

The pentahelix strategy in sustainable tourism-based regional economic development in Gili Trawangan

Nurul Silviana*, Wahyunadi

Faculty of Economics and Business, Mataram University

Jl. Majapahit No.62, Gomong, Selaparang District, Mataram City, West Nusa Tenggara, 83115, Indonesia

ARTICLE INFO

Keywords:

collaborative governance, Gili Trawangan, pentahelix model, regional economic development, sustainable tourism

Katakunci:

Gili Trawangan; model pentahelix; pariwisata berkelanjutan; pengembangan ekonomi wilayah; tata kelola kolaboratif

DOI:

<https://doi.org/10.26905/jpp.v11i1.16802>

Received **February 20, 2026**

Review **March 3, 2026**

Accepted **April 13, 2026**

Corresponding Author:

Nurul Silviana

nsilviana693@gmail.com

ABSTRACT

Sustainable tourism in Gili Trawangan faces a structural dilemma between economic growth, community well-being, and environmental conservation. This study aims to formulate a Pentahelix strategic model capable of balancing all three dimensions simultaneously. Using a descriptive-analytical qualitative approach with a case study design and Miles and Huberman analysis, data were collected through in-depth interviews with 13 key informants representing the five Pentahelix elements. This study identifies four structural root causes: leakage of economic benefits due to the dominance of external investors; a deficit of institutional trust that fragments destination governance; triple governance failure causing systemic environmental degradation; and a political gap between recognizing the urgency of carrying capacity and the absence of concrete action. Unlike conventional Pentahelix models that merely distribute roles normatively, the model developed in this study is transformative-systemic, meaning each element is designed to simultaneously address specific failure mechanisms. The government acts as a reconstructor of small-island ecology-based regulations and establishes cross-level coordination authority; communities become institutionalized co-governors through the Payment for Environmental Services scheme; businesses internalize negative externalities as part of a long-term business sustainability strategy; academics serve as knowledge brokers producing multidimensional carrying capacity studies and advocating for ecology-based entry fees; and the media catalyzes public accountability through independent solutions journalism. Theoretically, this study demonstrates that Pentahelix effectiveness requires institutional trust and incentive reform as explicit design variables. In destinations structurally dependent on mass tourism, effective interventions must be simultaneous and cross-sectoral.

HOW TO CITE ITEM

Silviana, N., & Wahyunadi, W. (2026). The pentahelix strategy in sustainable tourism-based regional economic development in Gili Trawangan. *Jurnal Pariwisata Pesona*, 11(1), 114–124.

<https://doi.org/10.26905/jpp.v11i1.16802>

ABSTRAK

Pariwisata berkelanjutan di Gili Trawangan menghadapi dilema struktural antara pertumbuhan ekonomi, kesejahteraan masyarakat, dan konservasi lingkungan. Penelitian ini bertujuan merumuskan model strategis Pentahelix yang dapat menyeimbangkan ketiga dimensi tersebut secara simultan. Dengan menggunakan pendekatan kualitatif deskriptif-analitis dengan desain studi kasus dan analisis model Miles dan Huberman, data dikumpulkan melalui wawancara mendalam terhadap 13 informan kunci yang mewakili lima elemen Pentahelix. Penelitian ini mengidentifikasi empat akar masalah struktural, yaitu kebocoran manfaat ekonomi akibat dominasi investor eksternal, defisit kepercayaan institusional yang memfragmentasi tata kelola, triple governance failure yang menyebabkan degradasi lingkungan sistemik, serta kesenjangan politis antara pengakuan pentingnya carrying capacity namun tidak ada tindakan konkret. Tidak seperti model Pentahelix konvensional yang hanya

mendistribusikan peran secara normatif, model yang dihasilkan penelitian ini bersifat transformatif-sistemik, yaitu setiap elemen dirancang untuk mengatasi mekanisme kegagalan secara simultan. Pemerintah berperan sebagai rekonstruktor regulasi berbasis ekologi pulau kecil dan menetapkan otoritas koordinasi lintas tingkat; komunitas sebagai co-governor yang terlembagakan melalui skema Payment for Environmental Services; bisnis sebagai aktor yang menginternalisasi eksternalitas negatif sebagai bagian strategi keberlangsungan usaha jangka panjang; akademisi sebagai knowledge broker yang memproduksi kajian daya dukung multidimensi dan mengadvokasi entrance fee berbasis ekologi; serta media sebagai katalis akuntabilitas publik melalui solutions journalism yang independen. Secara teoretis, penelitian ini menunjukkan bahwa efektivitas Pentahelix mensyaratkan kepercayaan institusional dan reformasi insentif sebagai variabel desain eksplisit. Pada destinasi dengan ketergantungan struktural terhadap mass tourism, intervensi efektif harus bersifat simultan dan lintas-sektoral.

INTRODUCTION

Sustainable tourism has become a key paradigm in tourism destination development, integrating a balance between economic growth, environmental conservation, and community well-being (Mananda et al., 2025; Wondirad et al., 2020). Indonesia, as the world's largest archipelago with over 17,380 islands, recorded foreign exchange earnings of USD 16.7 billion in 2024 and employed 25.8 million people (Ministry of Tourism 2025), with Lombok-Gili-Tramena designated as a national priority destination through Presidential Regulation No. 84 of 2021. However, behind these achievements lies an unresolved dilemma, where efforts to maximize one dimension often result in sacrifices in another (Hall, (2020). This dilemma is evident in Gili Trawangan, where rapid tourism growth has been accompanied by economic leakage, environmental degradation, and a decline in public trust in the government; these conditions indicate the presence of structural trade-offs that have not been effectively managed (Krisna et al., 2021; Liu, 2003).

