

Legal Liability of Port Operating Entities in Managing Risks of Vessel Pilotage and Towing Services

Boyke Aries Sonatha¹, John Pieris², Aarce Tehupeiry³, Wiwik Sri Widiarty⁴

^{1,2,3,4} Universitas Kristen Indonesia

Email: boyke.aries@gmail.com¹, aartjeteheupeiry@gmail.com², john.pieris@uki.ac.id³,

wiwik.widiarty@gmail.com⁴

ABSTRACT

The phenomena occurring in port operations reveal frequent incidents of negligence in pilotage services and vessel delays, leading to logistical disruptions, delayed goods distribution, and even maritime accidents. Legal issues arise when claims for damages are filed against the Port Authority as the service provider. The lack of clarity regarding the Port Authority's legal liability and the limits of its liability under port regulations constitutes a significant source of problems. When service users face losses, there are often no clear and effective legal mechanisms available to resolve disputes fairly. The Theory of Legal Liability, the Theory of Supervision, and the Theory of Administrative Law Enforcement are employed as practical analytical tools to examine and analyze these issues. The research method employed is normative legal research, focusing on the examination of written legal norms that regulate or relate to the research subject, such as Law No. 66 of 2024 on the Third Amendment to Law No. 17 of 2008 on Shipping, Government Regulation No. 7 of 2000 on Maritime Affairs, Government Regulation No. 51 of 2002 on Shipping, Government Regulation No. 61 of 2009 on Ports, Government Regulation No. 5 of 2010 on Navigation, Government Regulation No. 31 of 2021 on the Administration of the Shipping Sector, Ministry of Transportation Regulation No. PM 57 of 2015 on Vessel Pilotage and Towing, Ministry of Transportation Regulation No. 37 of 2017 on the Administration of Port Services, Ministry of Transportation Regulation No. 30 of 2017 on Maritime Safety Regulations, as well as other laws and regulations governing the operations of Port Business Entities (BUP). The research findings indicate that Law No. 66 of 2024 on the Third Amendment to Law No. 17 of 2008 on Shipping, as the primary legal framework for the port sector, does not explicitly address the limits of legal liability for Port Business Entities, lacks provisions for dispute resolution mechanisms, and exhibits weak oversight functions regarding service standards of Port Business Entities. This indicates the existence of legal gaps and dysfunction that create legal uncertainty, both for Port Business Entities as business operators and for service users as the aggrieved parties. Therefore, it is hoped that the Government and regulators will undertake concrete and practical regulatory reforms to improve the quality of governance and legal protection in port services in Indonesia.

Keywords: Legal Liability, Risk Management, Vessel Pilotage and Delay Services

INTRODUCTION

As an archipelagic nation comprising more than 17,000 islands, Indonesia relies heavily on an effective shipping and port system to maintain connectivity between regions (Ridwan, 2019). Amid the strategic role of ports, vessel pilotage and tugging services play a crucial role in ensuring the safety, smooth flow, and order of vessel traffic, both in domestic and international ports (Paulauskas et al., 2021). These services form the operational heart of ports, as failures in their execution can result in significant losses, both economically and in terms of the safety of lives and cargo (Hatta et al., 2021a).

Ports play a significant role in Indonesia; one of their primary functions is to serve as entry or exit points for goods entering or leaving a country or region, with the majority of these goods transported by sea from the port of origin to the port of destination. Article 1(1) of Government Regulation No. 61 of 2009 on Ports states: (Government Regulation No. 61 of 2009)

“A port is an area comprising land and/or water with defined boundaries, serving as a site for government and commercial activities, used as a place for ships to berth, for the embarkation and disembarkation of passengers, and/or for the loading and unloading of cargo. It consists of terminals and berthing areas equipped with facilities for maritime safety and security, as well as port support activities, and serves as a hub for intra- and intermodal transportation.”

Ports play a vital role in maritime transportation planning. Based on Government Regulation No. 61 of 2009 on Ports, a port refers to an area encompassing land and water with clearly defined boundaries, serving as a zone where government and commercial activities can operate (Syaifullah et al., 2025). ports serve as locations where ships dock, and where passengers embark and disembark, and load and

unload cargo, while providing facilities that support maritime safety and security, as well as other relevant activities. Additionally, ports serve as transfer points between various modes of transportation, both intra- and inter-modal. Pursuant to Regulation of the Minister of Transportation of the Republic of Indonesia No. 57 of 2020, port operations encompass all aspects ensuring the smoothness, safety, and efficiency of navigation for vessels, passengers, and cargo. Ports are not only tasked with maintaining maritime safety and security but also with facilitating intermodal transportation, as well as playing a role in stimulating regional and national economic growth, while adhering to applicable regional spatial planning principles. Current developments in the business world demand pilotage services of a high standard, in terms of efficiency, punctuality, and navigational safety. (Syaifullah et al., 2025)

The most prominent port operations involve ship and cargo services, with ship services comprising pilotage, towing, anchoring, and mooring services. Cargo services include wharfage, loading and unloading, and stowage services. However, it must be recognized that the practice of maritime transportation, particularly sea transport, is not only related to maritime transport infrastructure but is also closely linked to regulatory or legal aspects governing the transport process itself. Legal aspects play a crucial role in ensuring legal certainty and order in every maritime transport operation. This aims to maintain a balance of rights and responsibilities to protect the interests of all parties involved in the transport process.

