a critical priority to unlock South Papua's tourism potential. Human resource capacity presents another key barrier. Low proficiency in digital literacy, business management, hospitality, and foreign languages undermines service quality. However, success stories across several communities demonstrate that local innovations, such as community-driven social media campaigns, cultural storytelling, and inter-community collaborations, enable small businesses to compete by aligning their offerings with local identities and experience-based tourism trends. These examples highlight the adaptive potential of frugal innovation in overcoming capacity limitations.

Fragmentation among key actors—including indigenous communities, regional governments, and market players further weakens synergy in promotion, package development, and holistic destination management. Areas with stronger collaboration between public, private, and community actors have demonstrated greater success in building robust tourism ecosystems. This finding supports the importance of participatory, community-oriented policies, adaptive regulations, and integrated training programs for micro, small, and medium enterprises (MSMEs) to foster enabling conditions for sustainable tourism. Moreover, the prevailing top-down approach in tourism development exacerbates imbalances in decision-making roles between the state, investors, and indigenous communities. Excluding local communities from planning and management processes undermines ownership and social sustainability. Conversely, active involvement of indigenous peoples as custodians of cultural heritage enhances social legitimacy and improves visitor experiences. Externally, the region faces threats from environmental degradation caused by resource exploitation, conflicts with the mining and forestry sectors, and intensified regional competition from better-branded destinations. Economic and political uncertainties, along with disaster risks like floods and landslides, increase the vulnerability of long-term tourism planning. These challenges highlight the need for community-based risk mitigation strategies and adaptive, responsive policies. Overall, this study concludes that addressing structural barriers through contextual, participatory strategies—such as inclusive infrastructure, adaptive local innovation, collaborative governance, and empowerment of indigenous communities—is essential for establishing a sustainable, resilient, and community-based tourism model in South Papua (Table 1).

**Table 1:** Problem categories, key root causes, and recommended actions

No.	Problem Category	Key Root Causes	Recommended Actions
1	Human Resources	Low Digital Literacy	Develop integrated training programs in hospitality, digital marketing, and destination management with local contextualization. Engage indigenous communities as trainers and facilitators to incorporate local wisdom.

			Provide incentives for innovative young local entrepreneurs.
2	Policy and Methods	Limited Hospitality and Language Training	Reform tourism sector bureaucracy (establish a one-stop service for local tourism licenses). Design fiscal incentives for green and community-based investors. Create a multi-stakeholder coordination forum involving tourism, environment, and regional planning agencies.
3	Financing and Resources	Limited Indigenous Participation	Promote alternative financing schemes (tourism cooperatives, village-owned enterprises, local crowdfunding). Build micro-logistics networks for eco-friendly materials procurement in tourism villages. Engage local banks and state-owned enterprises' CSR programs to establish revolving funds for tourism businesses.
4	Environment	Complicated Business Licensing	Establish protected zones in nature-based tourism areas and enforce moratoriums on extractive activities in strategic destinations. Implement eco-audit systems and ecotourism certifications. Develop community-based early warning systems in disaster-prone areas.
5	Management and Governance	Lack of Incentives for Social Investors	Develop destination development roadmaps in collaboration with local stakeholders. Revise the CBT model to ensure fair benefit distribution. Implement participatory socio-environmental monitoring systems using mobile apps.
6	Infrastructure and Technology	Weak Cross-Sector Coordination	Build partnerships with service providers to expand internet coverage in tourism villages. Prioritise road access development to flagship destinations. Develop local digital marketing platforms and tourism directories based on GIS and mobile applications.

#### 4.4. Successful Business Practices and Strategies

Field findings show that tourism entrepreneurs in South Papua, particularly in Merauke Regency, sustain their businesses through frugal innovations, such as using local materials, utilising communal facilities, employing simple digital marketing, and collaborating with NGOs, religious institutions, and local government. These practices reduce costs while maintaining authentic ecotourism experiences and have effectively attracted environmentally conscious domestic tourists through community-based social media content. This aligns with the concept of frugal innovation and community-based tourism, where local collaborations support dual economic and conservation goals and minimise income leakage. However, the literature cautions against risks such as greenwashing in influencer-driven promotions, cultural distortion from repetitive ritual performances, and declining service quality if frugal models are not supported by adequate infrastructure as visitor numbers increase. Focus group discussions (FGDs) with tourism experts and researchers reached consensus that tourism business strategies in South Papua are unique, combining frugal innovations using local materials and community-based promotions with vibrant cultural spirituality. This diverges from the mainstream literature, which emphasises capital and high technology. These findings support theories of local resource-based economic development and social entrepreneurship, but warrant caution about the risks of cultural commodification and over-reliance on authentic narratives, which can be difficult to sustain.