This dilemma complexity is further exacerbated by the characteristics of small islands, which have limited environmental carrying capacity, are vulnerable to climate change and natural disasters, and face constraints on space and resources (Qodriyatun, 2019). UN Tourism, (2024) notes that small islands contribute directly to GDP ranging from 0.7% to 15.2% due to high economic leakage, underscoring that tourism growth does not automatically enhance local well-being without fair benefit-sharing mechanisms (Hampton & Jeyacheya, 2020; Telfer. David J. & Sharpley, 2015). In Gili Trawangan, this is reflected in the unequal distribution of economic benefits, characterized by the dominance of external investors, land-use conversion that reduces green open spaces, and unequal income distribution among the local community (Sutanto, 2017). Furthermore, various issues such as marine ecosystem degradation, suboptimal waste management, and spatial planning violations increasingly threaten the long-term sustainability of the destination (Krisna et al., 2021; Liu, 2003).

In response to these complexities, the Pentahelix model is often viewed as a relevant collaborative framework because it involves government, community, business, academic, and media actors (Halibas et al., 2017; Maturbongs & Lekatompessy, 2020). However, previous studies indicate that the implementation of this model still faces various limitations. The studies conducted by Hermawan, (2021); Subair et al., (2025) tend to be descriptive-normative in nature, emphasizing the ideal roles of each actor without formulating concrete strategies to address ongoing dilemmas. Furthermore, there are limitations regarding data and actor representation in Hermawan, (2021) study, and several previous studies were dominated by mainland contexts, resulting in models that are less adaptive to the dynamics of small island governance (Rochaeni et al., 2022; Widodo, 2010). Consequently, the resulting recommendations such as strengthening inter-actor relationships by Sari & Manggalow, (2025) or establishing a multi-stakeholder communication forum by Dananjaya, (2025) remain normative and fail to produce operational strategic models to address real trade-offs on small islands.

Therefore, this study aims to formulate a Pentahelix strategic model capable of balancing economic, social, and environmental dimensions in the development of sustainable tourism on Gili Trawangan. The novelty of this study lies in the operational strategic model. Where each Pentahelix element is assigned a specific role targeting a distinct governance failure mechanism simultaneously making it operationally applicable, in contrast to previous normative approaches that only describe ideal roles without addressing the structural conditions that prevent those roles from functioning (Rosardi, 2020; Subair et al., 2025). Given the numerous small island destinations in Indonesia and the Asia-Pacific region facing similar dilemmas, the findings of this study are expected to be adapted into a reference model for multi-stakeholder collaboration in sustainable tourism within the context of small islands (McLeod et al., 2022).

METHOD

This study employs a descriptive-analytical case study design to deeply explore the experiences and perspectives of key actors in addressing dilemmas within the sustainability dimension (Creswell, 2018). The research was conducted in Gili Trawangan, Gili Indah Village, Pemenang Subdistrict, North Lombok Regency, West Nusa Tenggara Province, from November 19, 2025, to January 5, 2026. Research informants were identified using snowball sampling, which began with a small number of initial informants and expanded through recommendations from subsequent informants until data saturation was reached (Neuman, 2014). The distribution of informants based on the five elements of the pentahelix is presented in Table 1.

Table 1. Research Informant Criteria

Pentahelix Elements	Informant Criteria
Government	Head of the North Lombok Regency Tourism Office and Head of Gili Trawangan Village.
Community	Head of the Tourism Awareness Group and Head of the Gili Trawangan Indigenous Community Institution.
Business	Owners of lodgings, homestays, and boat trips. Owners of homestays and health clinics. Assistant Director of Wah Resort and Travel Agent. Head of the Gili Trawangan Tourism Entrepreneurs Association.
Academic	Lecturer at the Faculty of Economics and Business, Mataram University, specializing in natural resource and environmental economics, development economics, sustainable tourism, and strategic environmental studies. Lecturer in Regional Economic Development with a focus on Tourism Development, consultant for GIZ Germany, and expert advisor to the Governor of West Nusa Tenggara.
Media	Journalist for Lombokvibes.com, journalist for RRI Mataram, and journalist for Lombok Post.

Primary data was collected through semi-structured interviews using an interview guide developed based on three thematic domains derived directly from the research objectives (Rutledge, 2020). The first domain examines the dilemmas faced by each element in their daily practices, Building on these dilemmas, the second domain examines structural barriers and coordination challenges that emerge among the five elements. The third domain examines concrete strategies that have been or can be implemented by each element to address the identified dilemmas. Questions within each domain were tailored to the specific roles of each element, yet remained aligned with the same three-dimensional sustainability framework to ensure systematic comparison of findings across elements. All interviews were recorded with the informants' consent and transcribed verbatim for analysis, while secondary data from relevant scientific publications were used for triangulation.