Issues regarding the legal liability of port operators for passenger safety can be categorized into two main types: administrative liability and civil liability. Administratively, port operators are subject to technical regulations established by the Directorate General of Sea Transportation of the Ministry of Transportation, such as the provisions in Minister of Transportation Regulation (Permenhub) No. 104 of 2017 on the Operation of Ferry Services. This regulation stipulates that port operators are required to provide minimum safety facilities such as adequate piers, safe waiting areas, and boarding and disembarkation access that do not endanger passengers. Civilly, legal liability arises when the negligence of port operators causes harm to passengers. For example, if a passenger is injured or dies due to the malfunction of safety facilities at the port, the operator may be sued under Article 1365 of the Civil Code (KUHPerdota), which governs unlawful acts. Under civil law doctrine, the port operator may be held liable for damages if it can be proven that there was an act, fault, damage, and a causal link between them. The port operator's liability is not viewed solely from a legal-formal perspective but also from a public ethics perspective. In the modern public service paradigm, legal responsibility must align with moral responsibility to guarantee citizens' fundamental right to safety in mobility. Thus, the enforcement of laws regarding violations of this responsibility must be accompanied by legal education and the enhancement of collective awareness regarding the importance of a safety culture within the port ecosystem.

Furthermore, regarding the risks associated with pilotage services and vessel delays, civil law establishes two types of liability: liability based on fault and liability without fault. Thus, there is liability without *fault* (strict liability) and liability without fault, known as risk liability or *strict liability*. The basic principle of liability based on fault implies that a person is liable because they committed a fault that caused harm to another person. Conversely, the principle of risk liability holds that the plaintiff-consumer is no longer required to prove fault; rather, the defendant-producer is directly liable for the risks inherent in their business operations. Various risks are faced by all parties, including safety, security, delays, damage, or even the loss of goods transported by a shipping company. These risks can materialize, for example, if a ship is involved in an accident and sinks during a sea voyage. When a ship sinks during a voyage, it not only results in the loss of goods but also affects the entire cargo carried by the ship. In this situation, the shipowner may be held liable for the incident. The shipowner's awareness of risks that may occur—whether intentional or not—while the ship is at sea can be considered a responsibility. Acting in accordance with this awareness of obligations as a shipowner is also an implementation of that responsibility.

The primary risk issues in vessel pilotage and towing services include service delays (waiting time > 2 hours), communication/technical failures, a shortage of tugboats, and the potential for maritime accidents due to weather or human error. These risks lead to operational inefficiencies, increased costs (rising accounts receivable), and customer dissatisfaction. Additionally, vessel accidents in pilotage and towing services occur when a tugboat fails to follow the pilot's instructions, causing the vessel to make physical contact or collide with surrounding objects. This may result in formal inspection and

investigation reports involving both vessel owners and service providers. Consequently, the pilot will issue a confirmation letter regarding the report. In this context, it is important to note that tugboats are often not held responsible for any damage caused by pilot officers, as there are many other factors to consider, such as strong winds.

In line with this, practical experience shows that incidents of negligence in pilotage services and vessel delays are not uncommon, leading to logistical disruptions, delays in goods distribution, and even maritime accidents (Irwan, 2020). Behind this, legal issues arise when claims for damages are filed against the Port Authority as the service provider. The lack of clarity regarding the legal responsibilities and limits of liability of the Port Enterprise in existing regulations is a significant source of problems. When service users face losses, there are often no clear and effective legal mechanisms available to resolve disputes fairly. (Harjono & Panjaitan, 2021)

This issue highlights a discrepancy between *das sollen* (what the law should regulate) and *das sein* (what actually occurs in practice). In the context of port law, the operator's liability for negligence in pilotage services should be legally enforceable (Hatta et al., 2021b). However, in reality, there are gaps and ambiguities in regulatory provisions that create legal uncertainty, both for Port Business Entities as business operators and for service users as the aggrieved parties.

The urgency of this issue is underscored by the fact that Law No. 66 of 2024 on the Third Amendment to Law No. 17 of 2008 on Shipping, as the national legal framework, has not yet provided detailed and explicit provisions regarding the legal liability of Port Business Entities for risks associated with vessel pilotage and towing services. Meanwhile, derivative regulations in the form of Government Regulations, Ministerial Regulations, or Director General Regulations are merely technical and operational in nature, rather than substantive in terms of regulating legal obligations. Consequently, the oversight that should be exercised by the Port Authority regarding service quality tends to be weak and ineffective in promoting accountability. (Jukrisno et al., 2023)

This situation raises concerns about the potential for broader losses if the legal responsibilities of Port Operating Entities are not promptly established by law. From the service users' perspective, legal uncertainty erodes trust in the port service system (Rusli, 2013). Meanwhile, for the Port Authority itself, the absence of clear legal standards also hinders the strengthening of internal governance in risk management. In other words, risk management by the Port Authority remains in a gray area that has the potential to worsen the quality of public services.

