Asian Journal of
Science, Technology, Engineering, and Art

e-ISSN: 3025-4507
p-ISSN: 3025-5287
Index: Harvard, Boston, Sydney University, Dimensions, Lens, Scilit, Semantic, Google, etc

https://doi.org/10.58578/AJSTEA.v3i5.7607

Safeguarding Maritime Critical Infrastructure: Indonesia's Defense Diplomacy in the Indo-Pacific Security Architecture under the Joko Widodo Administration (2014–2024)

Ita Nurjanah, Anak Agung Banyu Perwita, Yermia Hendarwoto
Defense University, Indonesia
ita.nurjanah@sp.ac.idu.id

Article Info:

Submitted:	Revised:	Accepted:	Published:
Sep 4, 2025	Sep 25, 2025	Oct 7, 2025	Oct 12, 2025

Abstract

Maritime critical infrastructure (MCI)—comprising undersea data cables, energy pipelines, ports, and shipping lanes—is essential to sustaining global economic stability and digital connectivity. This is particularly critical in Southeast Asia, a region marked by dense maritime traffic and rising geopolitical tensions, including hybrid threats. As the largest archipelagic state in the region, Indonesia plays a pivotal role in safeguarding the security and resilience of these infrastructures. This study analyzes Indonesia's defense diplomacy in protecting MCI within the broader Indo-Pacific security architecture during the administration of President Joko Widodo (2014–2024). Anchored in Barry Buzan's Regional Security Complex Theory (RSCT), alongside the concepts of hedging and defense diplomacy, the research employs a qualitative descriptive method to examine Indonesia's strategic positioning. Findings indicate that Indonesia's approach emphasizes diplomatic engagement, regional institutional cooperation, and strategic autonomy—enabling it to enhance infrastructure resilience while preserving neutrality amid intensifying U.S.–China rivalry. Key enablers include the adoption of technological innovation, improved inter-agency coordination, and multilateral

AJSTEA Journal is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License

defense partnerships. The study concludes that Indonesia's defense diplomacy not only contributes to national infrastructure protection but also reinforces the stability of the Indo-Pacific maritime order.

Keywords: Maritime Security; Infrastructure Protection; Defense Diplomacy; Indonesia; Indo-Pacific; Regional Security Complex Theory

INTRODUCTION

In the twenty-first century, the stability of the global economy and the security of digital networks depend heavily on the integrity of maritime critical infrastructure. These systems, comprising submarine cables, offshore energy platforms, port facilities, and surveillance installations, enable uninterrupted communication, energy distribution, and trade. Despite their critical importance, they remain vulnerable to both traditional and non-traditional threats such as naval conflict, cyber interference, and natural disasters. More than ninety-five percent of global internet data passes through undersea cables, many of which traverse the waters of Southeast Asia (Kocak, 2022). This region is not only the world's most important maritime crossroads but also one of its most contested security environments.

Indonesia's geostrategic position at the intersection of the Indian and Pacific Oceans amplifies both its opportunities and responsibilities. As an archipelagic state with extensive maritime boundaries, Indonesia functions as a gatekeeper of vital global sea lanes. Through the Global Maritime Fulcrum (GMF) doctrine launched in 2014, President Joko Widodo articulated Indonesia's ambition to become a maritime axis state, serving as a bridge of connectivity and cooperation across the Indo-Pacific (Montratama, 2024). However, evolving geopolitical rivalries, hybrid threats, and the expansion of great power naval presence have increased the urgency for Indonesia to strengthen its maritime defense diplomacy and improve coordination between civilian and military institutions.

While numerous studies have examined Indonesia's defense diplomacy in the context of peacekeeping and military exercises (Laksmana, 2012; Muthanna, 2011), fewer have analyzed its application to the protection of maritime critical infrastructure. Much of the existing literature approaches infrastructure security as a technical or economic issue, rather than a strategic element of national defense (Vishwanath, 2025; Huang, 2024). This

research addresses that gap by analyzing how Indonesia employs defense diplomacy to enhance maritime infrastructure protection and regional stability.

This article focuses on two guiding research questions:

1. What are the key vulnerabilities and regional dynamics surrounding maritime critical infrastructure in Southeast Asia?

2. How does Indonesia's defense diplomacy under the Jokowidodo Administration contribute to the protection and resilience of these infrastructures within the Indo-Pacific security complex?

By addressing these questions, the study establishes a conceptual connection between defense diplomacy and infrastructure protection. It argues that Indonesia's evolving diplomatic posture demonstrates an effort to balance cooperation and autonomy while promoting a collective maritime security architecture. The analysis is grounded in Defense Diplomacy, Hedging, and Regional Security Complex Theory (RSCT), which provides an effective lens for understanding the interconnected nature of regional maritime security.

METHODS

Research Design

This study employs a qualitative descriptive design to analyze Indonesia's defense diplomacy in safeguarding maritime critical infrastructure (MCI) within the Indo-Pacific regional security complex. A qualitative descriptive approach was chosen because it allows for an in-depth and contextually grounded understanding of state behavior, institutional coordination, and policy discourse. According to Kim, Sefcik, and Bradway (2017), qualitative descriptive studies are particularly effective for examining complex social and political phenomena in their natural settings, providing rich contextual interpretation without excessive abstraction. Similarly, Bradshaw, Atkinson, and Doody (2017) argue that qualitative description offers a practical framework for summarizing events and processes as they occur, making it suitable for analyzing defense diplomacy and strategic policy actions.

Within the discipline of international relations, Lamont and Boduszyński (2022) emphasize that qualitative descriptive methods are essential for capturing the nuances of

decision-making and diplomatic practice, especially in areas such as security cooperation and institutional behavior. This research therefore integrates descriptive interpretation with theoretical analysis to reveal how Indonesia constructs and operationalizes its maritime security strategies.

Data were collected through a systematic review of peer-reviewed literature, policy documents, and official statements published between 2023 and 2025. Key sources include recent academic works on Indonesia's maritime security and defense diplomacy, as well as regional policy analyses and official ASEAN publications. Additional references were drawn from credible media and government portals, which document ongoing developments in Indonesia's maritime cooperation and defense policy implementation.

The selection criteria prioritized recent and peer-reviewed sources that directly address maritime security, defense diplomacy, or regional cooperation in Southeast Asia. Excluded materials included non-academic commentaries and sources lacking institutional validation. Data were analyzed thematically by identifying recurring patterns across three domains: (1) strategic vulnerabilities of MCI, (2) Indonesia's diplomatic and institutional responses, and (3) regional interdependence in security governance. Thematic coding and triangulation were used to strengthen the validity of interpretations, consistent with best practices for qualitative descriptive research (Roulston, 2022).

