



Collaboration Governance in the Mining Sector: Achieving Welfare and Sustainability in Aceh Province

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ABSTRACT

This research examines the implementation of collaborative governance in Aceh Province's mining sector and its role in promoting community welfare and environmental sustainability. The study explores how government agencies, mining companies, local communities, non-governmental organizations, and academic institutions collaborate to balance economic development, environmental protection, and social welfare. A qualitative case study approach was employed using interviews, field observations, and document analysis. The findings indicate that collaborative governance is supported by stakeholder participation, policy coordination, facilitative leadership, and conflict resolution, enabling diverse actors to address complex mining governance challenges collectively. However, persistent power asymmetries, uneven stakeholder participation, and institutional constraints continue to limit the effectiveness of collaboration. The findings further demonstrate that collaborative governance in Aceh is shaped by the province's special autonomy framework, which redistributes authority across multiple levels of government and encourages distributed facilitative leadership. In addition, five interrelated factors, legal, political, institutional, economic, and socio-cultural, collectively strengthen collaborative governance and contribute to sustainable mining governance.

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INTRODUCTION

Sustainable mining requires governance arrangements capable of balancing economic development, environmental protection, and community well-being. Achieving this balance remains challenging because mining governance involves multiple actors with overlapping responsibilities, competing interests, and unequal influence over decision-making (Oh & Shin, 2025; Purdy, 2012; Ran & Qi, 2018; Zanini et al., 2023). In response to these complexities, collaborative governance has emerged as an important institutional approach that promotes joint decision-making, shared responsibility, and cross-sector coordination among governments, private companies, local communities,

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collaborative governance within special autonomy contexts remain scarce. These findings reinforce the need for empirical research that investigates collaborative governance in distinctive institutional settings.

Aceh Province provides a valuable empirical context for addressing this research gap because its mining governance operates under a special autonomy framework that differs substantially from governance arrangements in other Indonesian provinces. Following the enactment of Law No. 11 of 2006 on the Governance of Aceh, the province was granted broader authority over natural resource management through the integration of national legislation, Aceh-specific Qanun, and a decentralized distribution of responsibilities among the central government, the Aceh Provincial Government, district governments, and customary institutions. This institutional configuration creates a multi-level governance system in which policy formulation, implementation, and stakeholder coordination are more complex than under Indonesia's general decentralization framework, particularly because authority is distributed across institutions with different legal mandates, resources, and levels of influence (Fatimah et al., 2024; Zulkarnaini et al., 2024).

The practical implications of this institutional complexity are evident in the governance of the mining sector. According to the Aceh Energy and Mineral Resources Office, the province had 76 active Mining Business Licenses (Izin Usaha Pertambangan, IUP) as of January 2026, reflecting both the economic importance of mining and the growing challenge of coordinating governmental agencies, mining companies, customary institutions, and local communities. At the same time, mining activities have contributed to environmental degradation, land-use conflicts, and increasing pressure on ecologically sensitive areas such as the Leuser Ecosystem, while overlapping institutional authority and inconsistencies between national mining legislation and Aceh's special autonomy regulations continue to complicate governance. In this setting, collaborative governance is not merely a participatory approach but a necessary institutional mechanism for coordinating multiple actors, reconciling competing interests, and balancing economic development with environmental sustainability.

The practical significance of this governance challenge is reflected in Aceh's socioeconomic conditions. Despite possessing abundant mineral resources and extensive authority over natural resource management, Aceh continues to experience relatively high levels of open unemployment. The provincial unemployment rate remained above five percent throughout 2022–2025, declining only modestly from 6.17% in 2022 to 5.64% in 2025 (see Table 1).

Table 1. Unemployment Rate in Aceh Province

Regency/City	2022	2023	2024	2025
Simeulue	6	5,85	5,50	5.31
Aceh Singkil	6,88	6,84	6,44	6.55
South Aceh	4,82	4,73	4,56	4.39
Southeast Aceh	5,09	5	4,79	4.72
East Aceh	8,07	8,03	7,75	7.74
Central Aceh	4,44	4,42	4,21	4.03
West Aceh	6,09	6,07	5,58	5.46
Big Aceh	8,28	8,17	7,93	7.86

