



# Optimizing Dwelling Time at the New Makassar 1 Container Terminal in Supporting the Regional Development of South Sulawesi

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**Abstract.** Dwelling time negatively impacts the economy by raising consumer prices as businesses pass on the costs associated with inefficiencies. This study, conducted with a mixed-methods approach, combines qualitative and quantitative research to analyze dwelling time at the New Makassar Container Terminal 1. Data was gathered through interviews and direct observations, with a descriptive analysis used to explore the factors influencing dwelling time, while the quantitative analysis focused on pre-clearance, customs clearance, and post-clearance stages. Findings show that the average dwelling time for 20-foot imported containers at New Makassar 1 is 5.45 days, with a lower average of 3.34 days for 40-foot domestic containers. However, both averages exceed the government's goal of a maximum 3-day dwelling time, as per the Republic of Indonesia Minister of Transportation Regulation PM 116 of 2016. This extended dwelling time has economic repercussions, particularly for industries and businesses relying on timely goods delivery, including shops and fruit vendors. The primary bottleneck lies in the pre-clearance stage, especially delays in the processing and issuance of import permits, which prolong the overall dwelling time and lead to increased costs within the terminal and beyond.

**Keywords:** Dwelling Time, Container, Makassar Terminal.

## 1 Introduction

Ports serve as critical hubs connecting sea and land transportation, supporting economic development in port cities and acting as gateways for trade, including loading, unloading, and passenger activities. Effective planning of the sea transportation system should incorporate ship services, port infrastructure, regional potential, and land transportation networks in a cohesive and coordinated plan. In Indonesia, ports play a significant role in economic growth, supporting trade, social mobility, and industrial expansion (Riadi et al., 2018). As essential nodes in the transportation and logistics system, ports contribute substantially to national development. This makes professional, efficient, and effective port management crucial to ensuring smooth, secure, and rapid port services.

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Ports are integral to maintaining order, safety in traffic flows, and the security of ships, passengers, and goods. Furthermore, they support intermodal connections and regional economies, aligning with spatial planning goals (Albertha et al., 2017).

The Port of Makassar, the fourth main port in Indonesia after Belawan, Tanjung Priok, and Tanjung Perak, holds a crucial role as the largest seaport in Eastern Indonesia. Strategically located in the Makassar Strait, it serves as a key gateway for domestic and international shipping and trade. Infrastructure development at the port is essential for regional growth, particularly in South Sulawesi. Enhancing loading and unloading productivity and reducing ship berthing time are both vital for minimizing logistics costs and boosting efficiency. Improvements in these areas are expected to strengthen the port's competitiveness and contribute to economic growth by optimizing the flow of goods and services.

A terminal is a critical port facility designed to accommodate various operations, including ship berthing, storage, passenger waiting, and loading and unloading of goods. One key component is the stacking yard, which holds containers from ships or for shipment, playing a vital role in reducing ship delays and preventing decreased productivity. Efficient stacking yard management helps minimize ship and cargo time in port, which is essential in today's competitive environment. Terminal performance is influenced by several factors, such as local market demand, integration within the logistics network, competition level, accessibility by sea and land, equipment quality, and connections to shipping and hinterland services (De Oliveira et al., 2015).

The New Makassar 1 Container Terminal, a key facility at Makassar Port, has immense potential for goods transshipment. This demand requires improvements in both operations and infrastructure to enhance service efficiency. Functionally, increasing service speed is critical, as seen in the reduced total service time at the terminal. As Cheon (2010) suggests, assessing the economic performance of hinterlands and nearby industrial and urban centers is vital in evaluating a container terminal's performance. The choice to utilize a specific container terminal is often driven by local economic growth, as production centers serve as markets that boost container flow.