The analytical process involved multiple readings of the selected materials to extract central themes and interpret Indonesia's evolving defense diplomacy through the lens of Regional Security Complex Theory (RSCT). RSCT serves as the principal framework guiding the interpretation of Indonesia's maritime policy behavior, linking descriptive empirical findings to broader theoretical insights about regional interdependence, autonomy, and security dynamics (Buzan & Wæver, 2003).

Regional Security Complex Theory

Regional Security Complex Theory (RSCT), as articulated by Buzan and Wæver (2003), provides the foundational framework for this research. RSCT posits that security is inherently regional because the strongest security interactions occur among neighboring states that share geographic proximity and interdependent vulnerabilities. A regional security complex forms when states' security perceptions and actions become so intertwined that they cannot be considered independently.

This theoretical perspective is especially relevant to the Indo-Pacific, where maritime infrastructure physically and strategically links national economies and security systems. Disruptions to undersea cables, energy pipelines, or shipping routes in one area can have cascading regional impacts (Raymaker et al., 2025; Vaarandi et al., 2025). RSCT helps explain why Indonesia's maritime defense strategy cannot be isolated from those of its regional partners and competitors.

RSCT identifies four structural dimensions: boundary, anarchic structure, polarity, and the social construction of security. The boundary of the Southeast Asian regional security complex encompasses the South China Sea, the Malacca Strait, and Indonesia's eastern maritime routes. The anarchic structure arises from the absence of a supranational authority to enforce maritime security norms, necessitating cooperative mechanisms. The polarity of the Indo-Pacific has evolved into a fluid multipolar order, where Indonesia acts as a middle power navigating interactions with both major and regional states (Streher, 2025). The social construction of security is reflected in how Indonesia frames its maritime agenda through the Global Maritime Fulcrum doctrine, which securitizes infrastructure protection as a pillar of national resilience (Agastia, 2021; Seno & Ponto, 2025).

RSCT thus situates Indonesia within an interconnected security environment where national resilience is both shaped by and contributes to regional stability. Indonesia's defense diplomacy is therefore interpreted as both a response to interdependence and a mechanism for shaping regional norms of maritime cooperation (Wulolo et al., 2019; Gusti et al., 2018).

Hedging Strategy

To further explain Indonesia's strategic posture, this study adopts the concept of hedging strategy. As defined by Goh (2006), hedging refers to a behavioral pattern in which states pursue multiple and sometimes contradictory policy options to manage uncertainty in the international system. Rather than fully aligning with or balancing against any single power, states engage in a mix of cooperative and self-strengthening measures.

For Indonesia, hedging manifests in its simultaneous engagement with diverse partners while maintaining autonomy in strategic decision-making. It participates in joint exercises with the United States and Australia, dialogues with China on maritime connectivity, and multilateral collaborations with ASEAN and the Indian Ocean Rim

Association. This behavior reflects an effort to reduce strategic vulnerability without committing to exclusive alliances (Nurjanah & Silaen, 2024; Streher, 2025).

The hedging framework complements RSCT by highlighting agency within structural constraints. While RSCT focuses on the regional dynamics that shape state behavior, hedging emphasizes how Indonesia selectively navigates those dynamics. As Agastia (2021) observes, Indonesia's foreign policy under President Joko Widodo embodies a balancing of engagement and independence, designed to preserve sovereignty while maximizing cooperative benefits. Thus, hedging provides a conceptual bridge between Indonesia's diplomatic flexibility and its long-term objective of regional stability.

Defense Diplomacy

The third analytical lens is defense diplomacy, which contemporary scholars describe as the peaceful and cooperative use of military resources to advance foreign-policy objectives while simultaneously signalling deterrence (Pedrason & Montratama, 2024; Drab & Żakowska, 2024). Indonesia applies this concept in a dual-use manner: activities such as coordinated patrols, officer exchanges, humanitarian-assistance exercises, and joint cyber-resilience programs serve to build confidence with regional partners and to demonstrate operational readiness (Gusti et al., 2018).

Recent research highlights the integration of civil and military domains in Indonesia's defense diplomacy. Fita (2025) links intelligence cooperation to the protection of maritime infrastructure, while Arisanto et al. (2023) show that inter-agency coordination has expanded to include cybersecurity and port-management systems. By combining cooperative engagement with capacity development, Indonesia projects itself as a maritime norm entrepreneur that promotes stability through multilateralism rather than confrontation.

Together, RSCT, hedging, and defense-diplomacy frameworks provide a comprehensive interpretive structure for this study. RSCT clarifies the regional interdependence that shapes Indonesia's maritime security environment; the hedging concept explains Jakarta's flexible strategic behavior; and the dual-use understanding of defense diplomacy reveals how Indonesia translates these strategies into concrete cooperative and deterrent actions. These frameworks jointly underpin the analysis that follows on Indonesia's efforts to secure maritime critical infrastructure and sustain the evolving Indo-Pacific security architecture.

RESULTS

The Strategic Importance of Maritime Critical Infrastructure

Maritime critical infrastructure (MCI) forms the backbone of Indonesia's economic stability, technological connectivity, and strategic autonomy. It includes undersea data cables, offshore energy platforms, ports, and maritime surveillance systems. As Afpriyanto, Putra, Jupriyanto, and Sari 2023 explain, MCI sustains Indonesia's logistical capacity and defense readiness, particularly in supporting the Jokowi's vision of Indonesia as the *Global Maritime Fulcrum* (GMF). The functionality of these infrastructures determines not only the country's trade and communication efficiency but also its ability to maintain sovereignty across its 17,000 islands.

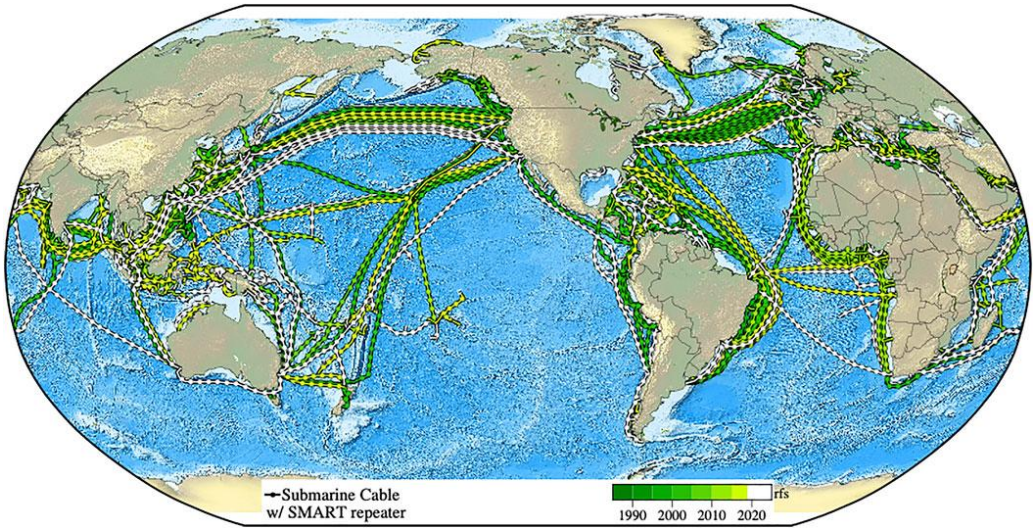


Figure 1. Global Submarine Cable Networks (TeleGeography, 2025)

