

27-03-2026

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**To cite this article:** Muda, F. P. (2026). The role of the Pentahelix model in village development towards sustainable tourism villages in Indonesia: A systematic review. *Priviet Social Sciences Journal*, 6(3), 540-553.  
<https://doi.org/10.55942/pssj.v6i3.1510>

**To link to this article:** <https://doi.org/10.55942/pssj.v6i3.1510>



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## The role of the Pentahelix model in village development towards sustainable tourism villages in Indonesia: A systematic review

Florianus Pruda Muda 

Master of Management, Universitas Teknologi Yogyakarta, Campus 1, Jl. Siliwangi (Ringroad Utara),  
Jombor, Sleman, D.I. Yogyakarta 55285, Indonesia  
e-mail: [florianuspmuda@gmail.com](mailto:florianuspmuda@gmail.com)

*Received 08 January 2026*

*Revised 14 February 2026*

*Accepted 27 March 2026*

### ABSTRACT

Sustainable tourism village development requires effective cross-sector collaboration to balance economic growth, social inclusion, and environmental sustainability. However, existing studies have largely treated the Pentahelix model, which involves the government, academia, business, community, and media, as a normative framework, with limited systematic analysis of its governance dynamics, power relations, and inclusivity outcomes. This study addresses this gap by employing a PRISMA-based Systematic Literature Review of 40 empirical articles published between 2014 and 2025, sourced from Scopus, Web of Science, SINTA, Garuda, and Google Scholar. The findings indicate that multi-actor collaboration under the Pentahelix model contributes to innovation, capacity building, and the preservation of cultural and environmental resources, resulting in improved household income, employment opportunities, and the growth of micro and small enterprises. Nevertheless, the effectiveness of the model remains uneven across contexts due to challenges such as asymmetrical power relations, fragmented coordination, limited funding, and gaps in community capacity, particularly in digital literacy and tourism management. This study contributes to the literature by reconceptualizing the Pentahelix model as a dynamic form of collaborative governance shaped by interaction patterns, institutional arrangements, and inclusivity challenges, rather than a static and idealized framework. The findings emphasize that the success of multi-stakeholder collaboration depends not only on actor involvement but also on the quality of coordination and governance mechanisms. Practically, the study highlights the importance of institutionalized coordination platforms, participatory governance, and targeted capacity-building initiatives. From a policy perspective, it underscores the need for adaptive and inclusive governance strategies in Indonesia, including decentralized collaboration structures and the active inclusion of vulnerable groups. Future research should employ quantitative and mixed-method approaches to examine causal relationships and conduct comparative studies across different contexts.

**Keywords:** collaborative governance; Indonesia; Pentahelix model; sustainable tourism villages; systematic literature review

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RESEARCH & PUBLISHING



## 1. INTRODUCTION

The tourism sector is one of the main driving forces of Indonesia's national economy. Its contribution to the national Gross Domestic Product (GDP) ranged between 3.6% and 5.2% during the period from 2018 to 2022 (Hasibuan et al., 2023). The government has positioned tourism as a national development priority, as evidenced by various strategic programs and Indonesia's ranking of 32nd out of 117 countries in the Travel & Tourism Development Index (TTDI) 2022 (World Economic Forum, 2022). In this context, tourist villages have emerged as a community-based tourism model that is gaining traction, aligned with the growing trend of nature-based, cultural, and local wisdom-oriented tourism that is more sustainable (Zainal et al., 2024). The development of tourism villages is increasingly recognized as an important strategy for promoting inclusive local economic growth while preserving environmental and cultural resources.

According to data from the Ministry of Tourism and Creative Economy, as of 2023, there were more than 4,600 tourist villages spread across Indonesia, a significant increase compared to previous years (Majelis Permusyawaratan Rakyat Republik Indonesia, 2023). Programs such as the "Tourism Awareness Campaign 5.0" and the development of tourist villages based on local wisdom are concrete forms of the government's commitment to positioning villages as centers of development based on local potential. Tourist villages are expected not only to become new economic destinations but also instruments for environmental, social, and cultural preservation (Rahmawati et al., 2023). However, the success of tourism village development depends not only on the availability of natural and cultural resources but also on the effectiveness of governance structures and stakeholder collaboration in managing tourism activities.

