Critical Research Article

Mapping Indonesia's Maritime Defense Strategy: A Critical Analysis of Enforcement Effectiveness Against Territorial Violations in the North Natuna Sea

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Abstract: This study examines Indonesia's maritime defense strategy in the North Natuna Sea, focusing on the identification of major threats and the assessment of enforcement effectiveness. A descriptive qualitative method was employed, utilizing interviews, observations, and document analysis, with data analyzed through Miles and Huberman's model. The findings show that Indonesia applies a layered maritime defense that integrates military power, diplomacy, law enforcement, and community participation. Key threats consist of illegal, unreported, and unregulated (IUU) fishing, grey zone tactics, unauthorized seabed surveys, and transnational smuggling. Joint operations involving the Navy, the Maritime Security Agency (Bakamla), and the Ministry of Marine Affairs and Fisheries were found to reduce violations, with an estimated Rp774.3 billion in potential state losses prevented between January and May 2025. However, the overall effectiveness remains limited due to constrained naval assets, weak interagency coordination, and regional geopolitical pressures. The study underscores the significance of a multi-actor enforcement approach and recommends the establishment of integrated command centers, modernization of AI-based surveillance systems, and the strengthening of defense diplomacy to reinforce Indonesia's maritime security posture.

Keywords: Maritime defense strategy, North Natuna Sea, IUU fishing, Grey zone, Enforcement effectiveness.

1. Introduction

Indonesia, the world's largest archipelagic nation with over 17,000 islands and 108,000 km of coastline, faces major challenges in protecting its maritime sovereignty. One critical area is the North Natuna Sea, located within Indonesia's Exclusive Economic Zone (EEZ) [1]. This region borders the South China Sea and has become a hotspot for geopolitical conflict due to China's unilateral claim through the nine-dash line concept, which overlaps with Indonesia's jurisdiction [2]. The threat of territorial violations in the form of illegal, unreported, and unregulated (IUU) fishing, unauthorized underwater surveys, and gray zone tactics not only threaten national sovereignty but also

disrupt the economic stability of coastal communities and regional security [3].

Economically, Natuna plays a strategic role as it has been designated as an Integrated Marine and Fisheries Center (SKPT) to support national food security. However, structural weaknesses within the country in terms of supervision and regulation, coupled with high international market demand and weak law enforcement against illegal fishing, are the main triggers for the increase in IUU fishing cases in Indonesia [4]. From a legal perspective, Indonesia adheres to UNCLOS 1982 and Law No. 5 of 1983 concerning the Exclusive Economic Zone as the basis for maritime defense legitimacy. Nevertheless, violations continue to occur, such as the deactivation of the Automatic

Identification System (AIS) [5].

To address these threats, Indonesia has developed a multi-layered maritime defense strategy through the integrated concepts of deterrence, action, and recovery with the Universal People's Defense and Security System (SISHANKAMRATA). The implementation of this strategy includes routine patrols by the Indonesian Navy (TNI AL), joint operations with Bakamla, and the involvement of coastal communities through the Kampung Bahari Nusantara program [6]. However, the effectiveness of this strategy still faces serious obstacles in the form of limited defense equipment, weak inter-agency coordination, and low utilization of modern technology such as military satellites or artificial intelligence [7], [8]. This issue has not been empirically studied, especially from a multilevel perspective involving local governments and communities.

Several previous studies have highlighted the integration of the Indonesian Armed Forces' information system in border security [9]. Defense diplomacy strategies in dealing with the China Coast Guard [10]. However, most of these studies are still normative in nature, with a dominant focus on military or diplomatic aspects alone, without empirically evaluating the effectiveness of actions involving multilevel actors. The novelty of this study is its emphasis on the synergy between the military, law enforcement, and diplomacy as integral components of Indonesia's maritime defense in the North Natuna Sea.

This study aims to map Indonesia's maritime defense strategy in the North Natuna Sea, identify key threats, and evaluate the effectiveness of territorial violation enforcement. This study is expected to enrich maritime defense strategy studies with a multilevel actor approach. The results of this study can be used as a basis for evaluation and policy recommendations for Koarmada I, Bakamla, and the Natuna Regency Government to strengthen coordination, modernize defense equipment, and utilize artificial intelligence-based surveillance technology [11], [12], [13], [14]. Thus, this research contributes to strengthening Indonesia's defense posture in the Indo-Pacific region and supports Indonesia's

vision as a global maritime fulcrum.

