



Network Governance for Strengthening Coastal Community Economies Based on Blue Economy: Evidence from Southwest Papua Province, Indonesia

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Article Info

Article History:

Received September 14, 2025

Revised September 25, 2025

Accepted: October 19, 2025

Keywords:

Network Governance, Blue Economy, Coastal Community.

Abstract

Coastal blue-economy governance in Southwest Papua Province involves diverse actors and resources, yet a tight paradox persists between actor plurality and the weakness of equitable and productive relations. Networks have formed empirically through inter-governmental cooperation, conservation funding, and customary practices, but the quality of these relations remains uneven. This study analyses network governance in coastal blue-economy development through Klijn and Koppenjan's (2000) four-dimensional framework: actors and relations, resources, rules, and perceptions. A qualitative embedded single-case study was conducted in Raja Ampat Regency, Sorong Regency, Tambrauw Regency, and Sorong City. Data were collected through in-depth interviews with 22 purposively selected informants, participant observation, and document analysis, analysed thematically through open coding, axial coding, actor network mapping, and cross-category synthesis. The policy network has formed but operates with structural asymmetries. Formal bureaucratic actors occupy central positions (94% forum access; 87% agenda influence) while fisher cooperatives remain peripheral (29% and 12%). Resources are concentrated: planners and technical agencies control 87–94% of administrative and informational resources, while customary institutions control 88% of social-normative legitimacy with limited material access. Six regulatory regimes operate in parallel without synchronisation; perceptions diverge sharply between bureaucratic (policy coherence), indigenous (justice), fisher (livelihood), and business (market certainty) frames.

Introduction

Coastal blue-economy governance in Southwest Papua Province exhibits visible network formation. The Ministry of Marine Affairs and Fisheries has signed cooperation agreements with the provincial government on resource oversight and enforcement; the Ministry's Directorate General of Marine Spatial Planning and IFAD jointly designed the Blue Coast Economy programme, naming Southwest Papua among six beneficiary provinces for 2027–2031; the Blue Abadi Fund Governance Committee convenes scientific, investment, and

community representatives to oversee long-term conservation in the Bird's Head Seascape; and customary practices such as *sasi laut*, facilitated by The Nature Conservancy and indigenous communities in Raja Ampat, have produced measurable catch recovery. These connections demonstrate that the policy network spans national agencies, regional government, customary institutions, international NGOs, coastal communities, and global funding bodies.

Despite this empirical density, coastal governance unfolds within a paradox: actor plurality coexists with weak equitable and productive relations. The first issue is asymmetric ties and uneven resource distribution. Small-scale fishers, indigenous leaders, coastal women, and local NGOs rarely occupy strong positions in formal policy forums, while strategic decisions are more easily shaped by actors close to bureaucratic channels. Public budgets, information, legitimacy, formal authority, and market access concentrate among technical agencies and business actors (Nijamdeen et al., 2025). The second issue is the overlap of formal and informal rules without synchronisation mechanisms. Regional regulations, the RPJMD, and the RZWP3K coexist with customary norms such as *sasi laut*, producing jurisdictional ambiguity and inconsistent implementation (Mulya et al., 2024; Nanda Magfiroh et al., 2025a). The third issue is divergent perceptions among actors who interpret coastal sustainability through different frames: governments through economic development, customary leaders through traditional territorial management, and fisher communities through daily livelihoods (Singh et al., 2021). The fourth issue is procedural rather than substantive participation: vulnerable groups attend forums but rarely influence outcomes.

Although policy network and blue-economy literature in Indonesia is expanding, few studies have integratively operationalised (Klijn & Koppenjan, 2000) four-dimensional framework in a plural-institutional coastal setting where state, customary, and market actors intersect as intensely as in Southwest Papua. Existing studies typically focus on a single dimension—either actor mapping (Orach & Schlüter, 2021) resource flows or legal pluralism (Y. R. Watofa et al., 2025) without examining how the four dimensions interlock. This study addresses that gap by providing a holistic network diagnostic, supported by quantitative-visual evidence on relational asymmetries, resource concentration, regulatory pluralism, and perceptual divergence. The objective is to analyse how network governance shapes coastal blue-economy development through actors and relations, resources, rules, and perceptions.

