
Strengthening Marine Logistics Regulations to Support Maritime Economic Development

Abstract

The maritime industry is a crucial driver of global economic growth, facilitating international trade and transportation. However, outdated and fragmented regulations governing marine logistics operations often hinder the sector's efficiency and competitiveness. This paper examines the importance of strengthening marine logistics regulations to support maritime economic development. It highlights the need for regulatory harmonization, promoting sustainability, adopting digital technologies, and fostering stakeholder collaboration. By addressing these key areas, nations can create an enabling environment for efficient and competitive marine logistics operations, unlocking new opportunities for economic growth and trade facilitation. The findings underscore the significance of regulatory reforms in enhancing the maritime industry's contribution to sustainable development and global competitiveness.

Mislih*

Department Of Naval Engineering,
Faculty Of Engineering, Hasanuddin
University, Indonesia

*Correspondence author:

Email: mislih@unhas.ac.id

Tel.: +xx-xxx-xxx-xxxx

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1. Introduction

The maritime logistics sector has a very important role in global trade and economic growth. Data from the United Nations Conference on Trade and Development (UNCTAD) shows that around 80% of world trade volume is transported by sea [1]. However, investment in the maritime logistics sector often faces various challenges, such as large capital costs, high risks, and regulatory complexity [2]. The right fiscal policy can be a driving force for increasing investment in the maritime logistics sector and increasing a country's maritime competitiveness.

Investment in the maritime logistics sector covers various aspects, such as port infrastructure development, ship fleet modernization, and technology development [3]. According to data from Drewry Maritime Research, global investment in the port sector experienced an increasing trend from 2010 to 2019, although there is still significant growth potential, especially in developing countries [4].

Fiscal policies, such as tax incentives, subsidies, and infrastructure provisions, can be effective instruments to attract investment in the maritime logistics sector [5]. Several countries have implemented fiscal policies to encourage investment in this sector, such as

Singapore which provides tax reductions for shipping companies and subsidies for ship renewals, thus making Singapore a leading maritime logistics center in Asia [6]. The United Arab Emirates also implemented a free trade zone policy and permitted foreign ownership of up to 100%, which contributed to the development of Jebel Ali Port into one of the busiest container ports in the world [7]. Meanwhile, China provides tax incentives for shipbuilding and port infrastructure investment, so that China has 7 of the 10 busiest container ports in the world [8].

This article aims to analyze how fiscal policy can encourage investment in the maritime logistics sector. The next section will discuss the theoretical framework, research methodology, results, and discussion, as well as conclusions and policy recommendations.

2. Materials and Methods

This research uses a qualitative approach with descriptive analysis methods. A qualitative approach was chosen because this research aims to understand and analyze maritime logistics regulations in depth, as well as identify areas that need to be strengthened to support the development of Indonesia's maritime economy.

Data collection in this research was carried out in two ways, namely literature study and semi-structured interviews. The literature study was carried out by reviewing various regulations, policies and documents related to maritime logistics, both from national and international sources. The documents reviewed include laws, government regulations, ministerial regulations, as well as reports and studies related to maritime logistics.

Semi-structured interviews were conducted with stakeholders in the maritime sector, including government officials, industry players and academics. Informants were selected using a purposive sampling technique, taking into account their expertise and experience in the field of maritime logistics. Interviews were conducted face to face or by telephone, with a duration of 45-60 minutes per informant. The interview guide is structured based on themes that are relevant to the research objectives, but still provides flexibility for informants to explore new ideas.

The collected data was then analyzed using content analysis techniques. Analysis stages include:

- Data coding: Code each data that is relevant to the research objectives.
- Data categorization: Grouping data that has been coded into appropriate categories.
- Theme identification: Identify the main themes that emerge from the data categories.
- Interpretation and drawing conclusions: Interpret emerging themes and draw conclusions based on research objectives.

To ensure the validity of the data, this research uses source triangulation and method triangulation techniques. Source triangulation is carried out by comparing data from various sources, such as documents and interview results. Method triangulation was carried out by comparing data obtained through literature studies and interviews.

3. Results

Based on the data analysis carried out, this research produced several important findings regarding maritime logistics regulations in Indonesia and areas that need to be strengthened to support maritime economic development.