Several studies have examined the development of tourist villages, particularly regarding community participation. Dewi (2013) highlighted the weak active role of local communities in decision-making related to village tourism development. The government often plays a dominant role, while communities are more frequently treated as objects rather than subjects of development. This indicates the importance of balanced multi-stakeholder collaboration. A study of the Keliki Tourist Village in Gianyar, Bali, showed that the Pentahelix collaboration model, engaging the government, community, academia, business, and media, successfully integrated capacity-building programs, women's empowerment, and digital promotion based on local potential (Wiartha et al., 2024). These findings suggest that tourism village development requires effective coordination among multiple actors to ensure that development outcomes benefit local communities while maintaining environmental and cultural sustainability.

The Pentahelix model is recognized as a collaborative framework that can bridge the diverse needs and interests of stakeholders in sustainable development. Sukarsono (2023) emphasized that cross-helix collaboration in the tourism sector can create complementary synergies in addressing social, economic, and ecological challenges, such as conflicts of interest, unequal benefit distribution, and cultural degradation. Furthermore, Pentahelix is believed to drive innovation in tourist village development through the utilization of academic knowledge, media-based information technology, and local entrepreneurial potential responsive to market needs (Noviana et al., 2025). Through the integration of government policies, academic knowledge, business investment, community participation, and media communication, the Pentahelix model is expected to support sustainable tourism development that balances economic growth, social inclusion, and environmental protection.

Previous studies have largely treated the Pentahelix model as a normative and idealized framework, with limited attention to its underlying governance dynamics, power asymmetries, and inclusivity outcomes in practice. Consequently, the existing body of knowledge remains fragmented and insufficient to explain how multi-actor collaboration operates across diverse tourism village contexts. This study addresses this critical gap by systematically synthesizing empirical evidence to uncover interaction patterns, coordination mechanisms, and structural challenges within the Pentahelix model in the context of tourism village development in Indonesia.

Accordingly, this study systematically reviews and critically synthesizes empirical evidence on the implementation of the Pentahelix model in sustainable tourism village development in Indonesia. Specifically, it seeks to (1) identify patterns of multi-actor interaction, (2) examine governance challenges and power dynamics, and (3) evaluate inclusivity and sustainability outcomes. Furthermore, this study contributes to the literature by providing an integrated synthesis of empirical findings that clarifies how collaborative governance operates within the Pentahelix framework. The findings also offer insights for policymakers and tourism stakeholders in designing more inclusive and effective multi-stakeholder collaboration strategies for sustainable tourism village development. To ensure methodological rigor and transparency in synthesizing the existing literature, this study adopts a systematic literature review approach following the PRISMA guidelines.

## **2. THEORETICAL BACKGROUND**

### **2.1. Pentahelix Model in Tourism Development**

The Pentahelix model is a collaborative framework that emphasizes the interaction of five key actors in development processes: government, academia, business, community, and media. This model extends earlier innovation collaboration frameworks, such as the triple helix, which focuses on the interaction between universities, industry, and the government in fostering innovation and development (Etzkowitz, 2008).

In the context of tourism development, the Pentahelix model provides a more comprehensive structure by incorporating broader societal actors. Each helix performs complementary roles in supporting sustainable development. The government acts as a regulator and facilitator through policy formulation and infrastructure provision. Academia contributes through research, education, and knowledge transfer. The business sector supports investment, market development, and service innovation. Communities serve as the main actors in implementing tourism activities and preserving local culture. Meanwhile, the media functions as an information disseminator and promoter that enhances destination visibility and public awareness.

Through this collaborative mechanism, the Pentahelix model promotes integrated development in which multiple stakeholders work together to achieve common goals. Such collaboration is particularly important in tourism village development, where local resources, community participation, and institutional coordination must operate simultaneously to ensure sustainability.

### **2.2. Sustainable Tourism Villages and Community Participation**

Tourism villages are a community-based development approach that utilizes local potential, such as natural beauty, cultural richness, and traditional wisdom, as tourism attractions. This concept emphasizes not only economic benefits but also balances social and environmental dimensions in accordance with sustainable tourism principles.

Community participation plays a central role in the development of tourism villages. The active involvement of local residents in planning, decision-making, and managing tourism activities enables communities to become key actors rather than passive beneficiaries of tourism development. Such participation strengthens local ownership and encourages the long-term sustainability of tourism initiatives.