Theoretical Framework

Network governance has been theorised through several traditions. Policy Network Theory (Rhodes, 1996) explains resource exchange and structural configuration but underplays how heterogeneous interests produce contested outcomes. The Advocacy Coalition Framework (Jenkins-Smith et al., 2018) analyses belief-system contestation but lacks specificity on how asymmetric resource exchange shapes framing capacity. Strategic Action Fields (Manral, 2025) examine field-level capital distribution but inadequately connect bargaining processes to specific policy outcomes.

(Klijn & Koppenjan, 2000) network governance framework integrates these strands by analysing four interactive dimensions simultaneously. Asymmetric resource exchange (Rhodes) shapes bargaining positions; frame contestation (Sabatier) produces consensus-resistant discourse; structural network arrangements (Fligstein) determine who can influence decisions; and network rules (formal and informal) frame what is permissible. In the Papuan context, this framework explains why plural actors and deliberative forums coexist with outcomes biased toward formal interests: the issue is not forum availability but the quality of network negotiation, shaped by resource asymmetry, fundamental interest contestation, and a network structure favouring formal actors.

Two complementary lenses enrich this framework. Interactive governance (KOOIMAN & JENTOFT, 2009) emphasises the deliberative quality of interaction; sustainable governance (Lafferty, 2004) provides normative orientation and long-term outcome benchmarks. Network governance shapes structural capacity, interactive governance shapes process quality, and sustainable governance evaluate long-term results. These three lenses together explain why network availability does not automatically yield collaborative and sustainable coastal governance.

Methods

This study employs a qualitative descriptive approach with an embedded single-case study strategy (Firsova-Eckert, 2025), examining coastal blue-economy governance in Southwest Papua Province. Four coastal areas were purposively selected to represent diverse governance contexts: Raja Ampat Regency, Sorong Regency, Tambrau Regency, and Sorong City. Twenty-two informants were purposively selected, complemented by snowball sampling, comprising: technical OPD officials (n=4), Regional Parliament members (n=2), Papuan People's Council/MRP members (n=2), customary village heads or leaders (n=3), coastal community figures (n=3), fisher cooperative chairs or key fishers (n=3), environmental NGO activists (n=3), and business actors or market intermediaries (n=2).