Long dwelling time is quite detrimental to the economy, especially since the price of goods for consumers is high because they have to bear efficiency costs due to dwelling time (Maulana & Januarita, 2018). The shorter the dwelling time, the more efficient the port's operational performance (Narendra et al.). This efficiency measurement will lead to high costs (including dwelling time costs) and tend to increase the flow of goods (Teteng, 2009). Time efficiency always causes decreased trade costs and increased trade flow in goods (Sarwar, 2013). According to Ginting et al. (2015), efforts to improve port efficiency through port expansion and policies to reduce dwelling time will significantly affect the economy. Port efficiency will impact aspects of international trade, including import tax revenues (Ginting et al., 2015). The faster-imported goods leave the stockpile after loading. Unloading will provide more opportunities for other imported goods to be carried out in a similar loading and unloading process so that import volumes increase, which means import values also increase; this shows that dwelling time will have a direct impact on the smooth flow of international trade, especially imports, so that in turn it will increase import tax revenues consisting of import duties and taxes in the context of imports. Ideally, dwelling time can be reduced by

three days as the government hopes; furthermore, support for coordination between related agencies at the port must be well integrated. Handling containers that spend much time waiting in the yard is a significant factor that increases costs (Yunianto et al., 2018).

The Director General of Customs and Excise Regulation (Perdirjen) No. PER-07/BC/2021 defines procedures for the entry and exit of goods in designated storage areas. Customs clearance, in its narrow sense, refers to the fulfillment of customs obligations related to the release of goods. Broadly, it encompasses three key stages—pre-clearance, customs clearance, and post-clearance—which form the components of dwelling time. This process includes handling container loading and unloading, moving containers from the ship to the dock, then to the stacking yard (TPS), and finally out through customs. Pre-clearance begins with the time between the ship's arrival and the submission of the Import Notification (PIB) for customs inspection. Customs clearance covers the time from PIB receipt to issuing the Goods Release Approval (SPPB) by Customs. Post-clearance refers to the time from the issuance of the SPPB to the final release of imported goods from the Temporary Storage Place (TPS). These stages are critical in optimizing port efficiency and reducing logistics costs.

Common issues in container transportation often include long waiting times due to gate queues (Chen et al., 2013; Nossack & Pesch, 2013; Zeng et al., 2014), suboptimal loading and unloading equipment performance (Palguno et al., 2016; Krisnawati et al., 2019; Fauzan et al., 2018), and limited space in temporary storage areas (Wang & Yang, 2013; Kurniawati, Fita, 2015). Extended waiting times in the stacking yard contribute significantly to increased costs (Yunianto et al., 2018). Calculating dwelling time must consider all stages—pre-clearance, customs clearance, and post-clearance—since various agencies, not only customs, influence port operations. The container handling process starts when the ship docks; containers are unloaded to the wharf, and then moved to the stacking yard, where they wait for transport out of the port (Iris et al., 2002). Low productivity of handling equipment results in longer container dwelling times, ultimately raising costs for service users (Virona, 2016).

According to Government Regulation No. 20 of 2010, stevedoring, cargo during, and delivery at ports.

The quality and efficiency of services in stevedoring, cargo handling, and receiving/delivery (SCRD) significantly impact the overall time ships spend at docks (Dr. Dalasse, SH, 2016). Raising these services to an optimal level is essential to expedite ship turnaround times at the SCR D dock. Currently, dwelling time at the New Makassar 1 Container Terminal averages 6 days (TPNM 1 data, 2021), which exceeds the 3-day maximum stipulated by the Indonesian Ministry of Transportation (PERMENHUB RI NUMBER PM 116 of 2016, Article 2(1)) for goods in the container yard. This study seeks to identify and analyze the key factors contributing to extended dwelling time, focusing on both document processing stages—pre-clearance, customs clearance, and post-clearance—and physical handling stages, including stevedoring, cargo handling, and delivery. Identifying these factors will provide insight into targeted improvements that could reduce dwelling time and increase efficiency.

High dwelling times at docks and stacking yards are largely due to delays from physical inspections at customs and inefficiencies in container handling, leading to extended

waiting times. Issues like equipment malfunctions and delays in work shift transitions also hinder the optimal functioning of loading and unloading operations. To address these challenges, optimizing dwelling time is essential to balance the projected growth in trade with the existing limitations of terminal facilities and infrastructure (Rafi et al., 2016). By improving efficiency in these areas, ports can better accommodate increasing trade volumes and enhance overall productivity.

