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Network Governance and Post-Disaster Tourism Resilience: Evidence from North Lombok, Indonesia

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Abstract

Tourism-dependent destinations in the Global South are highly vulnerable to natural disasters due to limited institutional capacity, fragmented governance, and economic over-reliance. The 2018 North Lombok earthquake disrupted local livelihoods, governance, and tourism, directly impacting SDGs 8.9 (sustainable tourism), 11.5 and 11.b (resilience), 16.6 and 16.7 (institutions), and 17.17 (partnerships). Addressing this gap, this study investigates how network governance supports disaster-resilient tourism planning in post-earthquake North Lombok. Employing an explanatory qualitative case study with Social Network Analysis (SNA), data were collected through interviews, document analysis, participant observation, and stakeholder mapping across government, business, community, NGO, and academic actors. Findings reveal a collaborative network where the Regional Development Planning Agency and Tourism Office serve as central brokers linking disaster management, tourism development, and economic recovery. However, community participation and gender-inclusive decision-making remain uneven. This study demonstrates that effective disaster-resilient tourism depends on strong inter-organisational networks, cross-sectoral collaboration, and adaptive governance, offering crucial insights for sustainable governance in disaster-prone regions.

Keywords: *Collaborative Governance; Disaster-Resilient Tourism; Network Governance*

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Introduction

Tourism has become a vital driver of regional economic development, particularly in developing countries where it contributes significantly to employment, local entrepreneurship, and revenue generation (Khan et al., 2020; Sinclair, 1998). However, tourism destinations are increasingly exposed to environmental and socio-economic risks, including climate change, natural disasters, and global crises, which threaten their long-term sustainability (Pedapalli et al., 2022; Scott, 2021; Scott et al., 2012). The vulnerability of tourism-dependent regions is especially acute in disaster-prone areas, where natural hazards can rapidly disrupt infrastructure, livelihoods, and governance systems (Becken et al., 2014). Consequently, strengthening tourism resilience has become a strategic priority within the global sustainable development agenda. Major disasters significantly disrupt progress towards several Sustainable Development Goal (SDG) targets, particularly SDG 8.9 (sustainable tourism for job creation and local economic growth), SDG 11.5 (reducing disaster impacts on communities and local economies), SDG 11.b (integrated disaster risk reduction planning), SDG 13.1 (strengthening resilience and adaptive capacity), SDG 13.3 (enhancing institutional capacity for disaster preparedness), and SDG 17.17 (promoting effective public–private–community partnerships). The disruption of tourism activities following natural hazards illustrates how disaster events can simultaneously affect economic sustainability, community resilience, institutional effectiveness, and collaborative governance mechanisms (Filimonau & De Coteau, 2020; Jiang & Ritchie, 2017; Wu et al., 2021; Yang & Kim, 2023).

North Lombok Regency, located in West Nusa Tenggara Province, Indonesia, is a prominent tourism-dependent destination facing significant disaster risks. The region hosts internationally recognised tourism attractions, including Gili Trawangan, Gili Air, and Gili Meno, which contribute substantially to local economic development. Prior to the 2018 Lombok earthquake, tourism constituted one of the primary sources of regional income and employment (Partelow, 2021; Partelow et al., 2023). However, the earthquake severely damaged tourism infrastructure, accommodation facilities, transportation networks, and supporting public services. The disaster also disrupted local livelihoods and eroded tourist confidence, causing a substantial decline in visitor arrivals and tourism-related economic activity. Beyond its economic consequences, the earthquake exposed institutional vulnerabilities in tourism governance, including fragmented stakeholder coordination, limited integration between tourism planning and disaster risk reduction, and insufficient local community participation in recovery efforts (Becken & Hughey, 2013; Partelow, 2021; Wu et al., 2021).

The challenges experienced by North Lombok reflect broader concerns across tourism destinations in the Global South. Unlike many developed countries with relatively strong institutional capacities and established disaster management systems, destinations in the Global South often face severe resource constraints, governance fragmentation, and unequal access to decision-making processes. Consequently, disaster recovery is frequently hindered by coordination difficulties among government agencies,

private sector actors, community organisations, and external development partners (Ali et al., 2020; Ngulube et al., 2024). These structural conditions highlight the imperative for governance approaches that facilitate collaboration, information exchange, and collective action among diverse stakeholders. In this context, governance effectiveness becomes a critical determinant of whether tourism recovery efforts can foster not only economic restoration but also long-term resilience and sustainable development (El Alam et al., 2024; Farsari, 2023).

Recent studies on disaster-resilient tourism have emphasised the importance of community resilience, destination recovery strategies, institutional adaptation, and sustainable tourism planning (Jayasinghe et al., 2024). Existing research demonstrates that successful post-disaster tourism recovery requires stakeholder collaboration, adaptive governance mechanisms, and effective risk management systems (Biggs et al., 2012). Studies conducted in disaster-prone destinations have highlighted the role of local communities, government agencies, and tourism businesses in supporting resilience-building processes (Bhaskara & Filimonau, 2021; Rahmafitria et al., 2021). Similarly, the growing literature on collaborative governance and tourism management has underscored the significance of partnerships, stakeholder engagement, and participatory decision-making in achieving sustainable outcomes (Ansell & Gash, 2008; Farsari, 2023; Pham et al., 2025).

