

Green Tourism Investment and Collaborative Governance Plus Multi-Helix: A Digital Policy Network Analysis

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Abstract. *Green tourism investment is being encouraged more and more as a way to balance economic growth from tourism with protecting the environment; however, it often faces challenges due to disorganized institutions, unequal power dynamics, and a focus on marketing rather than meaningful discussion. In areas with decentralized governance, partnerships between government, businesses, communities, universities, and media are often set up but not always put into practice effectively, leading to questions about whether green tourism truly changes how things are governed or just serves as a way to make it look beneficial. This study examines green tourism investment governance in Batu City, East Java, Indonesia, using the Collaborative Governance Plus Multi-Helix (CGPMH) framework. A qualitative explanatory methodology employing a non-intrusive research design was utilized. The data utilized were sourced from two official tourism Instagram accounts from 2024 to 2025, in addition to internet press coverage. Miles, Huberman, and Saldaña created an interactive qualitative analysis model that was used to look at the data. This approach involves the collection, condensation, presentation, and formulation of conclusions, complemented by lexicon-based sentiment analysis and policy network analysis. The results suggest that collaborative governance is still structurally centralistic. Green tourism is utilized more as a way to talk and support than as a way to talk about issues that can divide power and define sustainability priorities.*

Keywords: *Collaborative; Governance; Investment; Sustainability.*

1. Introduction

Over the past two decades, tourism development has increasingly been shaped by structural forces that extend beyond advances in mobility and technology. Tourism now occupies a prominent place in national and local development planning, largely because regions are under growing pressure to attract investment, secure tax revenue, and strengthen their economic profile. In this context, sustainability is no longer framed simply as an ideal to be pursued but as a practical requirement that increasingly shapes how tourism destinations are judged and sustained over time (UNWTO, 2022). Climate

change, environmental degradation, and increasing socio-spatial vulnerability are simultaneously reducing the natural space available for tourism activities. The result isn't just a problem with technology; it's also a constant battle between economic goals and the fact that natural systems can't keep up with the demands of constant growth.

From this perspective, tourist governance becomes an important topic of conversation. This is because governments have to make tough decisions about investments that help growth and pledges to long-term sustainability. In response, green tourism investment has been widely promoted as a policy instrument intended to reconcile economic performance with environmental responsibility. However, green tourism investment does not function as a purely technical solution. As areas fight for investment, tax money, and more recognition in the economy, tourism has become more and more important to national and local development plans. The UNWTO (2022) says that sustainability is no longer only a goal to strive for; it is now a key factor in creating tourist destinations around the world. Climate change, environmental degradation, and increased socio-spatial vulnerability are making it increasingly difficult for tourism to grow simultaneously. These overlapping demands make it harder and harder to increase the economy without going above the environmental boundaries that tourist locations can practically handle.

Empirical studies indicate that tourism governance typically occurs via approximate institutional alignment. Sectoral silos, overlapping mandates, and unequal power relations often fragment decision-making. Although collaborative governance is frequently promoted as a mechanism for addressing such complexity, critical scholarship emphasizes that collaboration is not inherently consensual. Instead, negotiation, strategic bargaining, and selective participation emerge, often reproducing existing hierarchies of influence (Ansell & Gash, 2007; Emerson & Nabatchi, 2015). Therefore, the discourse of "multi-stakeholder collaboration" could potentially conceal significant disparities in the decision-making process and the ultimate prevailing interests.

Decentralized governance systems particularly accentuate these challenges. Multiple administrative levels and sectoral institutions in Indonesia distribute authority over tourism development. While decentralization enhances local autonomy, it also generates coordination gaps, regulatory fragmentation, and uneven policy implementation, especially in investment-intensive sectors such as tourism (McLeod, 2023). Environmental concerns are often pushed aside for quick economic gains, as local governments are motivated to focus on making money and staying competitive rather than ensuring long-term environmental health.

Within this broader institutional context, Batu City (Kota Wisata Batu), East Java, provides a revealing empirical case. Following the COVID-19 pandemic, tourism activity in the city recovered rapidly, with visitor numbers increasing from approximately six million in 2019 to 8.7 million in 2023, and projections remaining high in 2024 (Kemenparekraf, 2024). Tourism has become one of the most strategic sectors in the local economy, contributing more than one-quarter of the city's Gross Regional Domestic Product (GRDP), particularly through trade, accommodation, services, and related industries. This growth has been accompanied by a sharp rise in tourism-related investment, reaching IDR 1.5 trillion in 2023, signaling strong market confidence in a tourism-led development model (BPS Kota Batu, 2024).

Despite these positive economic indicators, Batu City's rapid tourism expansion has resulted in mounting environmental and spatial pressures. Artificial and land-intensive attractions have dominated tourism development, leading to significant land-use conversion. Between 2009 and 2019, agricultural land, especially rice fields, declined by approximately 6.19 percent as built-up areas expanded to accommodate tourism infrastructure (Subagiyo et al., 2020). These spatial transformations have heightened ecological vulnerability, as evidenced by the 2021 flash flood disaster, which was widely linked to upstream land-use change and declining environmental carrying capacity. The coexistence of such environmental stress with the city's ambition to position itself as a green and sustainable tourism destination exposes a clear gap between policy discourse and material outcomes.

