

# Strengthening Indonesia's role in the ASEAN blue economy through policy and roadmap alignment

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**Abstract.** Indonesia's expansive maritime domain and geostrategic position in Southeast Asia underscore its critical role in advancing sustainable ocean governance through the blue economy paradigm. This study examines the alignment between Indonesia's *Blue Economy Roadmap (2023–2045)* and the *ASEAN Blue Economy Framework (2023)*, intending to assess policy coherence, institutional coordination, and implementation synergies at both national and regional levels. Employing a descriptive qualitative methodology and a meta-synthesis of policy documents, institutional reports, and scholarly literature. The analysis evaluates four dimensions of alignment: vision and objectives, institutional arrangements, implementation mechanisms, and stakeholder engagement. The findings demonstrate substantial convergence in sustainability-oriented priorities, inclusive economic growth, and ecosystem stewardship, particularly across five strategic pillars: blue bioeconomy, blue financing, ecosystem restoration, governance coordination, and marine data systems. Both frameworks articulate a shared commitment to integrating ecological resilience with economic transformation. Nonetheless, persistent challenges remain, including fragmented marine data management, limited inter-ministerial coordination, and insufficient mechanisms for local community participation. By strategically aligning its national roadmap with regional priorities, Indonesia can catalyze cohesive and resilient maritime governance. More broadly, the study contributes to the literature on regional ocean governance by positioning ASEAN as a potential global exemplar of sustainable and inclusive blue economic transformation.

## 1 Introduction

The blue economy is a significant concept that involves harnessing ocean resources to help the economy grow, improve people's lives, and create jobs while protecting ocean ecosystems. It covers a wide range of traditional and emerging sectors, such as fishing, tourism, shipping, oil and gas production, marine biotechnology, ocean waste management, and renewable energy. In the blue economy, many things happen on the ocean and along the coast [1]. The goal is to balance profit-making, environmental protection, and ensuring everyone has the same rights. The blue economy is excellent in the long term because it keeps ocean ecosystems healthy and encourages individuals to use ocean resources to make money and get jobs. It has a lot in common with the United Nations' Sustainable Development Goals

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(SDGs), especially SDG 14, which calls for the sustainable use and protection of seas, oceans, and marine resources. The blue economy also helps other SDGs by promising to end hunger, poverty, and inequity [2].

Indonesia, which has the largest maritime area in Southeast Asia, spans more than 17,000 islands located at the strategic crossroads of the Indian and Pacific Oceans. Indonesia plays a crucial role in trade and maritime security as it controls key waterways essential for international commerce. Indonesia has a long coastline and abundant marine resources. These things might help it build a thriving blue economy [3]. Indonesia has officially launched its *Blue Economy Roadmap (2023–2045)*, with the overarching objective of improving the welfare of coastal communities, advancing sustainable economic development, and ensuring the prudent management of the country's maritime resources. The plan outlines strategies to address ocean degradation, inadequate infrastructure, and limited public awareness of marine stewardship. It shows the importance of legal, political, social, technological, environmental, and economic tools to ensure the blue economy model works [4].

Evaluating the coherence between Indonesia's *Blue Economy Roadmap (2023–2045)* and the *ASEAN Blue Economy Framework (2023)* is a crucial step in understanding how Indonesia's national strategies can be effectively aligned with ASEAN's regional priorities to promote sustainable and integrated maritime governance. This comparative assessment seeks to identify areas of alignment and divergence, assess the feasibility of joint implementation, and determine Indonesia's contribution to ASEAN's overarching blue economy vision. Analyzing Indonesia's strategic pillars, including blue bioeconomy, blue financing, ecosystem restoration, governance coordination, and marine data systems, the research underscores how policy coherence can reinforce collective governance, enhance regional resource management, and support ASEAN's pursuit of sustainable, inclusive, and equitable maritime development. In doing so, it positions Indonesia's leadership and policy innovation as catalysts for a more integrated and resilient regional blue economy.

The ASEAN Blue Economy Framework was formed in 2023 to promote cooperative management of maritime resources and environmental sustainability among member nations. This framework clarifies the necessity for coordination among ASEAN member states to protect the environment while efficiently exploiting their marine resources. It also addresses the gaps between human and technological resources [5]. Indonesia plays a pivotal role within ASEAN and has made significant progress in advancing the blue economy agenda. By sharing knowledge, best practices, and regulatory frameworks with other member states, Indonesia not only strengthens regional policy coherence but also facilitates the implementation of sustainable ocean governance across Southeast Asia. Its leadership helps align national initiatives with ASEAN priorities, ensuring that regional collaboration is both effective and adaptive to environmental, social, and economic challenges [6].