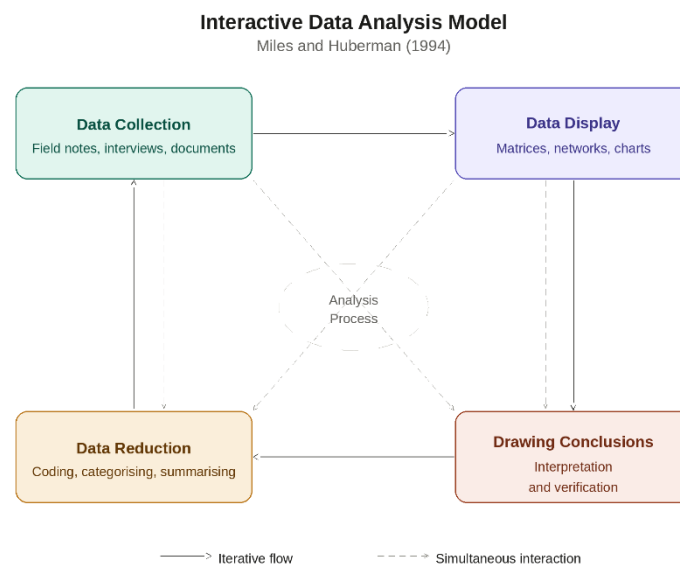


Figure 1. Miles and Huberman's Interactive Data Analysis Model (1994)

Data analysis was conducted using the interactive model by Miles Huberman, and Saldana (2019) through four concurrent and iterative stages, as shown in Figure 1. Rather than merely following procedural steps,

each stage was conducted with explicit attention to the Pentahelix elements and sustainability dimensions as analytical lenses.

The first phase, data collection, took place from November 19, 2025, to January 5, 2026. In the second phase, data reduction was conducted through three sequential coding stages. Open coding was performed after transcribing all interview audio recordings to identify initial themes that emerged inductively. Next, axial coding was performed by grouping and linking the codes generated from open coding based on two dimensions simultaneously: the Pentahelix elements (government, community, business, academia, media) and the sustainability dimensions (economic, social, environmental). This resulted in a mapping of actors based on their roles and revealed recurring patterns across all elements. Selective coding was conducted by identifying core categories that serve as a common thread throughout the findings namely, the dilemmas arising in Pentahelix governance and then integrating the specific strategies proposed by each element into a single, mutually reinforcing strategic framework. In the third phase, data presentation takes the form of an analytical narrative supplemented with verbatim quotes from interview transcripts as empirical evidence. Quotes are selected based on their relevance in illustrating the dilemmas or strategies described, so that each informant's statement serves to reinforce the theoretical arguments constructed (Mananda et al., 2025). The fourth phase involves drawing conclusions and verifying findings through interpretation based on the Pentahelix framework and the three aspects of sustainability, comparison with previous research, and cross-source synthesis to build a coherent strategic model. Data validity is then ensured through source triangulation by comparing data from informants on the same elements to confirm the consistency of the findings.

RESULT AND DISCUSSION

Sustainable tourism in Gili Trawangan faces a structural paradox: the continuous increase in tourist visits is not accompanied by improvements in environmental quality, fair distribution of economic benefits, and effective destination governance. To understand why this situation persists despite all parties being aware of the issues, this study analyzes its structural root causes. Sharpley, (2020) explains that the failure of sustainable tourism in many destinations is not due to a lack of intent or knowledge, but rather a gap between stated commitments and actual actions a gap arising from the conflict between short-term economic interests and long-term ecological needs. In Gili Trawangan, this gap is deepened by a long-standing and heavy economic reliance on the mass tourism model, making it difficult to effect change without comprehensive reforms across various aspects simultaneously (Fei Shang & Masud, 2025).

Analysis of Findings: Key Causes Behind the Sustainability Dilemma

This study identifies four primary causes that are interrelated and mutually reinforcing. The first issue is the unequal distribution of tourism's economic benefits among the local community. Data indicates that between 45 and 60 percent of Gili Trawangan's tourism revenue flows out of the region, as most high-value businesses such as large hotels and restaurants are owned by external investors. Without legally mandated benefit-sharing mechanisms, aggregate destination revenue growth does not automatically improve the well-being of local communities. Peterson, (2020) demonstrates that the dominance of external capital without benefit-sharing mechanisms for the community consistently produces a paradoxical pattern of destination growth, where increased tourism revenue coincides with a decline in local community well-being as surpluses flow out of the region. Communities ultimately accept this inequality not because they consider it fair, but because their basic needs are still met a pattern of acceptance that Rasoolimanesh et al., (2021) refer to as "selective benefit perception," which actually hinders the emergence of pressure for structural reform.

The second issue is the community's weak trust in the government, which leads to a fragmented destination governance system. This study found that the relationship between the community and business operators is quite good and mutually beneficial, but the relationship between the community and the government does not function well due to repeated negative experiences, such as misdirected programs and unresponsive communication. As a result, communities prefer to implement sustainability programs independently outside the framework of official policy. Subair et al., (2025) demonstrate that when stakeholders within the Pentahelix model compete with one another without a mutually recognized coordination framework, destination governance becomes fragmented and the collective capacity to address cross-sectoral issues such as carrying capacity and regulatory enforcement is significantly weakened.

The third issue is the failure of the three-tier governance system, which has led to systemic environmental degradation on Gili Trawangan. This failure stems from overlapping jurisdictions among district, provincial, and central governments. The second layer is the weak political will to enforce regulations due to pressure from major investors with networks of influence at higher levels a pattern identified by Dodds and Butler (2019) as one of the primary roots of governance failure in developing island destinations. The third layer is the absence of meaningful sanctions for violations, so that, for example, exceeding building height limits becomes a profitable option without risk. Brunnhuber (2022) explains that the combination of these three layers of failure leads to shared ecosystem degradation because there are no truly functioning collective mechanisms to prevent it.

