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Government Legitimacy in Crisis Communication: A Discourse Network Analysis of the Contest Between Disaster Normalization and Green Policy

Yofiendi Indah Indainanto[1], Rizki Halim[1], Nikolaus Ageng Prathama[2], Cahya Setya Utama[3]

[1]Information and Public Relations Study Program, Vocational School, Universitas Diponegoro, Indonesia

[2]Public Relations Study Program, Vocational School, Universitas Diponegoro, Indonesia

[3]Department of Animal Science, Faculty of Animal and Agricultural Sciences, Universitas Diponegoro, Indonesia

Correspondence: Yofiendi Indah Indainanto, Information and Public Relations Study Program, Vocational School, Universitas Diponegoro, Indonesia. Email: yofiendi@live.undip.ac.id

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Abstract

Hydrometeorological disasters in Indonesia specifically large-scale floods in Sumatra have evolved into a political arena where environmental crisis communication has become a site of contestation over government legitimacy. This study shifts the focus to contemporary public policy discourse by mapping the clash between two opposing paradigms: disaster normalization and green policy. It employs the Discourse Network Analysis (DNA) method, integrating qualitative content analysis with social network analysis. The dataset comprises 450 news articles from 15 leading Indonesian online media outlets. Research findings indicate that media discourse remains heavily dominated by a "disaster normalization" narrative centered on technocratic, reactive solutions such as disaster mitigation and infrastructure improvements. The government leverages this narrative to reinforce its performative legitimacy through physical recovery responses while attributing the crisis to natural weather factors. Conversely, a coalition of NGOs and academics constructs a counter-narrative advocating for green policy by highlighting ecological root causes, such as environmental policy, deforestation, and the broader ecological crisis. Network structure analysis reveals that government actors control the flow of communication as "core actors" with the highest centrality, while academics, experts, and NGOs play strategic roles as knowledge brokers and bridging actors. The discourse network is dominated by the government coalition, which has successfully normalized the disaster. Narratives regarding disaster management in Indonesia can no longer rely solely on physical infrastructure recovery; instead, they demand a transformation in crisis communication shifting from mere disaster normalization toward risk-informed sustainable development.

Keywords: discourse network analysis, crisis communication, government legitimacy, hydrometeorological disaster, sumatra floods

1. Introduction

Environmental protection has emerged as a global trend, giving rise to "green policies" designed to address environmental challenges and maintain ecological balance (Dośpiał-Borysiak, 2024; Banko et al., 2024). However, their effectiveness hinges on the commitment of nations and the strength of environmental protection enforcement mechanisms (Hendrastiti et al., 2024; Suryawan et al., 2026; Rahmawati & Alhassan, 2026). Indonesia is at the center of the environmental policy discourse as a key player in climate change mitigation, thanks to its vast tropical forests. Moreover, over the past two decades, Indonesia's forest area has increased slightly, reaching 95.9 million hectares in 2020 and projected to reach 95.9 million hectares by 2025 (Yonatan, 2025). This situation underscores the urgent need for a Green Policy. However, deforestation in Indonesia continued to rise during the 2021–2025 period, peaking in 2025 with a total of 433,751 hectares lost. This situation has contributed to a potential ecological crisis in the country. Three provinces in North Sumatra that experienced devastating landslides and floods in late 2025 recorded a dramatic increase in deforestation.(Auriga.or.id, 2025).

The government's commitments outlined in the Green Policy, such as the moratorium on forest clearing permits, controlling the rate of deforestation, and the 2030 FOLU Net Sink target, are positioned as key policies for national ecosystem protection. However, the effectiveness of these policies remains a subject of debate in the face of increasingly frequent ecological disasters, such as the floods in Sumatra and various forest-clearing policies for food and energy.

Findings from the Indonesia Environmental Outlook 2026 indicate that environmental degradation in Indonesia does not occur in isolation but is driven by development policies operating in silos (Burhanudin, M., & Bhumi, 2026). This situation positions natural resource governance as a crisis issue. In this crisis situation, "green" policies often undergo a shift in meaning, moving from their role as preventive environmental protection tools to merely serving as technocratic narratives within reactive disaster management policies. The tension between the idealism of forest protection and the reality of disasters creates a challenge for government legitimacy. This situation gives rise to societal conflicts that undermine the government's legitimacy in policy-making.

Legitimacy in crisis situations is crucial to the success of disaster mitigation policies and actions (Farazmand et al., 2024; Mazepus & van Leeuwen, 2020). Governments use framing strategies to build and strengthen policy legitimacy (Rochford, 2022; Manfredi et al., 2023). In the context of disaster crises in Indonesia, such as the Sumatra floods, environmental disaster communication has shifted from merely transmitting emergency information to becoming a political arena. The first issue to emerge in the public sphere is not about how to restore the situation, but rather who is to blame. Such narratives create information bias and erode government legitimacy. In the context of environmental governance, crisis communication serves as a discursive instrument for actors to seize, maintain, or delegitimize power. Natural disasters in Indonesia throughout 2025 totaled 4,727 incidents. Hydrometeorological disasters dominated, accounting for 99.26% of total incidents, while geological disasters made up 0.74%. Floods were the most frequent natural disaster, followed by forest and land fires (karhutla) (Ridwan, 2026). The floods in Sumatra, which occurred across three provinces Aceh, North Sumatra, and South Sumatra serve as evidence that crisis communication gives rise to narrative bias, where structural responsibilities regarding ecological damage, land-use conversion, and deforestation are obscured. Crisis communication, particularly through emergency information, becomes a political arena for the contest over legitimacy. In hydrometeorological disasters, it is evident that environmental crises are not merely natural phenomena but also social constructs influenced by communication practices, power dynamics, and political legitimacy. The media shapes how the public perceives disasters (Li et al., 2023; Geng et al., 2021).