## 2 METHODS

This research combines both qualitative and quantitative methods, often called a "mixed methods" approach. The study was conducted at the New Makassar Container Terminal 1, where data were collected through interviews and observations. Descriptive analysis is used to identify factors affecting dwelling time as well as to calculate it based on procedural stages like pre-clearance, customs clearance, and post-clearance. For container handling (including stevedoring, cargo during, and delivery), specific data requirements include packing chest number, crate size, handling times, and real-time observations. Data on dwelling times for both imported and domestic containers is essential, drawing from primary data (direct observations and interviews) and secondary data, which includes monthly records from January to June 2023. Secondary data also consists of resources from the New Makassar 1 Container Terminal (TPNM 1), literature, and other sources.

## 3 Findings & Discussion

### 3.1 Findings

**Container Handling.** Container terminal activities, namely the transfer of the flow of goods from sea transport containers to land transport and vice versa, activities that occur at container terminals to container unloading can be presented in Table 1 as follows:

**Table 1.** Elements of handling activities container

No	Activity	Description	Tool
1	<i>Unloading</i>	Unloading containers from ship to truck special	Gantry Crane, Ship Crane
2	<i>Haulage</i>	Moving or transporting containers from the apron to the stacking field	Head Truck
3	Installments	Move container from truck special spaciousness accumulation	Top Loaders, Forklifts
4	<i>Lift on, Lift Off</i>	lift container, unloading container	Transtainers, top loaders and forklifts
5	<i>Stripping, Stuffing</i>	load container and unpacking container	Forklift
6	<i>Delivery</i>	transport the container leaves the terminal	External Truck

Source: Banu Santoso 1998 in Ana Humerah, 2020

**Dwelling Time Data.** The dwelling time data for container handling at the New Makassar Container Terminal 1, covering January 2023 to June 2023, includes various components of the container dismantling process. The data is categorized into three stages: pre-customs clearance, customs clearance, and post-customs clearance. It also includes information on the handling process, which involves stevedoring, cargo during, and delivery. These components help analyze and assess the total dwelling time for containers at the terminal.

*Pre Customs Clearance.* Pre-customs clearance refers to the initial stages of the container handling process, which include stevedoring and cargo handling activities. This phase begins when the ship docks at the terminal and ends when the container is safely placed in the stacking yard (container yard). The process involves unloading containers from the ship using a crane, followed by transferring them onto a truck or chassis. Once on the chassis, the container is transported to the stacking yard. There, the container is unloaded from the truck/chassis and neatly arranged in the yard. These steps form the pre-customs clearance process and significantly contribute to the overall dwelling time at the port.

Pre-customs clearance data at the stevedoring and cargodoring stages for imported containers and domestic containers from January 2023 to June 2023 can be obtained. Seen in Table 2: Pre-Customs Clearance for container imports and domestic containers from January 2023 to June 2023.

**Table 2.** Pre Customs Clearance-Import and Domestic Containers in Hours

No	Month	Imported 20 ft container	Imported 40 ft container	Domestic 20 ft container	Domestic 40 ft container
1	January	1.40	1.30	1.12	<b>1.03</b>
2	February	3.15	3.00	1.12	<b>1.03</b>
3	March	1.30	1.21	1.18	<b>1.10</b>
4	April	0.96	0.91	1.32	<b>1.22</b>
5	May	1.60	1.50	1.20	<b>1.08</b>
6	June	0.90	0.83	0.85	<b>0.76</b>
	<b>Average (Time)</b>	<b>1.55</b>	<b>1.46</b>	<b>1.13</b>	<b>1.04</b>