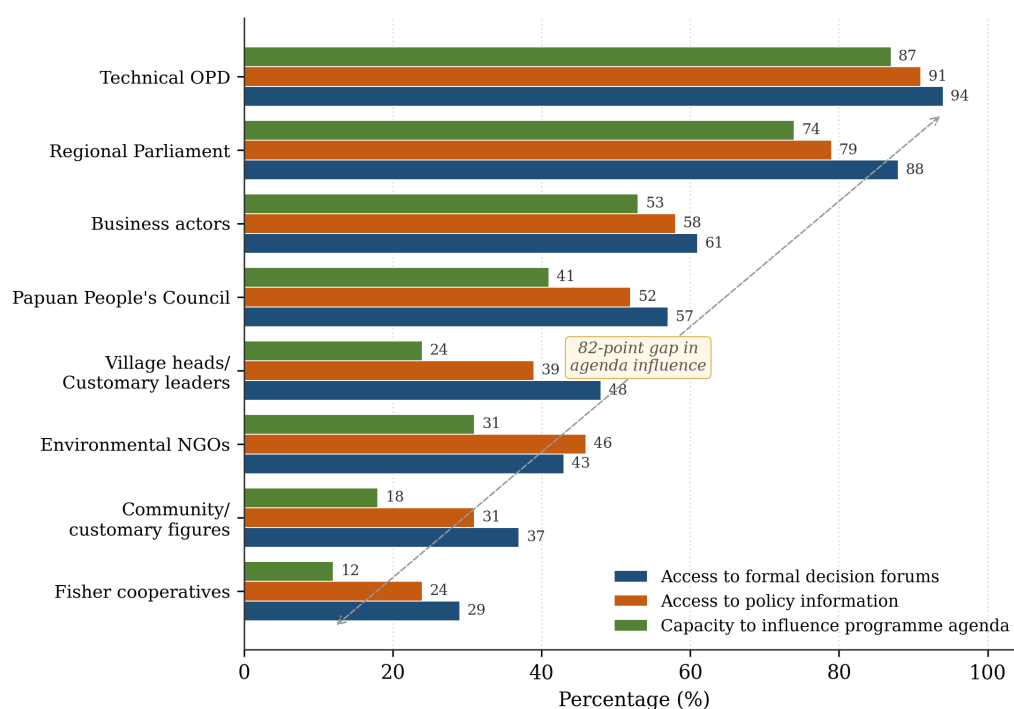
The research proceeded in three stages. Initial network mapping identified formal, informal, and non-governmental actors and the forums in which they interact. Field data were collected through semi-structured interviews guided by the four network governance dimensions, participant observation across at least three arenas (development planning forums, customary meetings, market/distribution sites), focus group discussions, and document study covering the RPJMD, RZWP3K, OPD strategic plans, coordination minutes, and memoranda of understanding. Thematic analysis based on Governance Network Theory proceeded through open coding (tagging actors, issues, power relations, resource access, rules, and policy meanings), axial coding (linking codes to the four analytical dimensions), visual network mapping (collaboration, competition, dominance, isolation, and communication breakdowns), and cross-category synthesis. Validity was maintained through source and method triangulation, member checking, and peer debriefing. Ethical clearance was obtained from [Ethics Committee Name and Number], with free, prior, and informed consent secured for engagement with indigenous communities.

Results

Actors and Relations

The policy network involves diverse actors but does not operate as a horizontal arena. Bureaucratic technical agencies (OPD) remain central nodes, controlling coordination channels, information flows, and the rhythm of formal forums. Regional Parliament members exert strategic influence at decision and budgetary moments rather than through daily coordination. The Papuan People's Council carries socio-cultural legitimacy but has limited reach in technical forums. Village heads and customary leaders bridge formal agendas and community realities but typically join after agendas are set. NGOs play a corrective role, oscillating between cooperative and critical engagement. Business actors wield significant informal influence through market and distribution networks, often outside formal forums. Figure 1 quantifies the distribution of access and influence across actor categories.

Figure 1. Distribution of access and influence among actors in the coastal governance network, Southwest Papua Province



Source: Compiled from in-depth interviews, participant observation, and document study, 2026

Figure 1 reveals a steep stratification across all three dimensions of network position. Technical OPD score 94% on formal forum access and 87% on agenda-setting capacity, while fisher cooperatives arguably closest to coastal realities score only 29% and 12% respectively, producing an 82-point gap in agenda influence. Equally noteworthy is the mid-tier pattern: the Papuan People's Council, community/customary figures, and fishers possess high social legitimacy but much lower forum access than business actors, confirming that social legitimacy does not automatically translate into institutional access. Figure 5 (Section 4.5) further illustrates these positional asymmetries through a relational sociogram.

Resources

Resources in the policy network are not limited to budgets and facilities; they include information, legitimacy, formal authority, political access, technical knowledge, and social support. Each resource type shapes bargaining positions differently. Bappeda and technical OPD dominate administrative and informational resources, controlling planning sequencing, priority-setting, and inter-sectoral coordination. Business actors and market intermediaries dominate economic resources through capital, distribution networks, and market access. Fishers, coastal SMEs, and grassroots economic actors face the greatest dependency: their access to information, financing, technology, and benefit-distribution forums remains constrained. Customary institutions and the MRP, while limited in material resources, command substantial socio-normative legitimacy that conditions policy acceptability at the community level. Figure 2 maps these patterns across four resource types.