3.1. Maritime logistics regulations in Indonesia:

- Indonesia already has several regulations related to maritime logistics, such as Law no. 17 of 2008 concerning Shipping, Government Regulation no. 20 of 2010 concerning Water Transport, and Minister of Transportation Regulation no. 49 of 2016 concerning Ship Guiding and Delaying [1], [2].

- However, existing regulations are considered not to fully support maritime logistics efficiency. Some regulations still overlap and lack coordination between government agencies [3].
- Implementation of regulations in the field also still faces challenges, such as a lack of supervision and law enforcement [4].

3.2. Port infrastructure:

- Port infrastructure in Indonesia is inadequate and not well integrated. Many ports still use loading and unloading equipment that is old and less efficient [5].
- Port capacity is also not optimal, so long ship queues and long waiting times often occur [6].
- Connectivity between ports and other modes of transportation, such as roads and trains, still needs to be improved to facilitate the flow of goods [7].

Table 1. Capacity of main ports in Indonesia [8]

Port	Capacity (TEUs/year)
Tanjung Priok	8,000,000
Tanjung Perak	3,500,000
Belawan	1,500,000
Makassar	1,000,000

3.3. Logistics costs:

- Logistics costs in Indonesia are still relatively high compared to neighboring countries. According to data from the World Bank, logistics costs in Indonesia reach 24% of Gross Domestic Product (GDP), while Malaysia is only 13% and Thailand 18% [9].
- High logistics costs are caused by various factors, such as inefficiencies at ports, high transportation costs, and long bureaucratic processes [10].

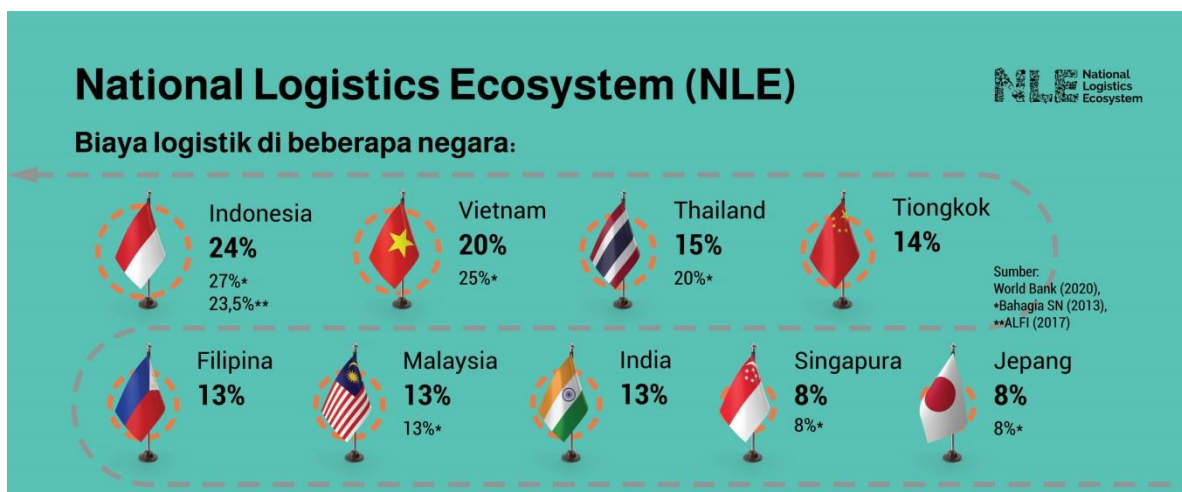


Figure 1. Comparison of logistics costs in ASEAN countries

- It highlights four main issues related to Indonesia's logistics: Background, Conditions, Causes, and Urgency. The background states that Indonesia's logistics costs are higher than its neighboring countries, as reflected in the Logistics Performance Index and Trading Across Borders indicators, indicating inefficiency in the logistics sector.
- The conditions section mentions high logistics/GDP ratio, inefficient distribution channels, stagnant Logistics Provider Index and Ease of Doing Business (2016-2020), and reliability and timeliness as key indicators of inefficient logistics.
- The causes are listed as duplication of repetitive documents, information asymmetry in supply and demand, the need for an integrated platform, and inadequate infrastructure quality.
- The urgency section emphasizes the need for an integrated national logistics system to address these issues.