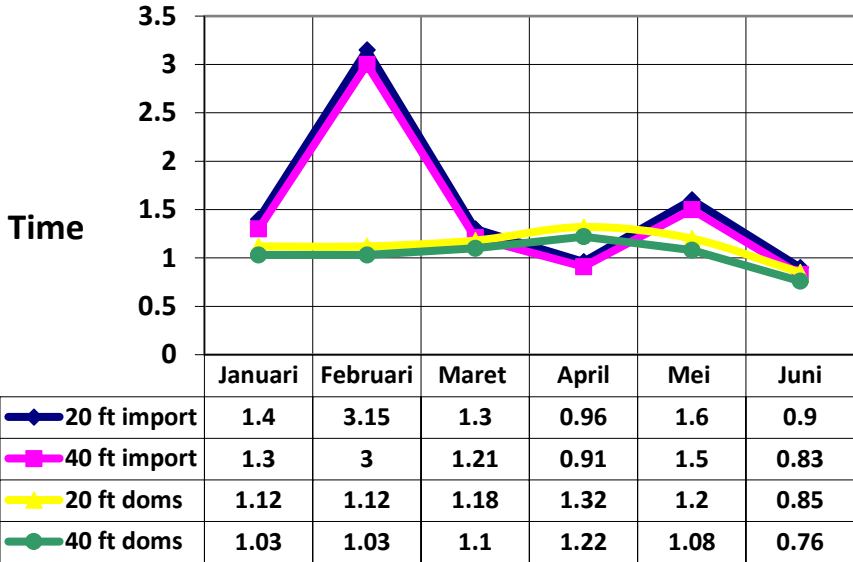


Fig. 1.

The data in Table 2 shows the handling times during the stevedoring and cargo handling stages for both imported and domestic containers from January 2023 to June 2023. The data reveals fluctuations, with some months showing upward and others downward trends. The month with the highest average handling time was 1.55 hours for 20-foot imported containers. This was due to the transportation of 20-foot containers on a 40-foot chassis, which allowed for the transport of two containers per truck, leading to longer handling times. On the other hand, the lowest average handling time was 1.04 hours for 40-foot domestic containers. The total time calculated spans from when the ship docks until unloading begins (Berthing to Discharging), as well as the time spent unloading containers from the ship to the head truck dock (Discharging to Berth). Containers are then transported to the stacking yard and neatly arranged. The longest wait times occurred while the ship was waiting for the unloading process to begin, with the highest average wait time of 1.30 hours for imported containers. This time includes the inspection of the ship's cargo documents by relevant government agencies and preparation for the unloading process.

The factors that determine the handling process for demolishing both imported and domestic containers (20 feet and 40 feet) during the Customs clearance stage include several key components. These factors begin with the waiting time for document inspection, which is necessary before unloading activities can begin. The disassembly preparation follows, involving the readiness of the equipment and processes needed for safely unloading the containers. Additionally, the tool preparation for unloading involves ensuring that all the necessary unloading tools, such as cranes, are ready for use. The readiness of stevedoring workers (TKBM) also plays a significant role, as their preparedness directly impacts the efficiency of the unloading process. Finally, the designated unloading location within the terminal, where the containers will be staged for

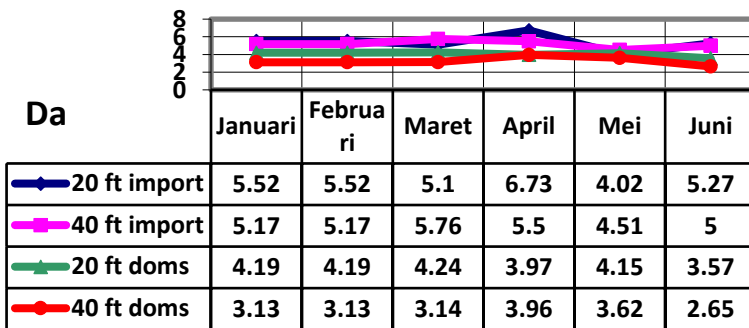
further handling, must be readily available and properly organized. All of these factors contribute to the overall waiting time and affect the efficiency of the Customs clearance process for both imported and domestic containers.

*Customs Clearance.* Customs clearance is the stage where the container's time in the stacking yard is calculated until it leaves the yard. This process involves completing all customs obligations for the container, which includes the handling of the container until the Customs Approval letter is issued. The work begins with the unloading of containers from trucks or chassis, neatly arranged in the stacking yard (container yard), and continues with the storage of the containers in the yard until they are ready to be moved. Once the customs procedures are completed, the container is then transported to an external truck at the stacking yard for further distribution. The efficiency of the customs clearance process is critical to minimizing the overall time a container spends in the terminal.

Customs Clearance data for container import and container domestic from January 2023 to June 2023 seen in Table 3.

