

Strengthening Maritime Governance as an Effort to Accelerate the Development in Lingga Regency

Ade Masniary¹, Aditya Indrawan²

¹Universitas Maritim Raja Ali Haji. Tanjungpinang. Indonesia

²Regional Asset Financial Agency, Central Kalimantan, Indonesia

Correspondence: amasniary@student.umrah.ac.id¹

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ABSTRACT

This article examines how stronger maritime governance can accelerate development in Lingga Regency, an archipelagic local government whose settlements, public services, economic activities, and natural resources are distributed across islands and coastal waters. The study uses a qualitative policy-analysis design based on official statistics, laws and regulations, planning documents, institutional reports, and peer-reviewed literature on collaborative governance, marine spatial planning, fisheries governance, maritime logistics, and blue-economy development. Data were organized through document coding, institutional mapping, problem-instrument analysis, and triangulation across sources. The findings show that Lingga's development constraints do not arise solely from a shortage of sectoral programs. They are also produced by fragmented authority, weak interoperability of maritime data, discontinuous inter-island connectivity, limited value-chain infrastructure, unequal administrative capacity, and insufficient community influence over decisions affecting coastal livelihoods. In 2025, the regional economy grew by 3.53 percent, while wholesale and retail trade contributed 24.68 percent of gross regional domestic product and household consumption accounted for 60.90 percent of expenditure-side GRDP. These indicators reveal economic resilience but also underline the need to convert maritime resources into more productive, inclusive, and sustainable value chains. The article proposes an integrated maritime governance framework comprising six mutually reinforcing pillars: institutional coordination, integrated data and spatial planning, connectivity and maritime services, community co-management, blue-economy value chains, and performance-based finance and policy learning. The framework positions maritime governance as a development operating system rather than a narrow sectoral agenda. Its implementation can strengthen policy coherence, reduce island-based service disparities, improve investment readiness, protect coastal ecosystems, and increase the welfare contribution of fisheries, logistics, tourism, and other marine-based activities.

Keyword: Maritime, Governance, Archipelagic Development, Blue Economy

INTRODUCTION

Maritime governance is increasingly understood as the system through which public institutions, communities, firms, and knowledge organizations coordinate the use,

protection, and development of marine and coastal spaces. It therefore extends beyond the administration of fisheries or maritime security. Maritime governance encompasses spatial planning, transport, licensing, public services, environmental protection, disaster preparedness, investment, local revenue, and the distribution of benefits from marine resources. In an archipelagic country, the quality of this governance system determines whether the sea functions as a connector that integrates territories or as a barrier that reproduces disparities between islands. This broader understanding is consistent with interactive and collaborative governance perspectives, which emphasize interdependence, institutional coordination, and shared capacity in addressing complex public problems (Ansell & Gash, 2008; Emerson et al., 2012; Kooiman, 2003).

The need for an integrated approach is particularly evident in Lingga Regency, Riau Islands Province. The regency's population, settlements, production centers, service facilities, and ecological assets are dispersed across island clusters. Such a spatial structure creates higher logistical and administrative costs than those encountered by compact mainland jurisdictions. A sectoral program may perform well within one agency, yet its development effect remains limited when vessel schedules, port facilities, market access, digital connectivity, energy supply, licensing, and environmental monitoring do not operate as a coordinated system. The sea must consequently be treated as the principal spatial framework of local development rather than as a residual area located between land-based projects.

The most recent official development data illustrate both resilience and structural limitations. Lingga Regency's gross regional domestic product in 2025 reached IDR 5,953.28 billion at current prices and IDR 3,475.95 billion at constant 2010 prices. Economic growth remained positive at 3.53 percent year on year. Wholesale and retail trade, including the repair of motor vehicles and motorcycles, was the fastest-growing business field at 9.66 percent and made the largest sectoral contribution, amounting to 24.68 percent of GRDP. On the expenditure side, household consumption contributed 60.90 percent. These figures indicate stable local demand and a functioning trade network, but they also show that stronger production, processing, logistics, and investment linkages are required if marine resources are to generate higher value added and broader regional multipliers (BPS-Statistics Indonesia Lingga Regency, 2026a, 2026b).

Lingga possesses development opportunities associated with capture fisheries, aquaculture, fish processing, marine tourism, mangrove ecosystems, small-island agriculture, port services, and interregional trade. Nevertheless, resource availability does not automatically produce development. Fisheries can remain dominated by primary production when cold-chain facilities, quality assurance, financing, processing, marketing, and reliable transport are weak. Marine tourism may attract attention but fail to benefit communities when access, safety standards, waste management, local business participation, and destination governance are not integrated. Mangroves and coastal ecosystems can provide protection, livelihoods, and blue-carbon benefits, but their long-term value is reduced when land-use decisions, conservation, and community rights are managed separately. The central policy issue is therefore not merely how to increase activity, but how to govern interdependence among sectors, spaces, and actors.