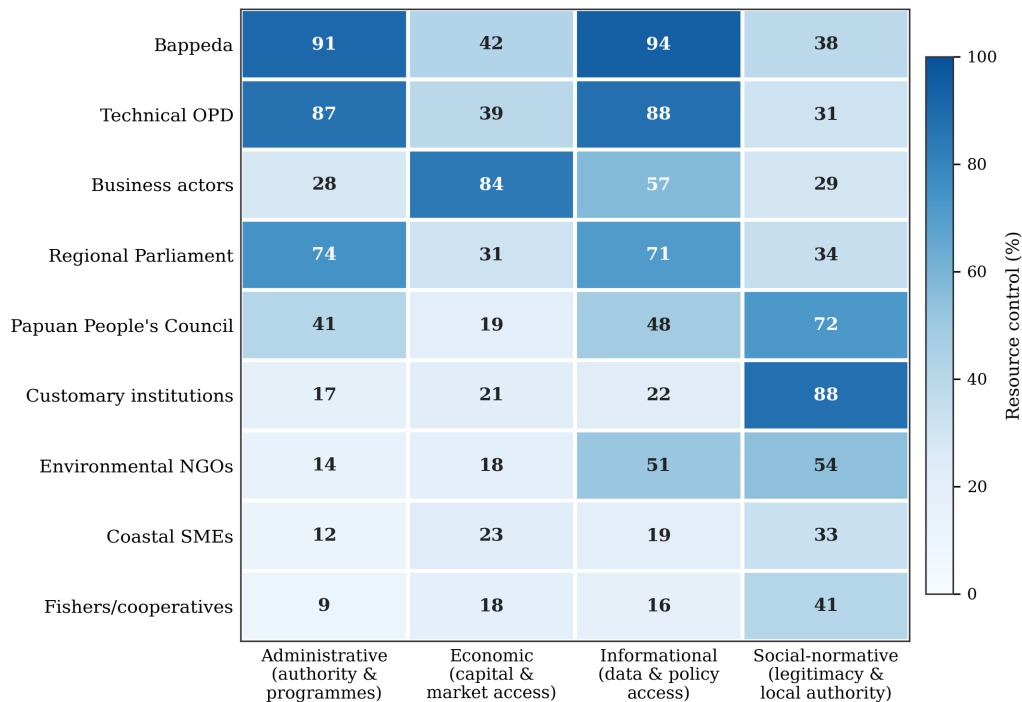


Figure 2. Strategic resource control across actor categories in the coastal governance network

Source: Thematic scoring from in-depth interviews, participant observation, and document study, 2026

Figure 2 displays a clear polarisation: administrative and informational resources concentrate among planners and technical bureaucracy (87–94%); economic resources concentrate among business actors (84%); social-normative resources concentrate among customary institutions (88%) and MRP (72%); while fishers and SMEs hold minimal stakes across all categories (9–41%). This pattern confirms that the network operates over asymmetric interdependencies a configuration consistent with Resource Dependence Theory (Pfeffer & Salancik, 1978), where actors controlling resources needed by others derive bargaining power.

Rules

Coastal governance operates not under a single regulatory regime but within layered rules drawn from national legislation, regional regulations, technical sectoral directives, spatial planning, customary norms, and community agreements. The principal challenge is not the absence of rules but the lack of synchronisation among regimes carrying distinct sources of legitimacy. Figure 3 maps the recognition status of six regulatory regimes operating in parallel.