**Table 3.** Customs Clearance Container Import and Domestic in Days

No	Month	Imported 20 ft container	Imported 40 ft container	Domestic 20 ft container	Domestic 40 ft container
1	January	5.52	5.17	4.19	3.13
2	February	5.52	5.17	4.19	3.13
3	March	5.10	5.76	4.24	3.14
4	April	6.73	5.50	3.97	3.96
5	May	4.02	4.51	4.15	3.62
6	June	5.27	5.00	3.57	2.65
<b>Average (Day)</b>		5.36	5.19	4.05	3.27



**Fig. 2.**

The data in Table 3 shows the progress of handling containers during the customs clearance process, from January 2023 to June 2023. The data reveals both upward and downward trends in the processing time for imported containers. The month with the highest average handling time was 5.36 days for 20-foot imported containers, while the lowest average time was 3.27 days for 40-foot domestic containers. This calculation includes the time from the moment the container is unloaded from the truck or chassis until it is neatly arranged in the stacking yard. The variations in time highlight the fluctuations in the efficiency of the customs clearance and container handling processes throughout the observed period.

The factors affecting the handling of 20- and 40-foot imported and domestic containers during customs clearance include how containers are arranged in the stacking yard (such as block, slot, row, and tier) and the speed of customs inspections. Efficient container handling depends on the organization of the stacking yard and the timely completion of customs checks.

*Post Clearance.* The post-clearance stage, or delivery, is the calculation of the time it takes to move a container out of the terminal. The process begins when the external truck enters the terminal (gate in) and positions the container in the stacking yard. The container is then loaded onto the external truck and transported out of the terminal (gate out). This stage measures the time from when the truck enters the terminal to when the container exits.

Post Clearance data for containers import and container domestic from January 2023 to June 2023 seen in Table 4.

**Table 4.** Post Clearance Import and Domestic Containers in Minutes

No	Month	Imported 20 ft container	Imported 40 ft container	Domestic 20 ft container	Domestic 40 ft container
1	January	33.85	36.47	26.60	26.78
2	February	29.91	33.82	30.03	34.10
3	March	34.99	48.23	30.59	34.05
4	April	34.72	51.73	34.50	38.15
5	May	37.90	52.08	31.08	34.90
6	June	39.10	31.64	26.61	31.60
<b>Average (Minute)</b>		35.10	42.33	30.24	33.26



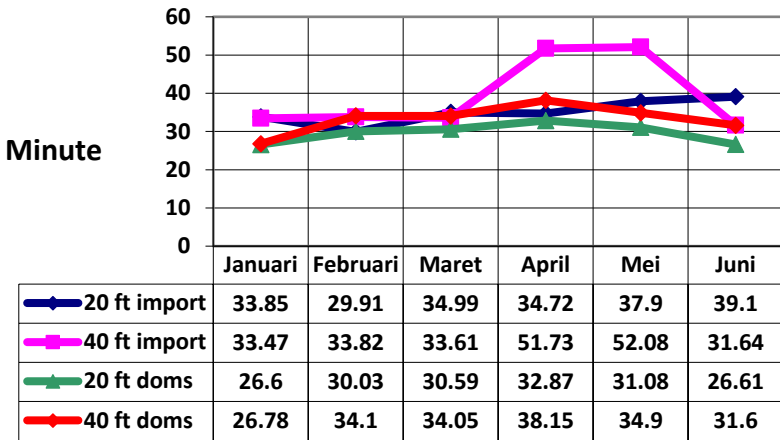


Fig. 3.

The data in Table 4 shows that from January to June 2023, delivery handling times for imported and domestic containers measuring 20 ft and 40 ft fluctuated. The highest average time was 42.33 minutes for 40-foot imported containers, while the lowest was 30.24 minutes for 20-foot domestic containers. This time is calculated from when the external truck enters the terminal door until it exits. Factors such as waiting time in queues and the arrangement of containers on the external trucks contributed to these variations, with the highest average delivery time of 35.83 minutes for 40-foot imported containers.

The key factors influencing the handling process of imported and domestic containers (20 ft and 40 ft) at the delivery stage include the readiness of the seal inspection, the correct matching of container positions and identities, and the availability of equipment such as rubber tire gantries (RTGs), reach stackers (RS), bottom lift forklifts, and external truck tools.

