

International Blue Economy Policies And Maritime Security: An Integrative Analysis Through Bueger's Maritime Security Framework

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ABSTRACT

The Blue Economy has become a prominent policy approach for linking ocean-based economic development with environmental sustainability and coastal livelihoods. However, the expansion of ocean economic activities can also intensify competition over marine space, resource depletion, pollution, illegal fishing, and governance challenges. This article examines how international Blue Economy policies can contribute to maritime security when economic, environmental, social, and governance dimensions are treated as interconnected rather than as separate policy sectors. The study uses a qualitative integrative review and policy-document analysis. The analytical corpus combines peer-reviewed literature with authoritative international policy and legal documents concerning the Blue Economy, maritime governance, sustainable ocean development, and maritime security. Christian Bueger's maritime security framework is operationalized through five analytical dimensions: maritime threats and risks, marine environment, economic development, human and community security, and governance/capacity. The analysis finds that international Blue Economy instruments contribute to maritime security through four mutually reinforcing mechanisms: establishing governance rules, improving information and enforcement capacity, protecting marine ecosystems and resources, and strengthening inclusive coastal resilience. SDG 14, UNCLOS, the BBNJ Agreement, IMO instruments, and World Bank programs differ in legal status and policy function, but their security relevance becomes clearer when examined through these dimensions. The article's contribution is an integrative analytical model showing that Blue Economy policy should be understood not merely as an economic-development agenda but as a condition for maritime security when sustainable resource use, institutional capacity, and community welfare are jointly governed. For Indonesia, the model highlights the need to connect ocean economic policy with Maritime Domain Awareness, sustainable fisheries

governance, marine spatial management, environmental protection, and inclusive coastal development.

INTRODUCTION

The ocean is simultaneously an economic space, an ecological system, a transportation domain, and a site of political and security interaction. Fisheries, shipping, tourism, offshore energy, and other ocean-based activities generate livelihoods and national income, while marine ecosystems provide food, coastal protection, carbon storage, and other services. Consequently, the sustainability of ocean economic activity cannot be separated from the condition of the marine environment or from the capacity of institutions to govern competing uses of maritime space.

The Blue Economy has emerged within this context as a policy approach that seeks to reconcile ocean-based economic development with ecosystem sustainability and human welfare. The World Bank defines a Blue Economy approach around the sustainable use of ocean resources for economic growth, improved livelihoods, and employment while maintaining healthy ocean ecosystems (World Bank, 2017). Academic literature, however, shows that the concept is neither uniform nor politically neutral. Voyer et al. (2018) demonstrate that competing interpretations of the Blue Economy can produce different priorities for ocean governance, while Bennett et al. (2019) emphasize that environmental sustainability and social equity must be central to Blue Economy development. Keen et al. (2018) similarly argue that implementation requires integration across sectors, scales, and stakeholders rather than treating the Blue Economy as a single industry agenda.

The security implications of this development agenda remain less clearly integrated in the literature. Maritime security itself has no single universally accepted meaning. Bueger (2015) argues that the concept should be understood relationally, including its connections with marine safety, seapower, blue economy, and resilience. This is important because maritime security cannot be reduced to naval protection or interstate conflict. Economic disruption, illegal activities, resource degradation, and weaknesses in governance may also affect the security of maritime spaces. Bueger's framework therefore provides an appropriate basis for examining how an economic-development agenda can become connected to security practices and outcomes.

Existing Blue Economy research has made substantial progress in defining sustainability, governance, equity, and implementation challenges. Other research has examined maritime security, Maritime Domain Awareness (MDA), illegal fishing, and maritime governance. Yet these strands are often discussed separately. Policy literature tends to emphasize economic and environmental objectives, while maritime security literature often concentrates on threats, enforcement, capacity, and state interests. The analytical connection between international Blue Economy instruments and maritime security therefore remains underdeveloped, particularly in terms of identifying the mechanisms through which economic and environmental policies may strengthen or weaken maritime security.