In response to these challenges, Batu City has formally incorporated a green tourism paradigm into its local development agenda, aligned with national sustainable development and green economy policies. This paradigm emphasizes environmentally sustainable infrastructure, wellness-oriented tourism, and active community participation. Nevertheless, implementation remains uneven. Regulatory instruments, integrated spatial planning, and environmental monitoring systems have struggled to keep pace with rapid tourism expansion. Moreover, limitations in tourism data governance, delayed policy consolidation, and inconsistent coordination among public agencies, private investors, community groups, academic institutions, and media actors continue to constrain effective implementation. These patterns reveal that Batu City's sustainability challenges are not merely technical, but deeply embedded in governance structures and institutional relationships.

To examine these dynamics, this study adopts the Collaborative Governance Plus Multi-Helix (CGPMH) framework as its analytical lens. CGPMH builds on the ideas of collaborative governance (Ansell & Gash, 2007) and multi-helix models of innovation and knowledge production (Etzkowitz & Leydesdorff, 2000; Carayannis et al., 2012). It sees tourism governance as a network of relationships that is often uneven and includes state actors, market participants, academic institutions, local communities, media organizations, and non-traditional stakeholders (Wijaya, 2023). The "plus" dimension captures informal institutions, discursive practices, and power relations that shape policy processes beyond formal governance arrangements.

The study uses Policy Network Analysis (PNA) to go beyond just describing participation and instead looks closely at how governance relationships are structured. By examining the connections between different players, figuring out who is most and least important, and looking at how "green tourism investment" is created and put into action, this study evaluates if collaborative governance in Batu City truly helps coordinate efforts or if it mainly serves as a superficial policy story. The analysis looks at four connected questions: which actors are included or left out of tourism governance networks; whether collaboration is based on a common understanding of problems or if some have more influence; how environmental concerns compare to investment needs; and how well CGPMH works when there are issues with organization and power differences.

Tourism Growth in Batu City

Batu City has increasingly drawn scholarly and policy attention due to its distinctive trajectory as a rapidly developing tourism hub in East Java. Sustained investment, expanding visitor markets, and strong regional branding have propelled its

transformation from an agrarian highland area into a leading recreational destination (Ardiyanto & Sukmawati, 2021). Through this trajectory, Batu has come to represent a microcosm of the broader tensions confronting tourism-dependent cities across Indonesia: rapid growth, rising investor interest, and escalating environmental pressures.

According to Batu's development narrative, investment plays a decisive role. The city recorded tourism-related investment reaching IDR 1.5 trillion in 2023, an increase that confirms its regional economic significance (BPS Kota Batu, 2024). Yet, growth of this scale generates spatial and ecological consequences. A series of land-use studies reveal consistent contraction of agricultural zones, especially rice fields, with an estimated 6.19 percent reduction between 2009 and 2019 (Subagiyo et al., 2020). The primary drivers of this conversion are the expansion of tourism infrastructure, the development of commercial lodging, and the construction of secondary housing for short-term visitors. The resulting fragmentation of agricultural landscapes has raised alarms regarding hydrological stability, food security, and long-term ecological resilience (Wibowo & Sari, 2022).

To these environmental pressures, governance responses have been uneven. Local development agendas continue to emphasize Batu's tourism identity, with sustainability frequently invoked but not deeply institutionalized within planning mechanisms (Prasetyo, 2021). Scholars argue that regional autonomy, while enabling local initiative, has also produced fragmented coordination across government departments, limiting the city's capacity to regulate land conversion and environmental risk (Sari & Putra, 2020). Policy integration across tourism, spatial planning, and environmental protection remains partial, and monitoring mechanisms are often reactive rather than preventive.

Community involvement presents another governance challenge. While Batu's tourism economy heavily depends on local participation through homestays, micro-enterprises, and agritourism activities frameworks for public engagement in policymaking remain largely consultative rather than deliberative (Rohman & Yani, 2022). As a result, community perspectives are frequently absorbed symbolically into planning processes but rarely influence strategic decision-making, perpetuating power imbalances between government, businesses, and civil society groups.

Private actors, especially major tourism enterprises and developers, have significantly expanded their role in shaping Batu's development trajectory. Many studies show that government decisions are often made to meet the needs of investors, such as allowing easier land use, faster permits, and better infrastructure support (Amalia & Harjanto, 2023). These practices may help bring in money, but they also run the risk of putting investor interests ahead of environmental protections.

Media, both conventional and digital, increasingly influence public debate around Batu's environmental challenges. Reports of floods, landslides, and land-use conflicts have heightened worries about the environmental effects of uncontrolled growth (Nugraha & Widodo, 2023). Yet, despite growing discourse, empirical attempts to map how narratives shape governance interactions or how public sentiment influences policy remain limited.

Green Tourism Investment

Green tourism investment has been promoted internationally as a corrective strategy to reconcile tourism development with ecological limits. However, beneath its appealing rhetoric, the concept remains contested, particularly regarding what counts as “green,” who defines it, and how far its principles are embedded in governance structures. Scholars emphasize that green investment goes beyond environmentally themed projects; it requires measurable commitments to resource efficiency, low-carbon operations, and ecosystem protection (UNWTO, 2022). However, in reality, political agendas or market incentives often stretch the “green” label, resulting in symbolic compliance or greenwashing (Higgins-Desbiolles, 2020).

