HANDLING CONTAINER TERMINAL BASED ON DWELLING TIME IN MACASSAR

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Abstract: Problems dwelling time in handling containers at the port of Makassar is still quite long enough. Five days is a very long time for the handling of containers at the port. Therefore, this study aims to analyze dwelling time oh handling container since the container terminal stevedoring to be in the container yard. This study divides the three observation points on the apron, apron to the yard and in the yard. It is based on the observation that the problem of dwelling time from a technical point occurred on the third point. The results revealed that the container dwelling time is affected by the loading and unloading facilities are available at the port.

Keywords: Dwelling time, Containers, Container yard

I. INTRODUCTION

Dwelling time is the wait time is calculated from a container (container) dismantled and removed (unloading) from the container ship to leave the port terminals through the main door. While the international standard container dwelling time is the length of time the container (containers) in the ports before starting pejalanan either overland by truck or train (Nicoll, 2007). Dwelling time plays an important role as it relates to the length of time that must be passed by the container when they are inside the terminal to wait for the document and unloading is complete. One of the main indicators of the efficiency of ports is dwelling time, because dwelling time shows the terminal productivity and operational efficiency of the overall terminal. Reduce the dwelling time will increase the use of the port as much as possible without the need for a new field of investment (Marck, 2005).

Dwelling time of containers at ports of Indonesia is still very poorly among other world ports. An average dwelling time in Pelabuhan Indonesia still 3.5 days or even a few other ports are still 5-6 days. Compared with other countries in ASEAN, Indonesia is still inferior to the port of Singapore is dwelling timenya only one day nor with the port in Malyasia 2 days. Target Indonesian port next to the harbor Tj 2.5 days. Priok and 3.5 days for other major ports in Indonesia, namely Belawan port, the Port of Tj. Silver and Makassar port. From the description of this study examines the dwelling time at the container terminal at three points, namely on the apron, apron to the yard, and in the field buildup. Based on observations and other sources, the third point is a major part in the technical aspects that affect the length of dwelling time.

Sooner 2008 about the study of literature analyzing performance measures in container terminal operations, the results show the measures of operating performance container terminals namely production, productivity, utilization and service. Victoria in 2013 to evaluate the characteristics and contribution of port and container terminal on the performance measure, and disclose the performance of container terminals are strongly influenced by the characteristics of the port terminal. Misliah examines the stacking yard capacity utilization rate in Makassar and yard. Indriastiwi reveals, container imports at the port Tj. Perak is still relatively long. Won Young describes a container terminal system with simulation models.

This study aims to analyze the dwelling time that occurred in the handling of containers at the terminal.

II. LITERATURE REVIEW

A. Container Terminal

Container Terminal is a modal transfer (interface) land transport and sea transport of containers is a restricted area (districted area) starting containers unloaded until it is brought out door Piers. Delivery of goods by using the Container has been done and the volume is increasing from year to year. Transportation using Container allows all sorts of things combined into one in Petikemas that can be mechanized loading and unloading activities. This can increase the amount of cargo that can be transported to the time of loading and unloading to be faster.

Terminal as a sub-system of the other harbor that serves to support the activities of sea transport. Containers will be exported from local producers or manufacturers located in the land (hinterland) so as to move the goods may be using the truck Container (Railways), then sent to the terminal, before being loaded onto the ship in accordance with its objectives, the container is in store while at the open warehouse (Container Yard / yard Container) or any enclosed contained in the Terminal (CFS), setting retention / buildup on the ground interim storage is set in such a way to be easily in the management of its transportation (handling) as will fit into the ship , It also aims to avoid that the ship is not too long lean on

Jetty (Berth) or the effectiveness of the ship is not diminished because too long a mooring in the harbor. Container Terminal is a meeting between maritime transport and land transport system adopted unitization (unition of cargo system), and Container (Container) as a container / storage, conveyance served by Terminal / Port Container, if specified core function of the Container Terminal between other: (1) Place the loading and unloading of ships Container truck or vice versa; (2) Packing and demolition Container (CFS); (3) Monitoring and maintenance Container and its cargo; (4) Acceptance of the fleet and (5) Services Container cargo handling and field accumulation.In planning the harbor is a safe place for berthing ships, and Terminal transfer Container / cargo or meeting place modes of land and sea, the network, gateway of trade and the existence of industry (Salim Abbas, 1995), hence the need for an assessment of the investment, which includes the use of shipping channel, mooring facilities / dock, loading and unloading facilities, warehousing, and more.

B. Layout Container Terminal

The layout of the Container Terminal are as follows:

a. Berth Apron, where the vessel can lean as well as loading and unloading equipment is placed.
b. Container Yard, as the buildup Petikemas to be taken to and from the ship. This field is located on the mainland and given a pavement surface that can support the weight of the load Container and equipment pengangkatnya.
c. Container Freight Station (CFS), as the loading and unloading of cargo to and from Container for LCL (less then container load cargo). Senders must bring their own LCL cargo to CFS, here LCL cargo is collected, selected to and from Container according to the destination address. While cargo FCL (full container load cargo) does not require the CFS because of the flow of goods in the form of Container from the sender to the recipient.