Pidie	5,94	5,92	5,74	5.71
Bireuen	4,2	4,14	3,93	3.82
North Aceh	7,08	7,07	6,88	6.88
Southwest Aceh	4,12	4,08	3,83	3.66
Gayo Lues	2,7	2,65	2,40	2.24
Aceh Tamiang	7,38	7,21	6,95	6.78
Nagan Raya	5,84	5,74	5,22	5.06
Aceh Jaya	3,12	2,88	2,75	2.57
Bener Meriah	2,61	2,45	2,20	2.1
Pidie Jaya	4,4	4,34	3,82	3.67
Banda Aceh	8,62	8,03	7,55	7.3
Sabang	4,01	3,92	2,95	2.67
Langsa	7,85	7,73	7,34	7.31
Lhokseumawe	9,15	8,78	8,47	8.24
Subulussalam	5,75	5,69	5,12	4.87

Source: Statistics Indonesia (BPS) Aceh (2026)

Table 1 indicate that the economic benefits generated from mineral resource exploitation have not yet translated into broad-based improvements in community welfare. Such conditions reinforce the importance of collaborative governance capable of ensuring that mining activities generate not only economic growth but also environmental sustainability and inclusive social development. Table 1 presents the distribution of the open unemployment rate across regencies and municipalities in Aceh Province.

This study examines how collaborative governance operates within Aceh's special autonomy framework and how institutional coordination among governments, mining companies, local communities, customary institutions, and civil society organizations contributes to achieving community welfare and environmental sustainability in the mining sector. By analysing collaborative governance within a multi-level governance system characterized by overlapping institutional authority, the study advances understanding of how distinctive institutional arrangements influence stakeholder coordination and sustainable mining governance. This research therefore extends collaborative governance scholarship by incorporating the institutional context of special autonomy into the analysis of mining governance, while providing empirical evidence and practical insights to support more inclusive, accountable, and sustainable mining governance in Aceh and other resource-rich region.

METHOD

This study employed a qualitative single-case study design to investigate how collaborative governance operates in the mining sector of Aceh Province. A single-case study was considered appropriate because Aceh represents a distinctive institutional setting characterized by special autonomy, multi-level governance, and complex interactions among governmental agencies, mining companies, customary institutions, local communities, and civil society organizations involved in natural resource management. Although the study focused on mining governance across Aceh Province, fieldwork was primarily conducted in West Aceh Regency, one of the province's major

mining areas. Provincial-level governance issues were examined through interviews with relevant stakeholders and supported by documentary evidence, enabling an in-depth understanding of collaborative governance within its real-life institutional context (Creswell & Poth, 2018; Yin, 2018).

Data were collected through field observations, semi-structured interviews, and document analysis (see Table 2).

Table 2. Data Collection Method

No	Data Source	Purpose
1	Observation	To observe interactions among government agencies, mining companies, customary institutions, and local communities, as well as governance practices, coordination processes, and the environmental conditions surrounding mining activities.
2	Semi-structured Interviews	To explore stakeholders' experiences, perceptions, roles, and perspectives regarding the implementation of collaborative governance in the mining sector.
3	Document Analysis	To examine relevant laws, government regulations, Aceh <i>Qanun</i> , policy documents, strategic plans, official reports, meeting minutes, and other documents supporting the analysis of collaborative governance.

Source: Adapted from Yin (2018) and Creswell & Poth (2018)

Field observations were undertaken to examine mining activities, environmental conditions, and interactions among stakeholders within the study area. Semi-structured interviews were conducted to explore participants' experiences, perceptions, and evaluations of collaborative governance practices in the mining sector. Documentary analysis complemented these data by examining Mining Business Licenses (IUP), Aceh Qanun, government reports, environmental assessment reports, company documents, and national and provincial regulations related to mining governance. The combination of these three data sources enabled data triangulation and strengthened the credibility of the findings.

Participants were selected using purposive sampling to ensure that all informants possessed relevant knowledge and direct experience regarding mining governance. Selection was based on three criteria: (1) direct involvement in mining governance or its implementation, (2) professional experience or community engagement related to mining activities, and (3) willingness to participate and provide informed perspectives. A total of 31 informants participated in the study, comprising one representative from the Aceh Provincial Government responsible for mining governance, one representative from the West Aceh Regency Government, nine representatives from licensed mining companies operating in West Aceh, eighteen community members living in mining-affected areas, one representative from a non-governmental organization working on environmental and community issues, and one academic specializing in mining governance. Each stakeholder group was included because of its distinctive role in collaborative governance, enabling the study to capture multiple perspectives on institutional coordination, environmental sustainability, and community welfare.