Within developing regions, including Southeast Asia, implementation challenges tend to intensify. Regulatory inconsistencies, weak enforcement, and limited local capacity often mean that investment continues to privilege economic returns over environmental safeguards (Pham et al., 2022). Indonesia reflects this broader pattern: while sustainability appears in national tourism frameworks, actual investment decisions frequently prioritize revenue-generating infrastructure rather than ecological resilience (Putri & Hakim, 2021). These contradictions create a governance terrain in which green tourism is both an aspiration and a political battleground.

Collaborative Governance

Collaborative governance (CG) is often presented as the normative solution for policy areas characterized by complexity and multi-stakeholder involvement. Foundational scholars define CG as structured, cross-sector interaction in which public agencies engage non-state actors in collective decision-making processes (Ansell & Gash, 2007). But as the idea became more popular, people started to criticize it, questioning its assumptions, effects, and real-world limits. First, collaboration is rarely voluntary or equal. Power asymmetries, whether bureaucratic, financial, or political, shape who participates, who influences, and who merely occupies symbolic roles (Emerson & Nabatchi, 2015). Second, collaborative arenas can reproduce rather than resolve institutional fragmentation, as actors maintain sectoral loyalties and strategic interests that undermine collective goals (Purwoko, 2021). Third, collaboration often becomes a procedural requirement rather than a substantive mechanism, with forums held and documents produced but transformative decisions largely predetermined by dominant actors (Sørensen & Torfing, 2018). Tourism governance illustrates these tensions well. While the sector involves businesses, communities, NGOs, and multiple government levels, collaborative structures often mask underlying conflicts over These factors include land use, resource extraction, and cultural identity. Thus, CG is less a neutral mechanism and more a space of negotiation shaped by power, discourse, and institutional path dependencies.

Collaborative Governance Plus Multi-Helix (CGPMH)

To address these gaps, scholars have begun expanding helix models into more flexible and inclusive governance frameworks. CGPMH combines collaborative governance ideas with multi-helix models, recognizing that tourism decisions are influenced not just by the government, businesses, and schools, but also by local communities, media, environmental groups, NGOs, and informal networks (Wijaya, The “Plus” in CGPMH is crucial: it recognizes that real-world governance involves actors not easily classified in traditional helices, including influencers, local brokers, advocacy coalitions, and digital

communities. This broader framing helps illuminate governance realities in complex sectors such as tourism, where legitimacy, public perception, and informal negotiation often weigh as heavily as official regulations. However, CGPMH also faces conceptual challenges. Because it accommodates diverse actors and relational dynamics, it risks becoming overly inclusive, making analytical boundaries blurry. Without clear methodological tools, the “Plus” dimension can expand indefinitely, reducing explanatory precision. This is where policy network analysis and digital data methods become valuable.

Policy Network Analysis and Digital Governance Dynamics

Policy Network Analysis (PNA) offers an empirical pathway to operationalize the relational complexity embedded in CGPMH. Instead of assuming collaboration, PNA maps how actors actually interact: who collaborates, who influences, who dominates, and who is marginal (Rhodes, 2006). Through structural measures such as centrality, density, and brokerage, network analysis reveals the power distribution underlying policy processes. We cannot fully understand governance in the digital era without taking into account online discourse, digital media interactions, and publicly visible communication flows. Scholars highlight that modern policymaking is increasingly shaped by fast-paced, informal, and internet-mediated exchanges that traditional qualitative methods often fail to capture (Mergel, 2021). Digital text mining, sentiment analysis, and social network mapping help researchers understand patterns in discussions, relationships, and public opinions on a large scale, which is especially important in tourism governance because stories can greatly affect credibility and political influence.

2. Research Methods

This study adopts a qualitative explanatory approach with a non-intrusive research design, relying exclusively on archival and secondary digital data. This approach was deliberately chosen in response to practical constraints on accessing primary data, while also allowing for a systematic and reflexive examination of the dynamics of Collaborative Governance Plus Multi-Helix (CGPMH) in the context of green tourism investment in Batu City, East Java, Indonesia. Instead of seeing these limitations as problems with the research method, the study views non-intrusive research as a beneficial way to look at how governance works, the stories institutions tell, and the relationships between different actors found in official policies and public discussions. The non-intrusive design allows for studying governance structures, how actors relate to each other, and changing public views without directly interacting with the people being researched. This aspect is especially important for looking at how different groups work together in governance, where goals, ways to coordinate, and power dynamics are usually expressed in official documents and public communication. The study utilized two primary categories of data sources. The first consisted of formal policy and planning documents related to tourism governance, including regional regulations, regional development plans, tourism master plans (RIPPARDA), performance The documents included accountability reports and inter-institutional cooperation agreements. These documents were retrieved from the official government archives and digital repositories of the Batu City Government, with a focused emphasis on the tourism and investment sectors. To complement institutional perspectives, the second category of data included digital textual materials from reputable online news portals reporting on tourism development and investment in Batu City. These sources were used to capture public narratives, policy framing, and observable interactions among key actors across government, the private sector, and

community domains. Combining formal documents and media discussions helps the study gain a better understanding of how green tourism investment is managed, debated, and communicated among different groups involved.