Indonesia has established a substantial legal foundation for maritime management through the laws on coastal areas and small islands, local government, and marine affairs, as well as the Indonesian Ocean Policy and spatial-planning reforms. These instruments provide mandates related to marine resource use, environmental protection, zoning,

surveillance, economic development, and coordination. However, the division of authority between central, provincial, and regency governments can produce operational gaps. The provincial government holds significant authority over marine management, while the regency remains responsible for many land-based facilities and local services that determine whether maritime policies actually work. Central agencies control additional functions such as navigation, ports, security, and national fisheries policy. Without practical coordination rules, shared data, and aligned budgets, formal authority can become fragmented implementation (Republic of Indonesia, 2007, 2014a, 2014b, 2017, 2021).

Contemporary marine-governance literature reinforces the importance of institutional integration. Marine spatial planning often fails when it is reduced to map production without meaningful participation, implementation capacity, or mechanisms for reconciling competing uses (Flannery et al., 2018; Jones et al., 2016). Small-scale fishers can be marginalized when their knowledge and mobility patterns are not incorporated into planning, even though they are among the actors most dependent on the quality of marine ecosystems (Jentoft, 2017). Polycentric arrangements may improve adaptability, but only when responsibilities, accountability, and channels for coordination are clear; otherwise, multiple centers of authority can reproduce power asymmetries and policy inconsistency (Morrison et al., 2019; Ostrom, 2010).

Studies of Indonesia also identify continuing challenges in maritime governance. The transformation of capture-fisheries governance requires credible data, scientific assessment, compliance mechanisms, and collaboration among government, industry, and fishing communities (Suherman et al., 2025). Maritime law-enforcement architecture remains institutionally complex, while the effectiveness of marine protection depends on the alignment of regulatory mandates, resources, and operational coordination (Kurniaty et al., 2021; Laksmana, 2022). Digital transformation offers opportunities to strengthen maritime logistics and information flows, but technology creates value only when processes and organizations are redesigned to use shared data (Iman et al., 2022). These findings are relevant to Lingga because development acceleration requires both sector-specific competence and cross-sector governance capacity.

Previous work on Lingga has frequently examined individual sectors or agencies, including fisheries administration, village capacity, public-service performance, community empowerment, and digital governance. Such studies provide important evidence, but a wider analytical gap remains. There is limited policy analysis that treats maritime governance as an integrated development architecture linking authority, transport, data, finance, environment, production, and community participation at the regency scale. This gap matters because isolated improvements may not reduce the cumulative disadvantages of archipelagic geography. A new digital application, for instance, cannot resolve service inequality if residents cannot travel affordably to complete physical procedures; a new production target cannot generate local prosperity if products leave the region without processing.

This study addresses that gap by asking how maritime governance should be strengthened to accelerate development in Lingga Regency. It has three objectives. First, it diagnoses the principal institutional and spatial constraints that reduce the development impact of maritime resources. Second, it evaluates the governance capabilities needed to connect public services, ecological protection, infrastructure, and economic value chains. Third, it formulates an integrated framework and phased policy

agenda that can be used by local and provincial governments, central agencies, communities, businesses, and universities. The article's main argument is that development acceleration will depend less on adding disconnected projects than on building a maritime governance system capable of coordinating decisions, evidence, resources, and accountability across islands.

METHODOLOGY

This research employed a qualitative policy-analysis design using a case-study focus on Lingga Regency. A qualitative approach was selected because the research question concerns the interaction of institutional mandates, policy instruments, spatial conditions, actor relationships, and development outcomes. The study did not seek to estimate a single causal coefficient. Instead, it examined how governance arrangements shape the capacity of public policies to produce coordinated and sustainable effects in an archipelagic setting. The design combined document analysis, institutional mapping, and problem-instrument assessment (Cardno, 2018; Creswell & Creswell, 2018).

The evidence base consisted of five categories. The first category included official statistical publications, particularly Lingga Regency in Figures and the official release on economic growth in 2025. The second category comprised national legal and policy instruments concerning local government, marine affairs, coastal areas and small islands, spatial planning, and electronic-based government. The third category included regional planning and performance materials where available. The fourth consisted of reports from international organizations on fisheries, ocean governance, and Indonesia's blue-economy potential. The fifth category included peer-reviewed studies published mainly during 2016–2026 on collaborative governance, marine spatial planning, fisheries governance, maritime logistics, coastal community participation, environmental governance, and policy integration.

