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Indonesia's Position as a Maritime Axis in the Global Logistics Chain

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Abstract. *Indonesia is strategically positioned as the world's largest archipelagic country with more than 17,000 islands and vital shipping lanes connecting the Indian and Pacific Oceans, making it a global maritime logistics hub. However, this potential is constrained by logistics infrastructure disparities, especially in the eastern region which faces limitations in port capacity and shipping frequency. This study aims to analyze Indonesia's maritime policy 2021-2025 in overcoming logistics challenges, improving inter-island connectivity, and integrating modern technology for operational efficiency. The results of the study show that the Sea Toll program has succeeded in reducing price disparities between islands through increased connectivity, although the efficiency of loading and unloading and warehousing still needs to be improved. Initiatives such as real-time tracking and satellite-based AIS systems have been proven to improve port security and productivity. The conclusions of the study emphasize the importance of policy harmonization, investment in strategic ports (such as Patimban), and the implementation of sustainable practices to maximize Indonesia's geographical advantage. Global collaboration through events such as Indonesia Maritime Week 2025 and the adoption of digitalization are key to strengthening Indonesia's position as a sustainable global maritime hub.*

Keywords: *Logistics Infrastructure, Marine Digitalization, Maritime Connectivity*

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BACKGROUND

Indonesia occupies a strategic position as the world's largest archipelago with 17,000 islands and sea lanes connecting the Indian and Pacific Oceans, making it a vital node in global trade. This geographical position not only offers logistical advantages through maritime connectivity, but also positions Indonesia as a natural pivot in international supply chains, especially amidst the shift of the world's economic center of gravity to Asia (Manggala, 2025).

. As a country with a sea area of 3.25 million km², Indonesia's maritime economic potential includes fisheries, energy, tourism and logistics sectors, which have not been fully optimized (Lasabuda, 2013). The concept of the world maritime axis launched since 2014 through five main pillarsrevitalization of maritime culture, sustainable management of marine resources, development of connectivity infrastructure, maritime diplomacy, and maritime security defense is the foundation of Indonesia's maritime policy transformation. This vision aims to restore the nation's identity as a maritime nation while maximizing marine potential for economic equity (Kusumawardhani & Afriansyah, 2019). However, its implementation faces challenges such as limited port infrastructure, logistics capacity, and inter-agency coordination.

The formulation of this research problem examines the definition of the maritime axis in the context of contemporary geopolitics and Indonesia's position in the global logistics map, especially regarding infrastructure readiness and supporting policies. The critical question is to what extent the maritime axis strategy is able to answer the needs of an increasingly complex global supply chain, including in the face of competition with other maritime countries such as Singapore and Malaysia. This analysis is important considering 40% of world trade crosses Southeast Asian waters, where Indonesia plays a key role (Harris et al., 2021).

The purpose of this research is to identify Indonesia's capacity as a maritime axis through an evaluation of sea toll policies, international hub port development, and national logistics system integration. The research also analyzes the impact of initiatives such as the construction of Patimban and Kuala Tanjung ports on global supply chain

efficiency. This approach is necessary to understand how geostrategic positions can be optimized into concrete economic advantages.

The benefit of the research lies in its contribution to the formulation of a holistic maritime policy, especially in strengthening inter-island connectivity and improving the competitiveness of national logistics. The findings can serve as a reference in accelerating the realization of the sea highway and integrating maritime policy with the sustainable development agenda. In addition, this research provides a new perspective on Indonesia's maritime diplomacy in the face of regional geopolitical dynamics.

This study is relevant to recent developments, where the government continues to strengthen bilateral and multilateral maritime cooperation, such as in the Indo-Pacific initiative and ASEAN Connectivity. However, challenges such as infrastructure financing, overlapping regulations and maritime human resource capacity remain major obstacles. This research is expected to provide concrete recommendations to accelerate the achievement of the vision of a world maritime axis.

By capitalizing on the momentum of the shift of the global economic center to Asia, Indonesia has the potential to become a regional maritime logistics hub through optimizing the five pillars of the maritime axis (Hasan, 2025). However, this success depends on policy consistency, increased infrastructure investment, and the strengthening of integrated maritime institutions. This research provides an academic foundation to criticize this transformation towards Indonesia as a competitive world maritime axis

LITERATURE REVIEW

Maritime Axis Concept

The concept of the World Maritime Axis is Indonesia's strategic vision to become a sovereign, advanced, and sustainable global maritime center, by utilizing its geographical position as the world's largest archipelago. This definition is stated in the national policy that emphasizes five main pillars: revitalization of maritime culture,

sustainable management of marine resources, development of connectivity infrastructure, maritime diplomacy, and marine security defense (Khoir, 2024). This vision aims to restore Indonesia's identity as a maritime nation while maximizing the potential of the marine economy that includes logistics, fisheries, energy, and tourism sectors.