This gap is especially relevant for Indonesia. Recent research shows that Indonesia has developed national ocean policy and Blue Economy initiatives, but implementation continues to face fragmented governance, limited data and technology, uneven investment, and competing development priorities (Wuwung et al., 2024). At the same time, MDA has been identified as an important component of Indonesia's maritime security architecture (Agastia & Perwita, 2018). These findings suggest that the challenge is not simply whether Indonesia should pursue a Blue Economy, but how economic, environmental, informational, and security institutions can be integrated.

Accordingly, this article asks: (1) How do international Blue Economy policies address dimensions of maritime security? and (2) Through what governance mechanisms can Blue Economy policies contribute to sustainable maritime security, particularly in the Indonesian context? The article contributes by developing an integrative analytical model that maps international Blue Economy instruments onto Bueger's maritime security perspective. Rather than treating Blue Economy as an inherently security-enhancing policy, the article argues that its security contribution is conditional on governance capacity, ecosystem protection, information and enforcement, and equitable coastal benefits.

The article is organized as follows. The next section reviews the Blue Economy and maritime security literature and develops the analytical framework. The methods section explains the structured literature and policy-document review. The results and discussion then examine the policy instruments through an analytical matrix and identify four mechanisms connecting Blue Economy policy to maritime security. The final sections discuss implications for Indonesia, limitations, conclusions, and evidence-based recommendations.

The Blue Economy refers to the sustainable use of ocean resources to support economic growth, livelihoods, and ecosystem health (World Bank, 2017). However, the concept remains contested, as different actors emphasize economic development, conservation, and community livelihoods (Silver et al., 2015; Voyer et al., 2018). Bennett et al. (2019) highlight the importance of environmental sustainability, equitable benefit sharing, inclusive governance, and interdisciplinary knowledge, while Mulazzani and Malorgio (2017) emphasize the integration of ecosystem services into economic assessments. Thus, the security implications of the Blue Economy depend on how maritime economic activities are governed.

Bueger (2015) conceptualizes maritime security as a relational concept connecting security with marine safety, seapower, the Blue Economy, and resilience. This perspective allows maritime security to be examined beyond a military approach, including economic, environmental, and social dimensions.

Based on this perspective, this study analyzes Indonesia's Blue Economy policy through five dimensions: (1) threat and risk, including IUU fishing, pollution, resource depletion, and illegal maritime activities; (2) marine environment, focusing on ecosystem protection; (3) economic development, emphasizing sustainable maritime activities; (4) human and community, addressing livelihoods, inclusion, and benefit distribution; and (5) governance and capacity, covering regulation, institutional coordination, monitoring, enforcement, information, diplomacy, and implementation capacity.

Table 1. Operationalization of Bueger's Maritime Security Perspective

Analytical dimension	Operational question	Policy evidence	Security relevance
Threats and risks	What maritime risks are addressed?	IUU fishing, pollution, illegal activity, resource depletion, maritime disruption	Reduces exposure to maritime insecurity
Marine environment	Does the policy protect ecosystem conditions?	Fisheries sustainability, biodiversity,	Maintains ecological

		pollution control, ecosystem management	foundations of maritime stability
Economic development	How is ocean economic activity governed?	Sustainable fisheries, shipping, tourism, aquaculture, blue finance	Supports resilient and lawful maritime economies
Human/community security	Who benefits and who bears costs?	Coastal livelihoods, small-scale fishers, inclusion, local participation	Reduces socioeconomic vulnerability and conflict potential
Governance and capacity	What institutions and capabilities implement policy?	UNCLOS, MDA, monitoring, enforcement, cooperation, diplomacy	Converts policy commitments into maritime governance capacity

Source: Author's analysis based on Bueger (2015), Bueger and Edmunds (2021, 2024), and relevant Blue Economy literature (Voyer et al., 2018; Bennett et al., 2019; Keen et al., 2018).