Data analysis proceeded in four stages. First, documents were coded into the themes of authority, coordination, data, spatial planning, connectivity, public services, economic value chains, environmental safeguards, participation, finance, and performance. Second, institutional mapping was used to identify where responsibilities were concentrated, shared, or disconnected across levels of government and non-state actors. Third, a problem-instrument matrix connected each governance problem with potential policy mechanisms, implementation risks, and expected development effects. Fourth, findings were triangulated by comparing official statistics, legal mandates, institutional reports, and academic explanations. The procedure followed the logic of data reduction, structured display, interpretation, and conclusion drawing, while retaining attention to contradictory evidence and implementation constraints (Miles et al., 2020).

The analysis is limited by its reliance on secondary data. It does not claim to replace field interviews, participatory mapping, or household and business surveys. The proposed framework should therefore be tested through consultation with fishers, island communities, women's groups, youth, transport operators, processors, tourism actors, village governments, provincial agencies, and central institutions. Nevertheless, secondary policy analysis is appropriate for identifying structural coordination problems, clarifying institutional options, and developing an evidence-based model that can guide subsequent empirical validation.

RESULTS AND DISCUSSION

1. Maritime Development Baseline and the Archipelagic Policy Problem

Lingga's development context is defined by dispersion. Administrative units and communities are connected by sea routes whose reliability is influenced by vessel availability, weather, port conditions, fuel costs, passenger demand, and commercial viability. The result is not only a transportation problem. Irregular connectivity affects attendance at schools and health facilities, the mobility of civil servants, the distribution of construction materials, the delivery of basic commodities, access to banking, the movement of fish and agricultural products, and the capacity of residents to participate in government processes. Development planning that treats each sector independently underestimates these systemic effects.

The 2025 economic data provide an important baseline. Positive growth of 3.53 percent demonstrates that Lingga's economy retained resilience. Yet the dominance of wholesale and retail trade and household consumption suggests that local development remains strongly dependent on circulation and consumption. Trade is essential in an island economy, but it should be connected to stronger local production and processing. An integrated maritime strategy would therefore aim to reduce the cost and uncertainty of moving people, goods, information, and services while simultaneously increasing the proportion of local commodities that are processed, certified, stored, marketed, and financed within the region.

Table 1. Selected Development Indicators and Their Governance Implications

Izndicator	Latest condition	Governance implication
GRDP at current prices	IDR 5,953.28 billion in 2025	Programs should be assessed by their contribution to local value added, not only physical outputs.
Economic growth	3.53% year on year in 2025	Resilience exists, but acceleration requires productivity and stronger intersectoral linkages.
Fastest-growing sector	Wholesale and retail trade; 9.66%	Maritime logistics and market systems are strategic development infrastructure.
Largest business-field share	Wholesale and retail trade; 24.68% of GRDP	Trade should be linked to fisheries processing, tourism supply, and local enterprise development.
Largest expenditure component	Household consumption; 60.90% of GRDP	Investment and productive capacity need to expand so growth is not overly consumption-driven.
Statistical coverage	Annual official data include geography, government, social-demographic, and economic conditions	A shared maritime dashboard can integrate existing data for planning, monitoring, and evaluation.

Source: Compiled from BPS-Statistics Indonesia Lingga Regency (2026a, 2026b).

The development problem is also spatially differentiated. Larger population and service centers can support more regular facilities, whereas smaller and more remote islands require flexible service models. A uniform policy standard may therefore create

formal equality but practical inequality. For example, requiring residents to complete the same physical licensing steps at one office imposes very different costs depending on the island of residence. Differentiated service standards are needed, including mobile services, scheduled island visits, interoperable digital documents, delegated verification, and service guarantees tied to transport realities.

A maritime perspective changes the way infrastructure is prioritized. Ports, jetties, landing sites, navigation aids, cold storage, ice plants, fuel access, telecommunications, and emergency facilities are not isolated assets. They constitute a network. The value of one facility depends on whether the rest of the chain functions. Building a landing facility without reliable transport and buyers may produce underutilized infrastructure; expanding tourism promotion without sanitation and safety capacity can damage destination quality. Network-based planning should therefore evaluate the entire user journey and commodity chain from origin island to final market.

2. Institutional Fragmentation and the Coordination Deficit

The first major governance constraint is institutional fragmentation. Maritime development involves the regency government, the Riau Islands Provincial Government, ministries and agencies responsible for marine affairs, fisheries, transportation, spatial planning, environment, communications, security, and finance, as well as village governments and state-owned or private operators. Each institution has a legitimate mandate, but the boundaries between policy domains do not correspond neatly to the lived geography of island communities. Fishers move across administrative zones, transport services connect several jurisdictions, environmental impacts cross village boundaries, and investment projects require both marine and land-based approvals.