The fourth and most complex issue is the absence of published carrying capacity studies, not due to a lack of technical capability to conduct them, but rather a lack of political will to confront their implications. Academics emphasize that “*In Trawangan, no one has calculated its carrying capacity yet*” (AKAD-2). The primary cause is an imbalance of incentives, where the benefits of mass tourism are felt directly by many parties today, while the ecological costs are long-term and will only be borne in the future. Butler & Dodds, (2022) note that this pattern is very common in small island destinations, where short-term economic interests consistently override long-term sustainability considerations. Elkington, (1997) emphasizes that a balance between economic, social, and environmental dimensions is not achieved solely through technical optimization, but rather through a fundamental transformation of existing business models and incentive structures.

The Pentahelix Strategic Model for Regional Economic Development Based on Sustainable Tourism

The four root causes identified above are cross-sectoral and interrelated; therefore, an approach targeting only a single stakeholder or a single issue will not be sufficient to change the current conditions. Economic redistribution requires the involvement of more than just communities or businesses; enforcement of environmental regulations requires coordination that goes beyond the capacity of local governments alone; and the issue of carrying capacity requires scientific evidence and political support that cannot be built by a single actor.

Table 2. Pentahelix Strategic Model
in Sustainable Tourism-Based Regional Economic Development in Gili Trawangan

Pentahelix Actor	Failure Mechanism	Intervention Strategy	Operational Instruments
Government	Fragmentation of governance, overlapping authority between jurisdictions, regulatory violations without effective sanctions.	Establish cross-level coordination forums with clear mandates and accountability, implement small-island-specific regulations, promote regional destination diversification to spatially distribute visitor pressure.	Carrying capacity-based development quotas, mandatory Environmental Impact Assessment (EIA) and Wastewater Treatment Plant (WWTP), coral reef conservation zoning, progressive sanctions for building height violations.
Community	Participation without power, conservation contributions remain informal and uncompensated, and there is a lack of control over the direction of tourism development.	Formalize community representation as co-governors with binding voting rights, strengthen customary institutions as guardians of socio-cultural norms and conflict mediators.	Payment for Environmental Services (PES) schemes, legally binding community representation rights across all tourism policy forums.
Business	Failure to account for ecological costs, profit-oriented logic without sustainability incentives, destination infrastructure that is not commensurate with tax contributions.	Transition from an extractive to a circular tourism economy, implement certified green tourism standards, advocate proportional reinvestment of tourism tax revenues into destination infrastructure.	Differential fiscal incentives, mandatory sustainability certification as a prerequisite for operating licenses, reinvestment of tourism tax revenues into destination infrastructure.
Academia	Policy stagnation stems from a lack of sufficiently robust quantitative evidence to counter organized economic interests that oppose visitor restrictions.	Conduct and publish comprehensive carrying capacity studies, develop quality tourism revenue projection models, advocate ecology-based entry fees, act as a knowledge broker bridging research and policy.	Actionable policy briefs, active dissemination to policymakers, ecology-based entry fees as instruments for externality internalization and conservation funding.
Media	The editorial dilemma between narratives of economic growth and reporting of ecological damage weakens public scrutiny.	Apply solutions journalism by simultaneously exposing implementation gaps and promoting evidence-based solutions, proactively frame quality tourism as an economically viable alternative.	Consistent ecological data-driven reporting, amplification of quality tourism and carrying capacity-based visitor limits as economically viable alternative narratives.

Carayannis, Barth, and Campbell (2012) state that systemic change in addressing complex challenges can only be achieved when all actors within the governance ecosystem act simultaneously and in mutual support. Afrilia et al. (2025) add that Pentahelix synergy is most effective when each actor performs a role aligned with their specific capacity and authority, rather than when all parties do the same thing. Based on this, this study formulates a Pentahelix strategic model in which each element is designed to address specific root causes, as illustrated in Table 2.

a. Government Strategy: Improving the Regulatory System and Expanding Destination Distribution

The failure of environmental governance in Gili Trawangan cannot be addressed simply by adding programs or intensifying public awareness campaigns, because the root of the problem lies in a regulatory system that, from the outset, has allowed for overlapping jurisdictions and violations without consequences. The government itself acknowledges this complexity. *“The province falls under the KSP. KSPN is a national strategic tourism area. We also have our own jurisdiction; we have our own territory. Well, there is still no common agreement on all of that”* (GOV-1). Therefore, the government’s strategy must address three aspects simultaneously. First, resolving jurisdictional overlaps by establishing an intergovernmental coordination forum with a clear mandate and public accountability. Second, creating special regulations tailored to the characteristics of small islands, including requiring Environmental Impact Assessments (EIA) and Wastewater Treatment Plants (WWTP) for all commercial enterprises, establishing coral reef conservation zones, limiting building heights with strictly enforced penalties, and setting development quotas based on verified carrying capacity studies. Third, developing alternative tourist destinations outside the Three Gili Islands to prevent tourist pressure from remaining concentrated in a single location. Butler and Dodds (2022) emphasize that developing alternative destinations around the main island is one of the most effective ways to reduce excessive pressure on the vulnerable ecosystems of small islands. The greatest obstacle does not lie in the technical capacity of government officials, but rather in the political will to confront pressure from interest groups that have long benefited from the existing conditions.