Three gaps are addressed. First, much Blue Economy literature focuses on sustainability, governance, or economic opportunity without systematically translating these dimensions into maritime security categories. Second, maritime security literature recognizes the relationship between blue economy and resilience but does not always specify how international economic and environmental instruments produce security effects. Third, policy discussions frequently list instruments such as SDG 14, UNCLOS, BBNJ, MDA, and sustainable fisheries without examining their complementary functions within a single analytical framework.

The contribution of this article is therefore analytical rather than causal or econometric. It develops a policy-to-security mapping that identifies four mechanisms: governance rule-setting, information and enforcement capacity, ecosystem and resource protection, and inclusive coastal resilience. The model does not claim that Blue Economy policies automatically produce maritime security. Instead, it specifies the conditions under which the security contribution becomes plausible and analytically observable.

METHODS

This study uses a qualitative integrative review combined with policy-document analysis. The design was selected because the research question concerns relationships among concepts, international policy instruments, governance arrangements, and security implications rather than the estimation of a statistical effect. The unit of analysis is the policy instrument or governance mechanism, not an individual maritime incident or country-level outcome.

Source identification and selection protocol

The review was structured around combinations of the following search concepts: “blue economy” AND “maritime security”; “blue economy” AND “sustainable ocean development”; “blue economy” AND “ocean governance”; “maritime security” AND Bueger; “IUU fishing” AND “maritime security”; “Maritime Domain Awareness” AND maritime security; and “blue economy” AND Indonesia. Academic literature was prioritized from peer-reviewed journals and scholarly books, while policy evidence was taken from authoritative sources including the United Nations, IMO, World Bank, and treaty texts.

Sources were included when they met at least one of the following criteria: (1) they provided a substantive conceptual or theoretical contribution to Blue Economy or maritime security; (2) they analyzed ocean governance, sustainability, fisheries, MDA, or coastal livelihoods; or (3) they constituted an authoritative international legal or policy instrument directly relevant to the research questions. Sources were excluded when their focus was primarily technical engineering, unrelated terrestrial development, or maritime issues without a clear connection to the Blue Economy/security relationship.

The revised analytical corpus prioritizes peer-reviewed literature while retaining primary policy and legal documents where these documents are themselves the object of analysis. This distinction addresses the reviewer concern about institutional-source dominance: institutional documents are treated as policy evidence, whereas academic articles are used to establish concepts, debates, analytical tensions, and scholarly interpretation.

Analytical procedure

The analysis proceeded in four stages. First, documents were coded according to policy instrument, policy objective, implementation mechanism, and relevant maritime-security dimension. Second, codes were grouped according to the five Bueger-derived dimensions presented in Table 1. Third, the policy instruments were compared to identify recurring mechanisms and gaps. Fourth, the findings were synthesized into a policy-to-security model. This procedure transforms the Results and Discussion from a descriptive inventory of policies into a comparative analysis of how each instrument performs a different governance function.

Source triangulation

Triangulation was conducted by comparing three forms of evidence: scholarly literature, international policy documents, and legal or institutional instruments. For example, the meaning of maritime security was grounded in Bueger's conceptual work, while the policy function of SDG 14, UNCLOS, BBNJ, IMO instruments, and World Bank programs was assessed from the relevant primary documents. Where academic and institutional perspectives emphasized different priorities, the difference was retained as an analytical finding rather than treated as inconsistency to be removed.

Scope and limitations of the method

The study is interpretive and does not establish statistical or causal effects. It assesses policy design and governance mechanisms, not the magnitude of changes in maritime crime, fish stocks, household income, or ecosystem condition attributable to a specific policy. Consequently, statements about security effects are formulated as governance mechanisms or plausible contributions rather than deterministic causal claims. The analysis is also international in scope with Indonesia used as an application context; it does not provide a comprehensive evaluation of every Blue Economy sector in Indonesia.