This study evaluates the alignment between Indonesia's *Blue Economy Roadmap (2023–2045)*[4] and the *ASEAN Blue Economy Framework (2023)* [6]. It aims to assess the coherence of their visions, strategic priorities, governance structures, and implementation mechanisms in advancing sustainable ocean development and regional cooperation in Southeast Asia.

## 2 Methods

This study examines Indonesia's role in the ASEAN Blue Economy through a descriptive qualitative methodology. The qualitative approach in the literature review is used to synthesize and summarize the results of descriptive qualitative research. This method of synthesizing and summarizing qualitative research results is called meta-synthesis. Meta-

synthesis is a qualitative research methodology that integrates findings from multiple qualitative studies to generate comprehensive insights and enhance the applicability of research outcomes in practical settings [7].

## 2.1 Data sources

This study relies on secondary data collected from official policy documents, institutional reports, and academic literature. The materials were selected based on their relevance to Indonesia’s and ASEAN’s Blue Economy policy framework, credibility, and publication recency, as listed in Table 1.

**Table 1.** Summary of data sources.

Type of Document	Source / Title	Description	Publisher / Institution	References
National Policy Document	<i>Indonesia’s Blue Economy Roadmap (2023–2045)</i>	Outlines Indonesia’s long-term vision, strategic goals, and implementation mechanisms for sustainable marine and coastal development.	Ministry of National Development Planning/ National Development Planning Agency (Bappenas)	[4]
Regional Policy Framework	<i>ASEAN Blue Economy Framework (2023)</i>	Provides regional principles, strategies, and cooperation mechanisms for member states in promoting the blue economy.	ASEAN Secretariat	[6]
Government Report	<i>Annual Report on Marine and Fisheries Performance</i>	Presents data on Indonesia’s marine sector achievements, institutional initiatives, and challenges related to blue economy programs.	Ministry of Marine Affairs and Fisheries (KKP)	[8-9]
Academic Literature	<i>Selected peer-reviewed journal articles and policy evaluations</i>	Provide theoretical foundations and analytical insights into blue economy governance, sustainability, and regional cooperation.	Various academic publishers (Scopus/Google Scholar)	[3, 5, 10-11]

## 2.2 Evaluation criteria

The alignment between Indonesia’s Blue Economy Roadmap (2023–2045) and the ASEAN Blue Economy Framework (2023) is assessed using four criteria. Each criterion evaluates specific aspects of policy coherence, governance, implementation, and stakeholder engagement. These four criteria were chosen because they represent the key dimensions of effective policy alignment between national and regional frameworks, as summarized in Table 2.

**Table 2.** Evaluation criteria.

<b>Criterion</b>	<b>Description</b>	<b>Analytical Focus</b>
Alignment of Vision and Objectives	Assesses how well Indonesia's roadmap goals, principles, and strategic priorities align with those outlined in the ASEAN Blue Economy Framework.	Identification of shared priorities, targets, and expected outcomes.
Institutional Arrangements	Examines the governance structures and institutional mechanisms outlined in both documents.	Evaluation of stakeholder roles and responsibilities, including government agencies, private sector actors, and local communities.
Implementation Mechanisms	Reviews the instruments, strategies, and action plans proposed for realizing policy goals.	Analysis of policy feasibility, resource allocation, timelines, and monitoring processes.
Stakeholder Engagement	Evaluates the inclusiveness and participatory nature of the policy development process.	Assessment of multi-actor participation, public involvement, and cross-sector collaboration.

### 2.3 Data analysis

The analysis process in this study was conducted manually using a qualitative descriptive approach. Each document listed in Table 1 was carefully reviewed and coded to identify key themes, objectives, and implementation mechanisms relevant to Indonesia's and ASEAN's Blue Economy agendas. The review focused on extracting and comparing policy language, institutional structures, and strategic directions outlined in the selected materials.

A content analysis technique was applied to interpret patterns, similarities, and differences across the documents. The analysis emphasized how Indonesia's national roadmap aligns with the regional framework in terms of vision, governance structure, implementation approach, and stakeholder participation, as outlined in Table 2. To ensure analytical rigor, the documents were cross-checked for consistency and triangulated with supporting academic literature and government reports. Manual analysis was considered appropriate due to the limited number of papers and the interpretive nature of the comparative policy analysis. Manual review allowed for a more nuanced understanding of policy intent, contextual differences, and institutional dynamics that might not be fully captured by automated tools [7].