*Dwelling Time.* Dwelling Time is the handling time calculation for the container in all components pre-clearance, custom clearance, and post-clearance, which includes the handling process work at stevedoring, cargo during stages, and delivery, which starts when the container ships rest dock until the container exits the container terminal door.

Dwelling time data for imported containers and domestic containers from January 2023 to June 2023 can be seen in Table 5.

Table 5. Container Dwelling Time Import and Domestic in Days

No	Month	Imported 20 ft container	Imported 40 ft container	Domestic 20 ft container	Domestic 40 ft container
1	January	5.60	5.25	4.26	3.19
2	February	5.67	5.32	4.26	3.20
3	March	5.18	5.84	4.31	3.21

4	April	6.79	5.57	4.05	4.04
5	May	4.11	4.61	4.22	3.69
6	June	5.33	5.06	3.63	2.70
<b>Average (Day)</b>		5.45	5.28	4.12	3.34

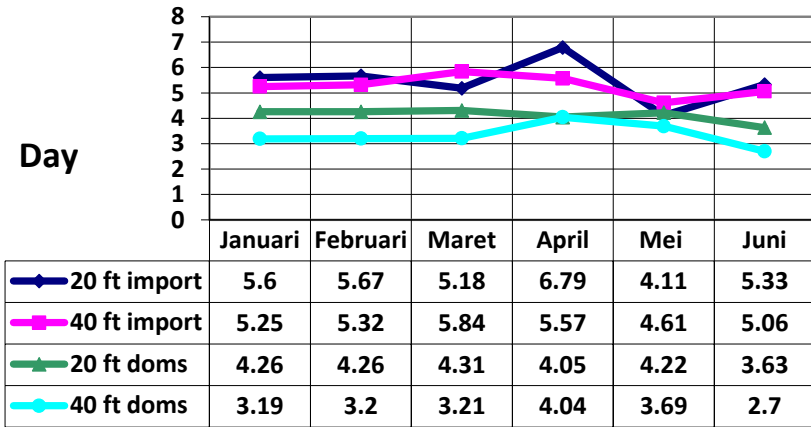


Fig. 4.

Table 5 data indicates that dwelling times for both imported and domestic containers from January to June 2023 fluctuated monthly. The longest average dwelling time was 5.45 days for 20-foot imported containers, while the shortest was 3.34 days for 40-foot domestic containers. This calculation includes handling times from the pre-customs clearance stage (stevedoring and cargo handling) through customs and post-clearance processes (delivery). The most time-intensive stage was customs clearance, with an average dwelling time of 5.36 days for 20-foot imported containers.

### 3.2 Discussion

**Factors Influencing Dwelling Time At New Makassar Container Terminal 1.** Efficient port operations, from the loading and unloading of goods to document processing, are essential to reducing dwelling time, which has a significant impact on economic efficiency (Maulana & Januarita, 2018). Extended dwelling times at the Makassar container terminal are largely due to delays in document processing and inefficiencies in container handling, which result in costly hold-ups. To optimize dwelling time, a thorough assessment of contributing factors across each phase—pre-customs clearance, customs clearance, and post-customs clearance—is necessary. Additionally, improving container handling processes, including stevedoring, cargo during, and delivery, is essential for smoother, faster operations.

Makassar Port serves as a key gateway for both domestic and international trade, facilitating the entry and exit of ships and goods. Among its facilities, the New Makassar 1 Container Terminal plays a central role, specifically dedicated to container loading and unloading operations. This terminal is the primary focus of the research, examining its efficiency and role within the broader logistical framework of Makassar Port.

Data from 2021 for the New Makassar Container Terminal 1 indicates an average dwelling time of around six days, which aligns with government standards. However, this duration requires further examination to identify the dominant factors affecting dwelling time at each stage, including documentation processes and container handling procedures. Assessments should focus on the key factors influencing dwelling time for both imported and domestic containers of 20" and 40" sizes. This insight will help importers and container owners anticipate the time required for document processing and unloading at TPNM 1 when shipping goods to Makassar Port. Additionally, an evaluation of the port labor force (TKBM) at TPNM 1 should be conducted, with attention to worker discipline and work culture, to identify any areas for improvement in loading and unloading efficiency.