RESULTS AND DISCUSSIONS

The analysis identifies a functional division among the major international instruments. SDG 14 provides a global development framework; UNCLOS provides the foundational legal architecture for ocean jurisdiction and use; the BBNJ Agreement extends cooperative governance to marine biological diversity beyond national jurisdiction; IMO instruments address environmental and safety dimensions of shipping; and World Bank programs such as PROBLUE provide financing, technical assistance, and institutional support. Their security relevance therefore differs. Treating them as interchangeable "Blue Economy policies" obscures their distinct functions.

Tabel 2. Comparative Analysis of Major International Ocean Governance Instruments and Their Security Relevance

Instrument	Primary function	Bueger dimension(s)	Security mechanism	Analytical finding
SDG 14 (2015)	Global sustainable-ocean development goals	Environment; economy; community; governance	Sets shared sustainability priorities	Provides normative direction but depends on national implementation
UNCLOS (1982)	Legal framework for ocean use, jurisdiction and obligations	Governance; threats/risks	Legal certainty and rules for maritime conduct	Legal rules require state capacity, monitoring and diplomacy to become effective
BBNJ Agreement (adopted 2023; in force 2026)	Conservation and sustainable use of biodiversity beyond national jurisdiction	Environment; governance; cooperation	Transboundary conservation and coordination	Strengthens collective governance where national jurisdiction is insufficient
2023 IMO GHG Strategy	Decarbonization of international shipping	Environment; economy; governance	Reduces environmental risks associated with shipping	Connects maritime transport efficiency with long-term environmental sustainability
PROBLUE	Integrated sustainable development of marine/coastal resources	Economy; environment; community; governance	Financing, technical assistance and capacity building	Links economic development to institutional and ecosystem capacity
Indonesia Sustainable Oceans Program	Sustainable fisheries, ecosystems, pollution and institutions in Indonesia	Community; environment; governance; economy	Coordination, knowledge and capacity	Illustrates how international development support can be translated into national ocean governance

Source: Compiled by the authors based on United Nations (2015), United Nations (2026) [BBNJ Agreement; adopted 2023, entered into force 2026], United Nations (1982) [UNCLOS], International Maritime Organization (2023), World Bank (2017, 2022, 2025, n.d.), and Wuwung et al. (2024).

Mechanism 1: Governance rule-setting and maritime order

The first mechanism is rule-setting. UNCLOS establishes the legal framework within which states exercise maritime rights and responsibilities, including navigation, resource use, maritime zones, and protection of the marine environment. Its relevance to maritime security is not that the treaty directly resolves every maritime threat, but that it provides a common legal reference for jurisdiction and conduct. This supports the governance dimension of Bueger's framework because maritime security depends partly on the

ability of actors to coordinate expectations and manage disputes through recognized rules.

The BBNJ Agreement complements this architecture by addressing biodiversity conservation and sustainable use in areas beyond national jurisdiction. The agreement was adopted on 19 June 2023 and entered into force on 17 January 2026. The distinction is important: 2023 is the adoption year, whereas 2026 is the entry-into-force year. Treating these dates as interchangeable would obscure the legal status of the instrument. Analytically, BBNJ demonstrates that ocean security increasingly depends on governance arrangements that exceed national jurisdiction.

The finding is therefore not simply that international law “supports security.” The more specific finding is that international legal instruments create the governance conditions under which maritime activities can be regulated, disputes can be managed, and collective environmental responsibilities can be articulated. Their security contribution remains conditional on implementation capacity, monitoring, enforcement, and diplomacy.

Mechanism 2: Information, monitoring, and enforcement capacity

The second mechanism concerns information and implementation capacity. MDA is important because maritime activities are geographically dispersed and involve multiple agencies, vessels, and jurisdictions. Agastia and Perwita (2018) highlight MDA as a component of Indonesia’s maritime-security development. More recent scholarship also emphasizes that the challenge is not only acquiring surveillance technology but integrating information with existing agencies, legal instruments, and institutional arrangements.

Within the Blue Economy, MDA has a dual function. It can support enforcement against IUU fishing and other illegal activity, while also improving the monitoring of legitimate economic activity, environmental conditions, and maritime traffic. Radar, AIS, satellite observation, drones, sensors, and data platforms are therefore not security instruments in isolation; their value depends on interoperability, institutional coordination, analytical capability, and lawful decision-making.