#### 4.5. Integrating Local Wisdom in Tourism Management

Research findings indicate that several tourism communities in Merauke have successfully integrated local wisdom into tourism management, particularly by limiting visits to indigenous territories based on cultural calendars and the traditional "SASI"

system—which governs the sustainable use of forest products and hunting activities—and by designating sacred areas that must not be exploited or visited. This system ensures that tourism activities align with community norms, preserve the sanctity of nature, and function both as social control and conservation efforts, consistent with community-based tourism (CBT) and tourism social entrepreneurship (TSE) theories, which emphasise active community participation and indigenous involvement to enhance sustainability. This aligns with Sánchez and Oskam [5], who highlight the post-pandemic importance of digital innovation for tourism MSMEs, though digitalisation without technical capacity-building risks deepening technology access gaps. FGDs stressed strategies for entrepreneurs to use customary regulations as unique selling points, design culturally timed tour packages, and improve digital skills through drone content and online booking training. Local governments are encouraged to institutionalise collective permits in tourism regulations, expand internet infrastructure in villages, and offer incentives for culturally sensitive investors. To support marketing, collective branding under “The Southern Papua Cultural and Adventure Belt” and an integrated digital platform are recommended to market tour packages, display event calendars, profile cultural assets, promote MSME products, and enable seamless online reservations.

#### **4.6. Government and Development Partner Roles in Supporting Tourism Enterprises**

Research results show that local governments in South Papua have begun supporting tourism enterprises through basic training, promotional activities at national events, and technical assistance for MSMEs. However, these efforts remain sporadic, unsustainable, and uncoordinated across strategic cross-sectoral plans involving local and national entrepreneurs. This finding aligns with collaborative governance and institutional embeddedness theories, which emphasise the need for integrated policies and sustained multi-actor support for effective local tourism enterprise development. Conversely, NGOs and religious institutions have played significant roles in entrepreneurship mentoring, forming tourism cooperatives, and advocating for indigenous land recognition, although their dominance risks fostering external dependency if not balanced with active government engagement. FGDs emphasised the need to develop community-based digital tourism village collaboration centres, facilitated by the government and development partners. These centres would serve as integration hubs for entrepreneurs, NGOs, and government extension workers to co-create digital content, provide integrated training, and manage tourism data. This model supports decentralised innovation, empowers young generations, and accelerates technology adoption while preserving local wisdom. The discussion also recommended establishing a South Papua Tourism Development Coordination Forum, involving indigenous communities as custodians of local wisdom, and collaborating with MSMEs to build a value chain that promotes community welfare. Preparing investment proposals for accommodation, transportation, and event organisation sectors is essential to strengthening the tourism business ecosystem.

#### **4.7. Strategies for Sustainable Tourism Development Based on Ecotourism and Local Participation in South Papua**

##### **4.7.1. Centre Indigenous Community Participation as the Core of Management**

Tourism development in South Papua should place indigenous communities at the core of management as key decision-makers and beneficiaries. This can be achieved through joint governance institutions that ensure tourism planning and business models adhere to the principles of free, prior, and informed consent, thereby strengthening community ownership, legitimacy, and sustainability.

##### **4.7.2. Strengthening Community-Based Ecotourism (CBET)**

Each district possesses unique ecotourism potential: coastal conservation and Wasur National Park (Merauke), coastal cultural arts (Asmat), historical-mountain tourism (Boven Digoel), and swamp ecotourism and sago-based agriculture (Mappi). CBET strategies should highlight these distinctive features through educational tour packages combining biodiversity interpretation with authentic cultural experiences. Nature-based attractions must prioritise environmental carrying capacity and actively involve locals as guides, homestay providers, and culinary entrepreneurs.

##### **4.7.3. Innovating Frugal Business Models and Circular Economy Practices**

Encourage entrepreneurs to adopt cost-efficient innovations by utilising local materials, establishing communal kitchens, and leveraging authentic community-based social media promotions. This frugal innovation concept should be integrated with circular economy principles, such as using renewable energy, managing tourism waste, and sourcing local products to minimise economic leakage outside the region.

##### **4.7.4. Enhancing Sustainable Tourism Human Resources Capacity**

Local governments, in collaboration with NGOs, universities, and religious institutions, should organise integrated training programs for indigenous communities and tourism MSMEs. Training content must cover destination management, culturally

sensitive hospitality, foreign languages, digital literacy, disaster risk mitigation, and environmental conservation. Special incentives for young people actively engaged in ecotourism should be provided to encourage the regeneration of tourism entrepreneurs.