Fieldwork was conducted between November and December 2024. Semi-structured interviews lasted approximately 30–45 minutes and were audio-recorded with participants' consent before being transcribed verbatim for analysis. Observation

notes and documentary evidence were systematically organized to complement and verify interview findings.

The data were analysed using thematic analysis following the procedures proposed by Wæraas (2022). The analysis began with repeated readings of interview transcripts, observation notes, and documentary evidence to achieve familiarity with the data. Open coding was then undertaken to identify meaningful units related to collaborative governance, stakeholder interactions, institutional coordination, environmental sustainability, and community welfare. Similar codes were subsequently compared, refined, and grouped into broader analytical categories before being synthesized into overarching themes. The relationships among these themes were then interpreted to explain how collaborative governance operates within Aceh's special autonomy framework and how institutional coordination influences sustainable mining governance.

To enhance the trustworthiness of the findings, several validation strategies were employed. Data triangulation was conducted by comparing information obtained from interviews, observations, and documentary evidence. Member checking was undertaken by discussing preliminary interpretations with selected participants to ensure that the findings accurately reflected their perspectives. In addition, peer debriefing was conducted through discussions among the research team to review coding consistency, theme development, and analytical interpretations, while documentary evidence was used to verify factual information obtained during interviews.

RESULTS AND DISCUSSION

Study Context of West Aceh Mining

West Aceh Regency was selected as the empirical setting because it represents one of Aceh Province's principal mining regions and exhibits intensive interaction among governmental institutions, mining companies, and local communities (Hajad, 2021; Ikhsan et al., 2025). Document analysis identified West Aceh as the district with the largest concentration of licensed mining companies included in this study, making it an appropriate setting for examining collaborative governance in practice. Mining governance in the district operates within Aceh's special autonomy framework and involves multilevel coordination among the Ministry of Energy and Mineral Resources, the Aceh Provincial Government, the West Aceh Regency Government, mining companies, and community representatives. This institutional setting creates overlapping responsibilities that require continuous coordination in licensing, environmental management, community development, and conflict resolution (see Table 3).

Table 3. Identity of Mining Companies in West Aceh Regency, Aceh Province

No.	Company Name	Commodity	Area (Hec)	Location
1.	PT. Magellanic Garuda Kencana	Gold	3250	West Aceh
2.	Koperasi Putra Putri Aceh	Gold	195	West Aceh
3.	PT. Agrabudi Jasa Bersama	Coal	5000	West Aceh
4.	PT. Mifa Bersaudara	Coal	3134	West Aceh
5.	PT. Prima Bara Mahadana	Coal	2024	West Aceh

6.	PT. Surya Makmur Indonesia	Coal	1600	West Aceh
7.	PT. Indonesia Pacific Energi	Coal	3263	West Aceh
8.	PT. Nirmala Coal Nusantara	Coal	3198	West Aceh
9.	PT. Universal Pratama Sejahtera	Coal	4934	West Aceh

Source: <https://esdm.acehprov.go.id/> (2024)

As shown in Table 3, seven of the nine licensed companies operate in coal mining, while the remaining two are engaged in gold mining. The predominance of coal extraction increases the complexity of mining governance because multiple companies simultaneously interact with provincial and district governments, local communities, and other stakeholders regarding licensing, environmental monitoring, corporate social responsibility (CSR), infrastructure development, and community empowerment. Consequently, collaborative governance in West Aceh involves not only regulatory compliance but also continuous coordination among actors with different institutional responsibilities and organizational interests.

Documentary evidence further indicates that the mining sector makes a substantial contribution to Aceh's regional economy (Hajad et al., 2023; Muhajir et al., 2025). Between 2018 and 2023, the mineral and coal mining sector generated approximately IDR 1.5 trillion in non-tax state revenue, created employment for around 3,000 workers, and contributed approximately IDR 153 billion to community development and empowerment programmes. Despite these economic contributions, interviews revealed that governance challenges remain, particularly in coordinating CSR programmes, environmental monitoring, land-use disputes, and stakeholder participation. Community representatives reported that CSR programmes are frequently designed and implemented directly by mining companies with limited involvement from local stakeholders, thereby reducing opportunities for collaborative planning and shared decision-making. These findings indicate that the complexity of mining governance in West Aceh arises not only from the scale of mining activities but also from the need to reconcile economic objectives with environmental protection and community welfare through collaborative institutional arrangements.