## 3 Result and discussion

### 3.1 Alignment of vision and objects

The alignment between Indonesia's Blue Economy Roadmap (2023–2045) and the ASEAN Blue Economy Framework (2023) matters because it strengthens regional cooperation and policy coherence in managing shared marine resources. This alignment allows Indonesia and ASEAN to coordinate strategies for sustainable ocean governance, promote trade and investment in blue sectors, and address transboundary challenges such as marine pollution and overfishing more effectively. Moreover, by aligning national and regional priorities, Indonesia enhances its leadership role in shaping ASEAN's blue economy agenda while ensuring that national initiatives contribute directly to regional sustainability and resilience goals [3, 4-6].

At a deeper level, this synergy underscores the interdependence between national ambitions and regional integration efforts. Both frameworks emphasize sustainability,

innovation, and inclusiveness as key drivers of ocean-based growth. Such alignment ensures policy coherence across scales, strengthens institutional collaboration, and enables the harmonization of marine data systems, spatial planning, and regulatory standards. For Indonesia, convergence with ASEAN's framework enhances its legitimacy as a regional leader in blue governance, positioning it as a bridge between local implementation and regional cooperation. The shared commitment also allows both Indonesia and ASEAN to respond collectively to transboundary issues like illegal, unreported, and unregulated (IUU) fishing, plastic pollution, and ecosystem degradation that transcend national boundaries and require multilateral coordination [5].

As illustrated in Table 3, the visions and objectives of both frameworks align closely. Indonesia's roadmap envisions sustainable and knowledge-based marine resource management to create socio-economic prosperity, while ASEAN's framework promotes inclusive and environmentally responsible growth through marine and freshwater resource utilization. Both highlight sustainability and prosperity as the core of blue economy transformation. This alignment is not merely conceptual, but it also operationalizes shared objectives through measurable targets, such as increasing marine protected areas, expanding the maritime sector's GDP contribution, and enhancing maritime employment. These goals demonstrate Indonesia's dedication to advancing ecological restoration, economic diversification, and social welfare three pillars that directly reinforce ASEAN's aspiration for integrated regional growth [5, 10-11].

Furthermore, the alignment enhances Indonesia's strategic contribution to ASEAN's blue economy by enabling harmonized policy design and collective progress monitoring. For example, Indonesia's target to expand marine protected areas to 30% of national waters complements ASEAN's goal of developing regional actions to conserve ecosystems and combat IUU fishing. Similarly, Indonesia's ambition to raise the maritime sector's share of GDP and employment strengthens ASEAN's economic integration and inclusivity agenda. Through this shared vision, Indonesia not only supports ASEAN's sustainability narrative but also leverages its vast marine potential to position Southeast Asia as a global leader in blue economic transformation.

However, despite the overall coherence, differences remain in the pace of governance and in the implementation mechanisms. Indonesia's growing economic and political influence enables it to move beyond ASEAN's consensus-based "ASEAN Way," sometimes leading to a faster national response than regional coordination. While this divergence can create temporary policy gaps, it also introduces opportunities for institutional learning and adaptive governance within ASEAN. Indonesia's proactive diplomacy such as its Indo-Pacific framework, extends ASEAN's blue economy discourse beyond its traditional focus, fostering cross-sectoral collaboration and expanding the regional scope of sustainable maritime development [10].

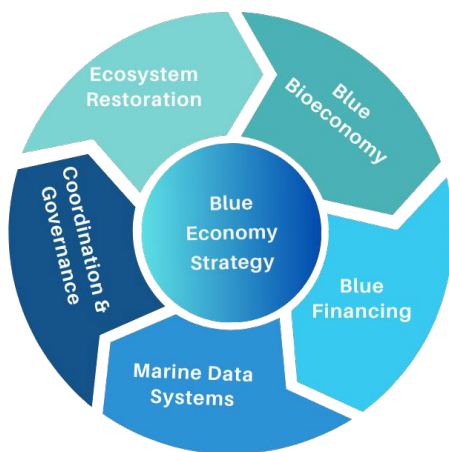
In essence, the alignment of vision and objectives between Indonesia's roadmap and the ASEAN framework is not only symbolic of shared aspirations but also functional in advancing coordinated action. It deepens Indonesia's contribution to ASEAN's blue economy by aligning ecological protection, economic innovation, and social inclusion under a unified policy direction, thereby enhancing regional resilience, integration, and collective sustainability [3].