The escalating ecological crisis, such as the large-scale floods that have struck the Sumatra region, reveals anomalies in public communication. There is a strong tendency among dominant actors to frame the crisis as a result of the interplay between natural phenomena and deforestation. From a crisis communication perspective, every disaster compels actors particularly local and central governments to respond and explain the causes of the crisis to the public. Media coverage that leans toward a narrative of disaster normalization tends to favor technocratic solutions, while a narrative linking the crisis to deforestation can undermine the government's legitimacy. In crisis situations, transparent, honest, and timely communication helps build public trust in the government (Mills & Morrish, 2023; Jethwaney, 2023b; Jethwaney, 2023a). The tension between the idealism of environmental protection and the reality of disasters often traps governments in defensive crisis communication, such as the narrative of "disasters as natural phenomena," which separates disasters from policy as an attempt to avoid political accountability for failures in forest governance. Consequently, this leads to sharp counter-narratives in the public sphere regarding commitments to green policies.

Discussions regarding the floods in Sumatra have been trending on social media, highlighting a situation that has spawned various crises. Monitoring by Drone Emprit (2025) of 26,038 user posts across five social media platforms identified key issues: the government response, the isolation of affected areas, and ecological damage. Regarding information flow, a disparity in portrayal emerged, with online media tending to present a positive image while social media remained critical (Fahmi, 2025). This crisis situation is considered a threat to national stability. Underlying this is the view that the Sumatra floods are not merely a natural phenomenon but the result of accumulated environmental policies. Therefore, the primary objective of this study is to examine how competing discourse networks construct and challenge the political legitimacy of the Indonesian government during the Sumatra flood crisis, mapping the coalitions, arguments, and policy preferences of key actors.

Studies on disaster crises in Indonesia, particularly those analyzing media coverage, predominantly employ discourse framing analysis. However, existing frameworks often fail to explain how the contestation between "disaster normalization" and "green policy" in online media directly influences the construction of the government's political legitimacy during flood events. While Discourse Network Analysis (DNA) has been widely applied to various crisis, policy, and political issues (Soares & Holzscheiter, 2026; Omotoye & Holtzhausen, 2026; Stoddart et al., 2026) Its application within the context of flood disasters remains limited.

2. Literature Review

2.1 Crisis Communication, Disaster Normalization and Green-policy Discourse

Large-scale emergencies severely disrupt the status quo, creating an unstable environment for politicians and public policy. Crises trigger a "framing contest" to interpret events, their causes, and the attribution of responsibility (Ganderson et al., 2023; Hellwig et al., 2026). Crisis communication encompasses the communicative practices through which public

institutions and other organizations prepare for, respond to, and recover from disruptive events. It not only provides operational information but also explains what is known, what remains uncertain, what actions are being taken, and how responsibility is understood (Coombs, 2007). In disaster situations, media framing shapes whether an event is primarily represented as an emergency requiring an immediate response, as a consequence of broader patterns of vulnerability, or as an issue that requires both emergency assistance and long-term reform. In mass media coverage, the contestation of discourse surrounding ecological disaster crises is often polarized into two paradigms: normalization and policy (Hasfi & Fisher, 2025; Ogbo, 2026). Mass media plays a central role in shaping public perception, driving a polarized debate between support for disaster normalization and advocacy for environmentally friendly policies (Kalogiannidis et al., 2023; Güler & Özgen, 2026). Normalization can suppress challenging discourse framing criticism as inappropriate during recovery periods and hindering in-depth discussions on environmental justice whereas green policy discourse challenges normalization by prioritizing sustainability, ethical communication, and the need for transformative action, (Selaković et al., 2025; Güler & Özgen, 2026). This counter-narrative views flooding as a consequence of poor environmental management and demands structural reforms in land use, spatial planning, and the implementation of sustainable development policies to build resilience and mitigate flood risks (Lubis et al., 2024; Hamers et al., 2024). Online mass media coverage plays a central role as an arena where these two discourses clash, interact, and vie for dominance (Miranda, 2025; Adiprasetio et al., 2024). To deeply unpack the dynamics of this discourse structure, a qualitative approach based on Discourse Network Analysis (DNA) offers methodological advantages. DNA combines qualitative content analysis with social network analysis to map co-occurrence relationships between political or social actors and the discursive concepts they champion (Leifeld, 2017; Leifeld & Mastroianni, 2025).

2.2 Government Legitimacy

Government legitimacy during a crisis hinges heavily on crisis communication strategies characterized by transparency, consistency, empathy, and credibility employed to portray reality, map out the causes of the crisis, and assign responsibility (Coombs, 2007; Schnabel et al., 2024; Olinder, 2024). Suchman (1995) distinguishes among pragmatic legitimacy, which is based on audiences' assessments of benefits and interests; moral legitimacy, which rests on normative evaluations; and cognitive legitimacy, which is grounded in comprehensibility. Research on political legitimacy during crises emphasizes that crises can destabilize shared expectations and trigger public justifications and contestation over how power is exercised (Eisele et al., 2022). Disaster-normalization narratives may support claims of pragmatic legitimacy by emphasizing assistance, operational coordination, mitigation, and reconstruction. Meanwhile, green policy discourse may challenge or complement these claims by broadening the scope of public debate. Green policy claims may also complement government communication when authorities explain how emergency responses are connected to prevention and environmental protection. Therefore, the theoretical distinction is not simply between support for and opposition to the government, but concerns the different problems, responsibilities, and forms of recovery emphasized by competing claims. The prominence of government actors in the network should be reported as discursive visibility or structural centrality within the coded media corpus, rather than as evidence that government legitimacy has been successfully maintained (Suchman, 1995; Svenbro & Wester, 2023). Accordingly, disaster normalization and green policy discourse are interconnected not as rigidly opposing actor coalitions, but as competing or overlapping ways of interpreting the disaster and evaluating existing governance arrangements. The resulting networks can therefore be used to map discursive efforts to establish and contest legitimacy claims.