Implementation of Collaborative Governance in Aceh Mining

Collaborative governance in Aceh's mining sector involves provincial and district governments, mining companies, local communities, non-governmental organizations, and academic institutions working within the province's special autonomy framework. Although these actors participate in the same governance system, they possess unequal authority, resources, and institutional capacities, resulting in asymmetrical patterns of collaboration. Government agencies retain formal authority over mining policy, licensing coordination, and regulatory supervision, while major mining companies, particularly PT Mifa Bersaudara, exercise considerable operational influence through their financial resources, technical expertise, and long-term community engagement. Consequently, collaborative governance is shaped by the interaction between formal governmental authority and the operational capacity of private actors.

In practice, collaborative governance is implemented through the complementary roles of participating stakeholders in mining management, environmental protection,

and community development. Government agencies perform coordinating and supervisory functions, mining companies contribute operational expertise and corporate social responsibility (CSR) programmes, while local communities, non-governmental organizations, and academic institutions provide local knowledge, public oversight, and technical input. Interviews indicate that collaboration is strengthened when these diverse capacities are integrated, despite persistent differences in institutional influence and decision-making power.

These results support the collaborative governance framework proposed by [Ansell and Gash \(2008\)](#), particularly regarding the importance of interdependence among stakeholders. The Aceh case, however, extends this framework by demonstrating that collaborative governance operates within a special autonomy system where formal governmental authority coexists with the substantial operational influence of mining companies and the mediating role of local institutions. Rather than being determined solely by formal institutional arrangements, collaborative governance is shaped by the interaction of complementary stakeholder capacities within a multi-level governance system.

Starting Conditions of Collaborative Governance

Interviews, field observations, and document analysis indicate that collaborative governance in Aceh's mining sector begins under unequal starting conditions among participating stakeholders. Government institutions possess formal regulatory authority and administrative legitimacy, whereas mining companies control greater financial resources, technical expertise, operational information, and implementation capacity. Local communities, although directly affected by mining activities, have comparatively limited institutional resources and bargaining power. Interviews further revealed that community representatives are generally able to raise concerns regarding land access, environmental impacts, employment opportunities, and benefit distribution through formal consultation mechanisms, yet their influence over agenda setting and final decision-making remains relatively limited. These findings demonstrate that disparities in authority, resources, and institutional capacity shape the initial conditions under which collaboration takes place.

Despite these asymmetries, stakeholders consistently recognized that effective mining governance cannot be achieved through unilateral action. Government agencies require technical and operational support from mining companies, companies depend on regulatory certainty and social acceptance to maintain their operations, and local communities rely on both governmental oversight and corporate responsibility to safeguard their livelihoods and surrounding environment. Rather than reflecting balanced power relations, this interdependence provides a practical incentive for stakeholders to participate in collaborative governance despite unequal authority and resources.

These findings support [Ansell and Gash \(2008\)](#), who argue that collaborative governance is strongly influenced by starting conditions, particularly power asymmetries, resource disparities, and incentives for participation. The Aceh case demonstrates that unequal starting conditions do not necessarily prevent collaboration; instead, the distribution of authority, resources, and legitimacy across different actors creates incentives for collective action because no single stakeholder possesses sufficient

capacity to govern the mining sector independently. This finding is also consistent with [Purdy \(2012\)](#), who emphasizes the importance of institutional arrangements for managing power asymmetries in collaborative governance.

Institutional Design of Collaborative Governance

Interviews, field observations, and document analysis indicate that collaborative governance in Aceh's mining sector is supported by an institutional design that establishes the formal structures through which stakeholders participate in mining governance. This institutional framework is grounded in national mining legislation, Aceh's special autonomy regulations, and regional policy instruments that define the distribution of authority, stakeholder responsibilities, and procedural arrangements for participation. The framework provides an organizational basis for involving provincial and district government agencies, mining companies, local communities, customary institutions, non-governmental organizations, and academic institutions within a common governance system.

The findings further indicate that the effectiveness of institutional design depends on the availability of clear procedural rules, inclusive participation, transparency, and well-defined institutional responsibilities. Respondents acknowledged that formal participation mechanisms provide opportunities for stakeholders to contribute to governance processes; however, the quality of participation remains uneven because community representatives are not always involved at the earliest stages of policy formulation and programme planning. Similarly, variations in institutional capacity and access to technical information continue to influence the extent to which different stakeholders can participate effectively. These findings suggest that institutional design provides the structural foundation for collaboration, although its effectiveness depends on how consistently principles of inclusiveness, transparency, and procedural fairness are implemented.