2. Materials and Methods

This study employed a descriptive qualitative approach to examine Indonesia's layered maritime defense strategy and assess the effectiveness of law enforcement measures in the North Natuna Sea. The qualitative design enables an in-depth exploration of complex field realities, allowing researchers to directly capture interactions among actors, policies, and conditions [15]. The research focused on three key aspects: (1) mapping maritime defense strategies, (2) identifying territorial threats, including illegal fishing and gray zone tactics, and (3) evaluating the effectiveness of law enforcement from a multi-actor perspective.

The study was conducted in Natuna Regency, Riau Islands Province, a strategically significant area within Indonesia's Exclusive Economic Zone (EEZ) adjacent to the South China Sea, known for its vulnerability to maritime violations by foreign entities. Data were sourced from both primary and secondary sources. Primary data were gathered through in-depth interviews with key stakeholders, including representatives from relevant authorities, providing direct insights into defense strategies, threat dynamics, and law enforcement practices. Secondary data were derived from official operational reports, policy documents from the Natuna Regency Government, academic publications, and credible media reports offering historical and comparative evidence.

The primary research instrument was the researcher, supported by semi-structured interview guidelines organized into three thematic clusters: (1) maritime defense strategy mapping, (2) identification of territorial violations, and (3) evaluation of law enforcement effectiveness. Open-ended questions facilitated flexible exploration of topics such as inter-agency coordination and responses to gray zone tactics. Data collection involved three techniques: (1) in-depth interviews to capture empirical knowledge [15], [16], (2) direct observations at strategic sites, including Indonesian Navy bases, fishing ports,

and coastal villages, to validate operational realities [17], and (3) document analysis of policies and operational reports to contextualize findings [18]. Triangulation of these methods ensured the findings were robust and objectively grounded [19].

Data analysis followed the interactive model proposed by Miles and Huberman (1994), comprising three stages: data reduction, data presentation, and conclusion drawing/verification [19]. Relevant information was categorized into themes of strategy, threats, and enforcement, then presented in narrative and tabular formats to identify patterns and relationships. Conclusions were validated through cross-referencing multiple data sources to ensure reliability and validity.

3. Results

3.1 Mapping Maritime Defense Strategies

Indonesia's maritime defense strategy in the North Natuna Sea is mapped out as a multi-layered effort that combines military force, diplomacy, law, and community participation. The strategic position of the North Natuna Sea within Indonesia's Exclusive Economic Zone (EEZ) makes it a hotspot for violations, both in the form of illegal, unreported, and unregulated (IUU) fishing and maneuvers by foreign coast guard vessels using grey zone tactics [2], [3]. In this context, the Indonesian Navy plays a major role by carrying out routine operations such as the North Natuna Sea Security Operation (PAM LNU), maritime air patrols, and joint operations with Bakamla and the Ministry of Maritime Affairs and Fisheries (KKP). This presence serves as a form of deterrence as well as the implementation of a layered maritime strategy that includes prevention, enforcement, and recovery, as explained.

The strengthening of strategy is also evident in the development of military infrastructure such as coastal radar, fleet docks, and support bases at Ranai Naval Base, which enable the rapid mobilization of KRI elements to conflict-prone areas. The modernization of defense equipment, the addition of UAVs, and the use of Vessel Monitoring Systems (VMS) and

AIS further strengthen the maritime surveillance system [20]. This is in line with the Ushirogata concept (2025), which emphasizes that maritime military strategy must be directed at eliminating threats, controlling the sea, and projecting national power [21].

However, maritime defense strategies do not only focus on military aspects but are also implemented through institutional coordination within the framework of the Universal People's Defense and Security System (SISHANKAMRATA). Bakamla, for example, acts as the first layer in early detection and law enforcement through integrated patrols, coastal radar integration, and coordination with the Indonesian Navy and Polairud [6]. This inter-agency synergy is important to overcome operational constraints such as limited fleet numbers and the vastness of the surveillance area [7].

The maritime defense models of ASEAN countries show diverse yet relevant patterns of adaptation for Indonesia. Vietnam, for example, relies on the strategy of forming the Vietnam Maritime Militia (VMM) as a people-based maritime defense force that assists the Vietnam Coast Guard in maintaining sovereignty and national jurisdiction in its maritime territory [22]. This strategy is based on the concept of people's defense, in which fishermen are trained and lightly armed to serve as the front line in responding to provocations and violations of sovereignty in the South China Sea.