This situation serves as a key consideration in selecting the topic of this dissertation. The issue under investigation is a practical, real-world problem with legal dimensions that warrant academic examination. The discrepancy between the ideal conditions that should be governed by the legal system and the actual legal reality on the ground serves as the primary entry point for addressing this challenge. This study aims to analyze existing legal loopholes and propose solutions in the form of regulatory reforms that not only strengthen legal certainty but also enhance the quality of protection for parties involved in port services. (Yahan & Minglu, 2021)

As a strategically important maritime nation, Indonesia has a significant interest in ensuring the safety and smooth flow of shipping in its waters. However, the quality of port service management—such as vessel pilotage and towing—still frequently faces various regulatory challenges. In practice, overlapping authorities between Port Authorities, Port Business Entities, and the Central Government's Directorate General of Sea Transportation are still observed, resulting in suboptimal service delivery and risk management on the ground (Kusumaatmadja, 2002). This highlights the gap between the idealized legal norms (*das sollen*) and the actual legal reality (*das sein*), particularly regarding the legal liability of port business entities for potential risks and the impacts of vessel pilotage and mooring activities.

This issue is further exacerbated by the weak integration of the national legal system in responding to global port dynamics. In Daniel Yusmic's analysis, it is emphasized that Pancasila, as the state ideology, is not merely a symbolic ideology but must be embodied in legal structures and practices, including in maritime transport and port policies. Legal injustice and uncertainty in port services undermine the principles of social justice and humanity that form the spirit of Pancasila (Pramono, 2018). Therefore, the urgency of regulatory reform in this sector is becoming increasingly pressing so that applicable legal norms can ensure legal protection for all stakeholders. Furthermore, the complexity of legal relationships between Port Business Entities and ship agency operators and other service users also poses unique legal challenges (Widiarty, 2024). As explained by Aartje Tehupeiory, the concept of *joint*

and several liability is frequently used in port consortium practices, but its regulation under Indonesian law has not yet provided sufficient legal certainty. This situation poses significant financial risks, particularly when negligence in pilotage services and vessel delays result in losses to third parties. (Tehupeiory et al., 2024)

On the other hand, in his efforts to develop a contextual national legal theory, Mochtar Kusumaatmadja emphasized the importance of developing law as a means of social reform. In the context of ports, regulatory reform aims not only to align legal norms with international practices such as SOLAS or MARPOL, but also to adapt to the specific needs of Indonesia as an archipelagic nation with its own distinct social, economic, and geographical characteristics (Kusumaatmadja, 2012). This progressive and reconstructive legal approach must be considered in drafting a new legal framework that is more just and responsive to national interests.

Given the philosophical, legal, and practical dimensions outlined above, this study's focus on the legal liability of port business entities in managing risks associated with vessel pilotage and towing services is of critical importance. This topic not only contributes theoretically to the development and strengthening of port legal norms but also has a direct impact on the governance of fair, efficient, and sustainable public services.

Philosophically, this study is grounded in the view that law serves not only as a set of normative rules but also as a social instrument for achieving justice and order. Therefore, a legal system that is vague and unenforceable cannot effectively fulfill its ethical and social functions. Theoretically, this dissertation will examine how the theories of legal certainty, corporate liability, and the principle of legal oversight can be applied in the context of vessel pilotage and detention services.

From a legal perspective, this study will examine the Shipping Act and its various implementing regulations, including those issued by the Directorate General of Sea Transportation, Ministry of Transportation. This study will also analyze case law or court rulings related to disputes arising from port service negligence, where available, to understand how judges assess legal liability in practice. Sociological and historical aspects will also be explored, particularly in tracing the institutional history and regulatory changes of Port Business Entities, as well as current challenges in the field based on field studies and port incident reports. (Yezerov, 2022)

In addition, as part of the effort to strengthen the argument, this study will also draw on comparative studies of the legal systems of developed countries such as Singapore, the Netherlands, and Malaysia. These countries have well-established regulations governing port service risk management and explicitly define the legal liabilities of operators. This comparative study is important as a reference for developing *best practices* that can be adopted within Indonesia's national legal framework.

With regard to the originality of this research, to date, no legal dissertation has been found that specifically addresses the legal liability of Port Business Entities in the management of risks associated with vessel pilotage and detention services in depth. Previous studies have generally only touched on technical or administrative aspects, without comprehensively integrating legal theoretical analysis, regulations, jurisprudence, and comparative studies. Therefore, this dissertation has significant academic value and can make an important contribution to the development of maritime law and administrative law in Indonesia. (Ishak, 2019)

To conclude this section, it is emphasized that this study will focus primarily on "The Legal Liability of Port Operating Entities in Managing Risks Related to Vessel Pilotage and Towing Services." Using a normative legal approach combined with comparative studies and critical analysis of current practices, this study aims to propose concrete and practical regulatory reforms to enhance the quality of governance and legal protection in port services in Indonesia.

RESEARCH METHOD

Type of Research

The research design employed is a normative legal study, focusing on an analysis of the written legal norms that govern or relate to the research subject, such as laws, relevant ministerial regulations, and technical regulatory documents governing the operations of Port Business Entities.

This study employs a legal approach that focuses on the analysis of written legal norms governing or related to the research subject, such as Law No. 66 of 2024 on the Third Amendment to Law No. 17 of 2008 on Shipping, Government Regulation No. 7 of 2000 on Maritime Affairs, Government Regulation No. 51 of 2002 on Shipping, Government Regulation No. 61 of 2009 on Ports,

Government Regulation No. 5 of 2010 on Navigation, Government Regulation No. 31 of 2021 on the Administration of the Shipping Sector, Ministry of Transportation Regulation No. PM 57 of 2015 on Vessel Pilotage and Towing, Ministry of Transportation Regulation No. 37 of 2017 on the Administration of Port Services, Ministry of Transportation Regulation No. 30 of 2017 on Maritime Safety, as well as other laws and regulations governing the operations of Port Business Entities.