b. Community Strategies: Symbolic Participation Towards Institutional Agency

Research findings indicate that the community on Gili Trawangan actually possesses proven conservation capacity, ranging from coral reef rehabilitation to the preservation of local cultural values; however, these contributions have so far remained voluntary, have not been formally institutionalized, and receive no compensation whatsoever. This creates an unfair situation: the community bears the greatest ecological burden yet has no control over the direction of tourism development and does not receive commensurate economic benefits. This condition is referred to as “participation without power,” where community involvement is not accompanied by the power to make decisions, so their concrete contributions do not translate into meaningful institutional influence (Mitchell et al., (1997). The Chair of the Tourism Awareness Group articulated this understanding clearly. *“Guests come here to enjoy nature. So, one of the key points in maintaining the sustainability of Trawangan’s tourism is preserving its natural environment”* (COM-1). This statement indicates that the real issue is not a lack of community awareness, but the absence of formal mechanisms linking their contributions to economic incentives and policy influence.

Therefore, the community proposes a strategy through two mechanisms. First, ensuring binding community representation in destination decision-making forums, including strengthening the role of customary institutions as guardians of socio-cultural norms and conflict mediators, so that the community transitions from a supporting role to a managing partner with a real voice. Second, formalizing conservation contributions through an Environmental Service Payment scheme that provides direct economic incentives for ecosystem services that have long been provided for free. Subair et al., (2025) emphasize that the formal institutionalization of community participation is the key distinguishing factor between destinations that successfully achieve sustainability and those that do not, because without such institutionalization, communities will remain in a reactive position that is too weak to drive structural change. Meanwhile, Wunder et al. (2020) demonstrate that well-designed PES schemes are not only effective in improving conservation quality but also shift community incentives from reactive-defensive to proactive-interest-based.

c. Business Strategy: Market Failure and the Need for Regulatory Intervention

Tourism business practices on Gili Trawangan exhibit classic symptoms of a long-standing market failure, in which businesses do not bear the environmental costs generated by their activities. Consequently, the costs of ecosystem degradation are borne by the community and future generations, while the benefits are reaped by current businesses. This situation aligns with the concept of negative externalities in environmental economics, where social costs are not reflected in the production cost

structure, thereby creating incentives that drive the overexploitation of resources (Tamasauskiene & Žičkienė, 2020). Peterson, (2020) demonstrates that, in the context of small-island tourism economies, the business sector's failure to internalize externalities is a primary driver of overtourism due to the absence of market mechanisms that automatically correct such behavior.

What is analytically interesting is that business operators themselves are actually aware of the urgency of change, as stated: *"Environmental management is crucial moving forward, so that we can survive longer. Many things, such as regulations, really need to be implemented"* (BUS-4/GHA). This statement carries a significant dual message: that business sustainability depends on ecosystem conservation, and that voluntary change alone will not suffice without external regulatory pressure. The theoretical implication within the Pentahelix framework is that the business sector, as a profit-oriented actor, will only change consistently if its incentive structure is fundamentally altered specifically through regulations mandating sustainability standards and market signals from high-end tourists who choose responsibly managed destinations. On the other hand, the business sector's demand that tourism tax revenue be proportionally reinvested into destination infrastructure is a legitimate interest and aligns with long-term regional economic development goals, as destinations with deteriorating infrastructure will ultimately lose their appeal and competitiveness.

d. Academic Strategy: Knowledge Production as a Policy Driver

The policy impasse regarding visitor capacity limits on Gili Trawangan did not arise because no one understood the importance of limiting tourist numbers, but rather due to a lack of robust quantitative data to counter resistance from well-organized economic interests. In such situations, scientific knowledge must not merely serve as an analytical tool but must function as a political instrument capable of shifting the balance of interests in the policy-making process. Comprehensive studies and publications on carrying capacity are the most urgently needed tools at present, as such data allow researches to empirically demonstrate that a *"quality tourism"* model with fewer tourists but higher per-person spending can generate the same or even higher revenue. Thus, the assumption that more tourists always equate to greater profits can be refuted based on evidence, not mere argument. Academics themselves have warned of the dangers of this delay. *"There must be limits. Especially since this is a small island. Small islands have limited carrying capacity. It's just a ticking time bomb. Therefore, such restrictions are mandatory"* (ACAD-1). Theoretically, these findings emphasize that within the Pentahelix framework, academics must serve not only as researchers but also as knowledge intermediaries that is, as active intermediaries bridging research outcomes and policy decision-making.

Meanwhile, Afrilia et al., (2025) emphasize that academics' contributions are most effective when manifested as policy-relevant research that policymakers can immediately act upon. This aligns with the findings of Filho et al. (2021), which indicate that a weak science-policy interface is one of the main barriers to implementing a sustainability agenda in developing tourism destinations. In Gili Trawangan, this means that academics must commit to active outreach through concise and actionable policy briefs, multi-stakeholder forums, and direct collaboration with local governments in the destination planning process.