In addition, social media data was collected through the web scraping of Instagram posts from two official tourism-related Instagram accounts in Batu City. The data collection covered the period from 2024 to 2025 to capture recent governance discourse in the post-pandemic tourism recovery phase. Instagram was chosen because it is a key platform for tourism communication, destination branding, and public engagement. The collected data included captions and text from posts about tourism activities, green tourism projects, and investment stories, which were considered public information rather than personal opinions. Data analysis was conducted through an integrated, multi-stage qualitative process. First, qualitative content analysis was applied to formal government documents to identify actor roles, mandates, and governance mechanisms across government, business, academic, community, and media helixes. Second, a policy network analysis was used to show how different actors are connected by looking at how often they appeared together in documents, news articles, and social media, which helped to uncover patterns of teamwork, influence, and importance. Third, a sentiment analysis was done on online text to understand the overall mood of public discussions by sorting feelings into positive, neutral, and negative groups using a special Indonesian-language list of sentiments.

The analytical process followed an interactive data analysis model consisting of data collection, data condensation, data reduction, and synthesis. To make the findings more trustworthy and accurate, different methods were used to check the results from document analysis, policy network analysis, and sentiment analysis against each other. The last step combined findings about structure, relationships, and discussions to assess whether the CGPMH framework truly serves as an effective governance tool or mainly acts as a symbolic story to support green tourism investment in Batu City.

3. Results and Discussion

This section presents and discusses the empirical context of green tourism investment in Batu City from the perspective of collaborative governance and the multi-helix approach. The analysis begins by examining the Village Development Index (Indeks Desa Membangun/IDM) as an initial indicator of village readiness and institutional capacity to support sustainable tourism investment. IDM is a critical measure, as it reflects the social, economic, and environmental dimensions of village development, which are closely aligned with the principles of green tourism and collaborative governance. Understanding the trajectory of IDM in Batu City provides an essential foundation for analyzing how multi-actor collaboration can facilitate green tourism investment at the local level.

Table 1. Development of the Village Development Index (IDM) in Batu City

Year	IDM Achievement	Status
2021	The village-level IDM score reached 0.9981	Independent Village
2022	Average IDM score of 0.9063	Independent Village
2023	IDM evaluation conducted across 17 villages	Independent Village
2024	Average IDM score increased to 0.9209	Independent Village

Source: author processed, 2025

The data presented in the table indicate that Batu City has demonstrated consistent and progressive improvement in its Village Development Index (IDM) from 2021 to 2024. The sustained status of independent villages and increasing IDM scores reflect strong

institutional capacity, social cohesion, and environmental readiness at the village level. This condition provides a solid foundation for the development of green tourism investment, particularly through collaborative governance and multi-helix approaches, where villages function as key actors in supporting sustainable tourism development.

The consistently high Village Development Index (IDM) scores in Batu City indicate not only the structural readiness of villages to support sustainable development but also the presence of relatively strong institutional, social, and economic capacities at the local level. However, the translation of village readiness into effective green tourism investment cannot be understood solely through development indicators. It requires an examination of how multiple actors interact, coordinate, and exercise authority within the governance system. In this situation, the IDM acts as a helpful factor, while the success of green tourism investment depends on how different groups work together and share responsibilities within a multi-helix framework. Based on a careful review of government documents, news websites, and social media data, the following chart shows the roles, levels of authority, and relationships of important players involved in managing green tourism investment in Batu City.

Table 2. Matrix of Helix Actors' Roles in Green Tourism Investment Governance in Batu City

Helix	Key Actors	Level of Authority	Form of Relationship
Government (State Helix)	Mayor / Acting Mayor	Strategic–Political	Vertical command
	Head of Tourism Office	Technical–Managerial	Coordinative and supervisory
	Technical Divisions (Destination, Marketing, Creative Economy, Culture)	Operational	Horizontal coordination
	Regional Financial Agency (BKAD)	Administrative Control	Financial supervision
Business (Market Helix)	City Council (DPRD)	Political–Legislative	Representative
	Large Private Companies	Capital–Operational	Contractual and regulatory
	Local MSMEs and Entrepreneurs	Operational	Partnership and mentoring
	State-Owned (Perhutani) Enterprise	Structural–Land authority	Co-management
Community (Civil Society Helix)	Village-Owned (BUMDes) Enterprises	Local–Community	Grants and facilitation
	Cultural and Art Communities	Socio-cultural	Facility support
Professional/Expert Helix	Cultural Heritage Expert Team (TACB), Arts Council	Epistemic	Advisory
	Professional Associations (PHRI, ASITA, HPI)	Sectoral	Strategic partnership
Academia (Knowledge Helix)	Universities and Researchers	Epistemic	Limited consultation
Media (Discursive Helix)	Local and Digital Media	Discursive	Informational

Source: author processed, 2025

Based on Table the analysis reveals a pronounced asymmetry of power within the multi-helix governance structure of green tourism investment in Batu City. Government and business actors occupy dominant and central positions in the governance network, exercising strategic, financial, and regulatory authority. In contrast, community, academic, and media actors tend to operate at the periphery, with limited influence over strategic decision-making processes. This uneven distribution of power suggests that while multiple actors are formally involved, effective control remains concentrated among a narrow group of dominant stakeholders. Furthermore, collaboration among

helix actors is predominantly functional rather than deliberative in nature. Interactions are largely characterized by administrative mechanisms such as grant allocation, licensing procedures, and capacity-building programs, rather than inclusive policy co-production or joint agenda-setting. As a result, collaborative governance in this context functions more as a coordination mechanism than as a platform for shared decision-making and collective problem-solving.