3. Method

3.1 Research Design

This study uses the Discourse Network Analysis (DNA) approach. Discourse Network Analysis (DNA) is a method that combines discourse analysis with a network science approach to understand the relationships between actors, beliefs, and issues in a discourse (Leifeld, 2017; Leifeld, 2020; Leifeld & Mastroianni, 2025). In the context of mass media, DNA is used to analyze how certain actors (individuals or organizations) interact through their opinions on certain issues reported in the media (Leifeld & Mastroianni, 2025). DNA begins with qualitative coding of textual documents, such as news, articles, or social media comments. This process identifies relevant actors, opinions, and issues. Then, the coded data is transformed into a network that describes the relationships between actors and issues. This stage allows for analysis of discourse structures, such as coordination, polarization, and the role of opinion leaders (Leifeld & Mastroianni, 2025; Leifeld, 2020). DNA often uses a combination of qualitative and quantitative methods to analyze networks, including indicators such as density, centrality, and subgraphs (Barranco et al., 2022). DNA allows researchers to uncover the structure of media debates, including the formation of discourse coalitions, dominant actors, and the level of narrative polarization in disaster issues (Leifeld & Mastroianni, 2025; Leifeld, 2020).

3.2 Data Collection

The following is a flowchart of this research, which consists of topic selection to data visualization and analysis. In its

implementation, this research is divided into several stages or procedures as follows. Data Crawling: Using purposive sampling, this study selected 15 leading Indonesian online news outlets known for their extensive readership and active coverage of public issues, particularly those relevant to the Sumatra floods. Online media include Tempo.co, CNN Indonesia, Liputan6.com, TvoneNews, Kompas.com, Kumparan, Metro TV, Tirto.id, Detiknews.com, Tribunnews.com, Okezone, Republika, Sindonews, MediaIndonesia dan Antaranews. Keywords to search for news are "Sumatra Floods", "Deforestation", "Extreme Weather", and "Government". Data Reduction and Curation: Selecting news articles that specifically contain statements (direct or indirect quotes) from actors (individuals or organizations) that make claims regarding the cause or handling of the crisis. Researchers collected 30 news reports per outlet selected based on specific keywords from 15 media sources. The study covered an eight-month period, spanning from November 3, 2025, to June 30, 2026. This timeframe encompassed three distinct phases: the disaster phase, the disaster response phase, and the recovery phase. Article screening focused on the relevance of each article to the causes, responses, and policy implications related to flooding in Sumatra. Articles were included if they contained statements whether directly or indirectly attributed to specific individuals or organizations regarding the causes or management of the crisis. Articles that did not meet these substantive criteria were excluded from the analysis corpus.

In the first stage, keyword-based searches and website screening yielded 450 articles that met the established criteria and contained content regarding the involvement of actors in constructing news narratives. The coding unit was set at individual actor statements in news articles. The process precisely identified actors, their organizational affiliations (government, NGO, corporate, academic/expert, and public sectors), and substantive claims on the Sumatra floods and environmental policies. A single news article could feature multiple actors such as various interviewees and contain multiple statements. This process resulted in a total of 2,660 statements gathered from the 15 media outlets. In the second stage, researchers identified and categorized the emerging statements into specific discourse types. There were eight discourse categories and 24 sub-discourses; statements sharing similar meanings or thematic proximity were grouped into the same category. This categorization ensured consistency when classifying statements within the news narratives.

The third stage involved comparing the actors' statements. Prior to the cross-media comparison, the researchers categorized the actors' organizations (see table 1). A total of 304 actors appeared in the sampled news narratives, representing five sectors: government, Non-Governmental Organizations (NGOs), corporations, academics and experts, and the general public. Where statements expressed an identifiable position toward a discourse claim, they were coded as supportive or oppositional. This classification enabled the analysis to map relationships between actors and concepts and to identify patterns of discursive convergence and contestation. The structured coding framework was designed to promote analytical consistency across the media corpus through the systematic application of operational definitions. Nevertheless, the validity and accuracy of the resulting network patterns depend on the quality of the qualitative coding and the clarity and consistent application of the operational definitions used to classify actors, discourse concepts, and statement positions.

Table 1. Details of actors in the news narrative.

Actor	Role Details
Government	Central Government, Regional Governments, Task Force for the Acceleration of Post-Disaster Rehabilitation and Reconstruction in Sumatra (Satgas PRR) National Agency for Disaster Countermeasure (BNPB), Health, Education, Minister, Forest Area Enforcement Task Force (Satgas PKH), Directorate General of Forestry Law Enforcement (GAKKUM Kehutanan)
Academics and Experts	Academic, expert
NGO	Non-governmental organizations, research institutions
Society	Society
Corporation	Corporation

3.3 Data Analysis

Data from all stages comprising a total of 2,660 statements from 15 media outlets across 450 news reports were entered into the DNA Analyzer software. Following the data entry process in the DNA software, the data were then processed using VISONE software for analysis.

4. Results

Coverage across 15 online media outlets is led by Tempo.co (213 occurrences), CNN Indonesia (207), Republika.co.id (201), Liputan6 (200), and Antaranews (196), reflecting higher thematic depth driven by article length, writing style, and source selection. Conversely, outlets like Okezone (141) and Detik.com (145) exhibit narrower discursive scope. Conceptually, discourse centers predominantly on post-disaster management and physical recovery, dominated by "Disaster Mitigation" (351) and "Infrastructure Improvements" (336). Nevertheless, the prominence of "Environmental Policy" (194), "Deforestation" (189), and "Disaster Victims" (168) indicates that media coverage extends beyond immediate response to encompass structural ecological causes and social impacts.