These findings support [Ansell and Gash \(2008\)](#), who argue that effective institutional design requires clear procedural rules, inclusive participation, and transparent decision-making to facilitate collaboration among stakeholders with diverse interests. Similarly, [Emerson et al. \(2012\)](#) emphasize that institutional arrangements establish the governance architecture necessary for collaborative action, while [Bryson, Crosby, & Stone \(2015\)](#) highlight that well-designed governance structures clarify stakeholder roles, responsibilities, and accountability. The Aceh case demonstrates that institutional design contributes to collaborative governance by providing a formal framework that enables participation, defines institutional roles, and supports transparent governance, rather than by determining how stakeholders interact during the collaborative process.

Collaborative Process

Interviews and field observations indicate that collaborative governance in Aceh's mining sector evolves through continuous interaction among provincial and district government agencies, mining companies, local communities, customary institutions, and other relevant stakeholders. Respondents consistently described collaboration as an iterative process in which participants exchange perspectives, communicate institutional priorities, and work toward mutually acceptable solutions. Rather than relying on formal authority, stakeholders engage in open dialogue to develop a common understanding of

issues related to mining governance, environmental protection, and community development.

The findings further demonstrate that negotiation constitutes the core mechanism through which collaboration is maintained. Interviews revealed that differences concerning land use, environmental impacts, employment opportunities, and community benefit distribution are addressed through iterative negotiation, allowing stakeholders to reconcile competing interests before decisions are reached. Government agencies primarily facilitate deliberation, mining companies provide operational and technical perspectives, while community representatives contribute local knowledge and articulate community concerns. As a result, joint decisions emerge through reciprocal discussion and compromise rather than through unilateral authority.

Conflict resolution also plays a central role in sustaining collaborative governance. Respondents explained that disagreements are managed through mediation, clarification of stakeholder expectations, and negotiated adjustments that seek to preserve long-term working relationships. Instead of viewing conflict as a barrier to collaboration, stakeholders generally perceive it as an inherent component of collaborative governance that encourages adaptive problem-solving and institutional learning. This process enables participants to accommodate differing interests while maintaining collective commitment to sustainable mining governance.

These findings support [Ansell and Gash \(2008\)](#), who identify face-to-face dialogue, negotiation, and joint problem-solving as core elements of the collaborative process. Similarly, [Emerson et al. \(2012\)](#) argue that principled engagement enables stakeholders to develop collective solutions through continuous interaction, while [Prno & Scott Slocombe \(2012\)](#) demonstrate that sustainable mining governance depends on ongoing negotiation and adaptive conflict management among governments, companies, and local communities. The Aceh case reinforces these perspectives by showing that collaborative governance is sustained through meaningful dialogue, negotiated decision-making, and constructive conflict resolution that enable stakeholders to address complex governance challenges collectively.

Facilitative Leadership

Interviews and field observations indicate that facilitative leadership in Aceh's mining governance is exercised through a distributed leadership model rather than through the authority of a single institution. Leadership responsibilities are shared among government agencies, mining companies, village authorities, and customary leaders according to their institutional mandates, expertise, and relationships with other stakeholders. This distributed arrangement enables collaboration to continue despite differences in organizational authority, interests, and resources.

The findings reveal that government agencies provide strategic leadership by establishing collaborative direction, coordinating stakeholder participation, and ensuring that governance processes remain consistent with regulatory and policy objectives. Mining companies contribute facilitative leadership by providing technical expertise, operational information, and financial resources that support collaborative initiatives, including environmental management and community development programmes. At the local level, village authorities and customary leaders perform an important bridging role by communicating community aspirations, strengthening

stakeholder relationships, and facilitating local acceptance of collaboratively developed decisions. Respondents consistently emphasized that these complementary leadership roles improve stakeholder participation, strengthen institutional coordination, and enhance the continuity of collaborative governance.

These findings support [Ansell and Gash \(2008\)](#), who argue that facilitative leadership is essential for convening stakeholders, managing power differences, and maintaining commitment throughout collaborative governance. The Aceh case further demonstrates that effective collaborative leadership does not depend on a single dominant actor but emerges through complementary leadership functions distributed across governmental, corporate, and community institutions. This finding is consistent with [Bryson, Crosby, & Bloomberg \(2015\)](#), who emphasize that cross-sector collaboration depends on shared leadership and coordinated action, and with [Prno & Scott Slocombe \(2012\)](#), who show that sustainable mining governance requires leadership capable of integrating governmental authority, corporate capacity, and community legitimacy within a collaborative governance framework.