Previous studies have highlighted the importance of community empowerment and government support in strengthening the sustainability foundation of tourism villages (Ferdian et al., 2024; Kusumastuti et al., 2024). In several Indonesian contexts, local cultural values also play an important role in supporting sustainable tourism practices. For example, the principle of Tri Hita Karana in Bali reflects harmony between humans and God, fellow humans, and nature. This philosophy has been integrated into corporate social responsibility initiatives and tourism development strategies to balance the dimensions of people, planet, and profit (Ardani et al., 2025). The consistent application of such cultural values demonstrates how local wisdom can contribute to sustainable tourism village development.

### **2.3. Stakeholder Theory**

Stakeholder theory provides an important perspective for understanding collaboration among different actors in development processes. According to [Freeman \(1984\)](#), stakeholders are individuals or groups who can affect or are affected by the achievement of an organization's objectives. This perspective emphasizes that development initiatives should consider the interests and contributions of multiple stakeholders rather than focusing solely on a single actor.

In tourism development, stakeholder theory highlights the importance of coordination and cooperation among the various parties involved in tourism activities. Government institutions, local communities, private businesses, academic institutions, and civil society organizations have different interests and capacities that must be aligned to achieve sustainable outcomes. Effective stakeholder engagement can enhance decision-making processes, reduce conflicts, and improve the legitimacy of development programs.

Within the context of tourism villages, stakeholder theory helps explain how collaborative relationships between actors influence planning, management, and implementation processes. The theory also supports the application of multi-stakeholder frameworks, such as the pentahelix model, which emphasizes coordinated participation among different actors in tourism development.

### **2.4. Social Capital in Community-Based Tourism**

Social capital refers to the networks, trust, and norms that facilitate cooperation among community members ([Putnam, 1993](#)). These social relationships play a critical role in collective action and community development.

In tourism villages, social capital strengthens community participation and cooperation in tourism management. Strong social networks enable communities to coordinate tourism activities, share information, and build mutual trust among stakeholders. High levels of trust and cooperation can reduce potential conflicts and improve collective decision-making. Furthermore, social capital supports community empowerment by encouraging local residents to actively participate in tourism initiatives. Communities with strong social capital are generally more capable of managing tourism resources sustainably and adapting to external challenges, such as market changes or environmental pressures.

### **2.5. Collaborative Governance in Tourism Development**

Collaborative governance refers to decision-making processes in which public institutions directly engage non-state stakeholders in collective problem-solving and policy implementation ([Ansell & Gash, 2008](#)). This approach emphasizes dialogue, shared responsibility, and joint decision-making among stakeholders.

In tourism development, collaborative governance facilitates cooperation between government agencies, local communities, businesses, and other actors involved in tourism management. Through collaborative mechanisms, stakeholders can share resources, knowledge, and responsibilities for managing tourism destinations. The application of collaborative governance is particularly relevant for tourism village development, in which local communities play a central role in managing tourism resources, while government institutions provide policy support and institutional frameworks. Effective stakeholder collaboration helps ensure that tourism development is inclusive, transparent, and responsive to local needs.

### **2.6. Sustainable Development Perspective**

Sustainable tourism development closely aligns with the broader concept of sustainable development that seeks to balance economic growth, social equity, and environmental protection. The global framework for sustainable development is reflected in the 2030 Agenda for Sustainable Development, adopted by the United Nations ([United Nations, 2015](#)).

In the tourism sector, sustainable development emphasizes the responsible management of natural and cultural resources to ensure that tourism activities provide long-term benefits without compromising environmental integrity or social well-being. Sustainable tourism practices encourage responsible

consumption, community participation, and environmental conservation in tourism destinations. Tourism villages represent a practical application of sustainable development principles, in which local communities manage tourism resources in ways that support economic opportunities while preserving cultural heritage and natural ecosystems.

### **2.7. Integrative Framework for Sustainable Tourism Village Development**

The development of sustainable tourism villages requires the careful management of natural and cultural resources, supported by effective cross-sector collaboration. In this regard, the pentahelix model provides a comprehensive framework that integrates multiple stakeholders in a coordinated manner.