Despite these advances, several limitations remain in the literature. First, tourism crisis and disaster research has concentrated heavily on crisis impacts, recovery, risk management, and disaster response, leaving comparatively less attention to the governance processes through which resilience is collectively organised (Ritchie & Jiang, 2019; Wut et al., 2021; Zhang et al., 2024). Second, although tourism research increasingly recognises the importance of networks and collaboration, empirical evidence on how inter-organisational structures, brokerage positions, and relationship patterns shape governance outcomes remains comparatively limited (Mwesiumo & Halpern, 2019; van der Zee & Vanneste, 2015). This limitation is particularly important in post-disaster settings, where recovery effectiveness depends on coordination among public agencies, tourism businesses, local communities, and other institutional actors. Third, these governance dynamics require greater context-sensitive investigation in Global South destinations, where institutional constraints, fragmented authority, uneven access to resources, and power asymmetries may significantly shape collaborative recovery and adaptive capacity (Amore & Hall, 2016; El Alam et al., 2024). Finally, although research linking tourism and the Sustainable Development Goals (SDGs) has expanded, limited evidence explains how specific governance-network structures translate collaborative tourism planning into progress towards particular SDG targets, especially in disaster-prone destinations (Lavaredas et al., 2025; Zhang et al., 2024).

Table 1 demonstrates that the 2018 Lombok earthquake produced systemic and multi-layered impacts on North Lombok's tourism sector, extending well beyond physical infrastructure damage. The destruction of more than 250 hotels and tourism facilities (Gunawan et al., 2023), represents a substantial disruption to destination capacity, directly undermining progress towards SDG 11 (Sustainable Cities and Communities).

This physical shock cascaded rapidly into economic decline, as evidenced by a 60% drop in tourist arrivals and an estimated USD 20 million loss in tourism revenue. These figures highlight the sector's structural vulnerability and its critical role in local livelihoods, reinforcing the centrality of SDG 8 (Decent Work and Economic Growth) in post-disaster recovery.

Table 1. Impacts of the 2018 Earthquake on Tourism and Sustainable Development
Source: Processed by the Authors (2025)

Impact Dimension	Key Indicators	Observed Impacts	Related SDGs
Tourism infrastructure damage	Hotels and tourism facilities	More than 250 hotels and facilities damaged	SDG 11 (Sustainable Cities and Communities)
Decline in Tourist Arrivals	Visitor numbers and revenue	60% decrease in tourist arrivals and approximately USD 20 million revenue loss	SDG 8 (Decent Work and Economic Growth)
Economic impact & livelihood loss	Employment and MSMEs	Over 5,000 jobs lost and around 40% of MSMEs affected	SDG 8 (Decent Work and Economic Growth)
Social & psychological impact	Community well-being	Increased trauma, displacement, and social vulnerability among local communities	SDG 11 (Sustainable Cities and Communities)
Disaster preparedness capacity	Risk management systems	Weak disaster risk management and preparedness mechanisms	SDG 13 (Climate Action)
Governance challenges	Institutional coordination	Limited cross-sector coordination among government, NGOs, communities, and private sector	SDG 16 (Peace, Justice and Strong Institutions)
Overall recovery challenge	Sustainability of tourism	Delayed and uneven recovery, highlighting structural vulnerability of tourism-dependent economy	SDG 8, SDG 11, SDG 13

To address these gaps, this study adopts Network Governance Theory as its primary analytical framework. Network governance emphasises the importance of inter-organisational relationships, actor interdependence, information exchange, and collaborative decision-making in addressing complex policy challenges (Luthe & Wyss, 2016). Unlike conventional hierarchical governance models, network governance recognises that public problems increasingly require coordination among multiple actors

operating across institutional and sectoral boundaries (Emerson et al., 2012; Provan & Kenis, 2008). In post-disaster tourism contexts, governance networks facilitate resource mobilisation, knowledge sharing, policy integration, and collective problem-solving among government agencies, private tourism businesses, community organisations, non-governmental organisations, and academic institutions (Hall et al., 2024). Network Theory provides further analytical tools for understanding actor centrality, brokerage roles, and interaction patterns that influence governance outcomes (Bodin & Crona, 2009).

The novelty of this study lies in its integration of Network Governance Theory and Social Network Analysis (SNA) to examine disaster-resilient tourism planning in a Global South destination. While previous studies have primarily focused on resilience outcomes or stakeholder participation, this research specifically investigates how network structures, actor positions, and brokerage functions shape coordination and governance effectiveness in post-disaster tourism recovery (Wu et al., 2021). Furthermore, the study contributes to the emerging literature on sustainable tourism governance by examining how governance networks can support resilience-oriented development and the implementation of Sustainable Development Goals through stakeholder collaboration and multi-actor partnerships (Farsari, 2023; Nguyen et al., 2019).