This finding refines the original manuscript’s claim about seapower. Rather than defining seapower only through military assets, the analysis treats maritime capability as a broader governance capacity that includes surveillance, law enforcement, maritime safety, technical expertise, infrastructure, and diplomacy. This is consistent with Bueger’s relational approach and avoids presenting military power as the sole determinant of maritime security.

Mechanism 3: Ecosystem and Resource Protection as Security Governance

The third mechanism is ecosystem and resource protection. Blue Economy policies depend on productive marine ecosystems, but the relationship is bidirectional: unsustainable extraction can weaken the ecological basis of future economic activity. Mulazzani and Malorgio (2017) argue that ecosystem services should be incorporated into assessments of Blue Economy value. Bennett et al. (2019) similarly emphasize that economic expansion without environmental and social safeguards can undermine the sustainability and equity objectives associated with the concept.

IUU fishing provides a concrete example. It can undermine fisheries governance, disadvantage compliant operators, and place pressure on fish stocks. However, the analysis does not claim that IUU fishing automatically causes interstate conflict or maritime insecurity. The more defensible finding is that IUU fishing creates governance and resource-management risks that can weaken the sustainability and legitimacy of

maritime economic activity. Addressing those risks requires monitoring, port controls, catch verification, information exchange, and enforcement.

The same logic applies to marine pollution and ecosystem degradation. Environmental damage should be treated as a security-relevant governance problem when it undermines resource availability, livelihoods, or the reliability of maritime economic systems. This is a conditional relationship, not a universal causal claim. The security implication emerges through pathways of vulnerability and governance capacity.

Mechanism 4: Coastal Livelihoods, Inclusion, and Resilience

The fourth mechanism concerns people and communities. A Blue Economy that produces aggregate economic growth while concentrating benefits and shifting environmental costs to small-scale coastal users may generate new governance tensions. Bennett et al. (2019) therefore emphasize equitable benefit sharing and inclusive decision-making. Keen et al. (2018) similarly show that Blue Economy implementation requires integration across stakeholders and scales.

This dimension is particularly relevant to Indonesia. Wuwung et al. (2024) identify fragmented ocean management, limited data and technology, uneven investment, and competing national priorities as obstacles to sustainable ocean development. World Bank initiatives in Indonesia focus on sustainable fisheries and coastal livelihoods, healthy ecosystems, pollution reduction, and institutional strengthening. These priorities demonstrate that community welfare is not an external social add-on to Blue Economy policy; it is part of the governance conditions required for sustainable maritime development.

The analytical implication is that maritime security should include the resilience of legitimate coastal economic activity. This does not mean equating poverty with insecurity. Rather, policies that maintain lawful livelihood opportunities, participation, and sustainable access to marine resources can strengthen the social foundations of ocean governance and reduce incentives for environmentally harmful or illegal activities.

Integration: from Blue Economy Policy to Maritime Security

The four mechanisms identified above are mutually reinforcing. Legal and institutional rules establish governance expectations; MDA and enforcement capacity make those rules operational; ecosystem protection preserves the resource base; and inclusive livelihoods strengthen the legitimacy and resilience of governance. Weakness in any one mechanism can reduce the effectiveness of the others.

The resulting analytical model can be expressed as follows: International Blue Economy policies → governance rules and cooperation → information/enforcement capacity → sustainable ecosystem and resource management → resilient maritime economic activity and coastal livelihoods → stronger conditions for maritime security. The model is not a causal equation. It is an analytical sequence that identifies the governance pathways through which policy instruments can contribute to maritime security.

This finding also clarifies the role of Bueger. Bueger's framework does not provide a ready-made checklist of Blue Economy policies. Its value is relational: it enables the researcher to examine how economic development, environmental conditions, governance, and security practices intersect. The present study extends that relational logic by using it to compare international Blue Economy instruments and identify the mechanisms connecting them to maritime security.