Container Ports operating methods in terms of services, it can be divided into (Triatmojo, 1996):
a. LCL service here is limited, namely Port to Port Service, which means that the sender brings muatanya to CFS, then the charge is collected according to the destination address. In one possible Petikemas more than one charge.
b. FCL, here is a full service Door to Door Service Container transport, which means starting from the sender and receiver ends in without unloading its contents. This is possible because there is only one kind of cargo and recipient addresses.

From the description above appears some way while in the transport Container Terminal, namely:
1. Method Sea-land, using the Truck Trailer Container haulage, Container ship lifted by crane and moved into a trailer truck and taken to the yard to be placed side by side instead of stacked, this method takes Container Yard extensive but little use operator.
2. The method of Matson, Container transported by crane to be arranged, in this method required a crane more than the trailer, so that the required Container Yard smaller.

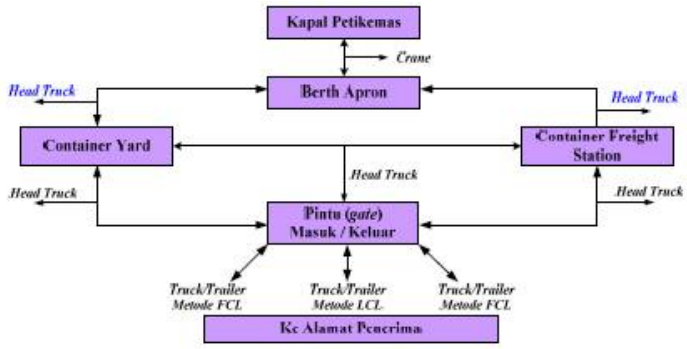


Figure 1. Diagram service flow of containers at the terminal by sea method of land

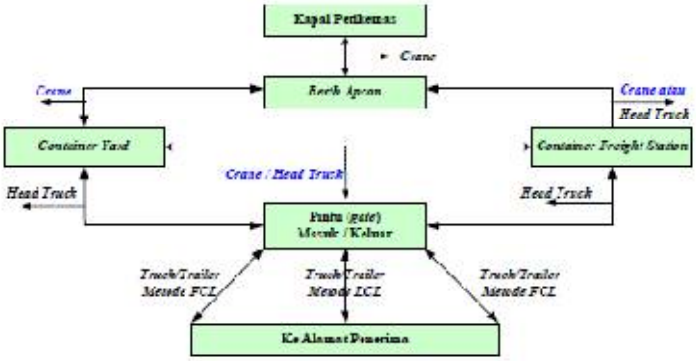


Figure 2. Flow Diagram Service Container Terminal Method In Matson

C. Container

Container is made of a metal crate containing items commonly called general cargo shipped by sea (Amir MS, 1997). According Kramadibrata (2002), the container is a form of the latest packaging unit charge was introduced in 1960 and starting with size 20 feet (twenty feet container). In general, the container is made of materials such as steel, aluminum, and polywood or FRP (glass fiber reinforced plastics). Material selection is based on the use of container in question containers. Container size is based on the International Standard Organization (ISO). Digunnakan common unit of measure is TEU's (Twenty Feet Square Units). Container with size 20 feet squared equals 1 TEU's, while the container with size 40 feet squared equals two TEU's. In the recording in the field is often also used the term BOX which shows a container boxes of a certain size. This size is more easily used than the use of the size of the TEU's.

Based on the Customs Convention on Containers, 1972, which referred to the container is a tool for transporting goods, which wholly or partly covered so shaped crate to be filled goods to be transported. Shaped permanent and sturdy so it can be used repeatedly for the transport of goods, made in a way that allows the transport of goods by a vehicle without first dismantled back its contents and can be directly transported, particularly when moved from one vehicle to another. Container made strong / powerful and equipped with a door that locked from the outside. All parts of the Container including the door can not be removed or opened from the outside.

D. Container Terminal Facilities

Characteristics of container port that is different from the conventional port, because the ship Full Container Ship is not recommended to visit the Port of conventional and Container stevedoring activities there, because the ship Turn Round Time in conventional port will be extremely high which would harm businesses that ship. Pelabuhanan to the facilities necessary for a dock container port in accordance with the characteristics of the loading and unloading Container (Eric Rath, 1973, Misliah, 2011), are as follows:

a. Swimming Ports; b. apron dock; c. marshaling

e. Container Freight Station (CFS)

f. Crane / container loading and unloading equipmentHandling (handling) Container-Port consists of the following activities:

1. Taking Container ship and put it under the portal, Gantry Crane
2. Taking off the boat and immediately put it on the Head Truck Chassis which was prepared under Gantry Portal, which will soon be transported out port
3. Container Moving from somewhere buildup to be stacked in any other place in the top Container Yard same.
4. Doing shifting Container, because Container residing in the stack below will be taken so that overwrite Container must be removed first.
5. Collecting (unite) some Petikemas from one shipment to a stacking location (formerly scattered in multiple locations / plots).