This approach is used to compare both similarities and differences in order to identify, examine, and analyze legal principles, legal systems, and principles of corporate liability in the realm of public port services. This study also utilizes a comparative law approach to examine how countries such as Singapore, the Netherlands, and Malaysia regulate the legal liability of their port operators through the system, both normatively and administratively. (Quynh, 2024)

Data Collection Methods

Data collection techniques were conducted through:

Secondary data, namely literature review, by cataloging and reviewing legal documents and academic literature directly related to the research subject.

All data is classified according to the topics or research questions discussed and analyzed systematically within a legal framework.

Data Analysis Techniques

The data obtained will be analyzed qualitatively. This technique involves presenting relevant legal facts, legal norms, legal doctrines, and legal theories, and then systematically linking them within the framework of the problem statement's categorization.

RESULTS AND DISCUSSION

A. Comparison of Port Regulations in Indonesia with Those of Singapore, Malaysia, and the Netherlands

Ports function as vital arteries in the global logistics system, serving as crucial hubs that facilitate international trade and support a nation's economic growth. For archipelagic nations like Indonesia, as well as strategic maritime hubs such as Singapore and Malaysia, the role of ports extends beyond mere physical infrastructure; they are the main pillars underpinning connectivity, economic competitiveness, and even national supply stability. Nearly 90% of Indonesia's international trade still relies on maritime transport, underscoring just how vital the role of ports is in the national logistics system. (Ade Parlaungan Nasution, 2025)

Port efficiency and capacity directly influence logistics costs, the speed of goods movement, and a country's ability to attract foreign direct investment (FDI). Efficiently designed ports can reduce vessel waiting times, accelerate loading and unloading processes, and minimize operational costs, which in turn lower overall logistics costs and boost productivity. These efficiency gains directly contribute to strengthening a country's competitiveness in the global market, attracting greater trade volumes, and driving greater economic growth. Therefore, effective port management is not merely about daily operations but is also a strategic component of a nation's economic resilience and geopolitical influence. (Ade Parlaungan Nasution, 2025)

B. Comparative Analysis of Port Regulations and Management in Indonesia, Singapore, the Netherlands, and Malaysia

1. Comparison of Governance Structures and Ownership

Fundamental differences in port governance and ownership structures are the primary factors distinguishing the performance of these three countries, namely:

1) Indonesia: Adopts a highly centralized and state-dominated model. The consolidation of Pelindo into a single large state-owned enterprise (SOE) manages operations and some quasi-regulatory functions under the strict regulatory framework of the Ministry of Transportation. Private sector involvement is limited, primarily through concession schemes. While this model aims for national standardization, it can hinder agility and responsiveness to market dynamics.

2) Singapore: Demonstrates a clear separation of roles between regulator and operator. The Maritime and Port Authority (MPA) acts as regulator and promoter, while PSA Corporation operates as a

corporatized and commercially driven entity. This separation fosters accountability, commercial efficiency, and allows each entity to focus on its core mandate without conflicts of interest.

3) Malaysia: Implements a hybrid model in which a government-established port authority owns and regulates the infrastructure, but operations are largely privatized to independent commercial entities. This model has successfully attracted significant private investment, including from international players such as APM Terminals at PTP, and has driven higher operational efficiency.

4) Netherlands: The modern Dutch port governance structure involves the Port of Rotterdam Authority (Port of Rotterdam), which is responsible for managing, operating, and developing the port and its industrial areas. The port does not have a single-ownership structure in the sense of shareholding by a single entity, but is a public entity governed by the city of Rotterdam, with full responsibility for ensuring safe and smooth cargo handling.

The degree of state control versus private-sector involvement, as well as the clarity of regulatory versus operational roles, is directly correlated with a port's agility and commercial competitiveness. Singapore and Malaysia, with their more corporatized or privatized operational models, demonstrate greater responsiveness to market demands and faster adoption of advanced technologies. This suggests that a strong commercial orientation, often facilitated by private-sector participation, drives innovation, technological investment, and responsiveness to global market demand—all critical for high-performing ports. Governments that maintain a regulatory and strategic oversight role, rather than direct operational management, appear to be a more effective model for global competitiveness.

2. Comparison of Operational Efficiency and Productivity

Operational efficiency is a critical indicator in assessing port competitiveness. A comparison of key metrics reveals striking differences:

Table 1. Comparison of Capacity and Throughput of Major Ports (TEUs)

Country	Major Port	Design Capacity (TEUs)	Current Throughput (TEUs)	Notes
Indonesia	Tanjung Priok	11.5 Million	13.8 Million (Q3 2024 Pelindo)	Indonesia's busiest port
	Tanjung Perak	9 million	-	Eastern Indonesia's logistics hub
	Patimban	7.5 million (projected for 2027)	-	New port, supporting Tanjung Priok
	Belawan	2 million	-	Main Port of Sumatra
	Soekarno-Hatta (Makassar)	2.5 million	-	Central & Eastern Indonesia Distribution
Singapore	PSA Singapore	43.9 million	38.8 million (2023), >40 million (2024)	The world's largest transshipment hub, operating 24/7
	Tuas Port	65 million (2040 projection)	-	Will be fully automated, doubling capacity
Malaysia	Port Klang	>20 million	14.64 million (2024)	Potential to enter the world's top 10