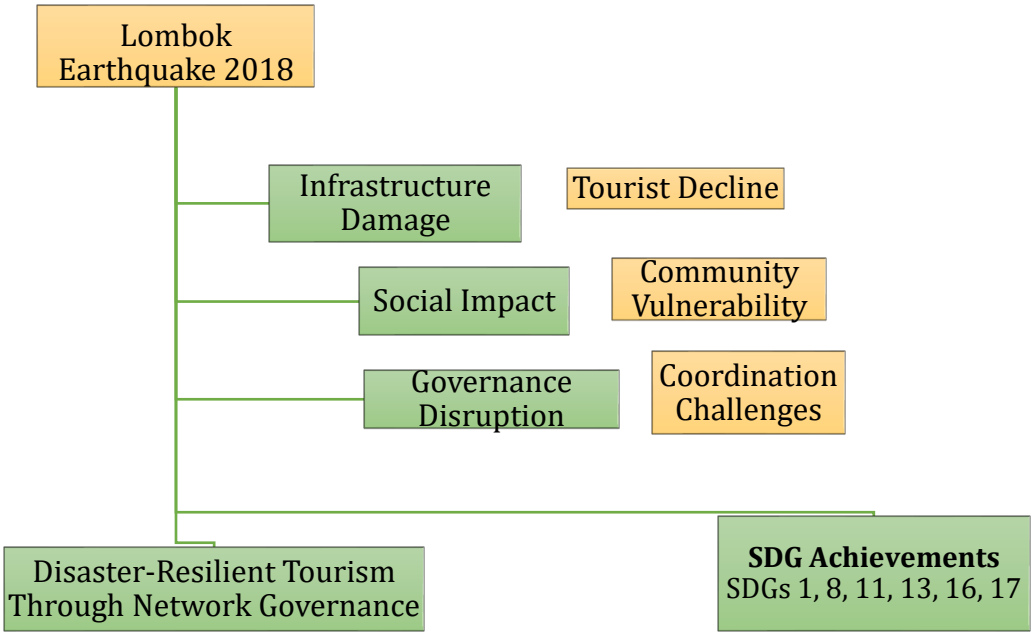


Figure 1. Network Governance and Tourism Resilience in North Lombok
Source: Processed by the Authors (2025)

Figure 1 illustrates that the 2018 Lombok earthquake triggered a multidimensional crisis affecting not only physical infrastructure but also social systems and governance capacity. The disaster generated three interconnected impacts: infrastructure damage, social disruption, and governance fragmentation. These impacts subsequently led to

declining tourist arrivals, heightened community vulnerability, and coordination challenges among stakeholders, creating a complex recovery environment.

The framework shows that tourism recovery cannot be achieved solely through infrastructure reconstruction. Instead, the interconnected nature of economic, social, and institutional challenges requires a collaborative governance approach. From a Network Governance Theory perspective, disaster-resilient tourism emerges through the integration of multiple actors, including government agencies, communities, private tourism businesses, NGOs, and academic institutions (Jiang & Ritchie, 2017). Their collaboration facilitates information exchange, resource mobilisation, and coordinated decision-making, thereby reducing fragmentation and strengthening adaptive capacity (Filimonau & De Coteau, 2020).

A key insight illustrated by the model is that network governance functions as the critical bridging mechanism connecting post-disaster challenges with sustainable recovery outcomes. Through cross-sectoral collaboration and multi-level coordination, governance networks transform vulnerability into resilience and support the achievement of SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), SDG 16 (Strong Institutions), and SDG 17 (Partnerships for the Goals).

Overall, resilience in North Lombok is not solely determined by physical recovery but also by the capacity of local governance and community networks to coordinate collective action, adapt to disaster impacts, and support longer-term sustainable tourism development (Partelow et al., 2023; Zitri et al., 2025). This reinforces the argument that collaborative governance is central to resilient tourism development in disaster-prone destinations, particularly where institutional and resource constraints shape recovery processes.

The urgency of this research is further reinforced by Lombok's tectonic setting, which exposes the island to recurrent seismic hazards associated with the Flores back-arc thrust system and surrounding active fault structures (Afif et al., 2021). Without robust, network-based governance mechanisms, tourism development may remain vulnerable to fragmented and reactive responses. Accordingly, this study analyses how key actors interact, form collaborative networks, and collectively respond to post-disaster challenges in North Lombok (Wu et al., 2021). Specifically, it seeks to identify central actors within the governance network, examine patterns of collaboration among stakeholders, and evaluate how tourism networks contribute to disaster-resilient development and the implementation of the Sustainable Development Goals (Nguyen et al., 2019). By providing empirical evidence from North Lombok, this research contributes to broader debates on network governance, disaster resilience, and sustainable tourism development in the Global South while offering strategic policy recommendations for similar disaster-prone destinations across Indonesia.

Research Methods

This study employed an explanatory qualitative case study design combined with Social Network Analysis (SNA) to examine the governance structure of disaster-resilient tourism planning in North Lombok Regency following the 2018 earthquake (Baxter & Jack, 2008; Borgatti et al., 2009). The research aimed to understand how governance actors interact, coordinate, and contribute to post-disaster tourism recovery through collaborative networks. An explanatory case study was selected because the study sought not only to describe governance arrangements but also to explain the mechanisms through which network relationships influence tourism resilience in a disaster-prone destination (Baxter & Jack, 2008; Bodin & Crona, 2009).