By combining perspectives from stakeholder theory, social capital, community-based tourism, and collaborative governance, the Pentahelix framework can be used as an analytical lens to understand how multi-actor collaboration contributes to sustainability outcomes. This includes examining interaction patterns among actors, conflict management processes, the inclusivity of vulnerable groups, and the role of local communities in tourism governance. Such integration ensures environmental and cultural sustainability and strengthens the economic and social value for local communities. Therefore, the Pentahelix model offers an important foundation for achieving tourism village development that is inclusive, participatory, and resilient (Ansell & Gash, 2008; Freeman, 1984; Murphy, 1985; Putnam, 1993; United Nations, 2015).

## **3. METHODOLOGY**

This study applies the Systematic Literature Review (SLR) approach, a method of reviewing literature that is carried out systematically, transparently, and replicably, to identify, evaluate, and synthesize scientific findings relevant to the research topic. This approach provides a solid empirical foundation for constructing a conceptual map, particularly for understanding the role of the Pentahelix model in the development of sustainable tourism villages in Indonesia. The SLR approach was introduced by Tranfield, Denyer, and Smart (2003) and has since been widely adopted in management and social science research, as emphasized by Snyder (2019). The use of SLR allows researchers to synthesize fragmented findings from previous studies and generate a comprehensive understanding of the patterns, challenges, and impacts of multi-stakeholder collaboration in tourism village development.

As a reporting guideline, this study adopted the principles of PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which emphasize transparent and systematic documentation at every stage of the literature review process. PRISMA is used to ensure that the entire process of identifying, selecting, and evaluating the literature can be scientifically justified (Page et al., 2021). The PRISMA framework consists of several key stages, including identification, screening, eligibility assessment, and final inclusion of relevant studies. This structured process enhances methodological rigor and improves the reproducibility of the review.

The combination of the SLR approach and PRISMA principles is expected to minimize bias in the selection and analysis processes, enhance the traceability of the review, and produce a comprehensive and evidence-based synthesis of knowledge. Through this methodological framework, this study aims to contribute meaningful scientific insights into collaborative practices among actors in the development of sustainable tourism villages in Indonesia.

In line with this goal, the study formulates five main research questions to guide the exploration: (1) What are the characteristics of the Pentahelix model applied in the development of sustainable tourism villages in Indonesia? (2) What are the challenges and success factors in implementing the model? (3) What are the economic, social, and environmental impacts of inter-actor collaboration on village communities? (4) How are conflicts of interest between actors identified and managed? and (5) How do tourism village development policies affect vulnerable groups, and how are protection and empowerment efforts for them integrated into the model? These research questions were designed to capture not only the structural characteristics of the pentahelix model but also the dynamics of actor interaction, governance challenges, and sustainability outcomes in tourism village development.

To answer these questions, strict inclusion and exclusion criteria were established. The articles included are empirical studies—qualitative, quantitative, or mixed methods—that explicitly examine the pentahelix model in the context of sustainable tourism villages in Indonesia. Articles must include elements of sustainability, be written in Indonesian or English, and be published between 2014 and 2025. Non-empirical articles, studies outside the tourism sector, and non-academic documents without a clear scientific method were excluded from the analysis. These criteria were applied to ensure that the selected studies were directly relevant to the research objectives and provided reliable empirical evidence for analysis.

The literature search was conducted through several reputable databases, both international (Scopus, Web of Science) and national (SINTA, Garuda, and Google Scholar). The search strategy was designed using Boolean operators in two language versions to accommodate key terms relevant to the research theme. These operators combine keywords representing concepts such as tourism villages, sustainability, multi-stakeholder collaboration, challenges, impacts, and protection of vulnerable groups. The use of bilingual search strategies was intended to capture both international and national publications related to tourism village development in Indonesia.

English Boolean Version: "Pentahelix" OR "Quintuple Helix" AND ("Village Tourism" OR "Tourism Village Development" OR "Rural Tourism") AND ("Green Tourism" OR "Sustainable Tourism" OR "Ecotourism") AND ("Model" OR "Structure" OR "Collaboration Pattern") AND ("Challenge" OR "Barrier" OR "Success Factor") AND ("Impact" OR "Effect" OR "Contribution") AND ("Economic" OR "Social" OR "Environmental") AND ("Conflict of Interest" OR "Conflict Management") AND ("Vulnerable Groups" OR "Women" OR "Elderly" OR "Disabled People" OR "Indigenous People") AND ("Empowerment" OR "Protection") AND ("Indonesia"). Indonesian Boolean Version: "Pentahelix" OR "Quintuple Helix" AND ("Desa Wisata" OR "Pengembangan Desa Wisata" OR "Pariwisata Pedesaan") AND ("Pariwisata Hijau" OR "Pariwisata Berkelanjutan" OR "Ekowisata") AND ("Model" OR "Struktur" OR "Pola Kolaborasi") AND ("Tantangan" OR "Hambatan" OR "Faktor Pendukung" OR "Keberhasilan") AND ("Dampak" OR "Efek" OR "Kontribusi") AND ("Ekonomi" OR "Sosial" OR "Lingkungan") AND ("Konflik Kepentingan" OR "Manajemen Konflik") AND ("Kelompok Rentan" OR "Perempuan" OR "Lansia" OR "Penyandang Disabilitas" OR "Masyarakat Adat") AND ("Pemberdayaan" OR "Perlindungan") AND ("Indonesia").