Sandee (2012) highlights that extended dwelling time impacts the economy in two key ways. First, it introduces uncertainty into the export process, complicating efforts for local industries to compete in international markets. Second, delays in imports increase costs for domestic businesses and lead to higher prices for consumers. In 2016, Indonesia's ranking in the Logistics Performance Index dropped to 63rd from 53rd in 2014, significantly trailing behind neighboring countries like Singapore and Malaysia. Reducing dwelling time, as urged by the President, remains challenging due to the complexity of coordinating the numerous stakeholders involved in port operations. This multi-party involvement complicates efforts to pinpoint which contributors have the most significant impact on dwelling time, making targeted improvements difficult to achieve.

Several factors contribute to the duration of dwelling time at ports, including the capacity of storage facilities, the efficiency of loading and unloading equipment used by terminal operators, and the congestion in container flow. High waiting times for loading and unloading at Indonesian ports directly impact the national economy, especially affecting the productivity of domestic industries focused on exports. These delays hinder industries' ability to operate efficiently, impacting their competitiveness in international markets and ultimately affecting economic growth.

Based on the analysis of existing literature, researchers identified that the primary bottleneck in reducing dwelling time lies within the pre-clearance stage, particularly in the processing and issuance of import permits for delayed goods. Contributing factors include a lack of importer awareness regarding specific regulatory requirements for certain commodities, a lengthy manual permit processing system that involves multiple documents, and the requirement for import permits to be processed at various specialized agency offices, many of which are located at significant distances from the port. These combined issues considerably extend the timeline for obtaining necessary import permits, hindering overall efficiency in goods clearance and adding to dwelling time at the port.

To address the identified obstacles, several improvements have been implemented, including the synchronization and simplification of regulations regarding the import of delayed goods, a process often referred to as deregulation and de-bureaucratization. This initiative is part of the three strategic policies outlined in Policy Package I by the President of the Republic of Indonesia. Furthermore, cooperation between BPOM (National Agency of Drug and Food Control) and DJBC (Directorate General of Customs and Excise) in risk management has been established to create a unified stakeholder profile. As a result of this coordination, 206 companies have been classified under the excellent category, reflecting significant progress in streamlining the import process and reducing bureaucratic barriers.

Improvements to the customs clearance and post-clearance stages aim to reduce dwelling time. These include five main actions: 1) introducing preliminary notification facilities for better communication, 2) setting up Integrated Customs Service Areas (KPPT) like dry ports to streamline operations, 3) using automatic door systems for quicker movement of goods, 4) implementing the Integrated Cargo Release System (I-Care System) to improve cargo handling, and 5) enforcing rules on the movement of goods that stay too long at the port. These steps should help speed up the customs and post-clearance process, reducing overall dwelling time.

**The Effect of Dwelling Time at the New Makassar 1 Container Terminal on South Sulawesi Regional Income.** Regional income is one of the government's efforts, namely increasing infrastructure development in the area. With adequate infrastructure, it will attract investors to open businesses there. One of the infrastructures that can increase economic growth is the port.

Import taxes in Indonesia, as regulated by the Directorate General of Customs and Excise (PDRI), include several components: Value-Added Tax (VAT) at 10%, Sales Tax on Luxury Goods (PPNBM) with rates that vary based on the goods' luxury classification, and Income Tax Article 22. According to Jafar (2015), "Import Duty is a state levy imposed on imported goods for use." Imported goods must pay import duties before being released from the customs area unless exceptions are specified by law. The primary purpose of import duties is to generate state revenue, which is then allocated to fund national development projects.

On the other hand, dwelling time also affects port revenues, especially in the operational sector. This is because dwelling time impacts the stacking period and the imposition of costs for using heavy equipment to move containers from the starting point to another point for further inspection. The buildup and use of heavy equipment are among the income factors received by the port.

Reducing dwelling time at TPNM 1 can significantly contribute to the development of both national and regional economies. By analyzing the impact of dwelling time on revenue generation through import taxes, import duties, and levies, the government can gain valuable insights into how improving operational efficiency at the port could boost revenue. A reduction in dwelling time would lead to faster container turnover, thus increasing the flow of goods and enhancing the collection of import-related taxes and duties. This increased revenue could then be used to fund infrastructure development, which in turn supports regional economic growth. Prolonged dwelling time, on the

other hand, negatively affects international trade, as delays increase costs and lower the volume of imports, directly impacting tax revenues and economic growth. Therefore, optimizing dwelling time is crucial for improving the efficiency of the trade process, enhancing revenue generation, and fostering sustainable development.