The integration of qualitative inquiry and Social Network Analysis enabled a comprehensive understanding of both governance processes and network structures. While qualitative methods provided insights into actor roles, perceptions, and collaborative practices, SNA offered a systematic approach to identify network positions, brokerage functions, and interaction patterns among stakeholders(Rolim et al., 2019). The overall sequential workflow and methodological framework guiding this study are illustrated in Figure 2.

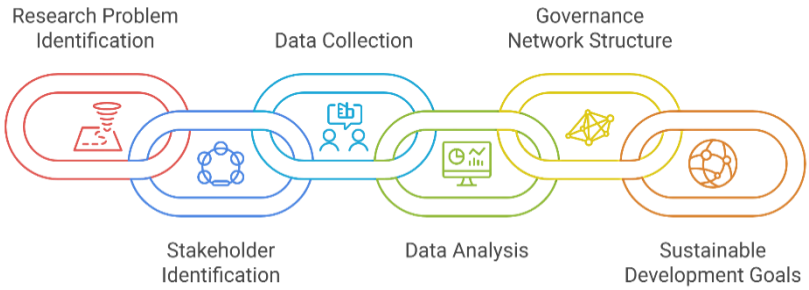


Figure 2. Research Flow
Source: Processed by the Authors (2025)

North Lombok Regency was selected as the case study due to its strategic importance as one of Indonesia's leading tourism destinations and its high exposure to disaster risks. The region hosts internationally recognised tourism destinations, including Gili Trawangan, Gili Air, and Gili Meno, which were severely disrupted following the 2018 Lombok earthquake. This disaster created a critical context for examining how governance networks support tourism recovery, disaster risk reduction, and sustainable development (Ritchie & Jiang, 2019). The analysis focused on governance arrangements associated with post-earthquake tourism recovery between 2018 and 2024, encompassing the reconstruction phase, tourism revitalisation programmes, and the implementation of resilience-oriented development initiatives by local and provincial governments.

A key methodological consideration in Social Network Analysis is defining network boundaries. In this study, the governance network was bounded to organisations and

institutions directly involved in post-disaster tourism planning, disaster risk management, and tourism recovery in North Lombok. Actors were included based on three criteria: (1) formal involvement in tourism planning or disaster management; (2) participation in recovery programmes or collaborative initiatives following the 2018 earthquake; and (3) recognition by other stakeholders as significant contributors to tourism governance.

Based on these criteria, the governance network comprised local government agencies, provincial institutions, tourism businesses, village-owned enterprises (Badan Usaha Milik Desa, BUMDes), tourism awareness groups (Kelompok Sadar Wisata, Pokdarwis), non-governmental organisations (NGOs), women's organisations, academic institutions, and community representatives. The unit of analysis was organisational actors rather than individuals, focusing on institutional relationships and governance processes.

Data were collected between January and June 2025 using multiple qualitative techniques to ensure data richness and triangulation. Semi-structured interviews were conducted with 20 key informants representing major stakeholder groups within the governance network. Key informants were drawn from relevant local government institutions, including the Badan Perencanaan Pembangunan Daerah (Bappeda; Regional Development Planning Agency), Dinas Pariwisata (Tourism Office), Badan Penanggulangan Bencana Daerah (BPBD; Regional Disaster Management Agency), and other related departments; the Provincial Government of West Nusa Tenggara; tourism business associations and private operators; leaders of Pokdarwis and BUMDes; women's organisations; disaster recovery NGOs; and academic researchers. Interviews explored stakeholder roles, collaboration mechanisms, resource exchange, decision-making processes, and perceptions of governance effectiveness in post-disaster tourism planning.

Document analysis was conducted on policy documents, strategic plans, tourism development reports, disaster management reports, the North Lombok Regional Medium-Term Development Plan 2021–2026, tourism master plans, and relevant institutional records to identify governance arrangements, institutional responsibilities, and mechanisms for policy integration. Field observations were conducted in selected destinations, including Gili Trawangan, Gili Air, Senaru, and Sire–Medana, focusing on tourism recovery initiatives, community participation, and interactions among governance actors. Additionally, a stakeholder network survey was administered to identify collaborative relationships. Respondents identified organisations with which they regularly exchange information, coordinate activities, share resources, or participate in joint recovery programmes.

The study employed a two-stage analytical approach. First, interview transcripts, observation notes, and policy documents were analysed using thematic analysis. Coding focused on governance dimensions including collaboration, coordination, participation, policy integration, resilience-building, and sustainability. Themes were developed iteratively to identify recurring patterns across stakeholder groups. Second, Social Network Analysis was applied to examine structural relationships among actors using

UCINET and Gephi (Everett & Borgatti, 2012; Farias & Hoffmann, 2018). The SNA evaluated three key indicators: degree centrality (direct relationships maintained by each actor), betweenness centrality (actors occupying brokerage positions), and network density (overall level of interconnectedness). These indicators provided structural insights into actor influence, coordination capacity, and network cohesion in supporting disaster-resilient tourism.

