Factor Analysis Of Delay Return Empty Container To Depo

Intan Sianturi¹*, Bugi Nugraha², Rizqi Aini Rakhman³

¹,²,³Surabaya Shipping Polytechnic, Indonesia
⁴Corresponding Author:
Email: intan52.anturi@gmail.com

Abstract

This research was conducted to determine the factors that influence delays in returning containers to shipping company depots. Because delays in returning empty containers can result in some containers not being able to be used for the next shipment because they have not been returned to the depot, so the goods have to wait to be loaded into the container. This type of research uses qualitative research, by conducting an interview with one of the shipping company employees, then processing it using a fish bone diagram or Ishikawa diagram so that the author can find out the causes and effects of why the container was returned to the depot late. The problems faced by shipping companies are delays in returning empty containers, which results from late payments to shipping companies, full consignee factory/warehouse conditions, difficult permits from the relevant authorities due to expiration and so on. Efforts that need to be made to prevent this are by providing a time limit for processing the return of empty containers, the need for other alternatives if there is a buildup in the consignee warehouse by appointing another party as the unloading location, as well as increasing the competency of human resources who are directly involved in cargo handling.

Keywords: Export, Import, Shipping Company and Container.

I. INTRODUCTION

Export-Import activities are international trade activities carried out between countries. When shipping export and import cargo, sea transportation is generally used. When sending cargo by sea, importers and exporters will use containers. This is so that the cargo can be protected from several things, such as splashes of sea water, damage due to being moved, maintaining the quality of the goods and so on. Exports are any goods that leave Indonesia to other countries, whether done legally or illegally. (Berata, 2014). According to Law no. 2 of 2009 in the book (Sutedi, 2014) “Export is the activity of removing goods from the Indonesian customs area and/or services from the territory of the Republic of Indonesia and/or services from the territory of the Republic of Indonesia.” According to (Adisasmita, 2007) “Export is the activity of removing goods from the Indonesian customs area by complying with applicable regulations.” Containers What exporters and importers use are containers provided by shipping companies (shipping lines). Shipping line is a company engaged in sea transportation services. Where you own and operate your own ship or in a consortium or can also be said to be a group of container operators serving special routes, holding slot charters between each other (Erry & Primadhany, 2020). Shipping lines as a sea transportation provider and container provider, it will offer its services to exporters and importers to send their cargo to the destination country (Vincent, 2014).

In using containers, the exporter will use an empty container which will be taken from the depot in the country of origin to the exporter's warehouse to load the goods/cargo, then the container containing the cargo to be exported will be taken to the port of origin, which will then be sent using a ship belonging to the shipping company to destination port. After the ship arrives in the importing country, the importer will pick up the container from the destination port and take the container to the importer's warehouse for unloading. After the container has been emptied, the importer will return the empty container to the depot in the destination country. In this container use activity, generally the shipping line provides a container return limit ranging from 7 - 10 days or more according to the agreement between the importer, exporter and shipping line. If the container return limit exceeds the mutual agreement, the importer must pay additional fees or fines as a result of delays in returning the empty container to the destination country’s depot. In this case, the
shipping line can provide time allowance, or what is called free time. Free time provided by shipping line companies is generally given from more than 10 days to 21 days. The determination of free time provided by the shipping line is a mutual agreement between the container renter and the shipping line based on certain considerations. When returning empty containers to the depot, it is not uncommon for the importer to delay the return. This causes losses for shipping lines as providers of containers used by exporters and importers, because containers that should be able to be reused as containers for cargo to be exported, become unusable so that shipments for export activities are reduced, and results in losses for shipping line.

II. METHODS

The type of data in this research is qualitative data which comes from the questionnaire distributed and quantitative data which is in the scores filled in with the answers to the questionnaire scores distributed. Meanwhile, primary data is direct observation at the company and is stated in a questionnaire. Secondary data is data obtained by research using company data such as literature studies and documentation analysis. Population is a generalized area consisting of objects or subjects that have certain quantities and characteristics which are applied by researchers to study and then draw conclusions. The population in this study are customers who use shipping company services. The sample is part of the population, while the research sample is a portion of the population taken as a data source and can represent the entire population, if there are less than 100 subjects, then it is better to take all of them so that the research is population research, then if the subjects are large then 10%-15% or 20 can be taken. Data collection techniques are carried out using through interviews, the main informants in interviews conducted are related to the topic. The delay in returning empty containers to the shipping company's depot is the document division staff in the name of Mr. I Nyoman Wiyasa Kusuma, he is at the Regional Container Lines (RCL) Company which was previously agented by PT Bhum Mulia Prima, and currently RCL is agented by PT Jasa Centina Sentosa.