Fragmentation becomes a development barrier when coordination is episodic and meeting-based rather than process-based. An interagency meeting may produce general agreement, yet implementation still depends on separate budgets, databases, calendars, procurement systems, and performance indicators. Agencies can therefore achieve their individual targets while the combined service remains incomplete. This is a classic collective-action problem: every organization controls only part of the solution, and no organization can deliver the outcome alone. Collaborative governance is effective when participants have a shared problem definition, clear procedural rules, credible commitments, facilitative leadership, and mechanisms for producing and evaluating joint action (Ansell & Gash, 2008; Emerson et al., 2012).

In Lingga, a practical coordination structure should focus on a limited number of cross-cutting missions rather than attempting to coordinate every activity. Possible missions include inter-island service access, sustainable fisheries value chains, coastal ecosystem protection, marine tourism readiness, and maritime emergency response. Each mission requires a named lead institution, participating agencies, shared indicators, a calendar of decisions, and an escalation mechanism for unresolved issues. The purpose is not to create an additional bureaucracy, but to connect existing authority through operational protocols.

The allocation of authority must also be translated into a matrix of functions. Legal mandates often identify which level of government has jurisdiction, but frontline implementation requires more detailed answers: who collects data, who verifies it, who issues recommendations, who finances supporting infrastructure, who responds to complaints, and who is accountable when a service chain fails? A functional matrix can

clarify the distinction between policy authority, service execution, technical support, oversight, and financing. It also makes gaps visible before they become conflicts.

Table 2. Core Maritime-Governance Gaps in Lingga Regency

Governance gap	Development consequence	Required response
Sectoral and multilevel fragmentation	Projects and services are not synchronized across marine and land-based functions.	Mission-based coordination, functional authority matrix, and joint work protocols.
Disconnected databases	Different figures, duplicated verification, delayed decisions, and weak monitoring.	Shared data standards, metadata, unique identifiers, and an interoperable dashboard.
Unreliable connectivity	High service costs, post-harvest losses, market uncertainty, and island disparities.	Route-based service standards, port network planning, and targeted viability support.
Weak local value chains	Marine resources leave the region with limited processing and employment multipliers.	Cold chain, quality assurance, finance, processing clusters, and market agreements.
Limited community influence	Low legitimacy, conflict, and policies that overlook local knowledge and livelihood risk.	Co-management forums, participatory mapping, grievance procedures, and benefit-sharing rules.
Output-oriented budgeting	Facilities are built without evidence of use, maintenance, or development impact.	Outcome indicators, lifecycle budgeting, asset management, and periodic policy learning.

Source: Authors' analysis, 2026.

Coordination also depends on incentives. If organizational performance is measured only by sectoral outputs, staff have little reason to invest time in joint outcomes. Performance agreements should include a small number of shared indicators, such as reduction in average service travel burden, increase in fish handled through quality-controlled chains, percentage of marine permits using consistent spatial data, number of island routes meeting minimum reliability standards, or proportion of coastal-management decisions completed with documented community participation. Shared indicators create a basis for collective accountability without eliminating agency-specific responsibilities.

The relationship between provincial and regency governments deserves particular attention. Provincial marine authority should be linked to regency responsibilities for local economic development, roads, markets, waste management, health, social services, village development, and investment facilitation. The regency possesses local knowledge and proximity to communities, while the province has wider jurisdiction and technical authority over marine space. Development accelerates when these comparative advantages are combined through jointly prepared plans and sequenced budgets rather than parallel programs.

3. Integrated Data, Spatial Planning, and Maritime Service Networks

The second major capability is an integrated maritime information system. Data fragmentation reduces the quality of planning and increases administrative burdens. Fisheries production, vessel registration, port movement, commodity prices, business licensing, environmental conditions, tourism visits, village poverty, infrastructure status, and disaster risks may be recorded by different institutions using different units, time periods, and geographic identifiers. A dashboard cannot solve these problems merely by displaying numbers. Governance must first establish common definitions, data owners, update schedules, verification rules, privacy protections, and procedures for correcting inconsistencies.

A practical starting point is a minimum maritime dataset rather than an ambitious platform containing every variable. The dataset should identify islands and settlements, transport routes and frequencies, port and landing-facility conditions, fisheries production and buyers, cold-chain capacity, marine-business permits, coastal ecosystems, hazard exposure, basic-service facilities, public assets, and planned investments. Every data element should have a responsible institution and a clear decision use. Data that do not influence planning, service delivery, oversight, or evaluation should not be prioritized merely because they are available.

Spatial integration is equally important. Marine zoning, village development, port expansion, tourism, conservation, aquaculture, settlements, and disaster mitigation interact physically. Marine spatial planning can reduce conflict only if it incorporates actual livelihood routes, seasonal patterns, ecological functions, and investment needs. Exclusionary planning can transfer costs to small-scale users, while participatory mapping can reveal areas that are economically or culturally important but absent from formal datasets (Flannery et al., 2018; Jentoft, 2017; Jones et al., 2016). For Lingga, spatial decisions should be accompanied by an accessible explanation of permitted uses, restrictions, transitional arrangements, and complaint mechanisms.