To enhance credibility and trustworthiness, the study employed methodological triangulation, data source triangulation, and member checking. Interview data were cross-validated against documentary evidence and field observations. Multiple stakeholder groups were included to capture diverse perspectives and mitigate potential bias. Preliminary findings were discussed with selected participants during stakeholder consultations to verify interpretations. The study adhered strictly to ethical standards for social research. Participation was voluntary, with informed consent obtained from all participants. Respondents were informed of the research purpose and their right to withdraw at any stage. Personal identities were anonymised during analysis and reporting, and data were used exclusively for academic purposes and stored securely.

The framework for disaster-resilient tourism outlines a sequential, interconnected process for developing resilient tourism governance in disaster-prone destinations (Ritchie & Jiang, 2019). The framework begins by identifying research problems stemming from disaster-induced tourism vulnerabilities, followed by stakeholder mapping to define the roles of government agencies, businesses, local communities, NGOs, academic institutions, and other relevant actors.

Data collected through interviews, observations, document analysis, and network surveys are analysed using qualitative thematic analysis and Social Network Analysis (SNA) to reveal collaboration patterns, actor centrality, brokerage functions, and network cohesion (Borgatti et al., 2009). This analytical output illuminates the governance network structure, demonstrating how actor interactions facilitate coordination, information exchange, and collective decision-making during recovery (Wu et al., 2021). Ultimately, the framework shows that effective network governance fosters sustainable and resilient tourism development, directly advancing SDGs 8 (Decent Work and Economic Growth), 11 (Sustainable Cities and Communities), 13 (Climate Action), 16 (Peace, Justice and Strong Institutions), and 17 (Partnerships for the Goals). This demonstrates that tourism resilience depends not merely on physical reconstruction, but is fundamentally driven by collaborative governance, stakeholder engagement, and cross-sectoral partnerships.

Results and Discussion

This section presents and critically discusses empirical findings on the governance network underpinning disaster-resilient tourism planning in North Lombok Regency. Drawing upon qualitative data and Social Network Analysis (SNA), the analysis explores relationships among key governance actors, identifies central and brokerage institutions, and examines how collaborative interactions facilitate post-disaster tourism recovery.

Rather than merely describing governance arrangements, the discussion interprets findings through the frameworks of Network Governance Theory, collaborative governance, and resilience literature. Emphasis is placed on how governance networks address post-disaster challenges while advancing Sustainable Development Goals (SDGs), specifically SDGs 8 (Decent Work and Economic Growth), 11 (Sustainable Cities and Communities), 13 (Climate Action), 16 (Peace, Justice and Strong Institutions), and 17 (Partnerships for the Goals). These findings provide empirical insights from the Global South, where institutional capacity, community participation, and inter-organisational collaboration play a decisive role in building long-term tourism resilience.

Governance Networks and Post-Disaster Tourism Recovery

Findings reveal that tourism recovery in North Lombok following the 2018 earthquake was supported by a collaborative governance network comprising government agencies, tourism businesses, community organisations, non-governmental organisations, and academic institutions. However, the network does not represent a fully decentralised or polycentric governance arrangement. Instead, the governance structure is characterised by a brokered collaborative network in which a limited number of actors occupy strategically central positions and facilitate coordination among multiple stakeholder groups.

Stakeholder mapping indicates that Bappeda (Regional Development Planning Agency) and the Tourism Office are the most influential actors in the governance network. These institutions possess extensive connections across different governance clusters and serve as brokers, enabling information exchange, policy coordination, and resource mobilisation. Their central role demonstrates that post-disaster tourism recovery remains highly dependent on governmental leadership, particularly in contexts where institutional capacity, financial resources, and regulatory authority are concentrated within public organisations.

From a Network Governance Theory perspective, this finding suggests that governance effectiveness is influenced not only by the number of participating actors but also by how actors are structurally positioned and coordinated within the network (Provan & Kenis, 2008). Central actors may therefore reduce fragmentation and facilitate collective action among organisations with different interests, resources, and institutional capacities. In North Lombok, such brokerage functions became particularly important during post-earthquake recovery, when tourism development, infrastructure rehabilitation, and disaster risk reduction required cross-sectoral coordination.

Brokerage Roles and Network Centrality

Social Network Analysis demonstrates that governance actors perform differentiated roles within the network. Bappeda and the Tourism Office exhibit the highest levels of degree centrality and betweenness centrality, indicating that these institutions serve as primary communication hubs and network brokers. Their central position enables them to connect otherwise fragmented clusters, including disaster

management agencies, tourism operators, community organisations, and external development partners.

The significance of brokerage functions extends beyond administrative coordination. Network brokers influence information flows, shape policy priorities, and facilitate access to resources among actors with unequal capacities. This finding aligns with network governance literature suggesting that governance outcomes are often determined by the ability of central actors to bridge institutional boundaries and coordinate collective action (Bodin & Crona, 2009). In North Lombok, brokerage roles helped align tourism recovery programmes with broader disaster resilience objectives.

Nevertheless, the concentration of brokerage functions within a limited number of governmental institutions creates potential governance vulnerabilities. Excessive dependence on a small number of central actors may reduce network adaptability if coordination capacities weaken or institutional priorities shift (Provan & Kenis, 2008). This finding challenges the assumption that collaborative governance automatically produces distributed decision-making, suggesting instead that collaborative arrangements often coexist with relatively centralised coordination structures.