	Tanjung Pelepas (PTP)	13 million	12.25 million (2024)	Most advanced container terminal, ranked 5th globally in efficiency
	Johor Port	-	102,000 (Aug 2024)	Regional commodity hub, largest palm oil terminal
Netherlands	Port of Rotterdam	Cargo: Approximately 436 million tons per year. Containers: Over 15 million TEU per year, making it one of the world's busiest ports in terms of container throughput.	Cargo Volume: Reaches approximately 436 million tons per year. Containers: Handles over 15 million TEU per year and 30,000 ships per year.	A major import hub for goods from Asia and an import/export hub for energy from the Middle East, with strong trade ties to North America; all major Western European hubs are within a 24-hour reach of this port.

As shown in Table 1, the difference in scale between the ports of the three countries. The capacity and throughput of Singapore and the Netherlands far exceed those of Indonesia and even the combined capacity of Malaysia's major ports. This directly reflects the volume of global trade handled and Singapore's dominant position as a transshipment hub. These quantitative differences provide a solid foundation for discussing the competitive gaps and strategic priorities of each country.

Table 2. Comparison of Operational Efficiency Indicators

Indicator	Indonesia (Tanjung Priok)	Singapore	Malaysia (PTP, Johor Port)	Netherlands Rotterdam
Dwelling Time	4-7 days	Very low (inferred from hub efficiency)	4 days (2013 benchmark)	About 3 days
Truck Turnaround Time (TTT)	Not specified (highly dependent on dwelling time)	Very low (inference from automation)	< 45 minutes (Johor Port)	Varies depending on operational conditions
Level of Automation/Digitalization	Limited, challenges acknowledged	Full (Tuas Port), Digital Twin, AI	AI-powered PMIS, Navis N4 4.0 TOS	Use of advanced technologies such as AI-based container handling, robotic cranes, and automated guided vehicles (AGVs)

Global Efficiency Rating (CPPI)	Not specified by source	Top-ranked as a maritime hub	Top 5 PTPs (CPPI 2023)	It does not have a "global efficiency" ranking but is one of the busiest and largest ports in Europe, and ranks in the global top 10 in terms of cargo volume
---------------------------------	-------------------------	------------------------------	------------------------	---

Striking differences in efficiency metrics and technology adoption between Indonesia and its neighboring countries highlight significant gaps in investment and implementation. Singapore, Malaysia, and the Netherlands, by proactively embracing automation and digital solutions, directly translate these efforts into faster turnaround times, higher throughput, and lower logistics costs, creating a substantial competitive advantage. High dwelling time in Indonesia directly translates to higher logistics costs and lower competitiveness. Advanced automation in Singapore, Malaysia, and the Netherlands demonstrates their commitment to streamlining operations and reducing human error, which directly impacts speed and reliability. Without significant progress in digitization and automation, Indonesian ports will struggle to reduce logistics costs and compete effectively with their technologically advanced neighbors, impacting overall economic competitiveness.

3. Comparison of Technology Adoption and Innovation

The level of technology and innovation adoption clearly distinguishes these three countries:

- 1) Indonesia: Acknowledges limited digitalization and challenges in technology investment. Although the Pelindo merger aims for digitalization and optimization, the specific implementation of advanced technologies is not widely detailed. The implementation of e-ticketing at some domestic ferry terminals indicates an initial step toward digitalization.
- 2) Singapore: Is a pioneer in port automation. The Port of Tuas will be fully automated and has implemented Digital Twin technology for real-time monitoring and simulation, as well as AI applications for risk detection. Singapore consistently invests in innovation and digital transformation.
- 3) Malaysia: Also shows significant progress in technology adoption. The Port of Tanjung Pelepas (PTP) has implemented an AI-powered Port Management Information System (PMIS) and upgraded its Terminal Operating System (TOS) to Navis N4 4.0. There is a clear focus on using technology to boost productivity and meet future demand.
- 4) Netherlands: The Port of Rotterdam boasts a very high level of automation thanks to the use of advanced technologies such as AI-based container handling, robotic cranes, and automated guided vehicles (AGVs). Specialized terminals, such as the APM Maasvlakte II Terminal, are fully automated and are even considered among the most advanced and safest in the world. Recent developments in port regulations in the Netherlands focus on technological advancement, sustainability, and logistics efficiency, as evidenced by its status as Europe's largest and most advanced port, such as the Port of Rotterdam. The Netherlands is also strengthening international cooperation, including with Indonesia, in the fields of trade, investment, and tourism involving the logistics and port sectors. Legal regulations in the Netherlands follow a structured civil law system.

These differing levels of technology adoption reflect varying strategic priorities and investment capacities. Singapore, Malaysia, and the Netherlands view technology as a core competitive differentiator and invest proactively, whereas Indonesia appears to be playing catch-up, which risks widening the efficiency gap over time. These differences in technological maturity directly impact operational speed, accuracy, and cost efficiency. Countries that proactively invest in and integrate advanced technology gain a significant competitive advantage, attracting more shipping routes and cargo. "Limited digitalization" in Indonesia implies a reactive rather than proactive stance, which could make its ports less attractive in the long term if this trend continues.