Global submarine cable networks form the backbone of the modern digital and economic system. They transmit more than ninety-five percent of international data traffic, enabling global communications, commerce, and financial exchange. As part of an evolving global infrastructure, undersea cables are replaced or upgraded every 10 to 25 years, with new systems integrating environmental sensors that measure temperature, seismic activity, and pressure at approximately 100-kilometer intervals. These sensors can also serve as early-warning systems for underwater disturbances, contributing to the development of real-time ocean observation networks. The intersection between communication and environmental monitoring illustrates the dual-use nature of this infrastructure, serving both civilian and security purposes.

The significance of maritime critical infrastructure (MCI) is especially pronounced in Southeast Asia, a region positioned at the crossroads of global maritime trade and information flow. The Malacca, Sunda, and Lombok Straits collectively handle roughly one-third of the world's seaborne trade, including more than half of global energy shipments. Concurrently, the South China Sea and Indonesian archipelagic waters host dense clusters of undersea cables that link East Asia to Europe and North America. These overlapping systems elevate Southeast Asia's geoeconomic value while simultaneously exposing it to multiple layers of risk.

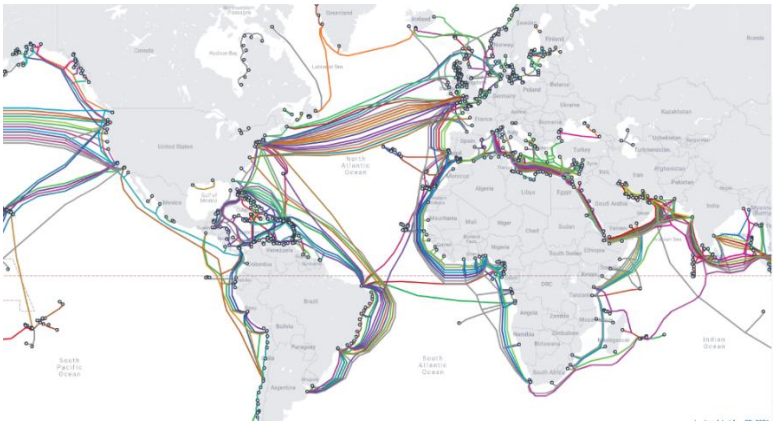


Figure 2. Real-time Global Submarine Cable Networks

Source: TeleGeography, 2025

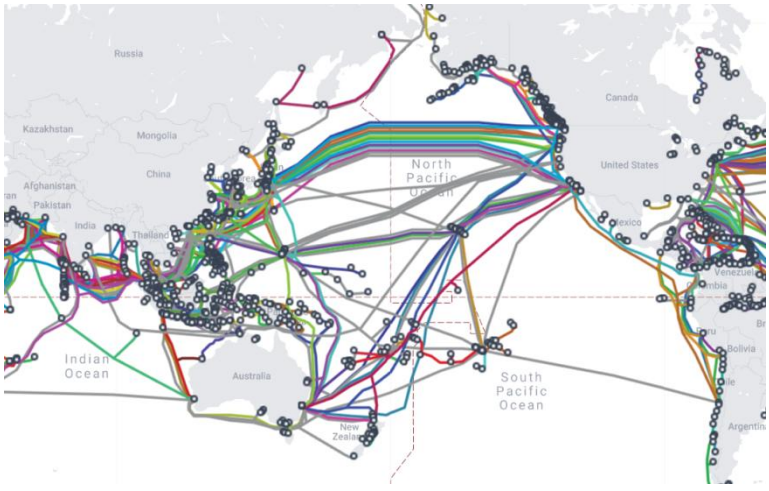


Figure 3. Real-time Indo-Pacific Region's Submarine Cable Networks

Source: TeleGeography, 2025

In Indonesia's case, the submarine cable grid connecting Sumatra, Java, Kalimantan, Sulawesi, and Papua functions as both a digital lifeline and a unifying

instrument of national integration. As an archipelagic nation of more than 17,000 islands, Indonesia's social and administrative cohesion depends heavily on uninterrupted digital connectivity. Disruptions to these systems, caused by natural hazards, mechanical failures, or sabotage, can quickly generate cascading economic and governance crises. For instance, partial cable cuts in eastern Indonesia in 2022 temporarily isolated provincial administrations and disrupted online banking networks.

From an RSCT perspective, such vulnerabilities demonstrate the interdependent nature of regional security. Because undersea networks cross multiple jurisdictions, their protection requires cooperative monitoring and shared norms. Indonesia's national infrastructure is therefore part of a wider regional security complex in which mutual vulnerabilities shape collective stability. The physical transboundary character of maritime networks has transformed infrastructure from a purely technical asset into a geostrategic domain of competition and cooperation.

Beyond data connectivity, Indonesia's offshore oil and gas installations, particularly in the Natuna Sea and eastern maritime zones, represent another vital component of MCI. These facilities underpin national energy security and serve as deterrent markers of Indonesia's sovereign presence. The Global Maritime Fulcrum (GMF) doctrine elevates the protection of such assets to a strategic priority, linking economic resilience to maritime power projection. The GMF positions Indonesia as a central axis between the Indian and Pacific Oceans, thereby integrating infrastructure protection into the broader Indo-Pacific security architecture.

Recent global incidents have demonstrated the fragility of MCI as a target of hybrid conflict. The 2022 Nord Stream pipeline sabotage in the Baltic Sea underscored how undersea assets can become instruments of coercion or signaling in great-power rivalry. Throughout Jokowi's decade in office, multiple incidents revealed the fragility of these infrastructures. In 2021, the disturbance of the Asia-America Gateway (AAG) cable network caused temporary internet outages across Indonesia and the Philippines, highlighting the vulnerability of shared digital infrastructure to both environmental and human interference.

Indonesia's exposure is intensified by limited surveillance coverage and institutional fragmentation. Although BAKAMLA and the Indonesian Navy have expanded their maritime domain awareness (MDA) capacity, technological integration and inter-agency

coordination remain inconsistent. The problem is compounded by budgetary asymmetry between civilian agencies and defense institutions, leading to gaps in monitoring deep-water areas where most cables and pipelines are located.