III. RESEARCH METHODS

A. Location of Study

The research was done at precisely in Makassar Container Terminal Port of Soekarno Hatta in Makassar, South Sulawesi Province, Indonesia. The location selection based on the consideration that the TPM is one of the main biggest container terminal in eastern Indonesia, which is planned to become an international port that serves containers from various countries.

B. Data Resource

The data in this study consisted of primary and secondary data. Primary data is data obtained by direct observation in a container terminal container, among others; a) the data of total quay length (m); the depth of the harbor (m); total container terminal area (m); the total area of container yard (m); loading and unloading facilities, the wide road. While secondary data is data obtained from container terminal of Makassar City.

IV. RESULT AND DISCUSSION

Increasing the number of loading and unloading at the terminal petrikemas Makassar increasing annually. It can be seen in the following table:

TAHUN	ARUS PETIKEMAS (TEUS)	PERTUMBUHAN
2010	442553	
2011	450567	1.7%
2012	529396	14.0%
2013	534651	0.9%
2014	558957	4.3%
2015	563913	0.8%
	Rata - Rata	4.5%

Source: PT. Pelindo IV Container Terminal of Macassar

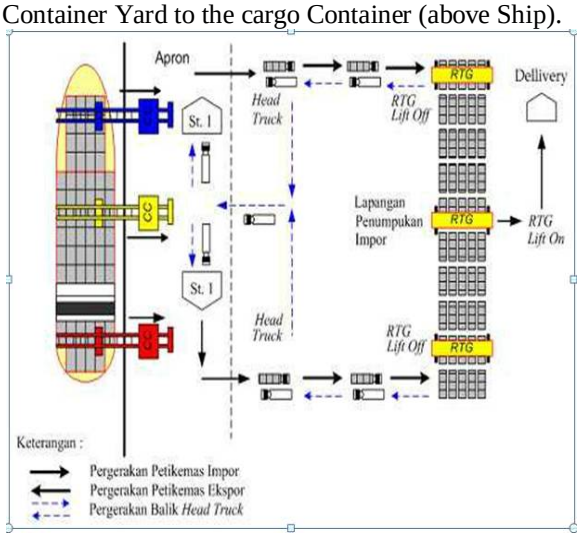
Table Flow Container Growth in Container Terminal of Macassar

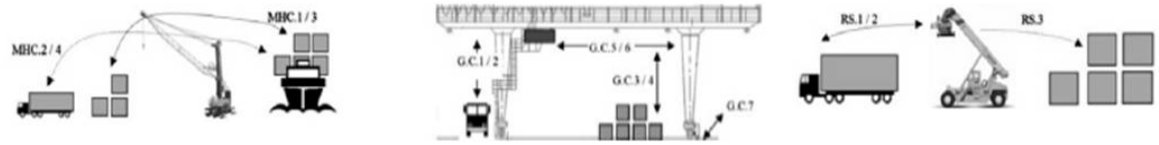
Increased container is unloaded, making the port's performance should be improved. One factor which is used to increase the performance of a port is the dwelling time. Dwelling time in Makassar container terminal is still relatively long. It is influenced by two aspects, technical and non technical aspects. In this study, only the technical aspects that are the focus of this study, analyzes the container loading and unloading equipment. For a domestic and import dwelling time in Makassar, dwelling time is still quite

long. From the data, time to reach an average of 5 days. The technical aspect, container dwelling time obtained by analysis of time spent at the points of observation that is on the apron, the truck into the yard and in the container yard at figure below. Long time field buildup, apron adrift with port facilities are available, as well as container handling system. Model dwelling time container handling can be analyzed with simulation with methods in another studies.

Analysis Container Facilities

The analysis referred to in this study is the analysis of the performance of the facility and equipment yard supporting, developing the model scenario the number of arrivals of container in analyzing the performance of facilities or equipment needed in the operation of loading and unloading of containers. The equipment in question is: Container Crane (CC) operating in the dock, the container lift of the top ship on the move over Head Truck (HT) and vice versa, Rubber Tyred Gantry (RTG) that operates in the yard Container, which lift or move Truck container from the upper head (HT) to the yard, while the Head Truck (HT), which operates out of the container stacking yard to the dock and vice versa. Head truck in imports of such equipment serves as a tool to move the Container from ship to yard Container (Container Yard), whereas in export activities, such equipment serves as a tool to move the Container from the Container Yard to the cargo Container (above Ship).





Loading time in Apron	Container from truck to container yard	CY Loading & unloading
Unloading time in Apron	Time delivery container to CY	Stacking time
Quay Crane speed	Crane speed	

Figure 3. Handling Container

The second picture above describes the analysis of dwelling time at three positions will produce the right way in the handling of containers by the dwelling time better than the present situation. Port facilities is an important factor in the determination of this case.

CONCLUSION

Dwelling time at Soekarno Hatta port of Makassar, particularly in Makassar Container Terminal is still quite long both technical and non technical aspects. The technical aspects related to port facilities and the performance of the terminal itself. The technical aspects of the observations obtained wait time during loading and unloading of containers on the apron, the truck into the yard and in the yard taking into account the service performance of each facility.

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