The Philippines is pursuing a more multidimensional approach to its South China Sea defense strategy under the Marcos Jr. administration. The Philippine government is strengthening its position by combining hard power and soft power, namely by deepening multilateral defense cooperation with the United States, Japan, and Australia, as well as utilizing international legal channels such as the 2016 arbitration ruling to strengthen the legitimacy of its claims [23]. In addition, the Philippines is also increasing its diplomatic activities and public communications (strategic propaganda) to gain international support and suppress China's aggressiveness in the disputed region.

Malaysia's ideal military strategy is based

on a hedging approach, which is a strategy of balancing cooperation and defense independence in the face of the dynamics of major powers in the region. This approach is realized through a combination of deference (pragmatic cooperation with major powers such as China in the economic and defense fields) and defiance (subtle rejection of domination, particularly in the South China Sea, through diplomacy and international law). The strategy is supported by a non-alignment layered defense system, which involves multilateral cooperation within the framework of the ASEAN Defense Ministers' Meeting (ADMM) and the Five Power Defense Arrangements (FPDA), as well as strengthening maritime capabilities through the modernization of the Royal Malaysian Navy (TLDM) fleet [24].

Thus, Indonesia's maritime defense policy in Natuna can be seen as ASEAN's most balanced strategic variant, as it integrates elements of hard power (military), soft power (diplomacy), and civil power (public participation). This approach not only strengthens deterrence but also builds collective regional resilience through ASEAN multilateral interoperability and coordination in maintaining maritime security. In addition, the maritime defense strategy in Natuna is also strengthened through defense diplomacy. Indonesia actively participates in international joint exercises such as RIMPAC, INDOPURA, and MALINDO, which strengthen interoperability and increase deterrence against foreign parties [10]. The non-confrontational diplomatic approach taken in the ASEAN forum also serves to assert Indonesia's sovereignty while maintaining regional stability [25]. Thus, the defense strategy in the North Natuna Sea is not only a military instrument but also part of foreign policy and defense diplomacy efforts.

Mapping maritime defense strategies in Natuna also involves coastal communities as part of the overall defense system. Local fishermen are involved as maritime intelligence partners through training in reporting suspicious activities at sea [12]. This role not only supports the effectiveness of surveillance, but also strengthens the community's national awareness in maintaining territorial sovereignty. Thus, community involvement is an important element that complements military and diplomatic forces.

Despite progress, several challenges remain. Limited assets and budgets reduce patrol intensity, and overlapping authority between the Navy and Bakamla hinders coordination [20], [26]. In addition, the grey zone tactics used by foreign coast guard vessels are difficult to deal with because they are below the threshold of open military conflict [27]. This condition shows that defense strategies need to be continuously developed in an adaptive manner to respond to increasingly complex contemporary threats.

Table 1. Summary of Indonesia's Layered Maritime Defense Strategy in the North Natuna Sea

Strategic Layer	Main Actor/Institution	Key Instruments	Expected Outcome
Military Deterrence	Indonesian Navy (TNI AL)	KRI patrols, UAV, radar, coastal bases	Deterrence against foreign incursions
Law Enforcement	Bakamla, KKP, Polairud	Integrated patrols, AIS, VMS	Reduction of IUU fishing and illegal surveys
Diplomacy	Ministry of Foreign Affairs, MoD	ASEAN forums, joint exercises	Regional stability and legitimacy
Community Participation	Coastal communities, Pokmaswas	Information sharing, early reporting	Enhanced maritime awareness and local engagement

Overall, the mapping of maritime defense strategies in the North Natuna Sea, which reflects a combination of military strength, diplomacy, law, and the role of the community, has shown positive results and proven to be effective with tangible results in the field. Data from a press release by the Ministry of Maritime Affairs and Fisheries shows that from January to

May 2025, the government managed to save the state from potential losses of Rp774.3 billion from illegal fishing practices by capturing 32 fishing vessels suspected of IUU fishing, including two Vietnamese-flagged vessels operating in the North Natuna Sea. In addition, the KKP also cracked down on 23 illegal fish aggregating devices (FADs) that were used by illegal fishing perpetrators and disrupted the marine ecosystem [28].