4. Comparison of Policies and Business Environments

The policy and business environment plays a crucial role in shaping port development and competitiveness:

- 1) Indonesia: The regulatory framework is highly detailed, with a focus on national interests and the dominance of state-owned enterprises (SOEs). Although initiatives such as the Pelindo merger aim for efficiency, bureaucratic challenges remain.
- 2) Singapore: Implements highly pro-business policies, including low taxes, ease of doing business, and free trade policies that attract significant FDI. The government provides strong support for the promotion of the maritime industry.
- 3) Malaysia: Government-led privatization programs have successfully attracted private investment. Strategic investments, partly funded by foreign investors (e.g., China in KLIP), demonstrate openness to external capital. The establishment of Free Trade Zones (e.g., Port Klang Free Zone) also enhances economic appeal.
- 4) Netherlands: Rotterdam Port's policies focus on sustainability, infrastructure modernization, and global competitiveness, reflected in investments in renewable energy such as hydrogen, the development of supporting infrastructure like the "Betuweroute" railway line, and the adoption of "smart port" technologies for efficiency. Its business environment is supported by a conducive environment for companies due to its position as a major and continuously growing international logistics hub, attracting investment, and providing a variety of services such as import, export, storage (including LNG), and chemical product processing.

The policy environment, particularly openness to private and foreign investment and clarity in business regulations, is a significant determinant of port development and competitiveness. The proactive policies of Singapore, Malaysia, and the Netherlands have created an ecosystem conducive to rapid port expansion and modernization. This demonstrates that beyond specific port regulations, broader national economic and investment policies significantly shape a country's port competitiveness. Singapore, Malaysia, and the Netherlands have successfully integrated port development into broader national economic strategies that prioritize global trade and investment, enabling their ports to thrive. Indonesia can learn from this holistic approach to improve its investment climate for port development.

5. Comparison of Global Competitiveness and the Role of Transshipment

Each country's strategy regarding its role in transshipment and domestic trade also influences its global standing:

- 1) Indonesia: Primarily serves domestic logistics and direct imports/exports, with a limited role as a major transshipment hub. The Port of Patimban was developed as a logistics distribution center, but its focus remains largely internal.
- 2) Singapore: A dominant global transshipment hub, handling 20% of global container trade, with 85% of its containers transshipped. Consistently ranked as a leading maritime center in the world.
- 3) Malaysia: Port Klang aims for a 50% transshipment and 50% import/export balance, reflecting a strategy to serve both global transshipment and domestic trade. Tanjung Pelepas is also a leading transshipment hub. Malaysia is actively building a new port (KLIP) to compete with Singapore in transshipment.
- 4) Netherlands: The Port of Rotterdam enhances its global competitiveness as a major transshipment hub due to its strategic location, advanced infrastructure, and operational efficiency, enabling rapid intermodal cargo transfers. Its role is crucial in international trade, making it a primary gateway for distributing goods from Europe to the rest of the world, including the distribution of fuels such as LNG, petrochemical products, and other commodities.

The strategic choice between focusing on transshipment versus domestic trade significantly impacts a port's global standing and economic resilience. Singapore's specialized transshipment model, while highly successful, also highlights potential vulnerabilities to shifts in global shipping routes—a risk Malaysia seeks to mitigate through a more diversified approach. Transshipment hubs require extremely high efficiency, connectivity, and capacity to handle the massive volumes of cargo moving between ships. Domestic ports prioritize efficient flows to and from inland regions. Malaysia's diversification, while it may not reach Singapore's transshipment volumes, creates a more stable revenue stream by serving both international transshipment and its strong domestic import/export needs. Indonesia's focus on domestic logistics is crucial for its large internal market but limits its global competitive

footprint as a hub. This indicates that Indonesia needs to more clearly define its strategic role within the global maritime network.

C. Weaknesses in the Legal System and Regulatory Framework Governing Port Operating Entities in Indonesia

This study identifies the weaknesses in the current legal system and regulatory framework governing the liability of Port Business Entities in Indonesia, namely:

1. The Ambiguity of the Legal Liability of Port Business Entities in the National Legal System

The first weakness lies in the regulatory ambiguity regarding the limits of the Port Enterprise's legal liability for vessel pilotage and towing services. Law No. 66 of 2024 on the Third Amendment to Law No. 17 of 2008 on Shipping, as the primary legal framework for the port sector, does indeed mention the role of Port Business Entities as service providers, but does not explicitly detail the form, limits, and mechanisms of legal liability in the event of negligence or service failure. (Siregar et al., 2025)

In identifying these weaknesses, the theory of legal certainty serves as a starting point for assessing the effectiveness of the national legal system in providing legal guarantees regarding the acts or omissions of Port Business Entities. When the limits of legal liability are not explicitly regulated, legal uncertainty arises, which has the potential to violate the principle of justice and harm the affected parties. Thus, the theory of legal certainty is used to:

- a. Assess the existence and clarity of legal norms governing the liability of Port Business Entities.
- b. Test the consistency between legal norms in the Shipping Law and its implementing regulations.
- c. Describing the impact of the lack of legal certainty on the protection of rights and public confidence in the port legal system.