Trust Building, Commitment, and Shared Understanding

The findings indicate that trust among stakeholders has developed progressively through repeated collaboration rather than through formal institutional arrangements alone. Interviews revealed that regular interactions in collaborative activities enabled government agencies, mining companies, local communities, non-governmental organizations, and academic institutions to become more familiar with one another's roles, responsibilities, and expectations. Respondents consistently emphasized that trust was strengthened when stakeholders fulfilled agreed commitments, shared information transparently, and responded constructively to emerging environmental and social concerns. Although disagreements over environmental impacts, land use, and community benefits occasionally arose, these issues did not undermine collaboration because stakeholders continued to engage through established collaborative mechanisms.

The findings further show that repeated interaction gradually strengthened stakeholder commitment and fostered a shared understanding of the collective objectives of mining governance. Over time, participants developed greater confidence in collaborative arrangements and demonstrated an increasing willingness to maintain long-term engagement despite differences in institutional interests and organizational priorities. Interviews also indicated that continued collaboration promoted collective learning, improved mutual expectations, and reinforced a common recognition that sustainable mining governance requires balancing economic development, environmental protection, and community welfare. Rather than eliminating differences among stakeholders, collaboration enabled them to develop sufficient mutual understanding to sustain joint action over time.

These findings support [Ansell and Gash \(2008\)](#), who argue that trust, commitment, and shared understanding emerge incrementally through sustained collaborative interaction. Similarly, [Emerson et al. \(2012\)](#) emphasize that repeated engagement strengthens shared motivation and collective capacity for joint action. The Aceh case reinforces these perspectives by demonstrating that collaborative governance is sustained through the gradual development of trust, commitment, and shared understanding generated by continuous interaction, collective learning, and consistent

stakeholder engagement, despite persistent differences in authority, resources, and institutional interests.

Factors Supporting Collaborative Governance in Aceh's Mining Sector

Collaborative governance in Aceh's mining sector is supported by the interaction of legal, political, institutional, economic, and socio-cultural factors that collectively strengthen cooperation among government institutions, mining companies, and local communities. Legally, document analysis identifies Law No. 11 of 2006 on the Governance of Aceh, Law No. 3 of 2020 on Mineral and Coal Mining, Government Regulation No. 3 of 2015, Aceh Qanun No. 15 of 2013, and Governor's Instruction No. 12 of 2020 as the principal regulatory framework defining stakeholder authority, institutional responsibilities, and coordination mechanisms. These regulations provide legal certainty and institutional legitimacy for collaborative governance. Politically, interview findings indicate that sustained commitment from provincial and district governments is essential for maintaining policy continuity, strengthening intergovernmental coordination, and mobilizing the resources needed to support collaborative initiatives.

Institutionally, effective coordination among government agencies, mining companies, and community organizations facilitates information sharing, joint decision-making, and the implementation of environmental management, corporate social responsibility (CSR), and community development programmes. Economically, the mining sector contributes to regional revenue, employment, and local economic growth, creating shared incentives for government and private actors to sustain collaborative relationships. Socio-culturally, village heads, customary leaders, and religious leaders strengthen collaboration by facilitating communication, encouraging community participation, reducing social conflict, and enhancing the legitimacy of mining governance.

These findings suggest that collaborative governance is sustained through the interaction of complementary governance conditions rather than by any single enabling factor. This finding is consistent with [Emerson & Nabatchi \(2015\)](#), who argue that collaborative governance emerges from the interaction of institutional arrangements, collaborative dynamics, and joint capacity for action. It also supports [McGuire \(2006\)](#), [Imperial et al. \(2016\)](#), [O'Leary et al. \(2010\)](#), and [Prno & Scott Slocombe \(2012\)](#), who emphasize the importance of political commitment, institutional capacity, stakeholder coordination, and legitimacy in sustaining collaborative governance. The Aceh case extends these perspectives by demonstrating that legal certainty, political commitment, institutional coordination, economic incentives, and socio-cultural legitimacy function as mutually reinforcing conditions that enable effective collaborative governance in the mining sector.