3.2 Forms of Maritime Territorial Violations in Natuna

The nature of territorial violations in the North Natuna Sea is complex, involving both traditional and non-traditional threats. Traditional threats mainly arise from China's unilateral claim through the "nine-dash line" concept, which overlaps with Indonesia's Exclusive Economic Zone (EEZ). The presence of coast guard vessels (China Coast Guard/CCG) and foreign military vessels in these waters often triggers tensions, especially through provocative actions such as collisions, interceptions, and even the use of water cannons against Indonesian vessels [2], [3]. These actions are classified as part of grey zone tactics, which are strategies carried out below the threshold of open military conflict to weaken the opponent's position without causing direct escalation of war [27].

In addition to traditional threats, the North Natuna Sea also faces non-traditional threats dominated by illegal, unreported, and unregulated (IUU) fishing practices by foreign vessels. Fishing vessels flying the flags of Vietnam, China, and Thailand often enter Indonesia's EEZ to fish illegally. Interviews with PSDKP officials revealed that IUU fishing activities are seasonal and carried out by turning off the Automatic Identification System (AIS) to avoid detection by Indonesian radar. This practice causes significant economic losses, damages the marine ecosystem, and disrupts the livelihoods of local fishermen [29].

Another threat that has emerged is unauthorized underwater surveys conducted by foreign vessels with the aim of mapping potential natural resources and strategic underwater routes in Natuna. Such surveys have the potential to be used for military purposes and to strengthen foreign countries' claims over disputed territories. In addition, cross-border smuggling through the Natuna sea lanes has also been identified as a threat, particularly the trade in narcotics and illegal goods that take advantage of weak surveillance of international sea lanes.

The impact of these various threats not only concerns the sovereignty of the state, but also has socio-economic implications. Cen Sui stated that the massive presence of foreign vessels reduces the fishing grounds of local fishermen, triggers horizontal conflicts, and undermines the confidence of coastal communities in the state's ability to protect its maritime territory. In addition, these threats increase the risk of regional instability because the North Natuna Sea has become a hotspot for geopolitical rivalry between the United States and China [30].

Thus, threats to territorial integrity in the North Natuna Sea can be categorized into four main types: (1) territorial claims and the presence of foreign vessels through grey zone tactics, (2) massive IUU fishing practices, (3) illegal underwater surveys, and (4) cross-border smuggling. This mapping shows that the threats are not only military in nature, but also multidimensional, encompassing economic, social, and ecological aspects. Therefore, Indonesia's maritime defense strategy must be directed not only at strengthening the military aspect, but also at law enforcement, maritime diplomacy, and coastal community empowerment to create a holistic maritime defense.

3.3 Evaluation of the Effectiveness of Enforcement of Maritime Territorial Violations in Natuna

An evaluation of the effectiveness of enforcement against territorial violations in the North Natuna Sea shows significant results despite still facing various structural obstacles. Since the intensification of integrated maritime security operations such as the North Natuna Sea Security Operation (PAM LNU), routine patrols by the Indonesian Navy, and joint operations with Bakamla and the Ministry of

Maritime Affairs and Fisheries (KKP), Aan Sibayang emphasized that these achievements demonstrate that enforcement strategies based on adaptive patrols and maritime force deployment are capable of creating a deterrent effect on foreign vessels that frequently enter Indonesia's EEZ.

In addition to the military approach, the effectiveness of enforcement is also strengthened by the role of maritime law enforcement. Djoko Wahyu Utomo (interview, July 8, 2025) stated that Bakamla, as the first line of defense in the civilian detection and patrol system, plays an important role in enforcing EEZ violations, especially against foreign fishing vessels. Bakamla's collaboration with the Indonesian Navy, KKP, and Polairud in integrated patrols has proven to increase the responsiveness and effectiveness of operations. This is in line with the Indonesian Navy-Bakamla interoperability model proposed by Sudiro et al. (2024), in which military-civilian synergy is a determining factor in the success of a comprehensive defense system at sea [26].

However, the effectiveness of enforcement still faces a number of limitations. Nazarudin highlighted the limited number of KRI ships and operational budgets, which prevent patrols from being carried out continuously at all vulnerable points. This situation opens up opportunities for foreign ships, particularly from Vietnam and China, to engage in grey zone tactics and intermittent violations. This phenomenon shows a gap between strategic objectives (ends) and means, as criticized by Panggabean et al. (2025) regarding the weak balance in Indonesia's maritime defense strategy [3].