Article selection was conducted in two stages. In the first stage, two researchers screened titles and abstracts independently. Articles that met the eligibility criteria were then reviewed in full text. Of the 357 initial articles collected, 176 unique titles were identified. Following the inclusion and exclusion screening, 40 articles were deemed suitable for further analysis. Any disagreement between reviewers regarding article inclusion was resolved through discussion until consensus was reached during the screening process. This procedure was applied to improve the reliability and consistency of the selection process.

To further enhance methodological rigor, a structured quality appraisal framework was applied consistently across all selected studies. Each article was systematically evaluated based on predefined criteria, including clarity of research design, methodological appropriateness, data validity, analytical depth, and relevance to the research questions. This process ensured that only studies with sufficient scientific robustness contributed to the synthesis. In addition, the coding and thematic categorization processes were continuously validated through iterative comparisons across studies. This allowed for the refinement of themes and ensured consistency in the interpretation of findings, thereby strengthening the reliability and transparency of the review process.

Data extraction was conducted systematically by recording key information from each study, such as author identity, year of publication, study location, research method, and involvement of pentahelix actors. Additionally, information related to forms of collaboration, contributions of each actor, implementation challenges, success factors, and impacts on economic, social, environmental, and vulnerable groups was recorded in detail. To ensure the quality of the selected studies, a quality appraisal process was conducted by evaluating methodological clarity, relevance to the research questions, and credibility of the research findings reported in each article.

Data analysis used a thematic narrative synthesis approach. The synthesis process involved grouping findings based on key themes predetermined in line with the study focus. These themes include forms of collaboration among actors, power dynamics, conflict resolution strategies, and mechanisms of social protection for vulnerable groups. The coding process was conducted iteratively by identifying recurring patterns across the reviewed studies and organizing them into broader thematic categories. This approach enabled the researchers to identify similarities, differences, and emerging patterns across multiple studies. The results of the synthesis are presented as a narrative that integrates various findings, thereby providing a comprehensive picture of the complexity of pentahelix model implementation. This study is expected to provide conceptual and practical contributions to the development of sustainable and inclusive tourism villages in Indonesia.

## 4. RESULT AND DISCUSSION

### 4.1. Characteristics of the Pentahelix Model Applied in the Development of Sustainable Tourism Villages in Indonesia

The synthesis of the reviewed studies indicates that the pentahelix model has become a dominant governance framework for the development of sustainable tourism villages in Indonesia. The model integrates academia, business, community, government, and media as interdependent actors whose roles are shaped by local institutional and sociocultural contexts (Oktaviarni et al., 2023; Noviana et al., 2025; Habibi et al., 2025; Setyara et al., 2024). In some cases, this framework is further extended into a Quintuple Helix model by incorporating the natural environment as an active component, emphasizing the importance of ecological balance in sustainability-oriented development (Buchari et al., 2023).

From a theoretical perspective, this finding aligns with stakeholder theory and collaborative governance, which emphasize that sustainability outcomes are determined not only by stakeholder presence but also by the quality of interaction, coordination, and shared decision-making. Each actor contributes differently to sustainability dimensions. Government actors provide regulatory frameworks and policy directions that support environmental protection and development planning; academia contributes knowledge production, research, and capacity building; business actors generate economic value through investments and innovation; communities sustain sociocultural capital and local identity; and the media facilitates information dissemination and destination visibility (Ansell & Gash, 2008; Freeman, 1984; Murphy, 1985; Putnam, 1993; United Nations, 2015).