**Table 3.** Comparison of the Indonesia’s blue economy roadmap and ASEAN blue economy framework.

Aspect	Indonesia’s Blue Economy Roadmap (2023–2045)	ASEAN’s Blue Economy Framework (2023)	Alignment Level
<b>Vision</b>	<i>“Our diverse coastal and marine resources are sustainably managed through a knowledge-led Blue Economy to create socio-economic prosperity, ensure a healthy marine environment and strengthen resilience for the benefit of current and future generations.”</i>	<i>“ASEAN’s Blue Economy Vision emphasises value creation by advancing sustainable practices that promote sustainable and inclusive economic and social development related to marine and freshwater activities and livelihoods, contributing to ASEAN economic integration efforts, economic growth, and sustainable development. By leveraging the potential of the blue economy, ASEAN envisions a new engine for growth that is socially, economically, and environmentally sustainable.”</i>	<b>High</b> – Both emphasize sustainability, inclusiveness, and prosperity through ocean-based growth.
<b>Target / Objective 1</b>	Increase Marine Protected Areas to <b>30%</b> (97.5 million ha) of national waters by 2045 to preserve biodiversity, restore fisheries, and protect key ecosystems (mangroves, seagrass, coral reefs).	Develop regional actions to protect marine and coastal ecosystems, combat IUU fishing, and promote sustainable aquaculture and fishing practices.	<b>High</b> – Strong alignment in ecosystem conservation and sustainable fisheries.
<b>Target / Objective 2</b>	Increase maritime sector GDP contribution to <b>15%</b> of national GDP by 2045.	Promote marine industrial development, trade and connectivity, blue governance, biotechnology, and innovation for sustainable growth.	<b>High</b> – Both target economic growth from sustainable marine industries.
<b>Target / Objective 3</b>	Increase maritime employment to <b>12%</b> of total national employment by 2045 to improve social well-being.	Support inclusiveness, livelihood improvement, and climate change adaptation in coastal and freshwater communities.	<b>High</b> – Shared emphasis on socio-economic benefits for communities.
<b>Cross-cutting</b>	–	Ensure a cross-sectoral and cross-stakeholder approach, create a value chain, support inclusiveness, and ensure sustainability as a new engine for ASEAN’s future economic growth. Serve as a non-binding reference for ongoing engagement among AMS and with partners.	<b>Medium–High</b> – Indonesia emphasizes national integration and sectoral targets, ASEAN adds a stronger regional collaboration dimension.

### 3.2 Strategic pillars and implementation mechanisms

To strengthen Indonesia’s role in the ASEAN Blue Economy, it is essential to examine the strategic pillars and implementation mechanisms shared between Indonesia’s national roadmap and the ASEAN framework. These pillars of blue economy: blue bioeconomy, blue financing, ecosystem restoration, coordination and governance, and marine data systems reflect both parties’ commitment to sustainable ocean governance and outline practical steps for achieving their shared vision, as illustrated in Fig 1. The blue bioeconomy is vital as it promotes innovation-based growth and sustainable resource use across sectors such as aquaculture, marine biotechnology, and bioproducts, thereby enhancing Indonesia’s contribution to ASEAN’s collective economic resilience. Blue financing supports these initiatives by mobilizing investments through sustainable funding mechanisms and partnerships, enabling both Indonesia and ASEAN to expand environmentally responsible maritime industries. Ecosystem restoration, exemplified by initiatives like the Coral Triangle Initiative (CTI), strengthens biodiversity conservation, coastal protection, and community livelihoods, ensuring that ecological sustainability underpins economic progress. Coordination and governance are equally crucial, as Indonesia’s integrated approach linking ministries, industries, and local communities provides a model for regional collaboration and institutional synergy within ASEAN. Lastly, marine data and information systems enhance transparency, monitoring, and evidence-based policymaking; Indonesia’s Maritime Intelligent Platform demonstrates how digital integration can support efficient marine resource management. Together, these strategic pillars reinforce Indonesia’s leadership and accelerate ASEAN’s progress toward a sustainable, inclusive, and resilient blue economy [7-9].