Multi-Level Governance and Policy Integration

Another important finding concerns the integration of policies across multiple governance levels. The governance network demonstrates strong vertical linkages between local government institutions, the Provincial Government of West Nusa Tenggara, and national agencies. These relationships facilitated the alignment of post-disaster tourism recovery programmes with broader development frameworks, including regional development plans, spatial planning policies, and disaster risk reduction strategies.

The integration of tourism planning and disaster management reflects an important shift from reactive disaster response towards resilience-oriented development. The tourism-disaster literature similarly emphasises the importance of formally connecting tourism governance with disaster risk reduction and emergency management structures (Becken & Hughey, 2013). Rather than focusing exclusively on infrastructure reconstruction, governance actors increasingly emphasised institutional preparedness, community resilience, and long-term sustainability. This orientation is consistent with the Build Back Better principle, which conceptualises post-disaster reconstruction as an opportunity to reduce future vulnerability while supporting physical, social, and economic recovery (Mannakkara et al., 2014).

From a governance perspective, policy integration reduced institutional fragmentation and improved cross-sectoral coordination. However, interviews revealed that coordination challenges persisted, particularly regarding overlapping responsibilities, administrative procedures, and resource allocation. These findings suggest that network governance should be viewed not as a complete solution to governance complexity, but as an evolving mechanism requiring continuous institutional adaptation.

Community Participation and Inclusive Governance

Community participation emerged as a critical component of tourism resilience. Local actors, including Pokdarwis, BUMDes, and community organisations, played significant roles in destination management, tourism service provision, and local economic recovery. Their involvement contributed to rebuilding tourism activities while strengthening social cohesion within affected communities.

Despite these positive contributions, findings indicate that participation remains uneven across stakeholder groups. While community organisations actively participate in programme implementation, their influence on strategic decision-making remains relatively limited. Key planning decisions continue to be dominated by governmental institutions occupying central positions within the governance network.

This distinction between participation and actual influence is important because stakeholder involvement does not necessarily imply an equal distribution of decision-making power (Arnstein, 1969). The finding also has direct implications for SDG Target 16.7, which calls for responsive, inclusive, participatory, and representative decision-making at all levels. Achieving inclusive governance therefore requires not only opportunities for participation but also mechanisms that strengthen community representation in strategic planning.

Furthermore, network analysis reveals that women's organisations occupy relatively peripheral positions within the governance structure. Although these organisations contribute significantly to livelihood diversification, household resilience, and community recovery, their limited network centrality restricts their ability to influence policy formulation. This finding highlights ongoing challenges in achieving SDG 5 (Gender Equality) and underscores the need for more gender-inclusive governance arrangements in disaster-resilient tourism planning.

Disaster-Resilient Tourism and Sustainable Development Goals

Findings demonstrate that governance networks contribute to multiple SDGs, particularly SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 17 (Partnerships for the Goals). Tourism recovery initiatives supported local entrepreneurship, employment, and destination revitalisation, thereby driving economic recovery following the earthquake.

Simultaneously, integrating disaster risk reduction into tourism planning strengthens the institutional foundations of destination resilience, an approach consistent with research advocating closer integration between tourism and disaster risk management (Becken & Hughey, 2013). Programmes such as DESTANA (Desa Tangguh Bencana; Disaster-Resilient Village Programme), community preparedness initiatives, and resilience-oriented infrastructure development demonstrate active efforts to reduce disaster vulnerability while maintaining tourism competitiveness.

However, findings also reveal tensions between economic recovery objectives and inclusive governance goals. While governance networks effectively mobilise resources for tourism recovery, benefits and decision-making influence remain unevenly

distributed across stakeholder groups. This suggests that progress towards SDG implementation should be evaluated not only through economic metrics, but also through participation, equity, and institutional inclusiveness.

Implications for Global South Tourism Governance

The North Lombok case offers key insights into disaster-resilient tourism governance in the Global South. Unlike governance models in developed countries, where institutional capacities and financial resources are relatively robust, governance networks in North Lombok operate under resource constraints, institutional fragmentation, and socio-economic vulnerability (Tosun, 2000).

Under such conditions, network brokerage becomes vital because governance effectiveness depends on central actors' ability to connect diverse stakeholders and coordinate limited resources (Bodin & Crona, 2009). Findings suggest that collaborative governance in the Global South relies primarily on brokered network arrangements rather than fully decentralised governance systems (Provan & Kenis, 2008).

This contribution extends existing literature by demonstrating that both collaboration and structural inequalities within governance networks shape resilience-building processes. While collaborative arrangements facilitate coordination and resource mobilisation, resilience outcomes remain influenced by actor centrality, power asymmetries, and institutional capacities (Amore & Hall, 2016; Beritelli & Laesser, 2011). Consequently, strengthening disaster-resilient tourism requires expanding stakeholder participation while improving the distribution of influence, knowledge, and resources across governance networks.

These findings suggest that effective disaster-resilient tourism requires moving beyond collaborative rhetoric to redistribute governance authority, strengthen community brokerage roles, and embed disaster risk reduction into tourism policy architectures (Farsari, 2023; Kausar et al., 2023; Larsen et al., 2011). For other Global South destinations facing similar post-disaster recovery challenges, North Lombok offers both a promising model of polycentric coordination and a cautionary case regarding persistent institutional asymmetries.