The first element, revitalizing maritime culture, includes strengthening national identity through marine education and preserving maritime traditions. The second element is sustainable resource management, focusing on environmentally friendly fishing practices and the utilization of renewable marine energy. Third element, connectivity infrastructure development includes the Sea Toll program and the development of hub ports such as Patimban and Kuala Tanjang to strengthen the national logistics chain.

The fourth element, maritime diplomacy, involves regional and global cooperation such as the Indo-Pacific initiative and ASEAN Connectivity to strengthen Indonesia's position on the international stage. Fifth, maritime security defense includes modernizing the Indonesian Navy fleet and addressing threats such as illegal fishing and piracy. These five pillars are interrelated to create an integrated maritime system that supports economic growth and regional sovereignty.

The implementation of this concept faces challenges such as limited infrastructure budgets, inter-ministerial policy fragmentation, and inadequate human resource capacity. However, momentum such as Indonesia Maritime Week 2025 which carries the theme "Asia's Maritime Leadership: Connectivity, Sustainability, and Digitalization" is proof of the government's commitment to accelerate the realization of this vision. The event also highlighted the importance of collaboration between the government, private sector, and academia to overcome technological and regulatory gaps.

From a geostrategic perspective, Indonesia's position on global shipping lanes – with 40% of world trade passing through the Straits of Malacca, Sunda, Lombok and Makassar - provides a comparative advantage as a regional logistics hub. However, this advantage must be balanced with policies that integrate economic, environmental and

security interests. For example, the Sea Toll program not only aims to reduce price disparities between islands but also strengthen food and energy security through equitable distribution (Salamah, 2021).

Recent references show that the concept of the World Maritime Axis continues to evolve in line with global geopolitical dynamics, including competition with other maritime countries such as Singapore and Malaysia. Recent studies emphasize the need for policy innovation, such as the integration of blockchain technology for logistics efficiency and strengthening maritime environmental regulations (Indraprakoso & Haripin, 2023). With this multidimensional approach, Indonesia has the potential to become a competitive world maritime axis while contributing to regional stability.

Logistics Chain Theory

The logistics chain is an integrated system that manages the flow of goods, information, and funds from producers to consumers. This process includes storage, transportation, distribution, and coordination to ensure products arrive on time at optimal cost (Lele & Ajmeri, 2024). Each stage is designed to minimize risks such as delay or damage to goods, while maximizing efficiency through the use of tracking and inventory management technologies.

The maritime sector serves as the backbone of the global logistics chain, especially in archipelagic countries like Indonesia. Ports, cargo ships and shipping lanes are vital nodes that connect international trade, with 40% of world trade passing through Southeast Asian waters. Infrastructure such as Sea Toll and hub ports (e.g. Patimban, Kuala Tanjung) accelerate interisland distribution, reduce price disparities and improve national logistics connectivity.

Key challenges in the maritime logistics chain include limited warehouse capacity, high operational costs, and reliance on conventional technologies (Mappangara, 2024). Solutions such as digitization (blockchain for container tracking) and the use of renewable energy in ports help improve accuracy as well as environmental sustainability. Collaboration between stakeholders -government, private, and

community- is also needed to cope with disruptions such as demand fluctuations or global crises.

In a global context, the efficiency of the maritime logistics chain depends on loading and unloading speed, vessel capacity and port connectivity. Indonesia utilizes its geographical position on strategic shipping lanes (Malacca, Sunda, Lombok Straits) to become a regional logistics hub, despite having to compete with countries such as Singapore and Malaysia. Strengthening regulations, infrastructure investment, and improving human resources are key to maximizing this potential.

Related Studies: Indonesia's Position in Maritime and Logistics Contexts

Studies related to Indonesia's position in the context of maritime and logistics have shown that the country has great potential to become the world's maritime axis. Previous research emphasizes the importance of the government's five-pillar strategy, namely the revitalization of maritime culture, sustainable marine resource management, connectivity infrastructure development, maritime diplomacy, and maritime security defense (Selle, 2024). The study also highlights the challenges faced, such as infrastructure limitations, lack of investment, and the need for maritime human resource capacity building.