Weaknesses of the national legal system when linked to Hans Kelsen's Theory of Legal Certainty, through his *theory of pure law*, assert that law must be structured in a hierarchical order and that every legal norm must be referable to a higher norm, ultimately resting on the Grundnorm. In this context, if legal norms regarding the liability of Port Business Entities lack systematic connection to higher-ranking norms, a legal vacuum or dysfunction will arise. This is illustrated by the fact that as a role holder, one will act in response to legal regulations, which are the functions of the regulations directed at them, their sanctions, the activities of implementing agencies, and the entire complex of social, political, and other forces concerning them.

2. Lack of Adaptive and Effective Dispute Resolution Mechanisms

Another weakness is the lack of an effective dispute resolution mechanism between service users and port operators. In many cases, service users who feel they have been wronged due to service failures often face difficulties in obtaining compensation or legal redress. Legal proceedings become lengthy, costly, and inefficient due to the absence of a specialized and competent dispute resolution forum in the field of port services.

In the Indonesian legal system, not all public service sectors have independent and expeditious dispute resolution bodies. Meanwhile, the use of litigation is not always appropriate in the context of dynamic commercial port disputes. The absence of specialized commercial courts for the port sector or maritime arbitration bodies exacerbates this situation.

3. The Absence of Regulatory Reforms That Address Practical Needs and Legal Certainty

A weakness lies in the regulatory stagnation in responding to changes and the dynamics of port service practices. Since the enactment of Law No. 66 of 2024 on the Third Amendment to Law No. 17 of 2008 on Shipping, there have been no significant updates to date that detail the accountability system of Port Business Entities in the context of service risks. In fact, practices in the field indicate major transformations in port business models, service digitalization, and legal expectations from stakeholders.

D. Formulation of the Direction for Regulatory Reform and Reconstruction of the Legal Liability of Port Business Entities in Indonesia

In the context of an archipelagic nation like Indonesia, the strategic role of ports has become increasingly crucial as inter-regional hubs and gateways for international trade. Port operational efficiency directly impacts national logistics competitiveness and economic growth. However, the performance of Indonesian ports still lags behind international standards, as evidenced by high

dwelling times and logistics costs. This fundamental issue stems from suboptimal port governance, particularly regarding the division of authority between government agencies and port operators.

Regulatory reform through Law No. 6 of 2023 on the Enactment of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation into Law (hereinafter referred to as the Job Creation Law) marks a paradigm shift in port management. This Act amends Law No. 17 of 2008 on Shipping by clearly separating the regulatory functions carried out by the Port Authority (OP) and the operational functions carried out by the Port Business Entity (Law, 2022). This fundamental change is intended to create functional specialization, improve efficiency, and attract investment in the port sector. However, this policy transformation introduces implementation complexities that require in-depth analysis. The implementation of the post-Job Creation Law division of authority faces multidimensional challenges that have the potential to hinder service effectiveness.

CONCLUSION

Based on the above discussion, it can be concluded that, first, the legal framework governing the liability of Port Business Entities for vessel pilotage and towage services can be categorized into two main forms: administrative liability and civil liability. Administratively, port operators are subject to technical regulations established by the Directorate General of Sea Transportation of the Ministry of Transportation, such as the provisions in Minister of Transportation Regulation (Permenhub) No. 104 of 2017 on the Operation of Ferry Transportation. This regulation stipulates that port operators are obligated to provide minimum safety facilities, such as adequate piers, safe waiting areas, and boarding and disembarkation access that do not endanger passengers. Meanwhile, in civil law, legal liability arises when the negligence of port operators causes harm to passengers. For example, if a passenger is injured or dies due to the malfunction of safety facilities at the port, the operator may be sued under Article 1365 of the Civil Code (KUHPperdata), which governs unlawful acts. Under civil law doctrine, the port operator may be held liable for damages if it can be proven that there is an act, fault, damage, and a causal link between the two. In its current application, the form of liability of the Port Business Entity in managing the risks of vessel pilotage and towing services has not been effectively implemented due to legal issues and regulatory ambiguities regarding the limits of the Port Business Entity's legal liability for vessel pilotage and towing services, where Law No. 66 of 2024 on the Third Amendment to Law No. 17 of 2008 on Shipping, as the primary legal framework for the port sector, only mentions the role of Port Business Entities as service providers, but does not explicitly detail the form, limits, and mechanisms of legal liability.

Second, the direction of regulatory reform to strengthen the legal liability system of Port Business Entities includes reaffirming the role of port authorities as follows: Clarifying the role and responsibilities of the Port Authority as a regulator ensuring BUP compliance with applicable standards and strengthening the supervisory and control functions carried out by the Port Authority over BUPs, including regarding the fulfillment of obligations and service standards. Improving the legal framework for BUP accountability, specifically: Revising regulations (as stipulated in Government Regulation No. 31 of 2021) to specifically govern BUP accountability obligations toward service users, the government, and other stakeholders; developing clearer and more detailed accountability mechanisms, covering operational performance standards and service standards; and regulating BUP's obligations to submit periodic reports on performance, regulatory compliance, and financial statements to authorities and relevant parties. Add oversight and sanction mechanisms such as: Strengthen proactive and independent oversight mechanisms to monitor BUP performance periodically. Establish a strict and proportional sanction system for BUPs that fail to meet their legal obligations, violate service standards, or commit other violations. Involve independent supervisory bodies or arbitration bodies in the handling of sanctions and dispute resolution to enhance objectivity and efficiency. Finally, promote the adoption of service standards and technology to improve service quality, such as: implementing service standards aligned with international standards, including the adoption of digitalization and automation in operations. Provide a regulatory framework that allows PTOs to adopt new technologies capable of improving efficiency, safety, and service quality. Ensure regulations support service innovation while remaining within a framework that prioritizes safety, security, and environmental protection. These reforms aim to ensure legal protection for port service users, enhance PTO accountability, and ultimately improve service quality.