Table 2. Distribution of the five highest and lowest concepts

Distribution	Discourse	Total Occurrences	Narrative
Most Frequent Concepts	Disaster Mitigation	351	The discourse on disaster response and the post-disaster phase concerns policies regarding disaster management and prevention.
	Infrastructure Improvements	336	Disaster-response infrastructure projects, such as bridges, housing, and others.
	Environmental Policy	194	Illustrating the importance of environmental policy in discourse as a means of avoiding exploitation and disaster.
	Deforestation	189	Demonstrating concern for the ecological causes of disasters, particularly deforestation in the affected areas.
	Disaster Victims	168	Reporting on casualties and the social impact of the disaster.
Least Frequent Concepts	Tropical Cyclone Senyar	69	Specific events appear more frequently as causes of natural disasters.
	Spatial Planning	62	Spatial planning issues receive less attention compared to mitigation.
	Environmental Monitoring	61	Narratives tend to emerge as a means of reinforcing public participation in environmental policies.
	Food Security	55	Food security has not yet become a primary focus of discourse; post-disaster attention centers on the restoration of agricultural functions.
	Renewable Energy	20	The issue of energy transition; trends regarding land-use conversion for renewable energy.

Peripheral concepts such as "Tropical Cyclone Senyar" (69 occurrences), "Spatial Planning" (62), "Environmental Monitoring" (61), "Food Security" (55), and "Renewable Energy" (20) receive limited attention, indicating media reliance on immediate disaster response over long-term prevention ("disaster normalization"). Nevertheless, contesting "green policy" narratives persist. Structurally, media discourse is heavily state-centric, led by the government (1,884 occurrences), followed by NGOs (368) and academics/experts (351), while social groups (23) and the corporate sector (22) remain marginal.

4.1 Affiliation Network: Actor-Concept Structure in Forming Discourse Coalitions

Affiliation networks link actors to concepts (see figure 1). These networks aim to identify which actors associate themselves with specific concepts and to reveal patterns of actor engagement regarding policy issues. Visualization reveals a hub-and-spoke network structure, wherein certain actors occupy central positions and connect to the majority of concepts, while others maintain more limited connections. This pattern indicates that the process of discourse formation is not evenly distributed among all actors but is instead heavily influenced by a select group of actors with high levels of engagement across various policy issues.

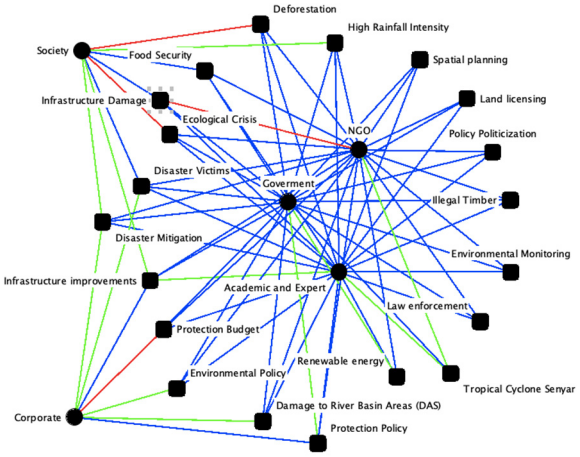


Figure 1. Visualization Affiliation networks

The visualization results show that the Government, NGOs, and Academics/Experts occupy the most central positions within the network. These three groups are linked to nearly all the concepts analyzed ranging from Environmental Monitoring, Law Enforcement, Renewable Energy, Spatial Planning, and Land Licensing to Food Security, Protection Policy, Disaster Mitigation, and Infrastructure Improvements. The high number of connections indicates that these three groups serve as core actors in shaping and linking various issues within the environmental management discourse. Their central positioning suggests that they possess a high capacity to integrate diverse policy narratives and act as hubs for the dissemination of ideas and policy preferences throughout the network.

In contrast, the "Corporate" and "Society" actors occupy a more peripheral position relative to the three core actors, though they maintain connections to several key concepts. This pattern indicates that the private sector is primarily oriented toward policy implementation specifically through funding support, infrastructure development, and the execution of environmental protection programs. Meanwhile, "Society" is more closely linked to concepts such as food security, disaster victims, disaster mitigation, ecological crises, infrastructure damage, and deforestation. The network also reveals that most concepts are associated with more than one actor; for instance, concepts like environmental monitoring, law enforcement, food security, and infrastructure improvements are jointly linked to the Government, NGOs, and academics/experts. Such affiliation patterns demonstrate a convergence of discourse a situation where multiple actors utilize the same concepts as a foundation for constructing policy narratives. Conversely, concepts such as illegal timber, policy politicization, land licensing, and high rainfall intensity exhibit relatively selective connections to specific actors, marking them as more specialized issues within the policy discourse. Ultimately, the affiliation network illustrates that environmental management discourse is constructed through cross-actor collaboration: the Government, NGOs, and academics/experts serve as hubs for integrating various concepts, while the corporate sector and society contribute to issues aligned with their respective functions and interests.

4.2 Concept Network Results: Discourse Integration and Issue Network Density

This visualization demonstrates that the policy narrative exhibits a high level of discourse integration (see figure 2). All concepts are interconnected through numerous co-occurrence links, preventing significant issue fragmentation. These findings indicate that actors within the network tend to develop shared policy beliefs a set of convictions linking environmental protection, natural resource management, climate change adaptation, and disaster mitigation within a unified governance framework. The visualization of the analysis results reveals a high network density, characterized by numerous connections linking nearly all the concepts. This indicates that the issues at hand are not discussed in isolation but are instead interconnected within a comprehensive discursive framework.

The concept network reveals close interconnections among concepts such as deforestation, ecological crisis, disaster victims, infrastructure damage, damage to river basin areas (DAS), high rainfall intensity, and tropical cyclones. These linkages demonstrate that environmental degradation is understood as a driver of increased disaster risk and ecosystem damage. The strong relationships between these concepts indicate that climate change, forest degradation, and disasters are perceived as mutually reinforcing phenomena. Significant conceptual interconnections also exist among elements such as illegal logging, land licensing, policy politicization, protection budgets, and disaster mitigation. These relationships indicate that natural resource governance issues are not merely influenced by ecological factors but are also linked to institutional, political, and economic dimensions. The concept network analysis reveals that the discourse on environmental management constitutes an integrated policy discourse. The network structure demonstrates that resolving environmental problems cannot be achieved through intervention in a single issue alone; rather, it requires policy coordination that integrates ecological, social, economic, and institutional aspects.