In addition to internal factors, the effectiveness of enforcement is also influenced by regional geopolitical dynamics. The presence of Chinese Coast Guard ships escorting Chinese fishermen in overlapping claim areas complicates enforcement efforts because it has the potential to trigger military escalation. In this context, defense diplomacy becomes a complementary instrument to enforcement strategies to prevent open conflict [10]. Marliani (2024) emphasizes that the effectiveness of enforcement does not only rely on military strength, but also on the integration of maritime diplomacy and international legal legitimacy such as UNCLOS 1982 [29].

Table 2. Enforcement Outcomes in the North Natuna Sea (2020–2025) [28], [29]

Year/Period	Number of Captured Vessels	Type (Domestic/Foreign)	Estimated State Losses Prevented (Rp)	Main Contributing Operations
2020–2024	115	70 domestic / 45 foreign	1.3 trillion	PAM LNU, Joint Navy, Bakamla Ops
Jan–May 2025	32	2 foreign (Vietnam)	774.3 billion	KKP, TNI AL, Bakamla Operations
Total (2020–May 2025)	147	85 domestic / 62 foreign	2.1 trillion	Integrated Maritime Security Ops

When these empirical findings are analyzed in relation to enforcement effectiveness, they reflect a measurable but still partial impact. The increase in the number of captured vessels and the scale of economic losses prevented indicate operational success, particularly in implementing adaptive patrols and integrated maritime surveillance. The improvement correlates with the strengthening of inter-agency coordination between the Navy, Bakamla, and KKP, as well as the application of technological tools such as the Vessel Monitoring System (VMS), Automatic Identification System (AIS), and satellite-based radar surveillance. These systems enhance detection accuracy, reduce response time, and enable early identification of illegal activities, which collectively contribute to the deterrence

effect in the Natuna EEZ [5], [26], [29].

Nevertheless, the sustainability of enforcement effectiveness remains constrained by structural and geopolitical factors. Limited defense assets and overlapping authority among agencies weaken consistency in deterrence. At the same time, the grey zone tactics employed by foreign coast guard vessels remain difficult to counter because they occur below the threshold of open military conflict [27]. This condition indicates that while the enforcement strategy has achieved tactical success, its strategic effectiveness still requires improvement through technological modernization and institutional integration.

4. Discussion

The multifaceted maritime defense strategies employed in the North Natuna Sea encompassing military deterrence, diplomatic engagement, legal enforcement, and community participation have proven effective in reducing territorial violations, particularly illegal fishing, while reinforcing Indonesia's maritime sovereignty amid grey zone tactics and regional geopolitical competition. These findings directly address the study's objectives of mapping defense strategies, identifying violation patterns, and evaluating enforcement effectiveness.

As Colonel Aan Sibayang, Assistant for Intelligence at Fleet Command I's Maritime Combat Group (Guspurla Koarmada I), explained in an interview (July 7, 2025):

> *"Guspurla Koarmada I is conceptually designed to be functional and responsive to the dynamics in the strategic North Natuna Sea area. We conduct operations through detailed planning, deploy naval ships (KRI) and aerial patrols, and integrate maritime surveillance systems to intercept illegal activities and territorial violations."*

This statement underscores how operational synergy and technological

integration such as the use of UAVs, maritime surveillance radars, and satellite monitoring strengthen Indonesia's layered maritime strategy by enhancing detection and response efficiency.

Similarly, Colonel Djoko Wahyu Utomo, Head of Bakamla's Western Zone, highlighted the complementary civilian defense layer:

> *"The Western Bakamla Zone acts as the first layer in a multi-layered defense system. We play a role in early detection, safety, and law enforcement in the North Natuna Sea through integrated patrols, AIS-based monitoring, coastal radar, and coordination with the Navy, KKP, and Marine Police."*

His perspective reinforces the argument that maritime defense effectiveness is rooted in inter-agency coordination, combining military operations with civilian law enforcement to establish a comprehensive maritime security architecture. This aligns with the Ushirogata (2025) concept that maritime strategy must aim to eliminate threats, control the sea, and project national power [21].

In a similar vein, Colonel Nazarudin, Assistant for Operations to Fleet Command I (Asops Pangkoarmada I), emphasized the adaptive nature of Indonesia's defense posture:

> *"The defense strategy in the North Natuna Sea must be sovereignty oriented. We prioritize force deployment in the EEZ and continental shelf, while utilizing technology such as unmanned aerial vehicles and radar detection systems to support consistent and effective maritime patrols."*

This reflects the adaptive balance between deterrence and operational capability, responding to limited fleet assets while ensuring maritime presence in vulnerable zones sustained. His statement also echoes the Ends–Ways–Means framework, in which the "ends" represent robust maritime sovereignty, the

"ways" involve coordinated patrols and deterrence, and the "means" are realized through technological modernization and institutional interoperability.