REFERENCES

1. Ade Parlaungan Nasution. (August 1, 2025). *Comparative Analysis of Port Management: Case Studies of Indonesia, Singapore, and Malaysia*. Adenasution.Com. <https://adenasution.com/analisis-komparatif-manajemen-pelabuhan-studi-kasus-indonesia-singapura-dan-malaysia/>
2. Harjono, D. K., & Panjaitan, H. (2021). Settlement of Consumer Disputes through the Consumer Dispute Resolution Agency and Their Problems. *Journal of Law and Judiciary*, 10(3), 463–478.
3. Hatta, M., Mochtar, D. A., & Az, M. G. (2021a). Principles of Carrier Liability in Maritime Transport in Indonesia. *Bhirawa Law Journal*, 2(1), 45–52.
4. Hatta, M., Mochtar, D. A., & Az, M. G. (2021b). Principles of Carrier Liability in Maritime Transport in Indonesia. *Bhirawa Law Journal*, 2(1), 45–52.
5. Indonesia, P. R. (2016). Government Regulation of the Republic of Indonesia No. 61 of 2009 on Ports. Available at <http://bkps.bappenas.go.id/dokumen/uu/uu-sektor/pelayaran/pp-2061>.
6. Irwan, I. (2020). The role of the institution of navigation education regarding navigation safety. *Proceedings of the International Conference on Science, Education, and Technology (ISET 2019)*. <https://doi.org/10.2991/ASSEHR.k.200620>.
7. Ishak, N. (2019). Implementation and Supervision of Official Discretion in Local Government of the Republic of Indonesia. *Jurnal Al Daulah: Journal of Criminal Law and Constitutional Law*, 8(2).
8. Jukrisno, J., Nofrizal, R., & Simatupang, B. (2023). Legal Analysis of Passenger Manifest Supervision to Ensure Vessel Seaworthiness (A Study at the Batam Port Authority and Special Port Authority Office). *Wajah Hukum*, 7(1), 230–238.
9. Kusumaatmadja, M. (2002). *Legal Concepts in Development*.
10. Kusumaatmadja, M. (2012). The Theory of Development Law: Existence and Implications. *Epistema Institute, Jakarta*.
11. Paulauskas, V., Simutis, M., Plačiene, B., Barzdžiukas, R., Jonkus, M., & Paulauskas, D. (2021). The influence of port tugs on improving port navigational safety. *Journal of Marine Science and Engineering*, 9(3), 342.
12. Pramono, A. (2018). Ideology and Pancasila Legal Policy. *Gema Keadilan*, 5(1), 74–84.
13. Quynh, N. T. (2024). A comparison study of carrier liability under the International Conventions on the Carriage of Goods by Sea. *Pecs J. Int'l & Eur. L.*, 30.
14. Ridwan, S. (2019). Improving port performance through port navigation safety assessment using the formal safety assessment method (case study: Port of Tanjung Priok, Indonesia). *E3S Web of Conferences*, 130, 01025.
15. Rusli, Z. (2013). Public service accountability. *Journal of Development Administration*, 1(2), 189–196.
16. Siregar, Y. M. P., Pieris, J., & Widiarty, W. S. (2025). Legal Analysis of the Issuance of Sailing Permits by the Fisheries Harbor Master Based on Law No. 66 of 2024 on the Third Amendment to Law No. 17 of 2008 on Shipping. *Journal of Social Technology*, 5(5), 1338–1353.
17. Syaifullah, F., Kuncowati, K., & Supangat, S. (2025). Analysis of the Causes of Delays in Pilotage and Towing Services within the Integrated Ship Operation Digital System at PT. Pelabuhan Indonesia (Persero) Banjarmasin Branch. *Journal of Shipping and Port Applications*, 16(1), 30–37.
18. Tehupeior, A., Fasyehhudin, M., Bakry, M. R., Yusuf, C., Nadapdap, B., Shebubabakar, A. N., Sofian, A., Asa, S., Abdullah, Z., & Meutia, F. (2024). *HAKI Analekta Current Legal Issues: Interdisciplinary Studies*.
19. Law, P. P. P. (2022). No. 2 of 2022 on Job Creation. *Official Gazette of the Republic of Indonesia Year*.
20. Widiarty, W. S. (2024). *Textbook on Legal Research Methods*. Publika Global Media.
21. Yahan, H., & Minglu, M. (2021). A Study of Maritime Administration Regulation in Process and Afterwards. *IOP Conference Series: Earth and Environmental Science*, 638(1), 012023.
22. Yezerov, A. (2022). Review of the Positions of the Ukrainian Supreme Court on Maritime Law Disputes (Administrative Jurisdiction). *Lex Portus*, 8, 28.