The table below summarizes key categories of maritime critical infrastructure in Southeast Asia, their global relevance, assessed regional risk levels, and Indonesia's corresponding strategic role.

Table 1. Key Categories of Southeast Asia's Maritime Critical Infrastructure

Asset Type	Global Relevance	Southeast Asia Risk Level	Indonesia's Strategic Role
Undersea Communication Cables	Carry over 95 % of global internet traffic	High—limited surveillance and redundancy	Regional data hub expanding cable landing stations
Offshore Energy Platforms	Supply regional oil and gas	Medium—aging assets and spill risks	Operator in Natuna; engages foreign partners for modernization
Shipping Chokepoints	Facilitate one-third of global trade	High—piracy, congestion, and military presence	Gatekeeper of the Malacca, Sunda, and Lombok Straits
Maritime Surveillance Zones	Enable domain awareness and deterrence	Moderate—uneven data integration	Expanding BAKAMLA cooperation within ASEAN MDA networks

The analysis of key categories of Southeast Asia's MCI that is put in the matrix reaffirm Indonesia's dual identity as both a user and provider of regional maritime infrastructure. Its geographic position, technical capacity, and diplomatic influence make it central to sustaining regional connectivity and stability. Yet, this centrality also entails strategic responsibility: Indonesia must secure its assets while contributing to the resilience of the broader Indo-Pacific system.

In summary, maritime critical infrastructure in Southeast Asia represents both an economic lifeline and a strategic vulnerability. For Indonesia, under the Joko Widodo presidency, safeguarding these assets transcends technical maintenance and becomes a matter of national defense and regional diplomacy. As framed within RSCT, the protection of MCI is inseparable from regional cooperation and forms a key dimension of Indonesia's defense diplomacy under the Indo-Pacific security architecture.

Regional Threat Landscape

The maritime security environment in Southeast Asia has grown increasingly complex and interdependent, shaped by overlapping geopolitical rivalries, hybrid security challenges, environmental hazards, and institutional weaknesses. Scholars describe the Indo-Pacific maritime domain as a contested yet interconnected space in which economic interdependence coexists with strategic competition. These dynamics directly affect the security of maritime critical infrastructure (MCI), the undersea cables, energy pipelines, and port systems that sustain regional and global connectivity. For Indonesia, whose archipelagic geography sits astride vital sea lanes, MCI protection has become an essential component of national resilience and regional stability.

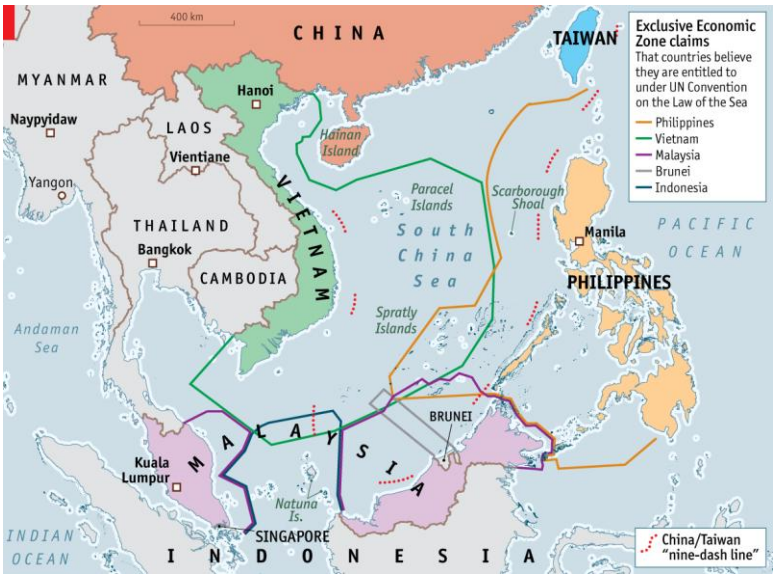


Figure 4. Overlapping EEZ Claim Map in Southeast Asia

Source: jppn.com, 2021

One of the most pressing threats stems from the evolving strategic competition in the South China Sea. China's expansive claims through the so-called "nine-dash line" intersect with the exclusive economic zones (EEZs) of several Southeast Asian states, including Indonesia's Natuna Islands. Although Indonesia does not consider itself a claimant in the South China Sea dispute, incursions by Chinese fishing vessels and coast guard ships into Indonesia's EEZ have increased in frequency and intensity. These activities occur in close proximity to Indonesia's offshore energy platforms and undersea cables, raising concerns about both sovereignty violations and potential attacks on vital infrastructure.

In addition to geopolitical tensions, the region faces an increasing number of hybrid threats. These threats are characterized by the use of ambiguous tactics such as cyberattacks, unmarked vessels, and the manipulation of civilian-commercial platforms for military purposes. The vulnerability of MCI to such tactics is amplified by the lack of persistent surveillance in vast maritime spaces. Southeast Asia's archipelagic geography, combined with the limited capacity of maritime law enforcement agencies, hinders rapid response and detection.

Environmental factors also pose a significant risk. Undersea earthquakes, tsunamis, and extreme weather events frequently damage critical cables and offshore installations. Indonesia's location along the Pacific Ring of Fire makes it particularly susceptible to natural disruptions. Over a dozen incidents of cable failure in Indonesian waters in the last five years were attributed to seismic activity or seabed shifts. These natural threats further complicate efforts to isolate deliberate sabotage or external interference.

Institutionally, ASEAN has made steady progress in developing cooperative maritime frameworks, yet remains constrained by its consensus-based decision-making model and the principle of non-interference. While platforms such as the ASEAN Defence Ministers' Meeting (ADMM) and the ASEAN Maritime Forum (AMF) have served as valuable venues for dialogue and confidence-building, they continue to lack operational mandates, enforcement mechanisms, and shared contingency planning procedures. ASEAN's maritime security architecture remains "fragmented and reactive rather than anticipatory and integrated." The institutional inertia inherent in ASEAN's model limits the region's ability to address fast-evolving maritime security challenges, particularly those associated with hybrid threats and transboundary infrastructure protection.

Indonesia has periodically attempted to lead institutional innovation within ASEAN by proposing practical mechanisms to improve maritime coordination. Notable examples include its advocacy for an ASEAN Coast Guard Network, designed to improve interoperability and information exchange among regional maritime enforcement agencies, and the creation of the ASEAN Our Eyes intelligence-sharing platform aimed at enhancing situational awareness of transnational. However, both initiatives have faced limited implementation due to divergent national priorities, resource asymmetries, and sensitivities surrounding sovereignty and jurisdictional control. As a result, ASEAN's cooperative

efforts remain largely declaratory, lacking binding commitments for infrastructure protection or joint maritime patrols.