Importantly, the governance configuration identified in North Lombok demonstrates that resilience-building is distributed across actors performing distinct but interconnected functions. Government institutions provide policy direction, regulatory authority, and coordination capacity; disaster management agencies and infrastructure institutions strengthen preparedness and risk reduction; community organisations and village-based enterprises support local implementation and livelihood recovery; while NGOs, academic institutions, women’s organisations, and private tourism actors contribute knowledge, facilitation, market development, and community-based capacity. Such functional differentiation illustrates how collaborative governance mobilises complementary resources across organisational and sectoral boundaries while retaining central coordination through key brokerage actors (Ansell & Gash, 2008; Provan & Kenis, 2008).

Table 2. Governance Actors and SDG Alignment in Disaster-Resilient Tourism
Source: Processed by the Authors (2025)

Cluster / Dimension	Actor / Institution	Primary Network Role	Relevant SDGs	Contribution to SDG Targets
Strategic tourism core	Strategic Tourism Area	Central coordination hub integrating tourism, disaster mitigation, and economic recovery	SDG 8, SDG 11, SDG 13	SDG 8.9, SDG 11.5, SDG 13.1
Planning & policy coordination	Regional Development Planning Agency (Bappeda)	Network broker and policy integrator	SDG 11, SDG 16, SDG 17	SDG 11.b, SDG 16.6, SDG 17.17
	Provincial Government of NTB	Vertical policy connector	SDG 16, SDG 17	SDG 16.7, SDG 17.14
	Ministry of Public Works (PUPR)	Resilient infrastructure development	SDG 9, SDG 11, SDG 13	SDG 9.1, SDG 11.5, SDG 13.1
Disaster mitigation & resilience	Disaster-Resilient Villages (DESTANA)	Community-based disaster preparedness	SDG 11, SDG 13	SDG 11.b, SDG 13.3
	BPBD & SI-AGA System	Risk monitoring and early warning	SDG 11, SDG 13	SDG 11.5, SDG 13.1
Multi-actor collaboration	Academic institutions	Knowledge broker and capacity builder	SDG 4, SDG 17	SDG 4.7, SDG 17.16
	NGOs & external institutions	Community facilitation and technical support	SDG 1, SDG 10, SDG 17	SDG 1.5, SDG 10.2, SDG 17.17
Local economic recovery	Village-Owned Enterprises (*Badan Usaha Milik Desa*–BUMDes)	Local economic implementation hub	SDG 8, SDG 11	SDG 8.3 , SDG 11.a
	Women's organisations	Livelihood diversification	SDG 5, SDG 8	SDG 5.5, SDG 8.5
	Private tourism businesses & Baptoma	Market development and investment	SDG 8, SDG 9	SDG 8.9, SDG 9.3
Community engagement	Local communities	Destination stewardship and participatory governance	SDG 11, SDG 16	SDG 11.3, SDG 16.7

In post-disaster tourism settings, these interdependencies are particularly important because recovery requires the simultaneous integration of economic revitalisation, disaster preparedness, institutional coordination, community

participation, and long-term sustainability (Farsari, 2023; Wu et al., 2021). The North Lombok case therefore demonstrates how networked governance connects diverse institutional capacities and stakeholder roles to support a more integrated and resilient tourism recovery process.

Table 2 illustrates how disaster-resilient tourism governance in North Lombok operates through a multi-actor network aligning institutional roles with specific Sustainable Development Goals and targets. The governance structure reflects a polycentric model in which recovery, resilience, and sustainability responsibilities are distributed across interconnected clusters rather than concentrated within a single authority (Bogdan et al., 2026; Li et al., 2026).

Figure 3 conceptualises this governance structure through Network Governance Theory. The Strategic Tourism Area functions as the central coordination hub connecting key governance dimensions. Cross-actor collaboration is institutionalised through programmes such as Geopark Rinjani Lombok and DESTANA (*Desa Tangguh Bencana*), while policy integration ensures alignment between tourism development, disaster mitigation, and local economic strategies. Community participation strengthens local ownership through Pokdarwis, BUMDes, and local guides, while adaptive sustainability is realised through the "Build Back Better" approach (Mannakkara et al., 2014). Multi-level coordination reinforces vertical and horizontal linkages, positioning central actors as facilitators of resilience rather than hierarchical controllers (Sørensen & Torfing, 2009; Wu et al., 2021).



Figure 3. Governance Network Analysis Framework
Source: Processed by the Authors (2025)

The SNA indicators presented in this study are exploratory and derived from stakeholder network mapping rather than a full quantitative network census. Accordingly, the analysis is intended to identify relative patterns of connectivity, brokerage, and functional positioning among key governance actors rather than to provide a complete representation of all relationships within the tourism governance

system. Table 3 presents the Social Network Analysis results, highlighting variations in actor centrality and functional roles across the governance network in North Lombok. Degree centrality indicates the extent to which actors maintain direct connections with other stakeholders, while betweenness centrality reflects their potential to bridge otherwise disconnected groups and facilitate the flow of information, resources, and coordination across the network. Variations in these indicators reveal that governance responsibilities are not evenly distributed among actors, with some institutions occupying more strategically connected and intermediary positions than others. At the same time, actors with lower levels of centrality continue to perform important specialised functions in areas such as community engagement, disaster preparedness, local economic recovery, knowledge provision, and market development. The distribution of degree centrality and betweenness centrality therefore indicates a differentiated yet complementary governance structure in which coordination, implementation, knowledge exchange, and innovation are distributed across multiple stakeholders, while a smaller number of strategically positioned actors provide the brokerage necessary to connect these functions within the wider governance network.