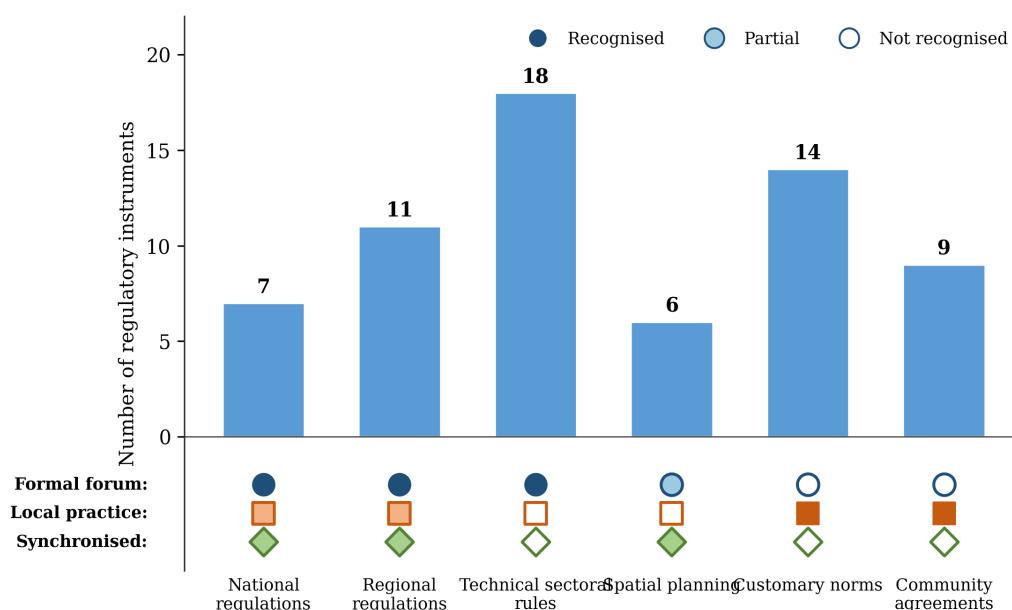


Figure 3. Regulatory pluralism in coastal governance: number of instruments and recognition status across six regimes

Source: Compiled from document study of regulatory instruments and informant interviews, 2026

Figure 3 reveals three patterns. First, regulatory density is high: 65 instruments operate simultaneously, with technical sectoral rules (18) and customary norms (14) the largest categories, confirming that the central problem is not the absence of rules. Second, no regime is fully synchronised with the others, indicated by the open diamond markers throughout. Third, a stark recognition divide exists: technical sectoral rules are recognised in formal forums but ignored in local practice, while customary norms and community agreements operate inversely. This empirically illustrates unmanaged legal pluralism—two regulatory systems coexisting actively but on parallel tracks that rarely intersect. Bureaucratic actors close to formal regulations enjoy operational advantages, while local actors must continually negotiate between state legality and community legitimacy.

Perceptions

Actors enter the network not as neutral participants but bearing distinct frames of reference shaping how problems are defined and outcomes valued. Bappeda interprets coastal development as a matter of policy coherence and planning alignment. Technical OPDs emphasise programme effectiveness and sectoral targets. The Regional Parliament reads it through political accountability and budgetary commitment. The MRP frames it as justice for indigenous Papuans and protection of rights. Village heads and community figures evaluate policies by local fit and social acceptance. Fishers prioritise livelihood relevance and daily benefit. NGOs emphasise transparency, participation, and ecological sustainability. Business actors weigh regulatory certainty and market stability. Figure 4 visualises perceptual divergence among four key actor categories.