**Fig. 1.** Strategic pillars of blue economy.

#### 3.2.1 Blue bioeconomy

The blue bioeconomy serves as the cornerstone of sustainable ocean-based development by integrating biotechnology, renewable marine resources, and innovation to generate high-value products. For Indonesia, this pillar is essential because it promotes economic diversification beyond traditional fisheries and supports environmentally responsible industries such as aquaculture, marine bioproducts, and pharmaceuticals. By advancing the blue bioeconomy, Indonesia strengthens ASEAN’s collective capacity to achieve sustainable growth, create jobs in coastal communities, and reduce reliance on extractive marine

activities. This aligns directly with ASEAN's goal of balancing economic expansion with ecological conservation [4-6].

In Indonesia's Blue Economy Framework, in Phase II (2025–2029), Indonesia focuses on increasing the added value of the blue economy through investment, technology adoption, quality assurance, and promotion of emerging sectors, including biotechnology and marine conservation, supported by robust governance and ecosystem stewardship. Phase III (2030–2034) emphasizes expansion through diversification, increasing investment and product variety in established and emerging sectors, improving feasibility and accessibility, and creating quality jobs while integrating research, innovation, and blue food initiatives. Phase IV (2035–2039) advances competitiveness, commercialization of high-value products, integration into global supply chains, and development of regional blue economy centres. These phases ensure that Indonesia's blue bioeconomy not only strengthens national economic growth and coastal livelihoods but also contributes significantly to ASEAN's agenda for a resilient, innovation-driven, and ecologically sustainable blue economy [4, 8-9].

### 3.2.2 *Blue financing*

Blue financing provides the financial infrastructure necessary to turn sustainable marine projects into reality. It includes mechanisms such as green bonds, blended finance, and public–private partnerships to mobilize investment in marine conservation, renewable energy, and low-carbon maritime transport. For Indonesia, enhancing blue financing means improving access to international funding sources and promoting innovative investment models that can be replicated across ASEAN. Thereby, strengthening regional financial resilience and supporting a shared commitment to sustainable development [2].

A landmark achievement in this regard is Indonesia's issuance of its first Blue Bond in May 2023, with 7- and 10-year tenors totalling JPY 20.7 billion through the Samurai Bond market. This issuance, prepared using lessons from Indonesia's first green Islamic bond and SDGs bond, demonstrates strong national commitment and provides a positive precedent for advancing the blue economy. The process was guided by comprehensive frameworks, including the Republic of Indonesia Green Bond and Green Sukuk Framework (2018), updated in 2021 to the SDGs Government Securities Framework, which identifies eligible social, green, and blue sectors for thematic bonds. Additionally, the Blue Financing Strategic Document (UNDP and Coordinating Ministry of Maritime Affairs and Investment, 2021) provides guidelines on financing key sectors of the blue economy, estimating that annual investments between IDR 3.64 to 1,392.22 trillion are needed to achieve a 15% contribution of the blue economy to GDP by 2045. Supporting policies, such as the Blue Finance Policy Note (ICCTF-Bappenas with World Bank PROBLUE), recommend strengthening the enabling environment for finance mobilization and aligning government spending with sustainable blue projects. These efforts collectively guide the preparation of Blue Finance Instruments Development Guidelines, which define eligible projects, issuance processes, and expected benefits. Beyond bonds, Indonesia has the potential to explore diverse financing schemes including debt-based instruments, other bonds, Sharia financing, trust funds, impact investment, blended finance, and ecological fiscal transfers. By championing blue financing, Indonesia not only ensures funding for sustainable projects but also reinforces its leadership role in ASEAN, promoting a financially resilient, environmentally responsible, and inclusive regional blue economy [2, 4, 8-12].

### 3.2.3 *Ecosystem restoration*

Healthy ecosystems are the foundation of a sustainable blue economy. This pillar emphasizes the restoration of coral reefs, mangroves, and seagrass meadows that provide critical ecosystem services such as carbon sequestration, coastal protection, and fisheries productivity. Indonesia's participation in initiatives like the Coral Triangle Initiative demonstrates its leadership in marine biodiversity protection and its ability to scale restoration projects regionally. Through this pillar, Indonesia helps ASEAN enhance resilience to climate change and strengthen the ecological base necessary for long-term ocean economy growth [3].