Within this governance arrangement, green tourism primarily operates as a discursive bridge that symbolically unites diverse actors under a shared sustainability narrative. The discourse of green tourism facilitates alignment at the level of rhetoric and public communication; however, it has yet to fundamentally reshape the underlying structures of authority and decision-making. Consequently, the adoption of green tourism principles remains uneven, with sustainability objectives often subordinated to political and economic priorities. The “plus” dimension of the Collaborative Governance Plus Multi-Helix (CGPMH) framework becomes visible through several informal and semi-formal mechanisms. These include the incorporation of public aspirations through City Council (DPRD) proposals, the distribution of cultural equipment grants to community groups, informal relationships between political elites and investors, and the role of media in framing Batu City as a “green tourism city.” While these mechanisms expand the governance arena beyond formal institutions, they simultaneously reinforce existing power asymmetries by privileging actors with greater political access and economic resources.

While the actor matrix clarifies the formal roles, authority levels, and functional positions of each helix within the governance structure, it does not fully capture the dynamic patterns of interaction and influence among actors. To further examine how collaborative governance operates in practice, it is necessary to move beyond static role descriptions and analyze the relational configuration of actors within the governance network. Accordingly, the following graph visualizes the Collaborative Governance Plus Multi-Helix Network in Batu City, illustrating the direction, intensity, and centrality of interactions among key actors involved in green tourism investment. This network representation enables a deeper understanding of power asymmetries, coordination pathways, and the structural positioning of actors within the governance system.

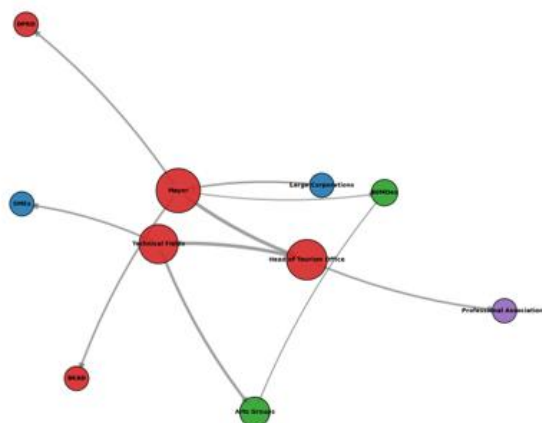


Figure Collaborative Governance Plus Multi-Helix Network of Green Tourism Investment in Batu City
Source: author processed, 2025

The Collaborative Governance Plus Multi-Helix network's empirical configuration in Batu City closely aligns with critical debates in collaborative governance theory. Collaborative

governance is commonly defined as a structured process in which public agencies engage non-state actors in collective decision-making across sectoral boundaries (Ansell & Gash, 2007). Formally, the Batu City case reflects this definition through the involvement of government, business, community, academia, and media actors in green tourism investment governance. However, the network analysis demonstrates that such inclusion does not necessarily translate into equal participation or shared authority.

Consistent with the critique advanced by Emerson and Nabatchi (2015), the network reveals clear power asymmetries that shape who influences governance outcomes and who remains marginal. Centrality and dominance patterns show that government actors, particularly the mayor and the head of the tourism office, retain disproportionate control over agenda-setting, resource allocation, and coordination. Business actors occupy a complementary position of influence through capital and contractual relations. Meanwhile, community groups, academia, and media are positioned at the periphery, confirming that collaborative governance often embeds unequal power relations rather than neutralizing them (Emerson & Nabatchi, 2015).

The network is not very strong, and there are few connections between non-state actors, which suggests that working together might actually keep the existing divisions instead of fixing them. As noted by Purwoko (2021), actors frequently maintain sectoral loyalties and strategic interests that limit genuine collective action. In Batu City, business actors remain primarily aligned with investment logics, while community actors are largely confined to implementation roles. This fragmentation weakens the potential for cross-sector learning and joint problem-solving, despite the formal appearance of collaboration. Moreover, the findings corroborate Sørensen and Torfing's (2018) observation that collaborative governance often becomes procedural rather than substantive. Although coordination forums, grant mechanisms, and consultative processes fulfill the administrative requirements of collaboration, dominant actors appear to largely predetermine strategic decisions. The directed and weighted edges in the network illustrate how authority flows predominantly from central government actors outward, with limited reciprocal influence from peripheral stakeholders.

Tourism governance accentuates these tensions. As a sector characterized by competing claims over land use, environmental protection, and cultural identity, tourism governance is inherently political. While green tourism discourse suggests alignment around sustainability objectives, the network analysis indicates that this discourse functions primarily as a legitimizing narrative rather than a mechanism for redistributing decision-making power. In this sense, collaborative governance operates as a negotiated space shaped by power, discourse, and institutional path dependencies rather than as a neutral coordination tool (Ansell & Gash, 2007; Sørensen & Torfing, 2018). The Collaborative Governance Plus Multi-Helix (CGPMH) framework provides a more empirically sensitive lens for capturing these dynamics. By adding communities, media, and informal actors to traditional helix models, CGPMH recognizes that governance results are influenced not just by official institutions but also by discussions and informal agreements. In Batu City, the "Plus" dimension is evident in mechanisms such as DPRD aspirational channels (Pokir), cultural equipment grants, informal relations between political elites and investors, and media framing of Batu City as a "green tourism city." These elements illustrate how legitimacy and influence are constructed beyond formal policy arenas.