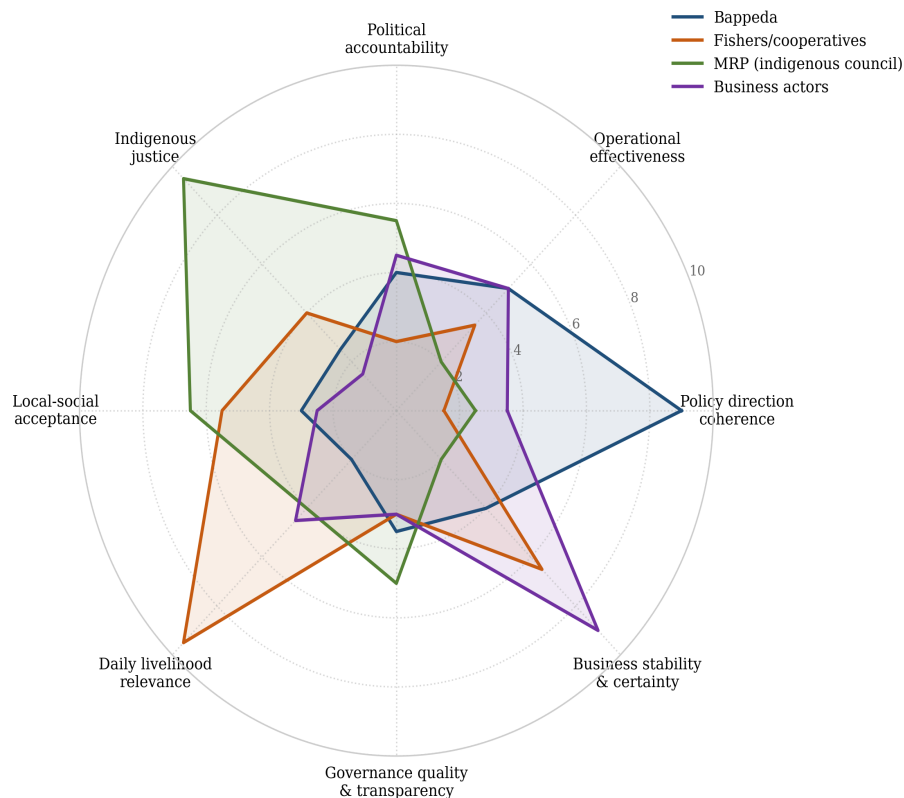


Figure 4. Divergent perceptual framings of coastal development among key network actors

Source: Thematic coding of in-depth interviews, 2026

Figure 4 shows that the four actor categories occupy nearly orthogonal perceptual territories. Bappeda peaks on policy coherence; fishers peak on livelihood relevance; MRP peaks on indigenous justice; business actors peak on stability and market certainty. Crucially, no two actors converge on the same priority dimension. In frame-analytical terms (Stratoudakis, 2021), this divergence is not external noise but a foundational condition—formal coordination does not automatically produce shared understanding when underlying cognitive maps differ so significantly. Without mechanisms to transform divergent frames into common orientation, policy forums function as procedural meetings rather than spaces for collective learning.

Network Synthesis

The four dimensions interlock as a single configuration. Figure 5 synthesises this configuration through a relational sociogram, visualising actors as nodes with size proportional to network centrality and edges representing tie strength.