Port issues like customs processes, infrastructure problems, high costs, and inefficiencies affect the logistics system and increase dwelling time, which is the time it takes for a container to be unloaded from a ship and leave the terminal. These delays impact the economy by raising costs and reducing the speed of trade. For South Sulawesi, this means slower economic growth and higher business costs. Improving port operations and reducing dwelling time will help boost trade and support the region's economy.

### **Solution Model to Shorten Dwelling Time at New Makassar Container Terminal**

**1.** The layout of containers in the yard directly impacts loading and unloading times. Using an efficient block layout is crucial, as a poorly designed layout increases the distance trucks must travel, leading to longer handling times. To reduce dwelling time, it's important to develop solutions that optimize the container terminal's layout and handling processes, preventing unnecessary accumulation and improving the flow of goods. This can be achieved by organizing the yard in a way that minimizes movement and maximizes efficiency, leading to faster turnover and reduced delays.

Makassar Port is currently in good condition, but to enhance its performance, improvements are needed, particularly in the operational readiness of loading and unloading equipment. According to Nova Octavia (2018), it's important to review and optimize the container yard layout and block layout. This can be done by simulating various scenarios in the container handling process using Arena software. By modeling different layout options, it's possible to identify the best scenario that improves the container handling system, reduces idle time, and ultimately shortens dwelling time at the New Makassar 1 Container Terminal. This approach can lead to more efficient operations and better overall port performance.

In optimizing dwelling time, it is necessary to simulate truck movement paths (layout) and block layout using the arena software application to reduce dwelling time at the new Makassar 1 container terminal.

To reduce dwelling time at the port, which has already decreased from 6-7 days to 3.6 days, several measures are being implemented. First, sanctions such as fines will be applied to companies that delay document processing, as some export-import players have intentionally caused delays, resulting in goods staying longer at the port. Second, penalties for importers who fail to collect their goods within two days will be increased. The current fine of IDR 27,500 is too low compared to the cost of renting a warehouse outside the port. Third, an integrated information technology system, including an enhanced Indonesian National Single Window (INSW) portal, will streamline the permit process, improving efficiency. Fourth, alternative ports will be opened to reduce congestion at the main port and support export-import activities. Fifth, the development of a port train system will help alleviate port congestion. Lastly, improving truck routes and container block layouts will enhance the flow of goods and reduce bottlenecks. These strategies aim to address the main issues of dwelling time, specifically the time between when containers are unloaded and when they leave the port.

## 4 Conclusion

Dwelling time at the New Makassar 1 Container Terminal remains high, with an average of 5.45 days for imported 20-foot containers, which is above expectations. The lowest average, 3.34 days for 40-foot domestic containers, still does not meet the target set by the government in the Republic of Indonesia Minister of Transportation Regulation Number PM 116 of 2016, Article 2 (1), which mandates that goods in container stacking yards should not exceed a three-day accumulation time. The prolonged dwelling time at this terminal has significant economic implications, causing losses both internally at the New Makassar 1 terminal and externally for industrial entrepreneurs, as well as trade businesses, especially those dealing with perishables like fruits.

The main obstacle contributing to high dwelling time is in the pre-clearance stage, specifically the processing and issuance of import permits for late goods. Several factors contribute to this issue: importers are often unaware that the imported commodity is subject to regulations from specialized agencies; the manual processing of permits, involving multiple complementary documents, extends the licensing time; and the licensing for import parts is done at various specialized agency offices, many of which are located far from the port. To reduce dwelling time, six solutions have been proposed: First, impose sanctions such as fines on companies that delay document processing. Second, increase penalties for importers who fail to collect their goods within two days. Third, implement an integrated information technology (IT) system across ministries and institutions to streamline permit issuance for goods at ports. Fourth, open alternative ports to help accommodate export and import activities. Fifth, the government should build trains to reduce congestion. Sixth, improve the arrangement of truck routes entering and leaving the terminal, as well as optimize the layout of import container blocks.

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