At the same time, the findings expose the conceptual risks inherent in CGPMH. As Wijaya (2023) cautions, the inclusiveness of the "Plus" dimension can blur analytical boundaries

if not supported by clear methodological tools. Without systematic analysis, the expansion of actor categories risks diluting explanatory power. In this study, network analysis of policy functions as a critical methodological anchor, enabling the differentiation between central and peripheral actors, formal and informal relations, and discursive versus material power. By adding network analysis to CGPMH, this study improves the framework's ability to analyze details while still being able to understand the complexity of governance.

To add to the structural network analysis, this study also looks at the language used in discussions about green tourism investment by analyzing the feelings expressed in the words. This approach is employed to capture the general tone of public and stakeholder discourse surrounding green tourism initiatives in Batu City, thereby clarifying the legitimacy and reception of the governance narrative beyond formal institutional arrangements.

Table 3. Sentiment Score Statistics

Statistic	Value
Number of observations (n)	397
Mean sentiment score	2.31
Standard deviation	1.86
Minimum score	0.00
25th percentile (Q1)	1.00
Median (Q2)	3.00
75th percentile (Q3)	3.00
Maximum score	10.00

Source: author processed, 2025

The lexicon-based sentiment analysis was conducted on a corpus of 397 textual units related to green tourism and tourism development discourse in Batu City. The descriptive statistics indicate a mean sentiment score of 2.31 with a standard deviation of 1.86, suggesting that the overall tone of the discourse is moderately positive but exhibits some variation in intensity. The median sentiment score of 3.00 and the interquartile range of 1.00 to 3.00 show that most texts have low to moderately positive sentiment levels, not very positive ones. Although the maximum score reaches 10.00, such high-intensity positive expressions appear to be limited in number.

Beyond sentiment polarity, Figure 2 shows that the thematic categorization of discourse provides further insight into the focus and orientation of communication. The most common type is tourism promotion, which makes up 63.48% of the corpus. This indicates that the majority of discourse emphasizes destination branding, attraction marketing, and positive imagery associated with Batu City as a tourism destination. Administrative content accounts for 10.08%, reflecting procedural announcements, program updates, and bureaucratic communication. The green tourism category constitutes only 5.04% of the discourse, while governance-related content represents 4.79%. A further 16.62% falls into a residual "none" category, consisting of generic or weakly classified statements.

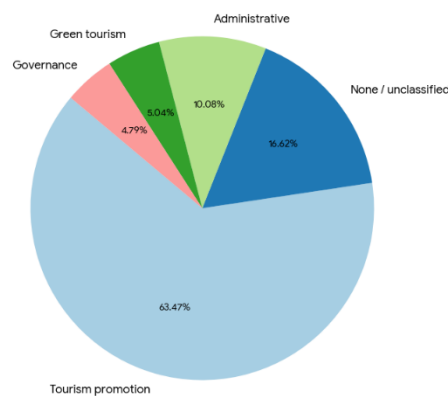


Figure Dominant Discourse Categories
Source: author processed, 2025

The sentiment analysis results, as illustrated in Figure, indicate a strong predominance of positive sentiment, accounting for 78.34% of the analyzed textual data. Neutral sentiment constitutes the remaining 21.66%, while negative sentiment is notably absent. These findings suggest that the discourse surrounding green tourism in Batu City is largely framed in affirmative and supportive terms, emphasizing optimism, opportunity, and alignment with sustainability ideals. From a governance perspective, the prevailing positive sentiment suggests the effectiveness of green tourism as a discursive tool in promoting broad acceptance among stakeholders. Lexicon-based analysis captures recurrent positive evaluative terms associated with environmental sustainability, economic opportunity, and city branding, reinforcing the narrative of Batu City as an emerging “green tourism city.” Neutral sentiment, meanwhile, appears to be associated with informational or procedural content, such as announcements, program descriptions, and administrative updates, rather than critical evaluation.

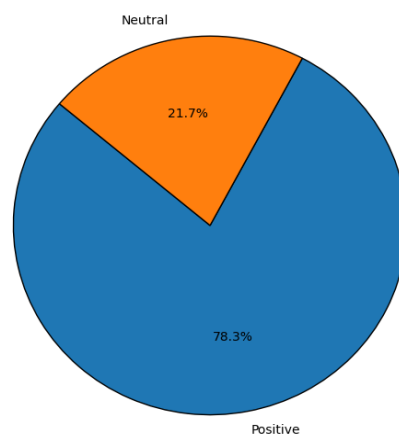


Figure. Distribution of Lexicon-Based Sentiment Analysis Results on Green Tourism Discourse in Batu City
Source: author processed, 2025

However, the absence of negative sentiment should not be interpreted as evidence of consensus or conflict-free governance. Critical perspectives on collaborative governance assert that highly favorable discursive environments may signify processes of discursive filtering, wherein dissenting viewpoints are systematically marginalized rather than openly contested (Emerson & Nabatchi, 2015; Sørensen & Torfing, 2018). In the context of Batu City, this pattern is consistent with the earlier policy network analysis, which

revealed that community actors, academic institutions, and media occupy peripheral positions within the governance structure. Their weak position in the network limits their ability to influence the main stories being told, leading to less attention on important, different, or opposing viewpoints in public discussions.