Indonesia's conservation efforts have yielded measurable benefits, with the Ocean Health Index (OHI) rising from 57.08 in 2012 to 65.8 in 2020, reflecting improvements in marine environmental quality and surrounding social conditions. However, certain components, particularly food provision, which encompasses wild-caught fisheries and aquaculture declined over the same period, indicating unsustainable fish harvesting and aquaculture practices. The Marine Trophic Index (MTI) in 2020 further highlights challenges, scoring only 16.3 out of 100 (ranked 56th globally), reflecting declines in high-trophic-level fish populations relative to lower-trophic species and signalling potential disruptions in ecosystem function and food chains. Currently, 28.91 million ha of Indonesian waters are designated as Marine Protected Areas (MPAs), and under its commitments to the Convention on Biological Diversity (CBD) and SDG 14, Indonesia aims to increase this to 32.5 million ha by 2030. Despite rapid progress in designation, the effectiveness and management of MPAs remain limited, and as marine sectors expand, competition for space will place additional pressure on ecosystems. Without adequate planning and preservation, ecosystem degradation could undermine fisheries, marine tourism, and other blue economy sectors, as well as the protective services these ecosystems provide to coastal communities. Achieving SDG 14 and ensuring a sustainable blue economy will therefore require a careful balance between economic utilization, ecosystem preservation, and long-term environmental stewardship [4, 8, 9].

### 3.2.4 *Coordination and governance*

Effective coordination and governance ensure that blue economy policies are coherent, inclusive, and enforceable. Indonesia's multi-sectoral approach linking ministries, local governments, industries, and communities provides a governance model that can inspire ASEAN-wide cooperation. Strengthening institutional coordination reduces policy overlap, enhances compliance, and promotes integrated coastal and marine planning across borders. By sharing governance best practices, Indonesia supports ASEAN's efforts to establish a harmonized regional framework for sustainable ocean management. At the national level, coordination is led by the Coordinating Ministry for Maritime Affairs and Investment, which oversees ministries with maritime competencies, including Marine Affairs and Fisheries, Energy and Mineral Resources, Transportation, Environment and Forestry, Public Works and Housing, Tourism, Investment (BKPM), and others. This structure helps streamline communication, reduce policy overlap, and facilitate integrated marine spatial and economic planning. Each ministry contributes its sectoral expertise from fisheries management, marine conservation, and renewable energy development to investment facilitation, tourism promotion, and human resource development ensuring that blue economy initiatives are supported by competent institutions, harmonized regulations, and cross-sectoral collaboration [1,4, 8].

Indonesia's decentralized governance system, with 38 provinces, 416 regencies, and 98 municipalities, adds complexity to policy implementation. While local governments have

autonomy over sectors such as public works, education, and environmental management, jurisdictional fragmentation can lead to overlapping regulations and conflicts. The Blue Economy Roadmap addresses this challenge through coordinated mechanisms and legislative support, including the establishment of the Coordinating Ministry of Maritime Affairs and Investment and the revisions of key laws such as Law No. 26/2006 on Spatial Planning and Law No. 32 on the Sea. These reforms aim to integrate land and marine spatial planning, clarify institutional roles across national, provincial, and local levels, and strengthen policy coherence. The recent Law No. 6/2023 on Job Creation further streamlines the division of labor among ministries and local governments, supporting the effective delivery of programs, policies, and funding. Together, these institutional and legal measures enhance Indonesia's capacity to implement the Blue Economy Roadmap effectively, serving as a governance model that can inspire ASEAN regional coordination, harmonize ocean management practices, and ensure sustainable development of marine resources [4, 6].

### **3.2.5 Marine data and information systems**

Accurate and accessible marine data systems are essential for informed decision-making, monitoring, and adaptive management. Indonesia's development of platforms such as the Maritime Intelligent Platform illustrates its commitment to digital transformation in ocean governance. By improving transparency, data sharing, and cross-border collaboration, this pillar enhances ASEAN's collective ability to monitor marine health, track pollution sources, and evaluate the impacts of blue economy initiatives. Indonesia's leadership in data integration helps establish a regional knowledge base that supports both policy coherence and scientific innovation [5-6].

Key actions include improving marine data repositories and open-access platforms, streamlining permits and licensing, facilitating investment in sustainable marine sectors, and developing marine research and innovation hubs. Multiple ministries and agencies including the Coordinating Ministry for Maritime Affairs and Investment, Ministry of Marine Affairs and Fisheries, Ministry of Environment and Forestry, Ministry of Finance, and National Research and Innovation Agency are involved to ensure effective governance. By enhancing data infrastructure and scientific capacity, Indonesia bolsters national marine management while contributing to ASEAN's ability to monitor marine health, track pollution, and evaluate blue economy initiatives, supporting sustainable and resilient ocean growth [4].