Other research shows that Indonesia's strategic geographical position, located between the Indian and Pacific Oceans, enables the country to become an important international trade route (BKIP Kemenhub, 2024a). However, Indonesia's role in the global logistics chain is still limited due to reliance on suboptimal port infrastructure and lack of integration of the national logistics system. Therefore, recent studies focus on the development of maritime infrastructure, such as the construction of hub ports and Sea Toll Road, to improve distribution efficiency and reduce logistics costs.

A review of previous research also emphasizes the importance of maritime diplomacy in strengthening Indonesia's position on the international stage. Initiatives such as ASEAN Connectivity and the Indo-Pacific Economic Framework (IPEF) exemplify efforts to strengthen bilateral and multilateral maritime cooperation (Fitri, 2024 : Kemenko Perekonomian, 2024). This research also highlights the need to improve the

quality and quantity of maritime human resources to support the development of a sustainable and competitive marine industry.

In recent years, related research has developed with a focus on technological innovation and environmental sustainability. For example, Indonesia Maritime Week 2025 emphasizes the importance of digitalization and decarbonization in the maritime sector to improve operational efficiency and reduce environmental impact (Humas Kemenhub, 2025). The research also shows that collaboration between stakeholders (government, private sector, and academia) is essential to overcome challenges and maximize Indonesia's maritime potential as a global logistics hub.

RESEARCH METHODS

This research uses a descriptive qualitative approach with a focus on in-depth analysis of textual and contextual data obtained through literature studies. This type of research was chosen to understand social phenomena or maritime policies holistically, where researchers collect and analyze policy documents, performance reports, as well as academic literature related to Indonesia's position in global maritime logistics. The desk study was conducted by evaluating reliable sources such as scientific journals, government documents, and international publications to identify patterns, challenges, and opportunities in the implementation of the maritime axis policy (Creswell, 2014).

Data analysis was conducted through triangulation techniques by combining findings from multiple sources to ensure the validity of the results. This approach allows the identification of gaps between theory and practice, such as the misalignment between sea toll policies and the realization of port infrastructure. This method also includes a critical evaluation of maritime logistics performance indicators, including loading and unloading efficiency and the impact of policies on inter-island connectivity. The results of the analysis are then synthesized to develop strategic recommendations based on empirical evidence and local context.

RESULT AND DISCUSSION

Description of Indonesia's Geographical Position

Indonesia sits at a strategic crossroads between the Indian and Pacific Oceans, and is flanked by the Asian and Australian continents, making it a natural axis in global maritime traffic. As the world's largest archipelago with 17,000 islands and 108,000 km of coastline, its waters cover 3.25 million km² and are vital to 40% of world trade. This position is reinforced by the existence of important straits such as Malacca, Sunda and Lombok, which are choke points for international trade.

Indonesia's main advantage lies in its logistics potential and maritime economy, including access to global shipping lanes that facilitate trade connectivity between countries. The vast sea area provides abundant fisheries, energy and mineral resources, while programs such as the Sea Highway and the development of hub ports (Patimban, Kuala Tanjung) strengthen inter-island distribution. This position also allows Indonesia to be a strategic partner in regional maritime diplomacy through initiatives such as ASEAN Connectivity (Pujayanti & Roza, 2018).

Despite its great potential, Indonesia faces challenges such as limited port infrastructure, uneven logistics capacity, and maritime security threats such as illegal fishing. Inter-island price disparity remains a problem due to slow distribution and reliance on conventional technology. In addition, inter-agency coordination and overlapping regulations slow down the realization of the vision of a world maritime axis.
Analysis of Indonesia's Role as a Maritime Axis

Indonesia has developed maritime infrastructure such as Sea Toll and strategic ports (Patimban, Kuala Tanjung) to strengthen inter-island connectivity. The Sea Toll program connects 115 ports with 39 active routes, accelerating the distribution of goods and reducing price disparities through increased frequency of ship services (BKIP Kemenhub, 2024b). However, port capacity in the eastern region is still limited, with many ports only able to accommodate small vessels, requiring infrastructure improvements to support larger vessels.

Government policies such as deep seaport development and collaboration with the private sector aim to overcome budget constraints and accelerate infrastructure development. These initiatives include the development of business districts around ports, such as in Patimban, which not only serve as logistics hubs but also encourage local economic growth. The efficiency of Sea Toll distribution has been proven to lower staple food prices by 11-20% through improved connectivity and service frequency.