#### **4.7.5. Developing Inclusive Infrastructure and Green Connectivity**

Prioritise building green infrastructure, such as environmentally friendly road access, ecotourism-standard river piers, and expanding internet networks in tourism villages. These infrastructures must prioritise sustainability by adhering to environmental standards and conducting regular audits. Merauke City, as the tourism hub, should be equipped with a logistics centre to distribute tourists to the four districts efficiently.

#### **4.7.6. Strengthening the Digital Tourism Ecosystem**

Develop an integrated digital platform showcasing cultural profiles, tour packages, event calendars, MSME directories, and online reservation systems. Collective branding under “The Southern Papua Cultural and Adventure Belt” should be optimised through integrated digital campaigns that leverage drone videos, cultural storytelling, and visitor testimonials to enhance global visibility.

#### **4.7.7. Adaptive Policies and Culturally Sensitive Incentives**

Local governments must institutionalise collective indigenous permits into regional tourism regulations, streamline bureaucracy, and establish one-stop services for tourism business licensing. Fiscal incentives for investors who implement environmentally friendly practices and respect local wisdom will attract high-quality, sustainability-aligned investments.

#### **4.7.8. Integrated Pilot Projects in Four Districts**

Design pilot projects that leverage each district’s unique strengths: conservation tourism in Merauke, digital woodcarving galleries and live workshops in Asmat, historical trekking and cultural homestays in Boven Digoel, and annual cultural festivals in Mappi. These pilot projects will serve as innovation laboratories and scalable models for other tourism villages.

#### **4.7.9. Collaborative Governance and Participatory Monitoring**

Establish joint governance platforms involving government, indigenous communities, MSMEs, NGOs, and investors to plan, implement, and evaluate tourism development. Participatory monitoring systems using digital applications will enable transparent, responsive reporting on environmental issues, social conflicts, and service quality.

### **5. Conclusion**

This study highlights the critical importance of developing sustainable tourism in South Papua Province through a strong community-based ecotourism (CBET) approach and robust local participation. Key findings reveal that each district—Merauke, Asmat, Boven Digoel, and Mappi—has unique tourism potential that can be synergised into a thematic cluster encompassing nature conservation, coastal cultural arts, mountain history, and swamp-based ecotourism. Developing a cluster-based strategy enables the creation of a comprehensive, integrated “one-stop destination” model. The main contribution of this research lies in its locally grounded tourism development strategy model, emphasising local wisdom and frugal innovations relevant to Eastern Indonesia’s context. Concepts such as frugal innovation, circular economy, and CBET are confirmed as strategic pillars for supporting competitive, low-ecological-footprint tourism. This research also adds theoretical value to the literature on collaborative governance by highlighting the critical role of indigenous communities as key decision-makers, community-based digital promotion agents, and cultural calendar managers. Policy implications of this study include the need for adaptive tourism regulations accommodating indigenous collective permitting systems, incentives for community-based investors, and the provision of green infrastructure and integrated digital tourism platforms.

Local governments are expected to act as facilitators in establishing community-based digital tourism village collaboration centres and sustainable inter-district coordination forums. Successful practices have been identified, such as community-based social media promotion and innovative tourism products using local materials. Still, structural challenges remain, including low human resource capacity, dependency on Special Autonomy funds, and weak cross-sectoral integration. Additionally, external threats such as natural resource exploitation and investment uncertainty require responsive, community-based mitigation strategies. A limitation of this study is its scope, which focuses on local tourism actors in the four districts without quantifying the economic impact on regional revenue. Therefore, further research is recommended using quantitative and comparative approaches to evaluate the effectiveness of the pilot project, the economic multipliers of tourism villages, and the

development of data-driven sustainability indicators. By integrating participatory strategies, digital technology, and culture-based conservation, South Papua holds significant potential to become a leading tourism region that not only drives economic growth but also preserves social harmony and long-term environmental sustainability.

**Acknowledgement:** The authors sincerely acknowledge the support and institutional facilities provided by STIE Saint Theresa for the successful completion of this research. The authors also thank the management and faculty members for their guidance and encouragement throughout the study.

**Data Availability Statement:** The datasets supporting the conclusions of this study are available from the corresponding author upon reasonable request to promote transparency and reproducibility.

**Funding Statement:** The authors affirm that this research and manuscript preparation were completed without any external financial support or sponsorship.

**Conflicts of Interest Statement:** The authors declare that they have no competing interests that may have influenced the results or interpretation of this work.

**Ethics and Consent Statement:** The authors confirm that all necessary permissions were obtained for the dissemination of this work and consent to its accessibility for academic and educational purposes.

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