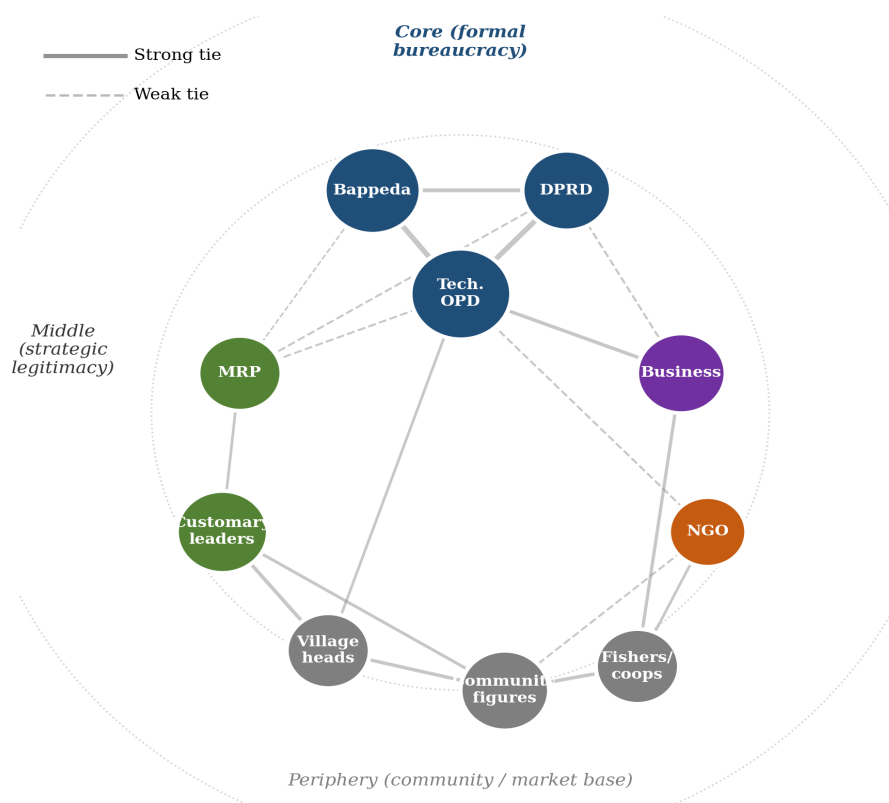


Figure 5. Coastal policy network sociogram: actor centrality and tie strength in Southwest Papua

Source: Compiled from in-depth interviews and observation, 2026

Figure 5 visualises a clear core–middle–periphery structure. Technical OPD, Bappeda, and DPRD form a tightly connected formal-bureaucratic core. Business actors, the MRP, customary leaders, and NGOs occupy intermediate positions with strategic but uneven ties to the core. Village heads, community figures, and fisher cooperatives form the periphery, connected to the core mainly through brokering actors rather than direct ties. Notably, dashed lines (weak ties) connect the core to the MRP and NGOs signalling that legitimacy-bearing and corrective actors are present but not strongly integrated into decision-making. Table 1 summarises findings across the four dimensions.

Table 1. Summary of findings across network governance dimensions

Dimension	Principal Finding
Actors and relations	Network is stratified: formal bureaucracy occupies the centre (94% forum access), local actors operate as brokers or recipients, fishers remain peripheral (29% access; 12% agenda influence).
Resources	Polarised distribution: planners and bureaucracy hold 87–94% of administrative/informational resources; business actors hold 84% of economic resources; customary institutions hold 88% of social-normative legitimacy; fishers and SMEs hold minimal stakes across all categories.
Rules	65 instruments across six regimes operate in parallel; no regime is fully synchronised; technical rules dominate formal forums while customary norms dominate local practice with no bridging mechanism.

Perceptions	Actors hold non-convergent frames: planners emphasise coherence, fishers emphasise livelihood, MRP emphasises justice, business actors emphasise market certainty with no shared priority dimension.
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Source: Thematic analysis results, 2025

Discussion

The four-dimensional analysis reveals that the coastal policy network in Southwest Papua operates as a system of mutually reinforcing asymmetries rather than as separate, independent issues. Asymmetric actor relations (Figure 1) cannot be separated from resource inequality (Figure 2) because resource control determines who holds bargaining power within the network (Cáceres et al., 2022; Klijn & Koppenjan, 2000; Riggs et al., 2020). The same pattern recurs in comparative contexts: in Bangladesh, government centrality and the marginalisation of coastal users signal an urgent need for more inclusive, decentralised governance (Riggs et al., 2020), in South Africa, effective inter-actor relations require improved leadership, knowledge transfer, and support for bridging organisations (Lukat et al., 2022), in Northern Ireland, network restructuring through co-design and reflexive learning shifted relations from involvement claims to co-creative practice (Hughes & Loader, 2023), and in Jamaica, decentralised fisher information networks demonstrated greater flexibility in responding to change because knowledge was not monopolised by a single role (Wade et al., 2023).

Resource asymmetry deepens this picture. The concentration of administrative and informational resources among Bappeda and technical OPD (87–94%), the strong position of business actors in markets and capital (84%), and the limited access of fishers and SMEs to strategic resources (9–23%) demonstrate that network interdependence operates asymmetrically. This is consistent with Resource Dependence Theory (Hendrik et al., 2024) and blue-justice perspectives arguing that the central question is not resource availability, but who can access, define, and mobilise them (Noort et al., 2026). Comparable patterns appear in Bangladesh (Raihan Sharif et al., 1993), Indonesian patron-client fish trade (Raihan Sharif et al., 1993).