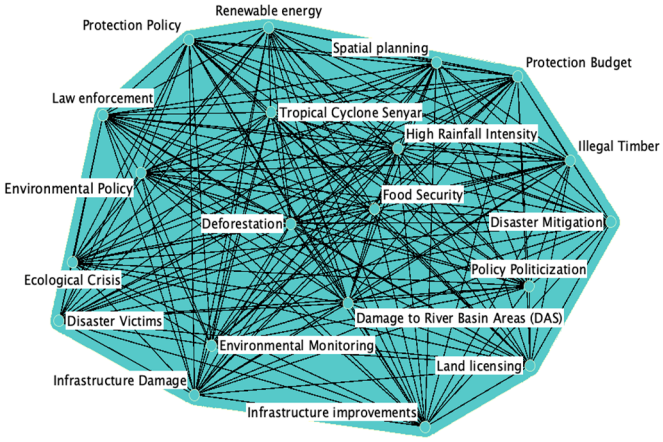


Figure 2. Concept Network Visualization

4.3 Actor Network Results: How Actors Form Discourse Coalitions

The actor network analysis identified the 25 actors and organizations with the highest frequencies of appearance. Individual actors were identified by name, while organizational actors were grouped into broader categories: government, NGOs, academics and experts, the public, and corporations. These entities offer distinct analytical levels for examining actor visibility and network position. The results indicate that not all actors frequently mentioned in the discourse occupy the same position within the network structure. Based on frequency, Muhammad Tito Karnavian is the most dominant actor (286

mentions), followed by Raja Juli Antoni (148), Hanif Faisol Nurofiq (109), Abdul Muhari (78), Prabowo Subianto (64), and Dody Hanggodo (59). Their high frequency of appearance suggests they serve as the government's primary representatives in disseminating information and shaping narratives regarding the flooding issue in Sumatra. Actors with high visibility tend to become key points of reference in news coverage and public statements. However, an actor's strategic position within the network is determined not only by frequency but also by patterns of connectivity with other actors. The degree centrality scores where most government officials, including Muhammad Tito Karnavian, Raja Juli Antoni, and Hanif Faisol, registered only 0.13% indicate that direct connections between these actors and others are relatively limited.

Table 3. Actor Network

Name	Organization	Variable	Frequency	Indegree (%)	Closeness (%)	Betweenness (%)	Degree (%)
Goverment	Goverment	organization	1885	29,16	0,56	47,00	29,16
NGO	NGO	organization	368	9,94	0,34	14,01	9,94
Academic and Expert	Academic and Expert	organization	351	8,73	0,33	10,74	8,73
Muhammad Tito Karnavian	PRR Task Force	person	286	0,26	0,38	0,22	0,26
Raja Juli Antoni	Ministry of Forestry	person	148	0,13	0,34	0	0,13
Hanif Faisol Nurofiq	Ministry of Environment	person	109	0,13	0,34	0	0,13
Abdul Muhari	BNPB (National Disaster Management Agency)	person	78	0,13	0,34	0	0,13
Prabowo Subianto	President	person	64	0,13	0,34	0	0,13
Hatma Suryatmojo	Researcher	person	63	0,40	0,42	0,74	0,40
Dody Hanggodo	Ministry of Public Works	person	59	0,13	0,34	0	0,13
Suharyanto	BNPB (National Disaster Management Agency)	person	57	0,13	0,34	0	0,134
Prasetyo Hadi	Minister of State Secretary	person	52	0,13	0,34	0	0,13
Safrizal ZA	PRR Task Force	person	40	0,26	0,38	0,22	0,26
Dwi Januanto Nugroho	GAKKUM (Law Enforcement Unit)	person	32	0,26	0,38	0,22	0,26
Andi Amran Sulaiman	Ministry of Agriculture	person	31	0,13	0,34	0	0,13
Saifullah Yusuf	Ministry of Social Affairs	person	30	0,13	0,34	0	0,13
Rian Purba	NGO: Wahana Lingkungan Hidup Indonesia (WALHI)	person	28	0,26	0,27	0,20	0,26
Teddy Indra Wijya	Cabinet Secretary	person	26	0,13	0,34	0	0,134
Heri Andreas	Academic	person	24	0,40	0,42	0,74	0,40
Society	Society	organization	23	1,20	0,25	2,44	1,20
Tommy Adam	NGO: Wahana Lingkungan Hidup Indonesia (WALHI)	person	23	0,26	0,39	0,31	0,26
Arie Rompas	NGO: Greenpeace Indonesia	person	23	0,26	0,39	0,31	0,26
Corporate	Corporate	organization	22	0,94	0,25	2,10	0,94
Muhammad Rais Abdillah	Academic	person	19	0,26	0,38	0,22	0,26
Febrie Adriansyah	PKH Task Force	person	19	0,26	0,38	0,22	0,26

Although government actors dominate the public discourse network regarding the Sumatra floods in terms of frequency (1,885) and structural control (degree: 29.16; betweenness: 47.00), academics and NGOs play a crucial bridging role. Despite lower media exposure, academics (specifically Hatma Suryatmojo and Heri Andreas; betweenness: 0.74) and NGO representatives (e.g., Tommy Adam and Arie Rompas; betweenness: 0.31) exhibit high betweenness and closeness centrality values. This positions them as knowledge intermediaries connecting otherwise isolated actor groups. Overall, the discourse is shaped by interactions among government entities, academics, and NGOs, while corporate entities and the general public remain on the periphery.