The third component is a maritime service network. Route planning should be connected to demand for health, education, administration, commerce, and emergency response. Minimum service standards can differentiate between strategic trunk routes, feeder routes, and on-demand or subsidized links for low-density islands. Public support should be transparent and tied to service outcomes such as frequency, safety, affordability, and schedule reliability. Where digital services are used, they must be designed as part of an end-to-end process: online submission, remote verification, electronic payment, status tracking, and coordinated delivery. Requiring an applicant to travel for a signature negates much of the value of digitization.

Asset management is a critical but often overlooked element. Jetties, markets, cold rooms, vessels, processing equipment, and tourism facilities require maintenance, operators, energy, user rules, and revenue or budget arrangements. An infrastructure project should not be approved without a lifecycle plan that identifies ownership, operating responsibility, maintenance standards, expected utilization, and replacement costs. This is particularly relevant to island regions, where repair logistics are expensive and abandoned assets can quickly lose value.

4. Community Co-management and Inclusive Blue-Economy Value Chains

The third governance challenge concerns participation and benefit distribution. Coastal communities are frequently treated as recipients of programs rather than as co-

producers of governance. Yet fishers, boat operators, processors, tourism groups, women's enterprises, and village institutions possess operational knowledge about seasons, routes, market behavior, hazards, and ecosystem change. Co-management does not mean transferring all responsibility to communities. It means creating structured roles for local actors in problem definition, rule design, monitoring, evaluation, and benefit-sharing, supported by the authority and resources of government.

Meaningful participation requires more than public consultation after a plan has been prepared. Community representatives need timely information, the ability to propose alternatives, and documented responses explaining how their input affected the decision. Representation should include groups whose interests are often less visible, including small-scale fishers, women engaged in processing and trading, youth, remote-island residents, and customary or cultural actors. Participatory mechanisms also need safeguards against domination by better-connected elites. Transparent selection, rotating membership, public minutes, and grievance channels can strengthen legitimacy.

Community participation is economically important because blue-economy strategies can otherwise produce growth without inclusion. A fisheries value chain, for example, should be evaluated through income stability, quality, losses, bargaining position, employment, environmental compliance, and local retention of value. Support for production alone may increase supply while depressing prices. A coordinated intervention would combine resource sustainability, landing and handling standards, ice and storage, processing, certification, business finance, market information, contracts, and transportation. The transformation of capture-fisheries governance in Indonesia similarly depends on reliable data, scientific management, compliance, and collaboration among actors (FAO, 2024; Suherman et al., 2025).

Marine tourism requires a comparable value-chain perspective. Destination development should integrate access, safety, environmental carrying capacity, waste systems, local guides, accommodation standards, cultural interpretation, promotion, and market partnerships. Community enterprises need support to move beyond informal participation into reliable supply arrangements. Environmental protection is not a constraint on tourism; it is part of the destination product. Degraded reefs, mangroves, beaches, and water quality reduce both ecological resilience and future revenue.

Mangroves and other coastal ecosystems create multiple public values: shoreline protection, nursery habitat, fisheries support, carbon storage, tourism, education, and cultural meaning. Governance should therefore avoid valuing them only through one program or funding stream. Ecosystem management can be integrated with village planning, disaster-risk reduction, fisheries, tourism, and climate finance. However, payment or carbon mechanisms should not proceed without clarity regarding rights, measurement, benefit distribution, long-term obligations, and community consent. The objective is to strengthen stewardship while preventing the enclosure of resources on which local livelihoods depend.

Inclusion also requires attention to capacity and risk. Business training has limited impact when entrepreneurs lack working capital, reliable electricity, product standards, buyers, or logistics. Government should therefore organize support around enterprise pathways rather than standalone training events. The pathway begins with a viable product and resource base, continues through technical and financial readiness, and ends with sustained market access. Universities can contribute through applied research,

product development, quality testing, mentoring, and independent evaluation, while avoiding short-term projects that leave no institutional ownership.

5. An Integrated Maritime Governance Framework for Development Acceleration

The analysis supports a framework with six mutually reinforcing pillars. The first pillar is institutional coordination. It consists of mission-based teams, a functional authority matrix, joint operating procedures, and shared performance commitments. The second pillar is integrated data and spatial planning, including a minimum maritime dataset, interoperable identifiers, participatory mapping, and decision-focused dashboards. The third pillar is connectivity and maritime services, which links transport routes, ports, public services, digital processes, emergency response, and asset maintenance.