Relational and resource complexity does not operate in a vacuum but is framed by plural rules and contested perceptions. The 65 regulatory instruments across six regimes without synchronisation (Figure 3) reflect institutional complexity (Kararach, 2025) action certainty depends not on regulatory completeness but on whether the entire set of rules produces institutional fit. Comparative studies confirm this: in Indonesia, customary law can enhance MPA effectiveness but integration is hampered by mismatched principles (Nanda Magfiroh et al., 2025), in Sri Lanka, regulatory ambiguity hampers mangrove governance (Liyanaralalage Iroshaka Gregory Marcelus Cooray et al., 2021); in India, fisheries laws scattered across multiple instruments with high legal pluralism become unenforceable when state rules misalign with community realities (Baiju et al., 2022). The perceptual dimension compounds this complexity (Figure 4). Frame analysis (Zhang & Jorgensen, 2024) shows that frame diversity is not external noise but a foundational condition; without transformation into shared orientation, forums become meetings without collective learning, as documented in Bangladesh, Brazil, Uruguay, and trans-boundary fisheries (Agramont Akiyama et al., 2022; Zimmermann et al., 2022).

Theoretically, the study extends Klijn and Koppenjan’s framework to plural-institutional contexts by demonstrating that all four dimensions must be transformed simultaneously rather than sequentially. Network governance describes how governance operates—actor interaction, resource mobilisation, rule negotiation, and frame transformation—while sustainable governance establishes where it must lead: integration, learning, meaningful participation, and

outcomes beyond administrative achievements. Process efficiency without sustainability orientation merely reproduces extractive patterns in tidier packaging; ambitious sustainability goals without adequate relational infrastructure remain normative documents without operational power (Klijn & Koppenjan, 2000)

Practically, the findings suggest five priorities: (1) restructuring network architecture to integrate customary institutions and the MRP as decision-making partners rather than consultative actors; (2) redistributing strategic resources, particularly information access, through transparent data platforms and locally-managed financing mechanisms; (3) developing rule-harmonisation protocols recognising customary norms as binding within defined spatial-functional domains; (4) building frame-transformation mechanisms such as joint diagnostic workshops and shared scenario-planning to bridge perceptual divergences; and (5) strengthening bridging actors (NGOs, MRP, customary councils) with resources and authority to broker between core and peripheral network positions.

The study has limitations. The embedded single-case design provides analytical depth but limits statistical generalisation; comparative multi-province studies would strengthen external validity. Quantitative indicators (Figures 1–2) are derived from thematic scoring rather than independent surveys; future research could triangulate with formal social network analysis (SNA) metrics. The cross-sectional design captures the network at one point; longitudinal research could trace how network restructuring interventions reshape relations, resources, rules, and perceptions over time.

Conclusion

Network governance in coastal blue-economy development in Southwest Papua Province has not yet operated as a coherent, equitable, and productive network. The principal problem is not the absence of actors, forums, regulations, or programmes, but the failure to consolidate relations, resources, rules, and perceptions into a single network architecture capable of sustaining collective action. Actor relations remain stratified, with formal bureaucracy at the centre and fishers at the periphery (12% agenda influence versus 87% for technical OPD). Resource distribution is polarised—administrative and informational resources concentrate among planners (87–94%), economic resources among business actors (84%), social-normative legitimacy among customary institutions (88%)—while fishers and SMEs remain dependent across all categories. Sixty-five regulatory instruments operate across six unsynchronised regimes, with technical rules dominating formal forums and customary norms dominating local practice without bridging mechanisms. Actor perceptions remain non-convergent, with no shared priority dimension among Bappeda, fishers, the MRP, and business actors.

The principal barrier to coastal development is therefore not a policy problem but a network architecture problem: asymmetric relations, uneven resource control, inadequately integrated rules, and fragmented perceptions all prevent collective action from stabilising. Strengthening coastal community economies through the blue economy requires simultaneous transformation across all four dimensions restructuring relations toward equity, redistributing strategic resources, harmonising plural rules, and transforming divergent perceptions into shared understanding. Only when these four dimensions cohere will the policy network operate as a genuine platform for collaborative, inclusive, and sustainable coastal governance.

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