4.4 Structural Results Based on Modularity

Visualizing coalitions within a network analysis based on modularity serves a crucial function by helping to identify the structure of discourse coalitions within the network. In this context, modularity functions to identify actor coalitions based on shared concepts. Community structure analysis was conducted using the Louvain algorithm. The modularity visualization reveals the formation of three clusters. The largest cluster reflects the government's efforts to build legitimacy (see Figure 3). This cluster is dominated by "Government", "academics and experts", and "NGO", all closely linked to concepts such as renewable energy, environmental monitoring, food security, land licensing, law enforcement, policy politicization, and spatial planning. These actors occupy a central position in the network, acting as coordination hubs and connecting various strategic issues in environmental governance. This indicates that environmental management does not rely solely on the government as the policymaker but also involves academics who provide scientific knowledge and NGOs, which act as facilitators and overseers of policy implementation.

The second cluster highlights opposition to or challenges regarding the causes of disasters, which undermine the government's legitimacy. The actors involved include civil society, NGOs, academics, and experts along with a small segment of the government who support narratives concerning illegal logging, deforestation, and ecological crises. Meanwhile, issues regarding infrastructure damage and disaster victims weaken the government's standing regarding disaster management, a sentiment reinforced by civil society actors. This cluster illustrates the close link between communities and the consequences of environmental degradation, such as ecosystem damage and heightened disaster risks. The connection between deforestation, infrastructure damage, and disaster casualties indicates that land-use change is a contributing factor to increased community vulnerability.

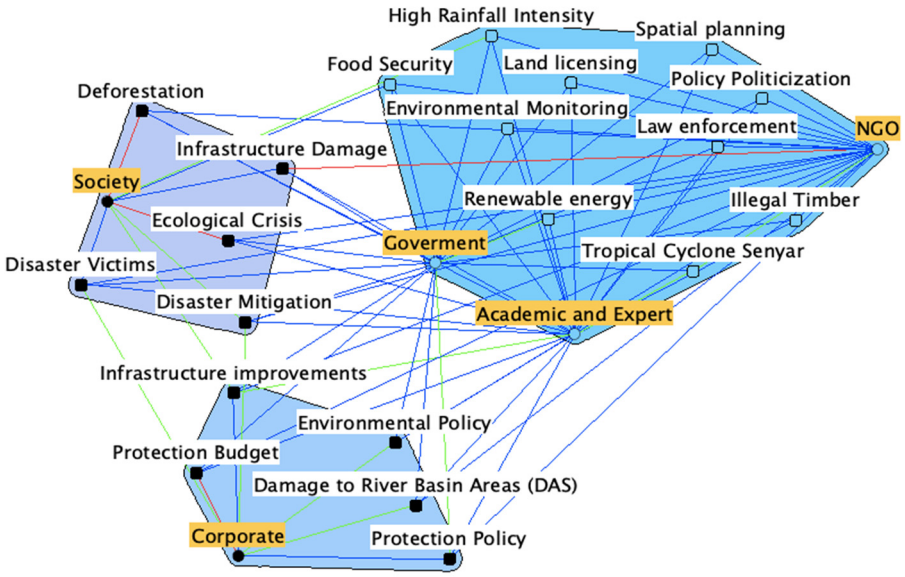


Figure 3. Modularity Visualization

Furthermore, Cluster 3 centered on corporate actors demonstrates links to concepts such as protection budgets, infrastructure improvements, environmental policy, protection policy, and damage to river basin areas. These relationships reveal a tendency for corporate involvement in the degradation of riverbank areas to generate negative narratives, whereas corporate participation in disaster relief efforts fosters positive ones. Regarding protection budgets and infrastructure improvements, government entities specifically the Minister of Finance and disaster management task forces emerge as dominant actors. Concepts concerning environmental and protection policies reinforce disaster management efforts positively associated with the government; however, a negative correlation also arises driven largely by observers and NGOs regarding the necessity of regulations prioritized toward the protection of communities and the environment. Ultimately, Cluster 3 exhibits the potential to both support and oppose the prevailing issues that emerge.

4.5 Discourse Network Centrality Results

This section examines centrality within the actor-concept network, focusing on five organizational categories government, NGOs, academics and experts, Society, and corporations in relation to 21 discourse concepts. Network analysis was conducted using degree centrality, betweenness centrality, and closeness centrality measures to identify the strategic positions of each actor and concept within the discourse network. Degree centrality measures the number of direct connections a node has with other nodes; betweenness centrality indicates a node's capacity to act as a bridge between different parts of the network; and closeness centrality reflects a node's proximity to all other nodes in the network (Leifeld, 2017). The analysis reveals a network comprising 26 nodes specifically, 5 organizations and 21 concepts. Centrality values indicate a striking disparity between organizational actors and concepts, with organizations occupying a far more dominant position than concepts.

Table 4. Centrality Results

Name	Variable	Frequency	Closeness (%)	Betweenness (%)	Degree (%)
Environmental Policy	Concept	194	3.799	0.938	2.666
Renewable energy	Concept	20	3.637	0.060	2
Policy Politicization	Concept	82	3.637	0.060	2
Food Security	Concept	55	3.799	0.787	2.666
Academic and Expert	Organization	351	6.106	26.930	13.333
NGO	Organization	368	6.106	26.930	13.33
Protection Policy	Concept	81	3.799	0.938	2.666
Society	Organization	23	3.288	2.990	5.333
Corporate	Organization	22	3.166	2.217	4.666
Deforestation	Concept	189	3.799	0.7877	2.666
Government	Organization	1885	6.106	26.930	13.333
High Rainfall Intensity	Concept	136	3.799	0.787	2.666
Land licensing	Concept	135	3.637	0.060	2
Environmental Monitoring	Concept	61	3.637	0.060	2
Spatial planning	Concept	62	3.637	0.060	2
Ecological Crisis	Concept	144	3.799	0.787	2.666
Disaster Mitigation	Concept	351	3.976	1.942	3.333
Tropical Cyclone Senyar	Concept	69	3.637	0.060	2
Illegal Timber	Concept	105	3.637	0.060	2
Law enforcement	Concept	144	3.637	0.060	2
Protection Budget	Concept	139	3.799	0.938	2.666
Damage to River Basin Areas (DAS)	Concept	106	3.799	0.938	2.666
Infrastructure improvements	Concept	336	3.976	1.942	3.333
Disaster Victims	Concept	168	3.976	1.942	3.333
Infrastructure Damage	Concept	71	3.799	0.787	2.666