At the same time, external powers have expanded their maritime footprint across Southeast Asia, further complicating the regional threat environment. The United States continues to conduct regular Freedom of Navigation Operations (FONOPs) in contested waters to challenge excessive maritime claims, while China's People's Liberation Army Navy (PLAN) maintains a near-continuous presence across the South China Sea and adjacent areas. This intensifying military activity has produced a condition of strategic congestion, wherein naval patrols, surveillance missions, and commercial shipping routes increasingly overlap within constrained maritime corridors. Such congestion amplifies the potential for escalation or accidental encounters, particularly in high-risk areas such as the Natuna Sea, the Spratly Islands, and the Sulu-Celebes Seas. This evolving security environment exposes Southeast Asia's maritime critical infrastructure to a broad spectrum of interconnected threats. Table 2 summarizes the five primary categories of risks affecting MCI in the region, outlining their key manifestations and implications for Indonesia. The typology demonstrates how geopolitical, hybrid, environmental, and institutional factors intersect to create cumulative vulnerabilities that demand an integrated strategic response.

Table 2. Primary Threat Categories to MCI in Southeast Asia

Category	Examples	Implication for Indonesia
Geopolitical Rivalry	South China Sea militarization, illegal incursions	Threat to offshore energy platforms and cables
Hybrid Warfare Tactics	Cyberattacks, unmarked vessels, cable sabotage	Difficulty in attribution and timely response
Environmental Disruption	Earthquakes, tsunamis, monsoons	Infrastructure fragility and economic loss
Institutional Gaps	Weak enforcement from ASEAN frameworks	Limits collective response to maritime security incidents
Strategic Congestion	Overlapping FONOPs, fishing fleets, surveillance missions	Heightened risk of miscalculation or sabotage

Collectively, these conditions establish Southeast Asia as a regional security complex characterized by interdependence and the diffusion of threats. For Indonesia, this reality underscores the need for a maritime security strategy that not only safeguards physical infrastructure but also adapts to the broader regional political, military context.

Addressing these interrelated vulnerabilities requires Indonesia to employ defense diplomacy as both a mechanism of deterrence and cooperation, linking domestic resilience with the stability of the Indo-Pacific security architecture.

Indonesia's Multi-Track Defense Diplomacy

Indonesia's approach to maritime security has evolved into a multi-track defense diplomacy strategy that seeks to simultaneously advance regional stability, assert national sovereignty, and safeguard maritime critical infrastructure. This strategy is embedded within the Global Maritime Fulcrum (GMF) vision and reflects the country's longstanding principle of a "free and active" foreign policy, which has guided Indonesia's external relations since independence. Notes, the GMF represents an effort to integrate Indonesia's maritime identity with proactive diplomacy, enabling Jakarta to balance engagement and autonomy in an increasingly contested Indo-Pacific region. In practice, Indonesia's defense diplomacy is operationalized across bilateral, multilateral, and minilateral platforms, creating a layered and adaptive maritime engagement posture.

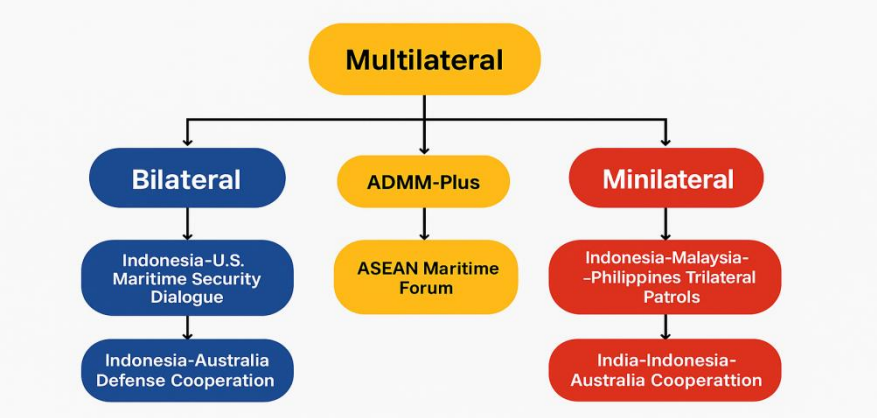


Figure 5. Indonesia's multi-track defense diplomacy

At the bilateral level, Indonesia has intensified maritime cooperation with key regional and extra-regional partners. With Singapore and Malaysia, Indonesia conducts coordinated patrols in the Malacca Strait under the Malacca Strait Patrol (MSP) framework. These patrols are widely recognized for reducing piracy and enhancing maritime domain awareness in one of the world's busiest trade routes. The MSP exemplifies how regional maritime cooperation can succeed through functional pragmatism, even when political alignment is limited. More recently, Indonesia has expanded bilateral naval dialogues and exercises with Australia and Japan, focusing on submarine surveillance, cyber-resilience, and early warning systems. The Indonesia–Japan Maritime Forum and Indonesia–Australia

2+2 Dialogue now include sub-agendas on maritime domain awareness, undersea cable protection, and coordinated crisis response.

Indonesia has also deepened defense ties with the United States through recurring participation in Super Garuda Shield, a joint military exercise that has grown in scale and symbolism. The 2023 iteration involved over 7,000 troops and featured amphibious landings, cybersecurity drills, and naval asset protection scenarios. Indonesia's participation in such activities illustrates a hedging strategy, balancing engagement with major powers while avoiding overdependence on any single partner. These exercises also serve as platforms for technology transfer, interoperability, and scenario-based training, all crucial for defending infrastructure against asymmetric threats.

In parallel, Indonesia maintains strategic engagement with non-Western partners to preserve diplomatic balance. The Samudra Shakti naval exercises with India emphasize humanitarian assistance and disaster response (HADR), port security, and anti-submarine operations. Meanwhile, participation in the Komodo Exercises alongside Russia and China underscores Jakarta's inclusive and independent diplomatic posture. Contends that this approach reflects Indonesia's non-aligned pragmatism, allowing it to diversify partnerships and enhance defense readiness without compromising strategic autonomy. Such multilateral engagements enable Indonesia to build technical and operational capacity while avoiding entanglement in great power rivalries.

At the multilateral level, Indonesia plays an active leadership role within ASEAN defense structures. It has hosted and promoted the ASEAN Our Eyes (AOE) initiative, which facilitates intelligence sharing on maritime threats such as illegal fishing, piracy, terrorism, and cyber intrusions. Through the ASEAN Defence Ministers' Meeting-Plus (ADMM-Plus), Indonesia also contributes to working groups on maritime security and cyber defense, reinforcing regional capacity-building and trust. However, ASEAN's consensus-based approach and lack of enforcement mechanisms continue to constrain operational cooperation in infrastructure protection.