Furthermore, academic advocacy should include recommendations for specific and immediately operationalizable policy instruments. One of the most urgent instruments to advocate for is the establishment of ecologically based entry fees as a mechanism to internalize externalities and as a source of sustainable conservation funding. Theoretically, entry fees operate simultaneously through two channels: as a price signal that regulates the underpricing of small island ecosystems, which are traditionally treated as public goods with no access costs, and as a direct funding source for Payment for Environmental Services schemes that allow communities to receive a measure of the ecological services they provide (Wunder et al., 2020). Peterson (2020) shows that well-designed entry fees in small island destinations have proven effective not only as a fiscal instrument but also as a demand management mechanism that reduces pressure on vulnerable ecosystems.

e. Media Strategy: Solutions Journalism as a Catalyst for Public Accountability

Among the five elements of the Pentahelix model, the media possesses a capacity that cannot be replaced by other actors: the ability to generate public accountability pressure on policymakers who have an incentive to maintain the status quo. This capacity is particularly crucial in Gili Trawangan, where pressure from consolidated economic interests has weakened the government's formal oversight functions. The media acknowledges the dilemma in fulfilling this role, stating that *"With economic growth continuing to accelerate, and local revenue targets constantly rising and being enforced, we also face a dilemma in reporting on the threatened ecosystem there"* (MED-1). This dilemma must be positioned as a reason to reinforce the importance of editorial independence, as media that avoid reporting on ecological threats to maintain alignment with growth narratives indirectly reinforce

conditions detrimental to the destination's long-term sustainability. Sharpley, (2020) states that the implementation gap in sustainable tourism can only be narrowed if there is a consistent, fact-based public discourse that presses stakeholders on the discrepancy between their rhetorical commitments and actual actions on the ground. McIntyre and Lough (2023) demonstrate that a solutions-journalism approach which simultaneously exposes structural problems and promotes concrete solutions has proven more effective in driving policy change than investigative journalism that focuses solely on exposing problems. In Gili Trawangan, the implication is that the media needs to shift from reactive reporting on ecological incidents toward a proactive narrative that consistently positions quality tourism and carrying-capacity-based restrictions as economically viable alternatives, rather than merely ecological-normative demands.

Based on the findings outlined above, this study yields two relevant theoretical contributions. The first contribution relates to the conditions determining the effectiveness of the Pentahelix model in destinations facing structural pressures. The model by Carayannis et al., (2012) formulates actor co-evolution as a prerequisite for systemic innovation, yet fails to operationalize how such co-evolution is achieved when trust deficits and power asymmetries act as active barriers. This study demonstrates that both prerequisites—namely, institutional trust and incentive reform must be explicit design variables within the model, rather than pre-existing assumptions. The second contribution reinforces Sharpley, (2020) argument regarding implementation gaps in sustainable tourism by adding the path-dependence dimension identified by Butler & Dodds, (2022): the longer a destination operates within a mass tourism model, the higher the transition costs and the stronger the political resistance to change. Interventions in destinations with structural dependencies cannot rely on incremental approaches based on voluntary awareness but require simultaneous reforms in incentive structures, regulatory enforcement, and mechanisms for the distribution of economic benefits. This model is therefore not merely a contextual policy recommendation for Gili Trawangan, but also contributes to a broader understanding of the mechanisms of sustainable tourism transformation in small island destinations facing structural dependence on mass tourism.

CONCLUSION

This study formulates a Pentahelix strategic model designed to balance economic, social, and environmental dimensions in the development of sustainable tourism in Gili Trawangan. The model is built upon the identification of four structural root causes that have long hindered the achievement of this balance: the dominance of external capital leading to the leakage of regional economic benefits; weak institutional trust fragmenting destination governance; triple governance failure creating space for environmental degradation; and a political gap between recognition and action regarding carrying capacity issues. Based on this structural diagnosis, the formulated Pentahelix model defines specific roles for each element. The government acts as a regulator and facilitator of regional destination diversification; the community serves as an institutionalized conservation agent receiving formal compensation through Payment for Environmental Services schemes; businesses function as actors internalizing negative externalities as part of their long-term business sustainability strategies; academia as producers of quantitative research driving policy through carrying capacity studies, quality tourism projection models, and advocacy for ecology-based entry fees; and the media as catalysts for public accountability through an independent solutions journalism approach free from the pressures of growth narratives.

Theoretically, this study contributes to two interrelated aspects. First, this study demonstrates that the effectiveness of the Pentahelix model is not determined by the formal presence of the five actors, but rather by two prerequisite structural conditions: the quality of institutional trust between the community and the government as the foundation for cross-sectoral coordination, and the alignment of incentive structures with mutually agreed-upon sustainability goals. Second, this study expands understanding of the sustainability implementation gap in tourism by showing that in small island destinations, this gap is exacerbated by structural dependence on mass tourism, which creates path dependency; thus, effective interventions cannot be gradual or sectoral but require simultaneous architectural interventions in incentive structures, regulatory enforcement, and regional economic benefit distribution mechanisms as formulated in this study's Pentahelix model.

Based on the findings and limitations of this study, several recommendations are proposed for future policy and research. For policymakers, the most urgent priority is to immediately conduct a published multidimensional carrying capacity assessment as an empirical foundation for evidence-based tourist limits, while simultaneously designing transition mechanisms toward a quality tourism model equipped with compensation schemes for affected communities. For future research, quantitative validation of the formulated model is essential, particularly through economic modeling studies that compare mass tourism and quality tourism scenarios in a measurable manner. Future research is also advised to adopt a longitudinal approach to analyze how the dynamics of the relationships among the Pentahelix elements evolve alongside the implementation of policy interventions, thereby allowing for a stronger analysis of the causality between governance reforms and sustainability outcomes. Expanding comparative studies to other small island destinations in Indonesia will also strengthen the generalizability of the model produced by this research.