The fourth pillar is community co-management. It institutionalizes representation, local knowledge, participatory monitoring, grievance resolution, and transparent benefit-sharing. The fifth pillar is blue-economy value chains. It connects sustainable resource management with infrastructure, finance, processing, certification, markets, and local employment. The sixth pillar is performance, finance, and policy learning. It aligns budgets with outcomes, assesses lifecycle costs, publishes progress, and uses evaluation to revise ineffective instruments. These pillars are interdependent: investment in processing will underperform without logistics; spatial plans will lose legitimacy without participation; and coordination will remain symbolic without shared data and financing.

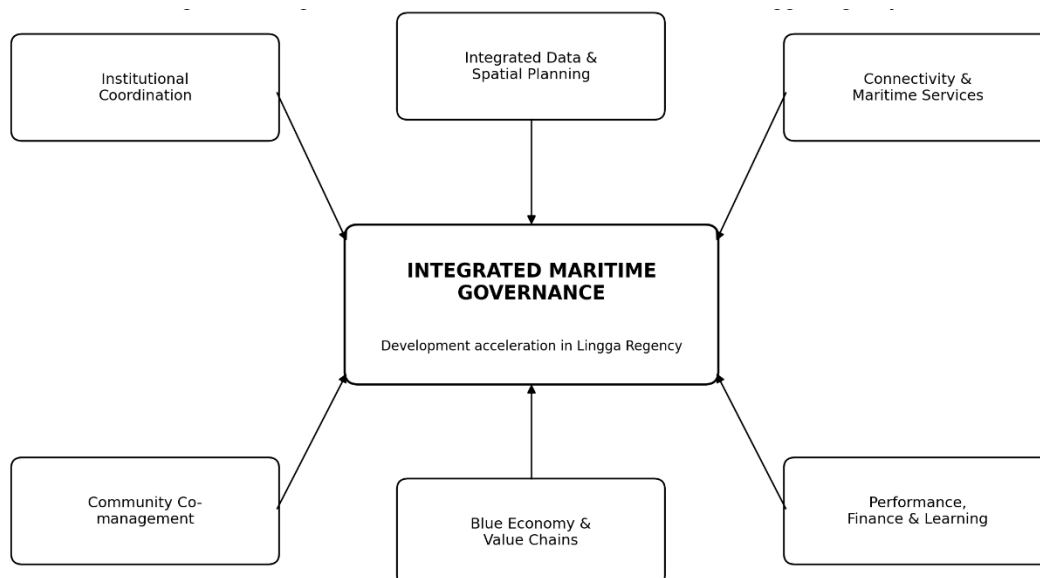


Figure 1. Integrated Maritime Governance Framework for Lingga Regency
Source: Authors' conceptualization, 2026.

Implementation should be phased. During the first year, the government can establish the coordination architecture, agree on priority missions, map authority, audit key data and assets, and select pilot island corridors. The second phase should integrate service processes, strengthen route and cold-chain reliability, operationalize community forums, and launch a small number of value-chain pilots. The third phase should scale

successful mechanisms, link them to multi-year budgeting, and institutionalize independent evaluation. Pilots should be selected for learning value rather than political visibility alone.

The framework also requires a differentiated geographic strategy. Islands with stronger market access may prioritize processing, tourism, and investment services. More remote islands may require viability support, mobile public services, emergency communications, livelihood protection, and ecosystem-based resilience. Differentiation does not weaken equal citizenship. It recognizes that equal outcomes may require different delivery instruments and higher per-capita costs in low-density areas. Transparent criteria are essential so that differentiated support is based on need, strategic function, and measurable results.

Financing should combine conventional regional expenditure with provincial and central programs, village funds where legally appropriate, public-private arrangements, and carefully governed environmental finance. Blended financing is useful only when responsibilities and risks are explicit. Public funds should not absorb commercial risks without public benefit, while private participation should not weaken access, environmental standards, or accountability. A project-screening mechanism can assess strategic fit, affordability, environmental and social safeguards, lifecycle costs, local employment, and expected value retention.

Table 3. Phased Roadmap for Strengthening Maritime Governance

Phase	Priority actions	Expected outputs	Illustrative outcome indicators
Foundation (0–12 months)	Create mission teams; map authority; audit data and assets; select pilot corridors; establish community representation rules.	Coordination decree, authority matrix, minimum dataset, asset register, baseline indicators.	Data completeness; number of unresolved mandate gaps; baseline service burden by island.
Integration (Year 1–2)	Integrate permits and service workflows; improve priority routes and cold chains; implement participatory spatial review; launch value-chain pilots.	Interoperable processes, route service agreements, co-management forums, pilot business clusters.	Processing share; route reliability; permit time; post-harvest loss; participation quality.
Scaling (Year 2–4)	Expand successful pilots; align multi-year budgets; institutionalize lifecycle asset management and public performance reporting.	Scaled service networks, maintained assets, joint budget packages, annual maritime-governance report.	Asset utilization; local value retention; service-cost reduction; ecosystem and welfare indicators.
Adaptive consolidation	Independent evaluation; revise regulations and incentives; strengthen	Policy revisions, resilience investments,	Outcome sustainability, disparity reduction,

Phase	Priority actions	Expected outputs	Illustrative outcome indicators
n (Year 4 onward)	climate resilience and innovation partnerships.	research partnerships, continuous improvement mechanisms.	user trust, and responsiveness to shocks.