Indonesia's minilateral engagements, including its role in the India–Indonesia–Australia trilateral maritime dialogue and IORA working groups, provide a middle ground between formal alliances and broad multilateralism. These smaller frameworks allow flexible coordination on issues such as cable mapping, chokepoint surveillance, and rapid

deployment during crises. Such arrangements allow Indonesia to exercise leadership within specific functional domains, advancing its interests while promoting regional resilience.

From a theoretical standpoint, these multi-track engagements embody Indonesia's hedging strategy in the Indo-Pacific security complex. Hedging enables states to reduce strategic uncertainty by engaging multiple actors without committing exclusively to any. Jakarta's approach reflects its understanding that maritime threats are diffuse and transnational, requiring a networked response. Emphasizes that regional stability emerges from patterns of interdependence rather than unilateral action.

Importantly, Indonesia's defense diplomacy now transcends traditional military engagement. It integrates civilian infrastructure protection with naval operations, port security with customs modernization, and satellite-based surveillance with open-source intelligence systems. as a dual-use model of defense diplomacy, a synthesis of deterrence and cooperation that allows Indonesia to project influence while promoting trust. Through this approach, Indonesia increasingly acts as a maritime norm entrepreneur, shaping the rules, partnerships, and institutional practices that define the Indo-Pacific security architecture.

Table 3 below summarizes Indonesia's layered defense diplomacy initiatives across bilateral, multilateral, and minilateral channels. By identifying concrete initiatives under each track, the table illustrates how Indonesia blends normative engagement, technical cooperation, and strategic deterrence within a coherent and adaptive framework. Collectively, these engagements show that Indonesia's defense diplomacy not only enhances maritime infrastructure protection but also strengthens its broader role as a stabilizing actor in the Indo-Pacific region.

Table 3. Indonesia's Multi-Track Defense Diplomacy Initiatives

Track	Example Initiatives	Function in MCI Protection
Bilateral	MSP with Singapore and Malaysia, AUS–IDN MDA, JPN–IDN cyber drills	Targeted patrols, technical cooperation, infrastructure mapping
Multilateral	ADMM+, ASEAN Our Eyes, IMO engagement	Norm-setting, info-sharing, trust-building
Minilateral	India–Indonesia–Australia Trilateral, IORA working groups	Chokepoint coordination, flexible intelligence exchange
Joint Exercises	Super Garuda Shield, Komodo Exercises, Samudra Shakti	Joint response scenarios, submarine surveillance, cyber defense

Taken together, Indonesia's multi-track defense diplomacy represents an evolving synthesis of strategy, pragmatism, and leadership. It bridges domestic maritime ambitions with the wider Indo-Pacific security architecture, demonstrating how a middle power can convert geographic vulnerability into strategic relevance. By diversifying partnerships, Indonesia manages to strengthen operational capacity while preserving strategic autonomy. The combination of bilateral trust-building, multilateral norm-setting, and minilateral agility illustrates that maritime security in the region depends on both cooperation and flexibility. This integrated diplomacy not only supports the protection of maritime critical infrastructure but also contributes to a more stable and resilient regional order.

DISCUSSION

This study set out to examine how Indonesia's defense diplomacy contributes to safeguarding maritime critical infrastructure (MCI) in a densely interconnected Indo-Pacific. The analysis combined empirical evidence with Regional Security Complex Theory (RSCT) and concepts of hedging and dual-use defense diplomacy to answer two questions: what are the principal vulnerabilities and security dynamics surrounding MCI in Southeast Asia, and how has Indonesia used defense diplomacy to address those challenges. The following discussion integrates the empirical findings with theory, evaluates the effectiveness and limits of Indonesia's strategy, and draws out concrete policy implications and directions for further research.

The first research question asked what the major vulnerabilities and security dynamics associated with MCI in Southeast Asia are. The evidence indicates four mutually reinforcing sources of vulnerability: geopolitical competition, hybrid and cyber threats, environmental hazards, and institutional fragmentation. Geopolitical competition produces what scholars have called strategic congestion, where multiple navies, coast guards, commercial fleets, and service providers operate in constrained corridors such as the Malacca Strait, the Natuna area, and the South China Sea (Bueger & Edmunds, 2020; IISS, 2023). This congestion increases the probability of accidental damage to cables and platforms and raises the stakes of maritime encounters (Jones & Liu, 2023). Hybrid threats and cyber-attacks exploit the growing cyber-physical integration of MCI; incidents such as the Asia-America Gateway interruption illustrate how unclear attribution and weak regional procedures complicate timely responses (SEA-ME-WE Consortium, 2022; Novak, 2024).

Environmental risks, driven by seismic activity and extreme weather, further amplify fragility and demand resilience measures that combine scientific monitoring with infrastructure planning (Rahman, 2019; Kim, 2023). Finally, institutional fragmentation—both domestically among agencies and regionally within ASEAN—limits coordinated detection, attribution, and joint response capacity (Zulhatta, 2022; Silva & Tan, 2021). RSCT helps explain why these vulnerabilities are best conceived as regional rather than purely national problems: the physical and functional interdependence of cables, pipelines, and sea lanes ties states' security outcomes together (Buzan & Wæver, 2003; Amable, 2022).

The second research question asked how Indonesia has employed defense diplomacy to manage these vulnerabilities within the Indo-Pacific security complex. The findings show a deliberate, multi-track approach that combines bilateral technology and capability transfers, multilateral norm building, and flexible minilateral cooperation. At the bilateral level, partnerships with technologically capable states such as Japan and Australia have focused on cable vulnerability mapping, seabed sensors, and cyber resilience training (Kim, 2023; Fita, 2025). Multilaterally, Indonesia leverages ASEAN-centered mechanisms and ADMM-Plus working groups to institutionalize intelligence sharing and confidence building, for example through ASEAN Our Eyes, even though those platforms remain largely consultative (Wulolo et al., 2019; Pedrason & Montratama, 2025). Minilateral arrangements with partners such as India and Australia provide the agility required for specific tasks such as chokepoint surveillance and coordinated cable mapping (Streher, 2025; Fita, 2025).

Conceptually, Indonesia's conduct is best read as hedging: Jakarta avoids hard commitments while cultivating multiple security relationships to reduce dependency and increase options (Goh, 2006). Defense diplomacy functions as a dual-use policy instrument. Cooperative activities such as joint exercises, officer exchanges, and technical assistance build trust and capacity while simultaneously signaling capability and resolve, thus contributing to deterrence without formal alliance entanglement (Pedrason & Montratama, 2025; Gusti et al., 2018). The combined RSCT–hedging–dual-use framework clarifies both why Indonesia pursues these policies and how they map onto concrete initiatives aimed at MCI protection.