Table 3. SNA Indicators of Tourism Governance Network in North Lombok
Source: Processed by the Authors (2025)

Actor / Institution	Degree Centrality	Betweenness Centrality	Functional Role in Network
Bappeda (Planning Agency)	High	High	Network broker / coordinator
Tourism Office (Dispar)	High	High	Policy integrator / facilitator
BPBD	Medium	Medium	Risk mitigation specialist
Provincial Government (NTB)	Medium	Medium–High	Vertical policy connector
NGOs	Medium	Medium	Community intermediary
Universities / Academics	Medium	Medium	Knowledge broker
BUMDes & Pokdarwis	Medium	Low–Medium	Local implementation hub
Women's organisations	Low–Medium	Low	Livelihood diversification
Private tourism businesses	Medium	Low	Market and investment actor

Actors with high degree centrality, particularly Bappeda and the Tourism Office, maintain extensive direct connections across governance clusters, enabling efficient information exchange and coordination. Their high betweenness centrality indicates a key brokerage role, linking otherwise fragmented sub-networks such as disaster mitigation agencies, community-based organisations, and economic recovery actors. Overall, the analysis reveals that the effectiveness of disaster-resilient tourism planning in North Lombok is strongly influenced by the strategic positioning and brokerage roles of central actors within the governance network. By fostering collaboration, enabling knowledge exchange, and aligning policies across sectors and levels, these actors contribute to more adaptive and resilient governance arrangements (Chen & Xu, 2025; Farsari, 2023; Fontanari & Traskevich, 2025). This network-based governance model offers valuable lessons for other disaster-prone tourism destinations seeking to balance recovery, sustainability, and inclusive development.

Conclusion

This study demonstrates that disaster-resilient tourism planning in North Lombok is shaped not only by post-disaster reconstruction but also by the structure and quality of governance relationships among institutions involved in tourism recovery. Resilience emerges through interactions among public institutions, local communities, private tourism actors, NGOs, and academic institutions rather than through isolated governmental interventions. The governance network therefore connects tourism recovery, disaster risk reduction, local economic revitalisation, and longer-term sustainable development. Effective recovery depends on the capacity of actors to exchange information, coordinate programmes, mobilise resources, and align institutional priorities. The North Lombok case thus shows that rebuilding tourism after disaster requires attention to both physical recovery and the institutional relationships through which recovery strategies are coordinated and implemented.

The Social Network Analysis (SNA) further reveals differentiated positions and functions among governance actors. The Regional Development Planning Agency (Bappeda) and the Tourism Office occupy strategic brokerage positions, linking governance clusters and facilitating information exchange, policy coordination, resource mobilisation, and integration between disaster risk reduction and tourism development. However, resilience is also supported by community-based organisations, village-owned enterprises, women's groups, NGOs, academic institutions, and private tourism businesses through local implementation, knowledge sharing, livelihood diversification, community engagement, capacity building, and market recovery. The resulting structure is neither fully centralised nor fully decentralised, but reflects a brokered collaborative arrangement in which strategically positioned actors coordinate a broader network of stakeholders with different resources, responsibilities, and levels of influence.

The study contributes to Network Governance Theory by showing that governance effectiveness in disaster-prone tourism destinations depends on actor centrality, brokerage, and multi-level coordination rather than stakeholder presence alone.

Strategically positioned institutions can bridge fragmented groups and facilitate the flow of information, resources, and policy priorities across organisational boundaries. However, greater participation does not necessarily ensure equal influence, as community organisations and other local actors may remain peripheral to strategic decision-making. The North Lombok case therefore shows that collaborative governance can strengthen adaptive capacity while still reproducing institutional asymmetries, highlighting the importance of trust, representation, balanced power relations, and meaningful participation in resilience governance.

From a policy perspective, the findings underscore the need to institutionalise collaborative governance within tourism planning by strengthening cross-sectoral partnerships, regularising information exchange, and integrating disaster risk reduction into tourism development strategies. Greater attention should also be given to enhancing the participation and brokerage capacity of community organisations, women's groups, local enterprises, and knowledge institutions. Such measures can support progress towards SDGs 8, 11, 13, 16, and 17 by promoting sustainable tourism, stronger disaster preparedness, more inclusive institutions, and durable multi-stakeholder partnerships.

This study is limited by its exploratory SNA and its focus on a single disaster-prone destination. Future research should employ longitudinal and comparative network analyses to examine how governance structures, brokerage roles, and collaborative relationships evolve across different phases of disaster recovery and across destinations. Further attention to power asymmetries, gender inclusion, institutional trust, and community brokerage would also strengthen understanding of the conditions under which network governance supports long-term tourism resilience.

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