Empirical findings show that academic institutions play a crucial role in strengthening human resource capacity through training, research, and knowledge transfer, particularly in improving tourism product quality and community skills (Oktaviarni et al., 2023; Noviana et al., 2025; Setyara et al., 2024; Maulana et al., 2022; Sumarna et al., 2025). The private sector contributes mainly through infrastructure provision, investment, and innovation that enhance economic sustainability (Sadat et al., 2023; Maulana et al., 2022; Arrahman & Suwaryono, 2024; Diwyarthi et al., 2025). Local communities, often institutionalized through tourism awareness groups, function as core actors in implementing tourism activities and preserving cultural values (Oktaviarni et al., 2023; Sumarni et al., 2020; Sukma, 2022; Umaryani et al., 2023). Government actors act as regulators and facilitators by coordinating policies, providing infrastructure, and ensuring institutional alignment (Habibi et al., 2025; Maulana et al., 2022; Hakim, 2022; Simatupang & Pakpahan, 2023; Sumarna et al., 2025; Khotimah et al., 2024). Media supports promotion, communication, and public engagement (Oktaviarni et al., 2023; Habibi et al., 2025; Sahidin et al., 2024; Wiartha et al., 2024).

However, the synthesis reveals that the effectiveness of the Pentahelix model is highly uneven across contexts. Although all actors are formally present, collaboration often remains partial and symbolic rather than fully operational. Several cases demonstrate imbalanced participation, in which government and community actors dominate, whereas business and media roles remain limited. For example, limited private sector involvement in Jambu Village constrains collaboration (Oktaviarni et al., 2023). In contrast, Perlang and Bantaragung Villages demonstrate more balanced actor engagement, resulting in stronger economic and cultural outcomes (Maulana et al., 2022; Kuswandi et al., 2025),

whereas Pari Island illustrates persistent coordination challenges despite the presence of all actors (Setyara et al., 2024). Nglanggeran Village represents a successful case of organic collaboration that evolved from community-based initiatives (Sumarni et al., 2020).

These variations indicate that the Pentahelix model functions as a dynamic governance system rather than a fixed structure. Its success depends on contextual adaptability, participatory governance, and the strength of collaborative culture. In contexts with hierarchical governance, collaboration tends to be dependent on government leadership, limiting genuine multi-stakeholder engagement. Conversely, participatory environments foster more balanced and functional collaborations.

#### **4.2. Challenges and Success Factors in Implementing the Pentahelix Model**

The synthesis of the literature demonstrates that the implementation of the Pentahelix model is shaped by interconnected structural challenges and enabling factors. These challenges reflect limitations in collaborative governance rather than weaknesses in the conceptual framework itself.

The most consistent challenge is weak coordination and fragmented collaboration among actors. Although the Pentahelix structure is formally established, practical implementation is often constrained by overlapping programs, differing priorities, and limited trust among stakeholders (Oktaviarni et al., 2023; Noviana et al., 2025; Setyara et al., 2024; Sumarni et al., 2020; Kuswandi, 2024; Dewi et al., 2023). Limited funding and inadequate infrastructure further restrict development capacity (Noviana et al., 2025; Megawati et al., 2024; Diwyarthi et al., 2025; Maharani et al., 2025).

Human resource limitations also play a significant role, particularly in digital literacy, tourism management, and marketing skills (Oktaviarni et al., 2023; Utami & Novikarumsari, 2022). Additionally, low youth participation and underutilized media reduce innovation and destination visibility (Sumarni et al., 2020; Kuswandi, 2024). These findings suggest that implementation gaps are primarily institutional in nature. In many cases, collaboration occurs on a project basis rather than through sustained governance mechanisms, thereby limiting long-term impact. Conversely, the literature identifies several consistent success factors. Strong synergy among actors, active community participation through Community Based Tourism, and effective government support are key drivers of successful implementation (Diwyarthi et al., 2024; Yuardani et al., 2021; Setyara et al., 2024; Simatupang & Pakpahan, 2023; Maulana et al., 2022). Media and digital promotion enhance destination visibility, whereas academic contributions strengthen innovation and problem-solving (Khotimah et al., 2024; Sahidin et al., 2024; Arrahman & Suwaryono, 2024). A critical insight is that successful tourism villages combine formal Pentahelix collaboration with strong community-based governance. In these cases, the community acts not only as an implementer but also as a coordinating hub that connects stakeholders, thereby reducing dependency on government initiatives and increasing adaptive capacity.