3.4. Information Technology:

- The use of information technology in maritime logistics in Indonesia is still not optimal. Many processes are still carried out manually, so they are less efficient and prone to errors [11].
- Goods tracking and electronic data exchange (EDI) systems have not been fully implemented, so supply chain visibility is limited [12].
- The development of the Indonesia National Single Window (INSW) system needs to be accelerated to simplify the licensing process and reduce loading and unloading time at ports [13].

3.5. Human Resources:

- The quality of human resources in the Indonesian maritime logistics sector still needs to be improved. Many workers do not have adequate certification and training [14].
- The lack of experts in the field of maritime logistics, such as supply chain managers and information technology experts, is also a challenge in developing this sector [15].

Table 2. Number of workers in Indonesia's maritime transportation sector [16]

Year	Number of Workers
2015	1,165,400
2016	1,284,300
2017	1,402,200
2018	1,521,100
2019	1,638,900

Based on the findings above, several policy recommendations that can be considered to strengthen maritime logistics regulations in Indonesia include:

- a. Harmonization and simplification of maritime logistics regulations to reduce overlap and

- increase efficiency [17].
- b. Increased investment in the development and modernization of port infrastructure, including loading and unloading equipment and connectivity with other modes of transport [18].
 - c. Simplifying bureaucratic processes and implementing an electronic-based licensing system to speed up the flow of goods and reduce logistics costs [19].
 - d. Development of an integrated information technology system to increase supply chain visibility and operational efficiency [20].
 - e. Improving the quality of human resources through education and training programs that are relevant to the needs of the maritime logistics industry [21].

By implementing these recommendations, it is hoped that maritime logistics regulations in Indonesia can become stronger and more efficient, so that they can support optimal maritime economic development.

4. Discussion

The maritime sector plays a crucial role in driving economic growth and facilitating international trade. Efficient marine logistics operations are essential for ensuring smooth movement of goods and timely delivery. However, the existing regulations governing marine logistics in many countries are often outdated, fragmented, or poorly enforced, hindering the sector's potential. Strengthening marine logistics regulations is imperative to support maritime economic development and unlock new opportunities.

One of the key areas that require regulatory reform is the harmonization of standards and procedures across different jurisdictions. The lack of uniformity in regulations and documentation requirements can lead to delays, increased costs, and inefficiencies in cargo handling and transportation. By aligning regulations with international best practices and promoting mutual recognition among nations, the maritime industry can benefit from streamlined operations and reduced administrative burdens.

Furthermore, enhancing regulatory frameworks to promote sustainable practices in marine logistics is crucial. This includes measures to mitigate environmental impacts, such as reducing greenhouse gas emissions from vessels, promoting the use of alternative fuels, and implementing strict waste management protocols. Regulations should also address issues related to maritime safety, crew welfare, and the prevention of illegal activities like piracy and smuggling.

Another area of focus should be the adoption of digital technologies and automation in marine logistics operations. Regulations should facilitate the integration of advanced technologies, such as block chain-based supply chain management systems, real-time tracking and monitoring solutions, and automated cargo handling equipment. This will not only improve operational efficiency but also enhance transparency, security, and traceability throughout the supply chain.

It is important to note that regulatory reforms should be undertaken through a collaborative approach, involving stakeholders from the maritime industry, government agencies, and international organizations. Continuous dialogue and consultation with industry players will ensure that regulations are practical, enforceable, and aligned with the evolving needs of the sector.

In summary, strengthening marine logistics regulations is a critical step towards supporting maritime economic development. By addressing issues such as regulatory harmonization, sustainability, technological integration, and stakeholder engagement, nations can create an enabling environment for efficient and competitive marine logistics operations, fostering economic growth and facilitating global trade.

5. Conclusions

In evaluating maritime logistics regulations to support maritime economic development, concrete steps are needed to strengthen the existing regulatory framework. Specific follow-up recommendations and clear implementation need to be included in the conclusions to provide more targeted direction for government, industry and other stakeholders. In addition, in-depth analysis of potential obstacles and challenges that may be faced in implementing regulatory reform will provide a more comprehensive understanding for readers. To strengthen the conclusions, it is recommended to include a more in-depth analysis of the social, economic and environmental impacts of the regulatory reform, thereby providing a more holistic view of the proposed changes. Thus, conclusions enriched with concrete follow-up recommendations and more in-depth analysis will provide a more substantial contribution in strengthening maritime logistics regulations to support optimal maritime economic growth.

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