Organizational variables occupy a central position within the network. The "Government" category exhibits the highest frequency of occurrence appearing 1,885 times with a degree centrality of 13.33%, betweenness centrality of 26.93%, and closeness centrality of 6.11%. Identical centrality values are observed for "Academic and Expert" (frequency: 351) and "NGO" (frequency: 368), both of which also show a degree of 13.33%, betweenness of 26.93%, and closeness of 6.11%. Although the frequency of "Government" is significantly higher than that of the other two groups, all three actors occupy the same structural position within the network, as they possess an equivalent number of connections and bridging roles. The high frequency of "Government" is linked to disaster management processes involving task forces and narratives regarding the causes of disasters. In contrast, "Society" and "Corporate" organizations exhibit lower levels of centrality. "Society" has a frequency of 23, with degree centrality of 5.33%, betweenness of 2.99%, and closeness of 3.29%, while "Corporate" has a frequency of 22, with degree centrality of 4.67%, betweenness of 2.22%, and closeness of 3.17%. These differences indicate that civil society and the corporate sector appear more frequently as supporting actors rather than as actors that link various issues within the network.

Meanwhile, the concepts of Disaster Mitigation, Infrastructure Improvements, and Disaster Victims occupy the most central positions. These three concepts exhibit a degree centrality of 3.33%, a betweenness centrality of 1.94%, and a closeness centrality of 3.98%. In terms of frequency, Disaster Mitigation appears 351 times, Infrastructure Improvements 336 times, and Disaster Victims 167 times. These high centrality values indicate that the three concepts are consistently linked to various other concepts within the network, thereby serving as key themes in the construction of the discourse.

The subsequent group of concepts comprises Environmental Policy, Protection Policy, Food Security, Infrastructure Damage, Damage to River Basin Areas (DAS), Ecological Crisis, Deforestation, High Rainfall Intensity, and Protection Budget. These concepts show a degree centrality of 2.67%, a closeness centrality of 3.80%, and betweenness values ranging from 0.79% to 0.94%. Within this group, Environmental Policy has the highest frequency (194 occurrences), followed by Deforestation (187), Ecological Crisis (144), Protection Budget (139), High Rainfall Intensity (136), and Damage to River Basin Areas (106). Although their degree centrality values are lower than those of the three primary concepts, their high frequency of occurrence indicates that these issues constitute significant elements of the narratives constructed by the actors. These findings suggest that actors tend to establish connections between causes, impacts, and solutions. Deforestation, damage to river basin areas, and high rainfall intensity are positioned as factors triggering ecological crises, whereas disaster mitigation, infrastructure development, and environmental policy are constructed as responses to these issues.

Other concepts such as Renewable Energy, Policy Politicization, Environmental Monitoring, Land Licensing, Spatial Planning, Law Enforcement, Illegal Timber, and Tropical Cyclone Seroja exhibit a degree centrality of 2.00%,

betweenness of 0.06%, and closeness of 3.64%. The frequency of occurrence for this group of concepts is relatively low; for instance, Renewable Energy appears only 20 times, whereas Policy Politicization appears 82 times. The very low betweenness values indicate that these concepts do not serve as primary bridges between discourses but rather function as supporting issues that enrich the discussion on environmental and disaster related policies.

4.6 Media Discussion: Pro and Con Narratives Regarding News of the Sumatra Floods

Mass media narratives regarding the Sumatra floods reveal a polarization of discourse concerning the causes of the disaster and its management (see figure 4). Public discourse was dominated by the issue of disaster mitigation with a total of 351 mentions (315 in favor, 36 opposed) and infrastructure improvement, with 336 mentions (331 in favor, 5 opposed). These figures indicate a massive media consensus in highlighting the government's emergency response. Conversely, an analysis of the discourse regarding the causes of the disaster reveals intense contestation, particularly concerning deforestation and the ecological crisis. Unlike the physical management aspect, which met with minimal opposition, the topic of deforestation was dominated by counter-narratives 149 opposed versus 40 in favor while the ecological crisis saw 107 counter narratives against 37 in favor. There is strong resistance from academics, researchers, and environmental organizations (such as Walhi) against the government's official narrative, which tends to attribute the disaster to natural factors. Although weather phenomena such as high rainfall intensity (133 in favor) and Tropical Cyclone Seroja (68 in favor) were acknowledged as triggers, the surge in counter-narratives regarding deforestation demonstrates that the public and the scientific community view massive land-use conversion since 2005, the loss of vegetation cover, and the degradation of watersheds specifically the Batang Toru watershed (74 in favor, 32 opposed) as the true root causes.