#### **4.3. Economic, Social, and Environmental Impacts of Inter-Actor Collaboration on Village Communities**

The reviewed studies consistently show that the impacts of pentahelix collaboration are multidimensional, encompassing economic, sociocultural, and environmental outcomes that are interconnected rather than independent. Economically, collaboration contributes to increased income, employment opportunities, and the growth of local enterprises, including MSMEs and culinary products (Simatupang & Pakpahan, 2023; Maulana et al., 2022; Arrahman & Suwaryono, 2024). These outcomes are driven by the integration of investments, infrastructure, training, and promotion (Diwyarthi et al., 2024; Kuswandi & Hariyanto, 2024; Oktaviarni et al., 2023).

From a sociocultural perspective, collaboration strengthens community participation, cultural preservation, and social cohesion, particularly through community-based tourism approaches that position communities as central actors (Sumarni et al., 2020; Setyara et al., 2024). Tourism activities also function as platforms for revitalizing local traditions and identities. Environmentally, the Pentahelix model supports conservation efforts, responsible resource management, and green economy practices (Umaryani et al., 2023; Febrianto, 2023; Sukma, 2022; Fatmawati & Andriani, 2024; Setyara et al., 2024). However, environmental outcomes are less systematically measured, indicating a gap in sustainability

assessment frameworks. Despite these positive outcomes, the literature also highlights contradictions. Some studies report negative impacts, such as inequality, rising costs, and environmental degradation, when governance mechanisms are weak or dominated by profit-oriented approaches (Setyara et al., 2024; Umaryani et al., 2023; Febrianto, 2023). This suggests that collaboration alone does not guarantee equitable or sustainable outcomes.

#### **4.4. Dynamics and Strategies for Managing Conflicts of Interest among Actors in Pentahelix Collaboration**

This synthesis shows that conflicts are inherent in multi-actor collaboration and emerge primarily from unequal participation, governance failure, and competing development priorities. Imbalances in actor roles, particularly the limited involvement of business and media, contribute to slow progress and weak collaboration (Oktaviarni et al., 2023; Maulana et al., 2022). Weak coordination and miscommunication further intensify tensions among stakeholders (Setyara et al., 2024; Diwyarthi et al., 2025; Sumarna et al., 2025; Hakim, 2022). Conflicts also arise from top-down approaches that marginalize community participation and from tensions between profit orientation and sustainability goals (Sahidin et al., 2024; Wiartha et al., 2024; Febrianto, 2023; Megawati et al., 2024). Regulatory issues and unclear policies further complicate collaboration (Sadat et al., 2023; Khotimah et al., 2024).

The literature suggests that effective conflict management requires institutionalized governance mechanisms, including collaboration forums, clear regulations, and participatory decision-making processes (Setyara et al., 2024; Wiartha et al., 2024; Diwyarthi et al., 2025; Sari et al., 2021). Capacity building and community empowerment are also critical for reducing structural inequalities and strengthening negotiation capacity. These findings reinforce collaborative governance theory, which emphasizes that sustainable collaboration depends on trust, communication, and adaptive institutional arrangements.

#### **4.5. The Influence of Tourism Village Development Policies on Vulnerable Groups and the Integration of Protection and Empowerment Efforts into the Model**

The synthesis indicates that while tourism village development is generally framed as community-based, the inclusion of vulnerable groups remains uneven and context-dependent. Several studies have highlighted the participation of women, youth, small-scale farmers, and workers affected by economic shocks, showing that these groups can become active contributors when supported through empowerment programs (Wiartha et al., 2024; Arrahman & Suwaryono, 2024; Maulana et al., 2022; Utami et al., 2022; Sari et al., 2021). However, their participation is often limited by structural barriers, such as low capacity, unequal access, and top-down governance approaches.

Empowerment initiatives, including training, institutional strengthening, and community participation, play a critical role in enhancing inclusivity (Maulana et al., 2022; Sadat et al., 2023; Yuardani et al., 2021; Kuswandi, 2020; Oktaviarni et al., 2023). These initiatives function as mechanisms to reduce inequality and improve access to economic opportunities. However, the literature also reveals contradictions. While the Pentahelix model promotes inclusive development, some cases show exclusion, inequality, and negative impacts, such as inflation and environmental degradation, when governance mechanisms are weak (Febrianto, 2023; Umaryani et al., 2023). These findings suggest that inclusivity is not an automatic outcome of collaboration but depends on governance quality, policy support, and community capacity. Therefore, the Pentahelix model should be implemented with explicit mechanisms for protection and empowerment to ensure equitable development.