From a technological standpoint, the operational feasibility of AI-based surveillance and UAV deployment requires further elaboration. AI technologies can be integrated into the Automatic Identification System (AIS) and Vessel Monitoring System (VMS) to analyze vessel movement patterns, detect anomalies, and predict potential violations in real time. In the Natuna context, the deployment of Medium Altitude Long Endurance (MALE) UAVs such as ScanEagle or Anka-S has high operational feasibility due to their range and endurance, allowing for surveillance of remote EEZ sectors that are difficult to patrol by ship. However, infrastructure limitations, data integration challenges, and operator readiness remain key constraints. Therefore, establishing an integrated command center that synchronizes AI-based surveillance with Bakamla, the Navy, and the Ministry of Maritime Affairs and Fisheries would significantly improve interoperability and strategic responsiveness.

Beyond military dimensions, the community-based component of maritime defense plays a vital role. The Regent of Natuna emphasized the integration of local participation in maritime surveillance:

> "There is collaboration and synergy between vertical institutions such as the Navy Base (Lanal), Bakamla, and the Air Force Base. Our local communities are actively involved through fishermen's reports that are forwarded to security forces for follow-up. The community's involvement is quite high, they immediately share information through WhatsApp groups."

This insight illustrates the practical implementation of Indonesia's *Universal People's Defense and Security System (SISHANKAMRATA)* at sea, where local fishermen serve as intelligence partners, strengthening early warning systems and enhancing national maritime awareness.

Finally, the evolving nature of defense strategy is reflected in Colonel Nazarudin's concluding remark:

> "The maritime defense strategy in the North Natuna Sea is dynamic, adapting to the development of maritime security situations, threat escalation, and foreign vessel activity trends in the area."

This viewpoint reinforces the study's conclusion that Indonesia's maritime defense system is both layered and adaptive, continuously evolving to meet the complexities of modern maritime threats.

Overall, the integration of inter-agency cooperation, advanced technology, and community engagement has yielded measurable outcomes evident from reduced IUU fishing incidents and economic savings exceeding Rp774 billion in early 2025. Yet persistent challenges such as limited defense assets, overlapping authority, and grey zone tactics highlight the necessity of continuous strategic adaptation. Future development should focus on establishing an integrated command center, expanding AI-driven surveillance, and strengthening defense diplomacy to maintain deterrence while preventing escalation. In this way, Indonesia's maritime defense posture in the North Natuna Sea serves as a model for non-escalatory, sovereignty-based security management within contested EEZs in the Indo-Pacific region.

5. Conclusions

Indonesia's maritime defense strategy in the North Natuna Sea is implemented in layers by integrating military, diplomatic, legal, and community participation. Strategic mapping shows that the Indonesian Navy, the Maritime Security Agency (Bakamla), and related agencies have carried out routine patrol operations, joint operations, and strengthened strategic infrastructure to maintain territorial sovereignty. This approach is in line with the concept of modern maritime defense, which emphasizes a combination of deterrence,

enforcement, and recovery.

The threats of territorial violations faced by Indonesia in the North Natuna Sea include China's unilateral claim through the nine-dash line, grey zone tactics by foreign coast guard vessels, illegal, unreported, and unregulated (IUU) fishing by foreign fishing vessels, unauthorized underwater surveys, and cross-border smuggling. These threats not only impact sovereignty, but also cause economic losses, damage marine ecosystems, and disrupt the socio-economic life of coastal communities.

The evaluation of the effectiveness of enforcement shows that it has been quite effective in curbing illegal fishing practices and asserting Indonesia's sovereignty. The joint operations of the Indonesian Navy, Bakamla, and KKP, supported by technology-based surveillance and community participation, have succeeded in creating a deterrent effect and saving the state from potential losses amounting to trillions of rupiah. However, effectiveness is still hampered by limitations in defense equipment, budget, institutional coordination, and the challenge of grey zone tactics from foreign vessels. To strengthen the sustainability of enforcement, an integrated command center, modernization of artificial intelligence-based surveillance technology, and more intensive defense diplomacy are needed.

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