This study advances three theoretical points. First, it extends RSCT by showing that the concept of a regional security complex can be productively applied to cyber-physical infrastructures. MCI are not merely economic assets but nodes of strategic interdependence that catalyze regionally shared insecurity and demand cooperative security governance (Vaarandi et al., 2025). Second, the hedging literature is enriched by evidence that hedging strategies can be operationalized through infrastructure-centric defense diplomacy. Rather than treating hedging as primarily a balance of alignments, the Indonesian case demonstrates how hedging can emphasize capability acquisition and normative leadership in functional domains such as cable protection and cyber resilience (Nurjanah & Silaen, 2024). Third, the study contributes to the defense diplomacy literature by conceptualizing a dual-use model that explicitly incorporates infrastructure protection. This moves the literature beyond traditional emphases on exercises and peacekeeping toward an integrated civil-military and technological focus relevant to contemporary security problems (Pedrason & Montratama, 2025; Drab & Żakowska, 2024)

Indonesia's defense diplomacy has produced several concrete gains. Bilateral and minilateral partnerships have transferred technical skills, improved MDA coverage in targeted areas, and generated joint standards for incident response. Multilateral participation has enhanced Indonesia's leadership credentials and helped normalize the idea that infrastructure protection merits regional attention (Wulolo et al., 2019; Gusti et al., 2018). Such gains are consistent with RSCT's expectation that regional interdependence incentivizes cooperative institutions.

However, significant limitations persist. Institutional fragmentation at the domestic level undermines rapid, integrated responses to incidents that require both civilian and military action (Gusti et al., 2018). Regionally, ASEAN's consensus model and non-interference norm constrain the transition from dialogue to operational collective action, particularly when sovereignty or great-power politics are implicated (Zulhatta, 2022; Silva & Tan, 2021). Technical dependencies also create tradeoffs: reliance on foreign technology and expertise can increase capacity but also create supply and political vulnerabilities if partnerships become politicized. Finally, hedging works up to a point; in scenarios of high-intensity great-power conflict or deliberate state sabotage, hedging and confidence-building alone may not suffice to deter or respond effectively.

This study is based on a thematic analysis of open-source materials and recent literature. While the approach allows for wide synthesis, the absence of primary interviews with policymakers and operational personnel restricts insight into decision calculus and operational constraints. Future research should incorporate elite interviews and field case studies of incident responses to assess operational performance. Comparative work with other archipelagic states such as the Philippines and Malaysia would clarify which elements of Indonesia's model are transferable. Finally, interdisciplinary studies that model cyber-physical attack scenarios on cables and pipelines would help prioritize investments and contingency plans.

CONCLUSION

This research has examined Indonesia's evolving role in safeguarding maritime critical infrastructure through defense diplomacy within the Indo-Pacific security architecture. It has shown that the security of undersea cables, ports, pipelines, and shipping routes is no longer a purely technical issue but a central dimension of regional stability. Indonesia, as the largest archipelagic state in Southeast Asia, stands at the intersection of global connectivity and geopolitical competition, where maritime vulnerabilities translate directly into strategic risks.

Through a combination of theoretical reflection and empirical analysis, the study has demonstrated that Indonesia's approach is shaped by a pragmatic blend of engagement, autonomy, and resilience. Its defense diplomacy reflects a deliberate balance between cooperation and independence, allowing the country to strengthen national capacity while promoting regional stability. By engaging with multiple partners and international frameworks, Indonesia has positioned itself as both a security actor and a diplomatic bridge between competing powers.

The findings highlight that effective protection of maritime critical infrastructure requires more than military capability. It depends on institutional coherence, technological innovation, and sustained collaboration between government, private sector, and international partners. Indonesia's experience shows that proactive diplomacy and strategic hedging can serve as tools not only for deterrence but also for building trust and collective resilience in an increasingly complex maritime domain.

This study contributes to a deeper understanding of how middle powers can use defense diplomacy to manage shared vulnerabilities and shape regional security norms. It underscores that the protection of maritime infrastructure is inseparable from the broader pursuit of peace, connectivity, and sustainable development in the Indo-Pacific.

In moving forward, Indonesia and its regional partners must transform dialogue into coordinated action. Strengthening interagency cooperation, enhancing technological self-reliance, and institutionalizing mechanisms for regional crisis response are essential steps. The safeguarding of maritime critical infrastructure is not solely Indonesia's challenge but it is a shared responsibility that defines the stability and prosperity of the entire region.

REFERENCES

Afpriyanto, A., Putra, N., Jupriyanto, J., & Sari, P. (2023). Critical role of maritime infrastructure in Indonesian defense logistics management towards the World Maritime Axis. *International Journal of Humanities Education and Social Sciences (IJHESS), 3*(3). https://doi.org/10.55227/ijhess.v3i3.657

Ardiyanti, D., & Mubarak, S. (2025). An overview of Japan–Indonesia maritime security in Indo-Pacific region. *Indonesian Journal of International Relations, 9*(1), 162–181. https://doi.org/10.32787/ijir.v9i1.495

Agastia, D. (2021). Joko Widodo's fleeting maritime ambitions: An actor-specific analysis of Indonesia's Global Maritime Fulcrum. *Journal of Asian Security and International Affairs, 8*(3), 304–323. https://doi.org/10.1177/23477970211035892

Amable, S. (2022). Theorizing the emergence of security regions: An adaptation for the Regional Security Complex Theory. *Global Studies Quarterly, 2*(4), ksac065. https://doi.org/10.1093/isagsq/ksac065.

ASEAN Secretariat. (2019). *ASEAN Outlook on the Indo-Pacific*. Jakarta: ASEAN Secretariat. https://www.asean.org/wp-content/uploads/2019/06/ASEAN-Outlook-on-the-Indo-Pacific_FINAL_22062019.pdf

ASEAN Secretariat. (2022). *ASEAN Maritime Outlook 2022: Cooperation and Security in Southeast Asian Waters*. Jakarta: ASEAN Secretariat. https://asean.org/book/asean-maritime-outlook/

Bradshaw, C., Atkinson, S., & Doody, O. (2017). Employing a qualitative descriptive approach in health care research. *Global Qualitative Nursing Research, 4*, 1–8. https://doi.org/10.1177/2333393617742282

Bueger, C., & Edmunds, T. (2020). Blue crimes: Conceptualising transnational organised crime at sea. *Marine Policy, 119*, 104067. https://doi.org/10.1016/j.marpol.2020.104067

Dorman, A. (2023). The Nord Stream sabotage and the future of undersea infrastructure security. *Naval War College Review, 76*(2), 85–104.