## **5. CONCLUSIONS**

This study demonstrates that the Pentahelix model plays a critical role in advancing sustainable tourism village development in Indonesia by enabling cross-sector collaboration among the government, academia, business, communities, and media. The synthesis of the reviewed literature shows that such collaboration contributes to innovation, strengthens local capacities, and supports the preservation of

cultural heritage and environmental sustainability. These outcomes are reflected in measurable socioeconomic benefits, including increased household income, employment generation, and the development of micro and small enterprises. However, the findings also reveal that the effectiveness of the Pentahelix model is highly context-dependent and remains uneven across cases, largely influenced by governance quality, coordination mechanisms, and the distribution of power among actors, which are often imbalanced and insufficiently inclusive.

From a theoretical perspective, this study advances the literature by moving beyond the conventional view of the Pentahelix model as a static and normative collaboration framework. Instead, it conceptualizes the model as a dynamic form of collaborative governance shaped by interaction patterns, institutional arrangements, and power relations among stakeholders. By integrating perspectives from stakeholder theory and collaborative governance, this study highlights that the presence of multiple actors alone is insufficient to achieve sustainability outcomes. Rather, the quality of interaction, the degree of inclusivity, and the effectiveness of coordination determine whether economic, social, and environmental sustainability can be realized. This reconceptualization provides a more nuanced understanding of how the Pentahelix model operates in practice, particularly in developing country contexts such as Indonesia.

In practice, the findings emphasize that the successful implementation of the Pentahelix model requires more than formal collaboration structures. It depends on the establishment of continuous and structured coordination mechanisms and the strengthening of community capacities in areas such as digital literacy, tourism management, and entrepreneurship. Local communities must be positioned not merely as beneficiaries but as central actors in decision-making processes, as their active participation is essential for ensuring long-term sustainability and resilience.

From a policy perspective, this study highlights the need for more adaptive, inclusive, and context-sensitive governance strategies. This includes the institutionalization of multi-stakeholder coordination platforms at regional and village levels, the integration of participatory planning mechanisms, and the provision of targeted financial and technical support for community-based tourism initiatives. In addition, policy interventions should explicitly address power imbalances among stakeholders and ensure the inclusion of vulnerable groups, such as women, youth, and local artisans, as active contributors to tourism development.

Despite these contributions, several limitations should be acknowledged. First, the reliance on predominantly qualitative and descriptive studies limits the ability to establish causal relationships between Pentahelix collaboration and development outcomes. Second, the focus on the Indonesian context may limit the generalizability of the findings to other geographical and institutional settings. Third, the limited inclusion of gray literature and primary empirical data may restrict the representation of practitioner perspectives and local-level dynamics.

Future research should address these limitations by employing quantitative and mixed-method approaches to examine causal linkages and measure the effectiveness of Pentahelix collaboration more rigorously. Comparative studies across different countries and governance contexts are also needed to explore how institutional and cultural factors influence implementation outcomes. Furthermore, future studies should investigate the integration of digital transformation and environmental sustainability within the Pentahelix framework, particularly in the context of emerging challenges such as climate change and technological disruption, to ensure its continued relevance and adaptability.

### **Ethical Approval**

The study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was not required as the research involved minimal risk and did not include clinical or biomedical interventions.

### **Informed Consent Statement**

This research is a personal enjoyment undertaken with the intention to continuously learn, while adhering to general academic and research guidelines and standards.

### **Authors' Contributions**

Not Applicable

### **Disclosure Statement**

No potential conflicts of interest were reported by the author.

### **Funding**

This research did not receive external funding.

### **Note on Contributors**

#### **Florianus Pruda Muda**

<https://orcid.org/0000-0002-0679-9082>

Florianus Pruda Muda is a researcher and a recent graduate with a Master's degree in Management from Universitas Teknologi Yogyakarta, Indonesia. His research interests include management practices, organizational performance, and strategic decision-making. He has engaged in various self-conducted research projects as part of his personal enjoyment in continuous learning, while following established academic and research guidelines and standards.

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