This finding shows a key conflict between recognizing all actors and the unequal influence they have in discussions within the Collaborative Governance Plus Multi-Helix (CGPMH) framework. CGPMH builds on traditional helix models by recognizing the importance of non-traditional and informal actors, like local brokers, digital communities, and media networks, in influencing governance results (Wijaya, 2023). Yet the sentiment analysis suggests that, despite this expanded constellation of actors, discursive power remains unevenly distributed. Positive sentiment and promotional framing are predominantly produced and amplified by actors located at the core of the governance network, particularly government and business helices, while peripheral actors contribute less visibly to the dominant discourse.

This dynamic reinforces the interpretation of green tourism as a discursive bridge within the CGPMH arrangement. The narrative of green tourism successfully aligns diverse actors symbolically and enhances public legitimacy, supporting the governance system's outward appearance of collaboration. However, consistent with critiques of collaborative governance, such symbolic alignment does not necessarily translate into deliberative inclusiveness or meaningful power redistribution in decision-making processes (Ansell & Gash, 2007; Purwoko, 2021). Instead, positive sentiment functions as a mechanism of narrative alignment that stabilizes existing power relations while masking underlying asymmetries.

Moreover, the reliance on sentiment percentages alone risks oversimplifying governance dynamics. As CGPMH scholars caution, the "Plus" dimension while analytically valuable, requires robust methodological tools to avoid conceptual overextension (Wijaya, 2023). This study combines policy network analysis with lexicon-based sentiment analysis to create a toolset that lets us understand how discursive patterns relate to actor positioning and power structures. So, sentiment analysis is seen not just as a way to measure public opinion, but as real proof of which narratives are more powerful and how legitimacy is built in a system where different groups work together.

While the percentage-based sentiment analysis demonstrates an overall dominance of positive discourse, it does not reveal how such sentiment is distributed across actors within the governance system. To address this limitation, the actor-sentiment intensity heatmap provides a relational perspective by linking sentiment categories to specific actor groups.

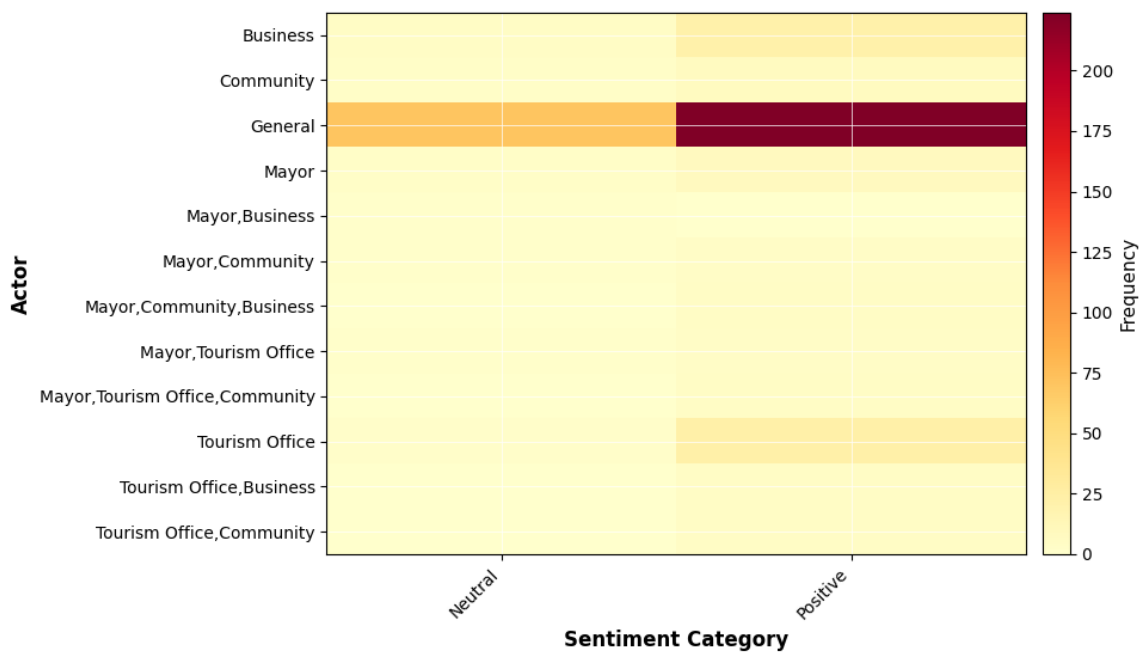


Figure. Actor–Sentiment Intensity Heatmap of Green Tourism Discourse in Batu
Source: author processed, 2025 CityDiscourse in Batu City