REFERENCES

- Afrilia, N. S., Wijanarko, B. D., Udin, N., Nanda, E. P., & Setiawan, N. L. (2025). OPERATIONALIZING THE PENTAHHELIX MODEL THROUGH THE EMPOWERMENT OF KARANGTARUNA: A COLLABORATIVE APPROACH TO SUSTAINABLE URBAN DEVELOPMENT IN SEMARANG CITY. *SEEIJ (Social Economics and Ecology International Journal)*, 9(2), 135–152. <https://doi.org/10.21512/seeij.v9i2.12574>
- Bramwell, B., & Lane, B. (2011). Critical research on the governance of tourism and sustainability. *Journal of Sustainable Tourism*, 19(4–5), 411–421. <https://doi.org/10.1080/09669582.2011.580586>
- Brunnhuber, S. (2022). The Real Tragedy of the Commons – Garrett Hardin (1968) Revised. *Problems of Sustainable Development*, 17(2), 19–23. <https://doi.org/10.35784/pe.2022.2.02>
- Butler, R. W., & Dodds, R. (2022). Island Tourism : Vulnerable or Resistant to Overtourism ? *Highlights of Science*, 1(2), 54–64. <https://doi.org/10.54175/hsustain1020005>
- Carayannis, E. G., Barth, horsten D., & Campbell, D. F. (2012). The Quintuple Helix innovation model: global warming as a challenge and driver for innovation. *Journal of Innovation and Entrepreneurship*, 1(1), 2–12. <http://www.innovation-entrepreneurship.com.content/1/1/2>
- Creswell, J. W. (2018). Qualitative, Quantitative, and Mixed Method Approaches. In *Research and Biostatistics for Nurses*. https://doi.org/10.5005/jp/books/13016_6
- Dananjaya, A. G. (2025). Kolaborasi Pentahelix dalam Pengembangan Pariwisata Berkelanjutan di Ibu Kota Nusantara. *Journal of Community Services in Tourism*, 6(1), 30–47.
- Day, J. (2022). *Tourism, hospitality, and environmental sustainability on the Small Island Developing States*. Environmental Sustainability. 10.1016/j.cosust.2022.101233
- Dodds, R., & Butler, R. W. (2019). *Overtourism: Issues, realities and solutions*. De Gruyter Open Poland. <https://doi.org/10.1515/9783110607369>
- Elkington, J. (1997). Cannibals with Forks: The Triple Bottom Line of 21st Century Business. *Journal of Bussiness Ethics*, 23(2), 229–231. <https://doi.org/10.1023/A:1006129603978>
- Fei Shang, H. C. G., & Masud, M. M. (2025). Stakeholder perceptions of tourism’s impacts on the ecological environment of island destinations based on a systematic review and meta-analysis. *Scientific Reports Volume*, 15(1). <https://doi.org/10.1038/s41598-025-05196-6>
- Filho, W. L., Krishnapillai, M., Sidsaph, H., Nagy, G. J., Luetz, J. M., Dyer, J., Otoara, M., Havea, P. H., & Raj, K. (2021). Climate Change Adaptation on Small Island States : An Assessment of Limits and Constraints. *Journal of Marine Science and Engineering Article*, 9(6). <https://doi.org/10.3390/jmse9060602>
- Halibas, A. S., Sibayan, R. O., & Maata, R. L. R. (2017). THE PENTAHHELIX MODEL OF INNOVATION IN OMAN: *Interdisciplinary Journal of Information, Knoewledge, and Management*, 12, 159–172. <https://doi.org/10.28945/3735>
- Hall, M. C. (2020). Constructing sustainable tourism development: The 2030 agenda and the managerial ecology of sustainable tourism. *Journal of Sustainable Tourism*, 28(1), 1044–1060. <https://doi.org/10.1080/09669582.2018.1560456>
- Hampton, M. P., & Jeyacheya, J. (2020). Tourism-Dependent Small Islands, Inclusive Growth, and the Blue Economy. *One Earth*, 2(1), 8–10. <https://doi.org/10.1016/j.oneear.2019.12.017>
- Hermawan, H. (2021). Pengaruh Daya Tarik Wisata, Keselamatan, dan Sarana Wisata terhadap Kepuasan Serta Dampaknya Terhadap Loyalitas Wisatawan. *Jurnal Media Wisata*, 15(1), 562–577. <https://doi.org/10.36276/mws.v15i1.57>
- Krisna, B. A., Paturusi, S. A., & Wirawibawa, I. B. G. (2021). Konflik Keruangan Di Wilayah Pesisir Gili Trawangan, Lombok, Nusa Tenggara Barat. *Jurnal Arsitektur Dan Perencanaan (JUARA)*, 4(1), 11–26. <https://doi.org/10.31101/juara.v4i1.1307>