Collaborative Governance under Aceh's Special Autonomy Framework

Collaborative governance has increasingly been recognized as an effective approach for addressing complex public issues that cannot be managed by a single institution. [Ansell and Gash \(2008\)](#) identify several interrelated elements that shape successful collaboration, including favorable starting conditions, institutional design, facilitative leadership, face-to-face dialogue, trust building, commitment, and shared understanding. The empirical evidence from Aceh confirms the relevance of these

components in explaining collaborative governance within the mining sector. However, the findings also demonstrate that the Aceh experience extends the original framework because collaboration operates within a special autonomy system that redistributes authority across multiple governmental levels while simultaneously expanding the roles of private companies, customary institutions, and local communities. This interpretation is consistent with [Ran & Qi \(2018\)](#), who argue that collaborative governance is contingent upon institutional arrangements that shape the distribution of authority and power sharing among participating actors.

Unlike collaborative governance arrangements commonly discussed in the literature, governance in Aceh is shaped not only by collaborative processes but also by the province's constitutional and institutional context. Under Law No. 11 of 2006 concerning the Governance of Aceh, the provincial government exercises broader authority over natural resource governance while remaining integrated within Indonesia's national regulatory framework. This arrangement creates a multi-level governance system in which authority is distributed among the central government, the Aceh Provincial Government, district governments, mining companies, customary institutions, and local communities ([Auld et al., 2018](#)). Collaborative governance extends beyond stakeholder participation by requiring continuous coordination across overlapping jurisdictions, institutional mandates, and governance levels. Rather than functioning solely as a participatory mechanism, collaboration serves as an institutional approach for integrating diverse authorities and responsibilities within a single governance system ([Zulkarnaini et al., 2024](#)).

These findings also support [Ratner et al. \(2022\)](#), who demonstrate that multistakeholder governance in natural resource management requires institutional arrangements capable of coordinating actors with diverse mandates across multiple governance levels. Government agencies provide regulatory direction and policy coordination, mining companies contribute operational resources, technical expertise, and corporate social responsibility programmes, while village authorities and customary leaders facilitate communication and strengthen community legitimacy. Leadership therefore emerges through complementary institutional roles that enable stakeholders to contribute according to their respective authority, capacity, and legitimacy. This observation supports recent collaborative governance research arguing that leadership is increasingly exercised through networks of interacting organizations rather than a single coordinating authority ([Bryson, Crosby, & Stone, 2015](#); [Emerson et al., 2012b](#); [Westin & Montgomerie, 2024](#)). Consistent with [Douglas et al. \(2020\)](#), the Aceh case also demonstrates that collaborative outcomes are shaped by the interaction between institutional arrangements and stakeholder capacities rather than by a single governance configuration.

This study extends the collaborative governance framework of [Ansell and Gash \(2008\)](#) by demonstrating that collaborative governance in resource-dependent regions cannot be understood solely through collaborative processes among stakeholders. In the Aceh context, the effectiveness of collaboration is fundamentally influenced by the institutional setting created through special autonomy, which redistributes authority, shapes stakeholder relationships, and encourages distributed facilitative leadership across governmental, private, and community actors. The Aceh experience therefore

suggests that constitutional and institutional context should be treated as an important analytical dimension of collaborative governance because it determines not only how collaboration is implemented but also how authority, leadership, and governance responsibilities are organized within multi-level governance systems. Similar findings were reported by [Yan et al. \(2022\)](#), who demonstrate that collaborative governance outcomes are strongly conditioned by institutional and political settings rather than collaborative processes alone.

Implications for Sustainable Mining Governance

The findings demonstrate that achieving sustainable mining governance requires collaborative governance that extends beyond regulatory compliance toward coordinated action among governmental institutions, mining companies, local communities, customary institutions, and other stakeholders. Although Aceh's legal framework provides a formal basis for collaboration, effective governance depends on the capacity of participating actors to coordinate responsibilities, exchange information, and jointly address environmental, social, and economic challenges. Sustainable mining governance should therefore be understood as a continuous governance process rather than the implementation of legal regulations alone. In particular, the province's special autonomy framework highlights the importance of strengthening coordination across multiple levels of government to ensure policy coherence and institutional responsiveness in natural resource management.

A key implication of this study concerns the institutionalization of inclusive stakeholder participation. Community involvement should extend beyond consultation during the implementation of corporate social responsibility (CSR) programmes by incorporating local communities into the planning, monitoring, and evaluation of mining policies, environmental management, and community development initiatives. Such participation enhances policy legitimacy, strengthens public trust, and reduces the potential for social conflict ([Erwin et al., 2025](#); [Zanini et al., 2023](#)). Likewise, collaborative implementation of CSR programmes, environmental rehabilitation, and community empowerment initiatives can improve accountability by ensuring that development priorities reflect local needs rather than organizational interests alone. Strengthening coordination among governmental agencies, private companies, customary institutions, and civil society is therefore essential for maintaining effective collaborative governance in Aceh.