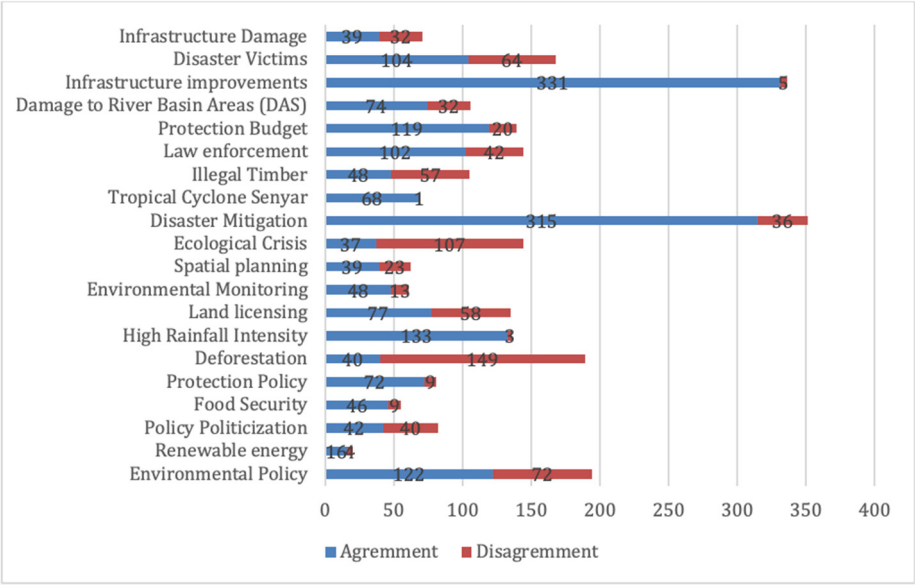


Figure 4. Discourse Pro and Contra Narratives

The discourse surrounding "High Rainfall Intensity" (133 in favor, 3 opposed) and "Tropical Cyclone Senyar" (68 in favor, 1 opposed) reveals a dominant narrative supporting the government's disaster response efforts. The construction of 15,000 temporary housing units a measure for physical recovery following a natural disaster was overwhelmingly supported in the discourse. News coverage reflected a constructive approach, focusing public attention on government narratives regarding logistics, budgets for public facility repairs, and the reinforcement of the government's legitimacy. The narrative surrounding governance and law reveals a battle of discourses regarding state accountability, reflected in the intense debate over issues such as "land licensing" (77 in favor, 58 against), "law enforcement" (102 in favor, 42 against), and "policy politicization" (42 in favor, 40 against). The high level of discourse is closely linked to public pressure regarding illegal logging practices (48 in favor, 57 against), which are suspected to be a cause of the disaster. Meanwhile, the nearly balanced split on the issue of policy politicization highlights deep social friction stemming from the government's decision not to declare a national disaster status, despite the humanitarian crisis claiming 867 lives.

5. Discussion

The findings reveal that media discourse surrounding the Sumatra floods was strongly oriented toward disaster mitigation (351 occurrences) and infrastructure improvements (336 occurrences). At the same time, environmental policy (194 occurrences), deforestation, and ecological crisis remained important elements of competing narratives. This pattern indicates that emergency disaster response and physical recovery received substantial attention, while environmental and governance-related explanations continued to challenge response-oriented interpretations. Previous studies of flood

discourse have similarly highlighted the importance of competing narratives in shaping interpretations of disaster causes and responsibility (Hasfi & Fisher, 2025; Oktavian et al., 2026). This finding is consistent with the Discourse Network Analysis (DNA) approach, which identifies key actors and coalitions within a debate and reveals how their positioning and relationships contribute to the construction of discourse (Leifeld & Mastroianni, 2025). The findings further suggest that actors play a more prominent role than individual concepts in structuring the discourse network. The government, with 1,885 mentions, occupies a central position in the discourse, while academics and experts (351 mentions) appear prominently in both supportive and oppositional positions. NGOs (368 mentions), meanwhile, are important contributors to counter-narratives. These three actor groups exhibit high degree centrality, as they are connected to a broad range of concepts. The prominence of concepts such as disaster mitigation (351 occurrences), infrastructure improvements (336 occurrences), and disaster victims (167 occurrences) suggests that government-related narratives emphasize disaster management and infrastructure development as responses to the crisis. However, the frequent appearance of environmental policy (194 occurrences), deforestation (189 occurrences), and ecological crisis (144 occurrences) indicates that academics, experts, and civil society organizations also advance green policy narratives by highlighting the potential ecological dimensions of the disaster. These competing narratives are important for understanding government legitimacy in crisis communication. The high frequency of government statements and their structural positions within the discourse network reflect their prominence in media coverage, rather than demonstrating that government legitimacy has been successfully achieved. Because crisis communication involves explaining decisions and responding to reputational challenges (Coombs, 2007), government legitimacy should be understood as a process of discursive construction and contestation, rather than an outcome established solely through dominant media representation. Hajer's (1995) concept of discourse coalitions helps explain how actors can advance shared interpretations through common storylines and concepts without necessarily forming formally coordinated groups. In this study, government actors, NGOs, and academics and experts contribute to a discourse network in which response-oriented and environmentally focused narratives coexist and compete.

These findings indicate that government legitimacy in crisis communication is constructed through a process of negotiation and competition among discourse coalitions, thereby reinforcing Leifeld’s (2017) argument that public policy is the outcome of interactions among various actors competing to construct meaning through discourse networks. Consequently, hydrometeorological disasters in Sumatra reflect an institutionalized political-ecological crisis rather than isolated physical events. Addressing this requires a strategic shift in Indonesia's disaster management: moving from reactive infrastructure recovery toward a risk-informed "green policy" agenda grounded in independent environmental audits and risk-based spatial planning.

6. Conclusion

This study concludes that crisis communication narratives regarding the Sumatra floods in online mass media remain dominated by the discourse of "disaster normalization" rather than a transition toward "green policy." The analysis reveals that the dominance of concepts such as disaster mitigation and infrastructure improvements demonstrates how the government reinforces its legitimacy by focusing on reactive responses and post-disaster physical repairs. Conversely, environmental narratives such as those concerning environmental policy and deforestationconstruct a counter-narrative advocating for green policies. These narratives indicate that crisis communication has yet to integrate spatial planning and environmental oversight as core agendas for mitigating the root causes of the disaster. This study confirms that the Sumatra flood crisis represents a battle for political legitimacy communicated and constructed through digital media. Crisis communication reveals that government legitimacy in the context of disasters is frequently built upon "performative legitimacy" centered on physical recovery rather than "substantive legitimacy" rooted in environmental sustainability. In practical terms, policymakers and crisis communication practitioners need to shift their paradigm from mere disaster normalization toward green policies to strengthen substantive legitimacy. Future research should move beyond a focus solely on online mass media corpora; it is recommended to expand the analysis of actor networks by incorporating social media sentiment data to map the dynamics of discourse contestation more comprehensively.

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Data sharing statement

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