Source: Authors' analysis, 2026.

Monitoring must move from activity counts toward outcomes. Relevant indicators include reduction in travel time and service costs, route reliability, post-harvest loss, local processing share, fisher and microenterprise income stability, ecosystem condition, licensing time, data completeness, asset utilization, community satisfaction, and grievance resolution. Indicators should be disaggregated by island cluster and social group so that aggregate progress does not conceal widening disparities. Public reporting can strengthen trust and make coordination failures visible.

Finally, the framework depends on policy learning. Archipelagic systems face uncertainty from weather, market volatility, technological change, climate impacts, and institutional turnover. Policies should therefore include review points, feedback channels, and authority to adjust instruments. Small, measurable improvements can build confidence and provide evidence for expansion. Learning is not an admission of failure; it is a governance capability that enables institutions to adapt while preserving long-term objectives (Bardach & Patashnik, 2023; Dunlop et al., 2018).

CONCLUSION

Strengthening maritime governance is essential for accelerating development in Lingga Regency because the principal constraints of an archipelagic region are interconnected. Fragmented authority, discontinuous transport, weak data interoperability, incomplete value chains, uneven service access, and limited community influence cannot be solved through isolated sectoral projects. The regional economy's positive growth provides a foundation, but stronger governance is required to convert maritime assets into productivity, public-service equality, environmental resilience, and locally retained value.

The proposed framework positions maritime governance as a development operating system built on six pillars: institutional coordination; integrated data and spatial planning; connectivity and maritime services; community co-management; blue-economy value chains; and performance-based finance and policy learning. The framework does not require the creation of a large new bureaucracy. It requires existing institutions to work through mission-based arrangements, clear functional responsibilities, shared evidence, sequenced investment, inclusive decision-making, and measurable outcomes. Its application should be geographically differentiated and tested through pilot island corridors before wider scaling.

Policy implementation should begin with an authority and asset audit, a minimum maritime dataset, priority service corridors, and joint indicators. Subsequent stages should integrate licensing and public-service processes, strengthen logistics and cold-chain systems, develop inclusive fisheries and tourism value chains, and institutionalize community participation and independent evaluation. Future research should validate

the framework through interviews, participatory mapping, household and enterprise surveys, and comparative analysis across island clusters. Such evidence can refine the design and ensure that maritime governance becomes a practical instrument for equitable, sustainable, and resilient development in Lingga Regency.

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REFERENCES

- Andayani, W., Putrianti, E., Wisdaningrum, O., Putranto, P., & Yanuarisa, Y. (2024). Strengthening good governance: Experience of implementing electronic government of local governments in Indonesia. *Jurnal ASET (Akuntansi Riset)*, 16(2), 116–131.
- Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, 18(4), 543–571. <https://doi.org/10.1093/jopart/mum032>
- Badan Pusat Statistik Kabupaten Lingga. (2025). *Kabupaten Lingga dalam angka 2025*. BPS Kabupaten Lingga.
- Bardach, E., & Patashnik, E. M. (2023). *A practical guide for policy analysis: The eightfold path to more effective problem solving (7th ed.)*. CQ Press.
- Bisma, R. (2022). Information technology asset risk management: A case study of SPBE risk management implementation in the Communication and Information Service of Balikpapan City Government. *JIEET (Journal of Information Engineering and Educational Technology)*, 6(2), 73–79.
- BPS-Statistics Indonesia Lingga Regency. (2026a). *Economy growth in Lingga Regency 2025*. BPS-Statistics Indonesia Lingga Regency.
- BPS-Statistics Indonesia Lingga Regency. (2026b). *Lingga Regency in figures 2026*. BPS-Statistics Indonesia Lingga Regency.
- Cardno, C. (2018). Policy document analysis: A practical educational leadership tool and a qualitative research method. *Educational Administration: Theory and Practice*, 24(4), 623–640.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.)*. SAGE Publications.
- Dunlop, C. A., Radaelli, C. M., & Trein, P. (Eds.). (2018). *Learning in public policy: Analysis, modes and outcomes*. Palgrave Macmillan.
- Emerson, K., Nabatchi, T., & Balogh, S. (2012). An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory*, 22(1), 1–29. <https://doi.org/10.1093/jopart/mur011>
- Flannery, W., Healy, N., & Luna, M. (2018). Exclusion and non-participation in marine spatial planning. *Marine Policy*, 88, 32–40. <https://doi.org/10.1016/j.marpol.2017.11.001>
- Food and Agriculture Organization. (2024). *The state of world fisheries and aquaculture 2024: Blue transformation in action*. FAO. <https://doi.org/10.4060/cd0683en>
- Hakim, L., Deoranto, P., Ayu, T., Pangestuti, E., & Natalia, D. C. (2023). Mangrove biodiversity and conservation: Foundation toward ecotourism implementation in