Private support in port management and maritime logistics is key to improving operational efficiency, such as the use of container tracking technology and optimization of distribution routes. Challenges such as price disparity continue to be addressed through the expansion of the Sea Toll network and port modernization. With these steps, Indonesia has the potential to become a competitive global maritime axis while strengthening national economic resilience.

Impact of Maritime Position on Global Logistics Chain

Indonesia's maritime position connecting the Indian and Pacific Oceans makes it a vital node in the global logistics chain, with 40% of world trade passing through Southeast Asian waters (Harris et al., 2021). Ports such as Tanjung Priok act as major hubs in the global liner shipping network, although their capacity still lags behind Singapore or Malaysia's ports which have more modern infrastructure (Gunawan & Yahya, 2018). This geographical advantage has not been fully optimized, especially in terms of transit efficiency and inter-island connectivity.

Compared to other maritime countries such as Singapore, Indonesia still faces challenges such as limited port technology, overlapping regulations, and reliance on conventional logistics services. However, opportunities such as increased investment in Patimban port and maritime diplomacy cooperation can strengthen its position as a regional logistics hub. Key threats include competition with neighboring countries, security risks in lanes such as the Malacca Strait, as well as the impact of climate change on maritime operations. With the right strategy, Indonesia has the potential to improve its logistics competitiveness through digitalization and strengthening maritime human resources.

CONCLUSIONS

Summary of Findings

Research shows that Indonesia's position as a maritime axis faces major challenges in logistics infrastructure, especially in the eastern region, with access disparities and high costs due to limited port capacity and shipping frequency. The Sea Toll Program has reduced interisland price disparities through improved connectivity, but loading and unloading efficiency and warehouse capacity still need to be improved to meet global standards.

Key Points

First, strengthening technology-based port management such as real-time tracking and satellite-based AIS systems is proven to improve safety and operational efficiency, especially in reducing vessel dwell time. Secondly, initiatives such as Indonesia Maritime Week 2025 strengthen global collaboration for green technology adoption and logistics digitization, although regulatory and human resource challenges still hinder.

Infrastructure inequality and high logistics costs are major obstacles, but the integration of digital systems and investment in strategic ports such as Patimban show the potential to improve Indonesia's competitiveness in the global logistics chain. These findings confirm the need for accelerated maritime infrastructure modernization and policy harmonization to optimize Indonesia's geographical position.

Policy Implications

Indonesia's maritime and logistics policies, such as the Marine Policy Action Plan 2021-2025 and the Indonesia Maritime Week 2025 agenda, emphasize strengthening port infrastructure, digitalization, and decarbonization to improve global competitiveness. However, its implementation faces challenges such as disparities in port capacity between regions and the need for large investments for uneven technological modernization. The policy also needs to integrate sustainability principles

in the RPJPN 2025-2045 to ensure equitable and environmentally friendly utilization of marine resources.

Development Recommendations

Indonesia's maritime and logistics policies, such as the 2021-2025 Maritime Policy Action Plan and the Indonesia Maritime Week 2025 agenda, emphasize strengthening port infrastructure, digitalization, and decarbonization to improve global competitiveness. However, its implementation faces challenges such as disparities in port capacity between regions and the need for large investments for uneven technological modernization. The policy also needs to integrate sustainability principles in the RPJPN 2025-2045 to ensure equitable and environmentally friendly utilization of marine resources.

Suggestions for Future Research

1. In-depth research is needed to measure the impact of maritime logistics digitization on global supply chain efficiency, particularly the application of technologies such as blockchain and IoT in port management. The study needs to compare Indonesia's logistics performance with ASEAN maritime countries such as Singapore and Malaysia, with parameters such as ship dwell time and logistics cost per container. In addition, analysis of the cabotage policy and its impact on national shipping competitiveness in the face of global competition is a priority, especially regarding implementation in the shipyard sector which still faces productivity and regulatory challenges.
2. Research on the integration of blue economy principles in the maritime logistics chain needs to be developed, including the utilization of renewable energy at ports and the reduction of carbon emissions through decarbonization of the shipping sector. The study should evaluate the effectiveness of initiatives such as Indonesia Maritime Week 2025 in attracting green investment and enhancing global collaboration. In addition, in-depth analysis of inter-sectoral regulatory harmonization and capacity building of maritime human resources based on global

competencies are needed to strengthen Indonesia's position as an international logistics hub

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