## **3.3 Key challenges in indonesia**

While Indonesia has shown strong commitment to advancing the Blue Economy both nationally and regionally, several structural and operational challenges still hinder its effectiveness. Fragmented marine data systems without a unified national platform hinder comprehensive resource assessment and reflect broader institutional coordination issues. Weak collaboration among ministries leads to policy overlap and inefficiency, while limited community capacity and financial constraints prevent coastal populations from fully engaging in Blue Economy initiatives. Strengthening data integration, institutional coordination, community empowerment, and financial access is therefore essential to achieving sustainable and inclusive outcomes. Addressing these issues is critical to ensuring that policy alignment with ASEAN translates into tangible and sustainable outcomes.

### **3.3.1 Marine data and information systems**

One of the most significant challenges in implementing Indonesia's Blue Economy agenda lies in the fragmented nature of marine data management. Currently, data on fisheries, ocean

health, and maritime activities are collected by different ministries and agencies without a unified national database or standardized data-sharing protocols. This institutional fragmentation hampers integrated decision-making and weakens Indonesia's ability to develop evidence-based marine policies. Without a centralized and interoperable marine data platform, it becomes difficult to monitor ocean conditions, evaluate policy outcomes, or measure the progress of blue economy initiatives. The policy consequence of this fragmentation is the reduced effectiveness of cross-sectoral coordination and the inability to design adaptive management strategies that respond dynamically to environmental and economic changes. Establishing a centralized marine data system, such as a national Blue Economy dashboard, would enhance transparency, improve monitoring efficiency, and align Indonesia's practices more closely with ASEAN's data integration goals [4].

### *3.3.2 Limited institutional coordination*

The complexity of Indonesia's ocean governance structure poses another major challenge to the effective implementation of blue economy policies. Multiple ministries such as the Ministry of Marine Affairs and Fisheries (KKP), the Ministry of Environment and Forestry (KLHK), and the Ministry of National Development Planning (Bappenas) share overlapping mandates, leading to fragmented decision-making and duplicated efforts. This lack of institutional synergy weakens policy coherence and slows the execution of integrated marine programs. The policy consequence of weak coordination is inefficiency in implementing multi-sectoral initiatives, which undermines Indonesia's ability to present a unified approach within ASEAN. Moreover, it risks creating conflicting regulations and inconsistent enforcement across national and regional levels. Strengthening institutional coordination through a centralized inter-ministerial framework or "Blue Economy Task Force" could help Indonesia streamline its governance processes and foster more cohesive cooperation within the ASEAN framework [4].

### *3.3.3 Limited community participation and capacity*

Coastal communities, as the primary beneficiaries and stakeholders of the blue economy, often face barriers to participation due to limited financial resources, technical capacity, and institutional support. Many local communities lack access to training programs, funding, or partnerships needed to engage effectively in sustainable fisheries, eco-tourism, or aquaculture development. As a result, blue economy projects risk becoming top-down initiatives that do not address local needs or knowledge systems. The policy consequence of this gap is the exclusion of vulnerable coastal populations from economic benefits, thereby undermining the blue economy framework's inclusivity and social equity objectives. Empowering communities through capacity-building programs, micro-financing, and participatory planning would not only enhance local ownership but also strengthen Indonesia's contribution to ASEAN's commitment to equitable and inclusive blue growth [4].

### *3.3.4 Financial and investment barriers*

Access to adequate funding remains a critical challenge for Indonesia's blue economy initiatives. While national and regional policies highlight the importance of blue financing, many projects particularly at the local or community level struggle to secure sufficient investment for sustainable marine and coastal development. Limited financial resources restrict the implementation of ecosystem restoration programs, sustainable aquaculture, and marine conservation initiatives. The policy consequence of these financial constraints is the

underachievement of strategic objectives outlined in both Indonesia's Blue Economy Roadmap and the ASEAN framework, such as biodiversity protection, livelihood improvement, and innovation in marine industries. Strengthening access to blue financing through public-private partnerships, regional investment funds, and international development assistance would not only support the scaling of projects domestically but also demonstrate Indonesia's leadership in promoting collaborative, resource-efficient strategies across ASEAN [4, 11].

### **3.4 Opportunities through ASEAN cooperation**

In addition to national efforts, Indonesia's engagement within ASEAN opens significant opportunities to advance the blue economy agenda. Regional cooperation not only strengthens collective capacity but also allows member states to share resources, expertise, and data in ways that individual countries could not achieve alone. The ASEAN Blue Economy Data Platform is an excellent way for ASEAN countries to work together in this area because it has all the information about blue economy sectors, including data on the economy and politics. This portal will help find ASEAN's "Blue Economic Posture" and let member countries work together on the proper projects and improve their talents. Indonesia and other ASEAN member countries could collaborate on policy and technical issues to help the blue economy grow [3, 5-6, 10].