Collaborative governance provides an institutional foundation for integrating economic development with environmental protection through coordinated planning, environmental monitoring, post-mining land rehabilitation, responsible water management, and the adoption of cleaner mining technologies. These efforts are likely to be more effective when implemented collaboratively rather than independently by individual organizations. However, persistent challenges, including unequal bargaining power, limited institutional capacity, information asymmetry, and inconsistent stakeholder participation, continue to constrain environmental governance ([Oh & Shin, 2025](#); [Phillips, 2025](#)). Addressing these constraints requires stronger institutional capacity, transparent information sharing, wider community participation, and closer collaboration among governments, mining companies, research institutions, and local communities. The Aceh experience suggests that sustainable mining governance in

resource-dependent regions depends not on the dominance of a single actor, but on the ability of multiple stakeholders to integrate their complementary capacities within a collaborative governance framework that simultaneously promotes economic development, environmental sustainability, and community welfare.

Contributions, Limitations, and Future Research

This study makes, it extends the collaborative governance framework by demonstrating that collaboration in resource-dependent regions is influenced not only by collaborative processes but also by the institutional context created through Aceh's special autonomy, which redistributes authority across multiple levels of government and shapes stakeholder relationships. Second, it provides empirical evidence that facilitative leadership is distributed among governmental institutions, mining companies, and community actors, highlighting the importance of complementary leadership roles rather than a single coordinating authority. Third, it identifies five interrelated factors, legal, political, institutional, economic, and socio-cultural, that collectively strengthen collaborative governance and support sustainable mining governance.

Despite these contributions, several limitations should be acknowledged. This study is based on a single qualitative case study conducted in West Aceh Regency; therefore, its findings should be interpreted within the institutional and socio-political context of Aceh rather than generalized to all mining regions. In addition, the qualitative approach emphasizes an in-depth understanding of stakeholder interactions and governance dynamics but does not measure the causal effects of collaborative governance on policy performance, environmental outcomes, or community welfare.

Future research could address these limitations by undertaking comparative studies across mining regions with different governance arrangements, including provinces operating under general decentralization and those with special autonomy. Comparative and longitudinal research would provide a deeper understanding of how institutional contexts influence collaborative governance over time. Furthermore, mixed-methods approaches could be employed to examine the relationships between collaborative governance, environmental sustainability, socio-economic development, and governance performance using both qualitative and quantitative evidence.

CONCLUSION

This research examined the implementation of collaborative governance in Aceh's mining sector and its role in promoting community welfare and environmental sustainability. The findings demonstrate that collaborative governance provides an important institutional mechanism for balancing economic development, environmental protection, and social welfare through the active involvement of government agencies, mining companies, local communities, non-governmental organizations, and academic institutions. Effective collaboration is supported by stakeholder participation, policy coordination, facilitative leadership, and conflict resolution, enabling diverse actors to address complex mining governance challenges collectively. However, persistent power asymmetries, uneven stakeholder participation, and institutional constraints continue to limit the full realization of collaborative governance.

Collaborative governance in Aceh is shaped by the province's special autonomy framework, which redistributes authority across multiple levels of government and encourages shared leadership among governmental institutions, mining companies, and

community actors. Five interrelated factors, legal, political, institutional, economic, and socio-cultural, collectively strengthen collaborative governance and contribute to more sustainable mining governance. These findings extend the collaborative governance literature by highlighting the importance of institutional context and distributed facilitative leadership in resource-dependent regions.

Collaborative governance has considerable potential to improve mining governance in Aceh by fostering more inclusive decision-making, strengthening institutional coordination, and integrating environmental sustainability with community welfare. Strengthening institutional capacity, expanding meaningful stakeholder participation, and enhancing transparency and intergovernmental coordination will be essential to ensuring that mining development contributes to sustainable, equitable, and long-term benefits for communities and the environment in Aceh Province.

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DECLARATION OF GENERATIVE AI USE

During the preparation of this manuscript, the authors used Grammarly and QuillBot to assist with language editing, particularly to improve sentence structure, grammar, clarity, and readability. All AI-assisted suggestions and outputs were carefully reviewed, revised, and validated by the authors. The authors retain full responsibility for the scientific content, originality, accuracy, and integrity of the manuscript.

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