Drab, L., & Żakowska, M. (2024). Defense diplomacy as a tool for international stability: Contemporary trends and challenges. *Security and Defence Quarterly, 46*(1), 55–72. https://doi.org/10.35467/sdq/180978

Fita, R. (2025). Functional cooperation in the Indian Ocean Rim: Lessons from Indonesia's trilateral diplomacy. *Journal of Indo-Pacific Affairs, 8*(1), 88–106.

Goh, E. (2006). Understanding "hedging" in Asia-Pacific security. *The Pacific Review, 18*(3), 1–26. https://doi.org/10.1080/09512740500189041

Gusti, I., Dharma, B., Agastia, A., & Perwita, A. A. B. (2018). Building maritime domain awareness as an essential element of the Global Maritime Fulcrum: Challenges and prospects for Indonesia's maritime security. *Jurnal Hubungan Internasional*, 6(2), 2017-2018. https://doi.org/10.18196/hi.62116

Huang, M. (2024). Maritime infrastructure and strategic competition in the Indo-Pacific. *Asian Security, 20*(1), 77–93.

Inkiriwang, M. (2021). Indonesia's maritime diplomacy and defense cooperation: Balancing autonomy and engagement. *Contemporary Southeast Asia, 43*(1), 89–112.

International Institute for Strategic Studies (IISS). (2023). *The military balance 2023*. Routledge.

Jones, D., & Liu, K. (2023). Strategic congestion and maritime competition in the Indo-Pacific. *Journal of Contemporary Asia, 53*(2), 235–254.

Kementerian Pertahanan Republik Indonesia. (2023). *Laporan tahunan pertahanan 2023*. Jakarta: Kemenhan RI.

Kim, H. (2023). Cable vulnerability mapping near the Natuna Sea: Sensors and data integration. *Ocean & Coastal Management, 239*, 106571. https://doi.org/10.1016/j.ocecoaman.2023.106571

Kim, H. S., Sefcik, J. S., & Bradway, C. (2017). Characteristics of qualitative descriptive studies: A systematic review. *Research in Nursing & Health, 40*(1), 23–42. https://doi.org/10.1002/nur.21768

Kocak, B. (2022). The geopolitics of submarine data cables in Southeast Asia. *Journal of Global Infrastructure Policy, 9*(4), 215–229.

Lamont, C., & Boduszyński, M. (2022). Methodological pluralism in international relations: The case for qualitative descriptive approaches. *International Studies Review, 24*(2), 295–312.

Liang, Y. (2017). China's maritime presence and regional perceptions in Southeast Asia. *Asian Journal of Political Science, 25*(3), 310–328.

Montratama, I. (2024). Indonesia's Global Maritime Fulcrum: Policy evolution and strategic implications. *Journal of Maritime Policy and Strategy, 12*(1), 50–67.

Nurjanah, I., & Silaen, C.A. (2024). AUKUS-RI: The Answer for Indonesia's Future Maritime Challenges Over the North Natuna Sea? *Jurnal Lemhannas RI*. https://doi.org/10.55960/jlri.v12i3.910

Novak, D. (2024). Cyber-physical vulnerabilities in undersea communication systems. *Journal of Strategic Security Studies, 18*(1), 27–46.

Pedrason, R., & Montratama, I. (2025). *Defense diplomacy: Theoretical and strategic perspectives*. Center for Strategic Studies, Universitas Pertahanan.

Putra, M. (2024). Indonesia's Global Maritime Fulcrum and foreign policy autonomy. *Journal of Southeast Asian Affairs, 51*(2), 200–221.

Rahman, M. (2019). Climate risk and maritime infrastructure resilience in the Asia-Pacific. *Journal of Environmental Policy & Planning, 21*(7), 911–928.

Raymaker, L., Ong, D., & Setiawan, A. (2025). Ocean sensor integration and undersea network resilience in the Indo-Pacific. *Marine Technology Journal, 59*(1), 21–39.

Roulston, K. (2022). Qualitative data analysis and interpretation. *Qualitative Research Journal, 22*(3), 251–266. https://doi.org/10.1108/QRJ-04-2021-0047

SEA-ME-WE Consortium. (2022). *Asia-America Gateway outage and restoration report.* Singapore: SEA-ME-WE Consortium.

Seno, B., & Ponto, E. (2025). Securitizing infrastructure in the Indo-Pacific: Indonesia's maritime agenda and regional interdependence. *Maritime Affairs: Journal of the National Maritime Foundation of India, 21*(1), 78–96.

Silva, J., & Tan, M. (2021). ASEAN institutional limitations in maritime crisis response. *Journal of Asian Security, 12*(3), 156–176.

Streher, T. (2025). Middle power strategies and regional order in the Indo-Pacific. *International Relations Quarterly, 42*(1), 55–71.

TeleGeography. (2025). *Submarine cable map and data systems report 2025*. Washington, DC: TeleGeography Research. https://www.submarinecablemap.com

The Guardian. (2024, January 15). How undersea cables became the world's information lifeline. *The Guardian.* https://www.theguardian.com

The Jakarta Post. (2023, August 8). *Super Garuda Shield expands as Indonesia hosts multinational drills.* https://www.thejakartapost.com

Vaarandi, J., Nguyen, H., & Lim, C. (2025). Mapping interdependent vulnerabilities of Indo-Pacific submarine infrastructure. *Journal of Security Studies and Global Strategy, 7*(2), 130–149.

Vishwanath, A. (2025, June 14). *Protecting critical infrastructure in South Asia: Cyber threats and solutions*. South Asian Voices. https://www.stimson.org/2025/protecting-critical-infrastructure-in-south-asia-cyber-threats-and-solutions/

Waluyo, R. (2024). India–Indonesia defense cooperation: Lessons from Samudra Shakti exercises. *Defence and Diplomacy Review, 19*(2), 75–92.

Wulolo, C. M., Legionosuko, T., Suhirwan, & Yusuf. (2019). Opportunities and optimization of the Our Eyes initiative as the strategy for counter-terrorism in ASEAN. *International Journal of Law and Political Sciences, 13*(1). World Academy of Science, Engineering and Technology. https://waset.org/Publication/10009914

Wisesa, R., Rachman, F., & Prakoso, H. (2024). Integrating maritime surveillance with civil infrastructure: Indonesia's emerging defense model. *Journal of Strategic Security, 17*(1), 32–48.

Zulhatta, A. (2022). Maritime security in Southeast Asia: How has ASEAN been talking about it so far? *Andalas Journal of International Studies, 11*(2), 197–210. https://doi.org/10.25077/ajis.11.2.197-210.2022