As a member of ASEAN, Indonesia has played a big role. It has enabled people to collaborate, share knowledge, and establish robust laws for long-term marine governance. ASEAN can assist in solving problems that impact everyone, such as not having enough skilled labour and technological differences. Overall, this will help enterprises in the blue economy improve. Indonesia is the best country to lead efforts in the region to develop the ocean in a way that is healthy for the environment, given its good location and growing political and economic power. Indonesia can modify the norms and how things are done in the area by utilizing its leadership role to push for the responsible use of marine resources and economic growth. Indonesia is dedicated to long-term growth and plays a significant role in the region's efforts to implement blue economy principles. Some of the things it is doing are the Indonesian Ocean Policy and several blue economy programs [4, 9].

### **3.5 Policy Recommendation**

Getting Indonesia more involved in the ASEAN Blue Economy framework is a big step forward. One way to do this is to make it easier for ministries to work together. Various groups need to work together to solve huge societal and environmental problems, such as climate change and the loss of the ecosystem. A holistic coordination approach that combines governance roles and action scenarios can also fill the gaps where people do not work together. This can be even better with responsive regulation frameworks and network governance tactics that have worked well in the past. For example, the Republic of Macedonia and a few Central Asian countries have proven how crucial it is for ministers to work together on policy if they wish to transform how the government functions [13].

Fixing problems with data is another key goal, and the ASEAN Regional Data Platform is a fantastic method. Ocean data science initiatives (ODSIs) that utilize data to make choices indicate that managing the coast and ocean well requires data from many sources. However, there are significant gaps between national marine databases and what regions need. Because of this, the people in charge of the groups need to revise their plans and adjust. Metadata compilation can help fix these issues by making it easier for professionals from other professions to share data and for people to discover information. The Ocean Data

Interoperability Platform (ODIP) is a good example of how to move data between countries safely. It has information from Canada, the US, Australia, and Europe [14].

Coastal communities are crucial actors in the blue economy, and it is important to find and give them power so that the economy can flourish in a fair and long-lasting fashion. These groups need to be part of the decision-making process so that development plans consider variations in social and economic status and make the area stronger. Programs that give people the skills they need to get jobs, money, and improve the environment through eco-tourism are all examples of empowerment programs. Community leaders need to ensure that policies are grounded in what is happening in the community and meet the needs of the people living there. Communities of Practice (CoPs) are also helpful in engaging local specialists to work together to help the blue bioeconomy grow in a way that stakeholders guide. It is important to include small-scale fishermen and other local stakeholders in formulating policies so that the outcomes are fair and just for everyone [1, 10-13].

Finally, the national roadmap will only function in the long run if it is implemented openly, is adaptable, and includes everyone. Many people need to work together to develop fair and transparent rules, while ensuring open information sharing among all actors. Policies should evolve with social, economic, and environmental changes through adaptive governance supported by proper monitoring and evaluation systems. Indonesia's Integrated Coastal Management (ICM) initiative in places such as Bintan and Bali serves as a strong national case of adaptive governance and multi-stakeholder engagement in marine policy. By applying similar approaches in implementing the Blue Economy Roadmap, Indonesia can maintain policy relevance, integrate new scientific and technological insights, and demonstrate leadership within ASEAN's regional Blue Economy agenda [4, 8-9]

## 4 Conclusion

Indonesia, with the largest coastal area in Southeast Asia, holds significant marine resources and regional influence, but faces challenges such as fragmented marine data systems, limited coordination among ministries, and insufficient coastal community engagement, which can hinder policy coherence and effective implementation of its Blue Economy Roadmap (2023–2045). To address these gaps, Indonesia leverages strategic pillars including the blue bioeconomy to drive innovation and sustainable livelihoods, blue financing to mobilize investment through instruments like its 2023 Blue Bond, ecosystem restoration to safeguard biodiversity and coastal resilience, coordination and governance to integrate national and local policies across multiple ministries, and marine data and information systems to enhance transparency, monitoring, and evidence-based decision-making. By strengthening these pillars in alignment with the ASEAN Blue Economy Framework, Indonesia not only advances its own sustainable ocean development but also serves as a regional leader, promoting harmonized governance, cross-border collaboration, and resilient, inclusive growth throughout ASEAN.

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