- Liu, Z. (2003). Sustainable Tourism Development: A Critique. *Jurnal Pariwisata Berkelanjutan*, 11(6), 459–475. <https://doi.org/10.1080/09669580308667216>
- Mananda, I. G. P. B. S., Negara, I. M. K., Kristianto, Y., Angligan, I. G. K. H., & Deuchar, C. (2025). From Overtourism to Regeneration : A Penta-Helix Governance Model for Sustainable Tourism in Bali. *Tourism and Hospitality*, 6(5), 1–34. <https://doi.org/10.3390/tourhosp6050240>
- Maturbongs, E. E., & Lekatompessy, R. L. (2020). Kolaborasi Model Pentahelix Dalam Pengembangan Pariwisata Berbasis Kearifan Lokal Di Kabupaten Merauke. *Transparansi: Jurnal Ilmiah Ilmu Administrasi*, 3(1), 55–63. <https://doi.org/10.31334/transparansi.v3i1.866>
- McIntyre, K., & Lough, K. (2023). Evaluating the effects of solutions and constructive journalism: A systematic review of audience-focused research. *Sage Journals*, 44(3), 1394–1413. <https://doi.org/10.1177/073953292311876>
- McLeod, M., Dodds, R., & Butler, R. (2022). Island Tourism Sustainability and Resiliency. In *Island Tourism Sustainability and Resiliency* (p. 338). <https://doi.org/10.4324/9781003280521>
- Miles, M. B., Huberman, A. M., & Saldana, J. (2019). Qualitative Data Analysis. In *SAGE Publications*. (pp. 1–9).
- Neuman, W. L. (2014). Social research methods: Qualitative and quantitative approaches (7th ed.). In *Pearson Education*. <https://www.scirp.org/reference/referencespapers?referenceid=4082249>
- Peterson, R. R. (2020). Over the Caribbean Top: Community Well-Being and Over-Tourism in Small Island Tourism Economies. *International Journal of Community Well-Being*, 6(2), 89–126. <https://doi.org/10.1007/s42413-020-00094-3%0A>
- Qodriyatun, S. N. (2019). Implementation of Sustainable Tourism Development Policies in Karimunjawa. *Aspirasi: Jurnal Masalah-Masalah Sosial*, 9(2), 240–259. <https://doi.org/10.46807/aspirasi.v9i2.996>
- Rasoolimanesh, S. M., Seyfi, S., Hall, C. M., & Hatamifar, P. (2021). Understanding memorable tourism experiences and behavioural intentions of heritage tourists. *Journal of Destination Marketing and Management*, 21, 100621. <https://doi.org/10.1016/j.jdmm.2021.100621>
- Rochaeni, A., Yamardi, & Fujilestari, N. A. (2022). Pemerintahan Model Pentahelix dalam Pengembangan Pariwisata di Kecamatan Rongga Kabupaten Bandung Barat. *NeoRespublica: Jurnal Ilmu Pemerintahan*, 4(1), 124–134. <https://doi.org/10.52423/neores.v4i1.38>
- Rosardi, R. G. (2020). Model Pentahelix Dalam Pengembangan Pariwisata Berkelanjutan Di Kabupaten Batang Jawa Tengah. *RISTEK: Jurnal Riset, Inovasi Dan Teknologi Kabupaten Batang*, 4(2), 7–17. <https://doi.org/10.55686/ristek.v4i2.74>
- Rutledge, P. (2020). In-Depth Interviews. *ResearchGate*, 2, 694–700. <https://doi.org/10.1002/9781119011071.iemp0019>
- Sari, A. R., & Manggalow, S. (2025). Kolaborasi Pentahelix Pengembangan Kebudayaan Lokal Reyog Ponorogo Dalam Mendorong Pariwisata Berkelanjutan. *JlIP Jurnal Ilmiah Ilmu Pendidikan*, 8(7), 7769–7776. <https://doi.org/10.54371/jiip.v8i7.8596>
- Sharpley, R. (2020). Tourism, sustainable development and the theoretical divide: 20 years on. *Journal of Sustainable Tourism*, 28(11), 1932–1946. <https://doi.org/10.456/09669582.2020.1779732>
- Subair, N., Prianto, A. L., & Amri, A. R. (2025). The Dynamics of No One Left Behind : Contestation of Pentahelix Actors in Sustainable Tourism Governance in the Coastal Area of Tanjung Bunga , Indonesia. *International Journal of Research and Innovation in Social Science*, 8(1). <https://doi.org/10.47772/IJRISS.2025.801065>
- Sutanto, H. (2017). Dilema Pembangunan Pariwisata Berkelanjutan Di Kawasan Tiga Gili Kabupaten Lombok Utara. *Ekonobis*, 3(1), 29–43. <https://doi.org/10.29303/ekonobis.v3i1.4>
- Tamasauskiene, Z., & Žickienė, S. (2020). *Externalities and Sustainability Processes BT - Encyclopedia of*

- Sustainability in Higher Education* (W. Leal Filho (ed.); pp. 1–9). Springer International Publishing. https://doi.org/10.1007/978-3-319-63951-2_279-1
- Telfer, David J., & Sharpley, R. (2015). *Tourism and Development in the Developing World* (2nd ed.). In *Routledge*. <https://doi.org/10.4324/9780203938041>
- Tourism, U. (2024). *Tourism statistics: Small island developing states*. Madrid: United Nations World Tourism Organization. <https://www.unwto.org/tourism-statistics>
- Widodo, H. T. (2010). *Ketimpangan Pembangunan dan Dampak Ekonomi Masyarakat Pulau Kecil (Studi Kasus pada Pulau Gili Ketapang Kecamatan Sumber Asih Kabupaten Probolinggo)*. Brawijaya Knowledge Garden.
- Wondirad, A., Tolkach, D., & King, B. (2020). Stakeholder collaboration as a major factor for sustainable ecotourism development in developing countries. *Tourism Management*, 78. <https://doi.org/10.1016/j.tourman.2019.104024>
- Wunder, S., Börner, J., De-Blas, D. E., Feder, S., & Pagiola, S. (2020). Payments for Environmental Services: Past Performance and Pending Potentials. *RePEc: Research Papers in Economics*, 12(1), 209–234. <https://doi.org/10.1146/annurev-resource-100518-094206>