- Bintan Island, Indonesia. *International Journal of Conservation Science*, 14(3), 1139–1150. <https://doi.org/10.36868/IJCS.2023.03.23>
- Iman, N., Amanda, M. T., & Angela, J. (2022). Digital transformation for maritime logistics capabilities improvement: Cases in Indonesia. *Marine Economics and Management*, 5(2), 188–212.
- Jentoft, S. (2017). Small-scale fisheries within maritime spatial planning: Knowledge integration and power. *Journal of Environmental Policy & Planning*, 19(3), 266–278. <https://doi.org/10.1080/1523908X.2017.1304210>
- Jones, P. J. S., Lieberknecht, L. M., & Qiu, W. (2016). Marine spatial planning in reality: Introduction to case studies and discussion of findings. *Marine Policy*, 71, 256–264. <https://doi.org/10.1016/j.marpol.2016.04.026>
- Karim, M. F., Mursitama, T. N., Riyadi, S. F., Affandi, R. A., & Muzdalifa, F. (2024). Informality, paradiplomacy, and cross-border cooperation: The development of tourism on Bintan Island, Indonesia. *Asian Studies Review*, 48(2), 370–388. <https://doi.org/10.1080/10357823.2023.2259080>
- Kooiman, J. (2003). *Governing as governance*. SAGE Publications.
- Kurniaty, R., Suryokumoro, H., & Widagdo, S. (2021). The role of the Maritime Security Agency (BAKAMLA) as Indonesia coast guard in Indonesian water jurisdiction. *Fiat Justisia: Jurnal Ilmu Hukum*, 15(3), 221–232. <https://doi.org/10.25041/fiatjustisia.v15no3.2017>
- Laksmana, E. A. (2022). Remodelling Indonesia's maritime law enforcement architecture: Theoretical and policy considerations. *Contemporary Southeast Asia*, 44(1), 122–149. <https://doi.org/10.1355/cs44-1e>
- Liliansa, D. (2020). The necessity of Indonesia's measures to sink vessels for IUU fishing in the exclusive economic zone. *Asian Journal of International Law*, 10(1), 125–157. <https://doi.org/10.1017/S2044251319000183>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2020). *Qualitative data analysis: A methods sourcebook (4th ed.)*. SAGE Publications.
- Morrison, T. H., Adger, W. N., Brown, K., Lemos, M. C., Huitema, D., Phelps, J., Evans, L., Cohen, P. J., Song, A. M., Turner, R., Quinn, T., & Hughes, T. P. (2019). The black box of power in polycentric environmental governance. *Global Environmental Change*, 57, 101934. <https://doi.org/10.1016/j.gloenvcha.2019.101934>
- Ostrom, E. (2010). Polycentric systems for coping with collective action and global environmental change. *Global Environmental Change*, 20(4), 550–557. <https://doi.org/10.1016/j.gloenvcha.2010.07.004>
- Republic of Indonesia. (2007). Law Number 27 of 2007 concerning management of coastal areas and small islands.
- Republic of Indonesia. (2014a). Law Number 1 of 2014 concerning amendments to Law Number 27 of 2007 concerning management of coastal areas and small islands.
- Republic of Indonesia. (2014b). Law Number 23 of 2014 concerning local government.
- Republic of Indonesia. (2014c). Law Number 32 of 2014 concerning marine affairs.
- Republic of Indonesia. (2017). Presidential Regulation Number 16 of 2017 concerning Indonesian ocean policy.
- Republic of Indonesia. (2018). Presidential Regulation Number 95 of 2018 concerning electronic-based government systems.
- Republic of Indonesia. (2021). Government Regulation Number 21 of 2021 concerning spatial planning implementation.

- Suherman, A., Hernuryadin, Y., Suadela, P., Furkon, U. A., & Amboro, T. (2025). Transformation of Indonesian capture fisheries governance: Review and prospects. *Marine Policy*, 174, 106619. <https://doi.org/10.1016/j.marpol.2025.106619>
- United Nations Economic and Social Commission for Asia and the Pacific. (2023). Ocean governance study: Indonesia. United Nations.
- World Bank. (2021). Oceans for prosperity: Reforms for a blue economy in Indonesia. World Bank.