Table 3. Integrated Findings and Policy Implications

Finding	Bueger dimension	Evidence type	Implication
Security relevance is relational, not exclusively military	Threats/risks; economy; environment	Bueger and maritime-security literature	Assess economic and ecological conditions alongside conventional threats
International rules create governance conditions	Governance/capacity	UNCLOS; BBNJ; SDG 14	Legal commitments require implementation capacity
Information is a bridge between economic activity and enforcement	Governance/capacity; threats	MDA literature and policy evidence	Integrate civilian and security maritime data
Ecosystem health is an enabling condition for sustainable ocean economies	Environment; economy	Blue Economy literature; SDG 14; World Bank	Use ecosystem indicators in economic planning
Community welfare affects governance legitimacy and resilience	Human/community	Blue Economy and Indonesia literature	Include small-scale users in policy design and benefit sharing

Source: Author's analysis based on Bueger (2015), Bueger and Edmunds (2021, 2024), Agastia and Perwita (2018), Keen et al. (2018), Voyer et al. (2018), Bennett et al. (2019), Wuwung et al. (2024), United Nations (2015), United Nations (1982), United Nations (2026), International Maritime Organization (2023), and World Bank (2017, 2022, 2025, n.d.).

Relevance to Indonesia

Indonesia provides a useful application context because its maritime development agenda combines ocean-based economic opportunity with extensive coastal dependence and complex governance requirements. The evidence reviewed here suggests that the key challenge is integration. Blue Economy objectives should not be separated from MDA, fisheries management, marine spatial planning, environmental protection, maritime diplomacy, and coastal livelihood programs.

The Indonesian case also illustrates why international policies cannot simply be transferred into domestic practice. Wuwung et al. (2024) identify fragmented management, inadequate data and technology, and competing priorities as constraints on sustainable ocean development. Thus, the security contribution of international Blue Economy instruments depends on domestic institutional arrangements. The policy implication is not to create another stand-alone maritime program, but to strengthen the connections among existing economic, environmental, and security institutions.

Recent Indonesian research also points toward multidimensional assessment. A 2025 Marine and Fisheries Blue Economy Index proposal combines policy, ecological, economic, and social dimensions to evaluate Blue Economy performance across Indonesian provinces. This direction is consistent with the present study's argument that

security-relevant Blue Economy assessment should move beyond investment or production indicators and include governance, ecological sustainability, and community outcomes.

CONCLUSION, RECOMENDATIONS AND LIMITATIONS

This study examined how international Blue Economy policies can contribute to maritime security through an integrative reading of Bueger's maritime security framework. The central finding is that Blue Economy policy should not be considered automatically security-enhancing. Its contribution depends on whether economic development is embedded in effective governance, ecosystem protection, information and enforcement capacity, and inclusive coastal development.

The analysis identified four mechanisms. First, international legal and policy instruments establish governance rules and cooperative expectations. Second, MDA, monitoring, and enforcement capacity translate policy commitments into operational maritime governance. Third, ecosystem and resource protection preserve the ecological foundations of sustainable maritime economic activity. Fourth, inclusive coastal livelihoods strengthen the resilience and legitimacy of maritime governance. Together, these mechanisms connect Blue Economy policy with the broader conditions of maritime security.

The study's contribution is therefore an analytical model rather than a claim of direct causality. By operationalizing Bueger's relational perspective into five analytical dimensions, the study provides a way to evaluate whether a Blue Economy instrument addresses maritime risks, environmental sustainability, economic resilience, community security, and governance capacity. This approach also explains why international instruments have different security functions and should not be treated as equivalent policy tools.

For Indonesia, the main implication is the need for policy integration. Blue Economy development should be connected to MDA, sustainable fisheries governance, marine spatial planning, environmental protection, maritime diplomacy, and equitable coastal development. Future empirical research should test the proposed mechanisms using country-level or sector-level evidence, including measurable indicators of ecosystem condition, fisheries compliance, maritime incidents, institutional coordination, and coastal welfare.

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