The visualization in Figure shows that positive sentiment is most intensively concentrated within the “general” category, which largely reflects promotional and non-specific narratives rather than actor-driven deliberation. In contrast, sentiment explicitly associated with identifiable governance actors such as the mayor, the tourism office, and business actors appears with substantially lower intensity, indicating that discursive influence is exercised more through generalized messaging than through transparent actor positioning. Individuals involved in the community exhibit the least sentiment intensity, corroborating prior network analysis findings that indicate their relative unimportance. This pattern supports critical interpretations of collaborative governance, which argue that participation does not necessarily translate into discursive power or agenda-setting capacity (Ansell & Gash, 2007; Emerson & Nabatchi, 2015). In the Collaborative Governance Plus Multi-Helix (CGPMH) framework, the heatmap shows that while the “Plus” part increases the number of actors involved, it doesn’t necessarily change who controls the story. As a result, the heatmap supports the idea that green tourism acts as a way to connect different viewpoints and gain acceptance, even though the existing imbalances of power in both structure and communication mostly stay the same.

This study looked at green tourism investment in Batu City using the Collaborative Governance Plus Multi-Helix (CGPMH) framework, which combined development indicators, mapping of different actors’ roles, analysis of policy networks, and sentiment. While Batu City demonstrates strong structural readiness for sustainable tourism development as reflected in consistently high Village Development Index (IDM) scores, the findings indicate that governance practices remain centralized and selectively inclusive. These patterns have direct implications for how green tourism policies are designed, implemented, and evaluated.

The actor matrix and network analysis show that government and business actors, particularly the mayor and the tourism office, dominate strategic and brokerage positions within the governance network. From a policy perspective, this concentration of authority

suggests that green tourism investment decisions are likely to be shaped primarily by executive priorities and investment logics rather than co-produced through deliberative processes. This finding aligns with collaborative governance critiques that warn against the assumption that multi-actor participation automatically leads to shared decision-making (Ansell & Gash, 2007; Emerson & Nabatchi, 2015). In practical terms, this implies a need for institutional reforms that formalize the decision-making roles of community organizations, academic institutions, and professional associations, for example, through mandatory consultative forums, co-signature mechanisms, or binding participatory planning stages within tourism investment approvals.

The sentiment and discourse analysis further reveal that green tourism is predominantly communicated through promotional narratives, with limited emphasis on governance, sustainability trade-offs, or community impacts. While such positive framing can enhance policy legitimacy and investor confidence, it also risks depoliticizing key policy debates related to land use, environmental limits, and cultural commodification. From a policy implementation standpoint, this suggests that local governments should complement promotional strategies with structured public deliberation mechanisms, such as policy dialogues, impact disclosure requirements, and feedback loops that allow critical perspectives to surface without being framed as oppositional. This suggestion is in line with the idea that collaborative governance needs to go beyond just following the rules and start having real discussions (Sørensen & Torfing, 2018).

The actor-sentiment intensity heatmap reveals that generalized narratives, rather than actor-specific voices, concentrate discursive influence, particularly marginalizing community and knowledge-based actors. Within the CGPMH framework, this finding points to a gap between conceptual inclusiveness and operational capacity (Wijaya, 2023). To address this gap, policy instruments should explicitly support the communicative capacity of peripheral actors. Examples include earmarked funding for community-led tourism narratives, institutional partnerships between local governments and universities for independent policy evaluation, and media collaboration schemes that prioritize diverse perspectives rather than uniform branding. Such measures would help translate the “Plus” dimension of CGPMH into tangible governance outcomes.

Taken together, the findings suggest that effective green tourism investment policy requires alignment across structural, procedural, and discursive dimensions of governance. High development readiness, positive public sentiment, and multi-helix participation are insufficient if not accompanied by mechanisms that redistribute decision-making authority and narrative control. This study therefore contributes to collaborative governance scholarship by demonstrating how empirical tools such as policy network analysis and digital sentiment analysis can inform concrete policy design. More importantly, it highlights that the success of green tourism policies should be evaluated not only by economic growth or positive narratives, but by the extent to which governance arrangements enable meaningful participation, critical deliberation, and equitable benefit distribution.

4. Conclusion

This study shows that green tourism investment in Batu City is governed through collaborative arrangements that remain structurally centralized and uneven in practice. Although green tourism discourse has strengthened policy legitimacy and investor confidence, decision-making authority continues to be concentrated among government

and business actors, with community, academic, and media actors playing limited roles. Consequently, collaboration operates more as an administrative and legitimizing mechanism than as a deliberative process capable of fully integrating sustainability concerns into investment decisions. From a policy perspective, these findings indicate that sustainability challenges in tourism cannot be addressed through narrative alignment alone. Effective green tourism governance requires the institutionalization of collaboration into concrete policy instruments, including clearer role allocation, binding multi-actor review mechanisms, and enforceable environmental safeguards. Future policy efforts should therefore prioritize strengthening deliberative capacity and accountability across helix actors to ensure that green tourism investment contributes not only to economic growth but also to long-term environmental resilience and social inclusion. The data that support the findings of this study are available from the corresponding author upon reasonable request. The data were sourced from public social media platforms (Instagram) and online press coverage from the 2024-2025 period. The authors declare that there is no conflict of interest regarding the publication of this article. The research was conducted independently, and the findings and conclusions presented are based solely on the data collected and analyzed.

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