His work period from the previous agent to the present is 13 years and 10 months. Currently Mr. I Nyoman Wiyasa serves as Head of Operation and Equipment Control. The next data collection technique, namely library research, is carried out to obtain the necessary data and information, and will then be used as a theoretical basis, as well as to obtain data and information from reference materials, reading, studying textbooks, articles, journals/writings, books. obtained from the Surabaya Shipping Polytechnic Library, as well as lectures used to help discuss this research problem. The data analysis method used in this research to analyze is as follows: Fishbone diagrams are one of the tool methods for improving quality. This diagram is often called a cause-and-effect diagram or cause effect diagram. Cause and effect diagrams are often referred to as fishbone diagrams because their shape resembles a fish skeleton. Prof. Kaoru Ishikawa from the University of Tokyo first introduced this analysis method in 1953, then this method was better known as the Ishikawa Diagram (Ishikawa's Diagram). It is said to be a fishbone diagram because it is shaped like a fish bone with the snout of the head facing to the right. This diagram will show the impact or consequences of a problem, with various causes. The effect or consequence is written as a muzzle. Meanwhile, fish bones are filled with causes according to the approach to the problem. The basic function of a fishbone/Cause and Effect diagram is to identify and organize the possible causes of a specific effect and then separate the root causes. It is common to find people saying “probable causes” and in most cases having to test whether the cause for the hypothesis is real and whether increasing or decreasing it will give the desired result (Vincent, 2014).
Source: Vincent Gazperz 2014

With the Fishbone/Cause and Effect (cause and effect) diagram, you can solve problems including:
1) Help identify the root cause of a problem, 2) Help generate ideas for solutions to a problem, 3) Help in further investigation or fact-finding, 4) Identifying actions (how) to create the desired results, 5) Discussing the issue completely and neatly, 6) Generating new thoughts. After the researcher obtains and collects research data, it is necessary to determine the validity and reliability of the instrument. At the validity and reliability stage of this instrument, this is done to obtain a valid research instrument so that the research and data collection process becomes structured and properly directed. The instruments in this research are observation guidelines and interview guidelines. The validity and reliability of research instruments is carried out to ensure that the research instruments used can provide or produce accurate and reliable output. At this stage, it is carried out by involving internal parties from the shipping company and external parties from experts or parties who are competent and understand the topic of returning empty containers to the shipping company’s depot.

III. RESULTS AND DISCUSSION

Description
General Research Location

Regional Container Lines (RCL) started as a General Feeder Operator, operating its first feeder container ship in 1979 between Bangkok and Singapore. Currently, RCL owns and operates 49 container ships covering 69 destinations in Asia, India, the Indian subcontinent and the Middle East. RCL will further expand its feeder services and container ship business in Asia by providing high-quality container shipping services with reliable fix day shipping, fast transit, the use of modern and high-specification container ships and customer service information technology. RCL’s fleet size ranges from 388 TEUs to 8,533 TEUs. Strict Manning and maintenance standards for the entire RCL fleet are provided by the experienced technical team at RCL Shipmanagement, a subsidiary of RCL. The ship management company and RCL’s entire fleet have been ISM certified since 1998, long before the 2002 mandatory ISM deadline.

Analysis
Data

1. Data Presentation

In the research, there was a delay in returning empty containers to the researcher’s shipping company depot using various types of data, these data were obtained from the results of previous data collection methods. The data and information used to produce research output are compound or varied. The data and information that has been collected is triangulated so that the data is saturated.
As for presentation, the data or information from this research is divided into 3 mappings which are explained as follows:

a. Empty Container Return Flow
In the process of returning an empty container to the depot, there are several stages that must be passed as follows:
1) Consignee (customer) completes Administration and documentation with Shipping.
2) Publish DO (Delivery Order) to pick up the container/cargo from the terminal/port to be taken to the consignee/customer warehouse or factory.
3) After the container/cargo arrives at the warehouse, the consignee unloads the goods.
4) After completing unloading, the empty container will be returned to the depot appointed by the shipping company at the time of delivery of the DO (Delivery Order)

b. Documentation in Empty Container Return Activities
In the activity of returning empty containers to the depot, there are several documents required to fulfill the documentation requirements for each process.
1) DWI (Depot Working Instruction)
   DWI is a work order that is used as a guide for picking up containers in the stacking yard before transporting the containers onto a trailer truck chassis.
2) Bay Block
   Bay block is a document that shows the location of container stacking in certain slots, rows, tiers in the load block or unloading container stacking area.
3) Travel document
   A waybill is a letter that contains an introduction to carry goods or containers to their destination or depot to the port terminal.
4) Tally Sheets
   Tally sheet is a document or letter whose contents contain data about the container to be unloaded or loaded. The tally sheet contains the container number, container size, type, status and stowage.
5) Discharging list
   Discharging list is a document containing the container (cargo) that will be dismantled.
6) Load List
   Loading list is a document that contains a list of container numbers that will be loaded onto the ship or a list of goods that will be transferred to CY for ship loading.
7) Delivery orders
   Delivery Order is a document that functions as an order for the delivery of goods/retrieval of containers to the carrier of the letter, which is addressed to the document storage department.
8) EIR (Equipment Interchange Receipt)
   EIR is a container release document that contains the container's travel history.

c. Parties Involved
The parties involved in the activity of returning empty containers to the depot are as follows: 1) Consignee, 2) Shipping or EMKL, 3) Customs, 4) Quarantine.

2. Data analysis

a. Validity and Reliability
On study delays in returning empty containers to shipping company depots, researchers collected data and information. The data obtained was previously carried out for the validity and reliability of the instruments and data, then data analysis was carried out using the Fish Bone analysis technique.

In this research, data validation & reliability was carried out to obtain valid or accurate data. The researcher used data that was considered valid and credible because the presentation and processing of the data must be in accordance with the actual data that occurred in the research subject (Empty Container). The method used to obtain the validity and accuracy of the data is by source triangulation. The validity &
the reliability of the data is carried out to measure the consistency of the data being checked so that data is obtained that matches the actual in the field.

The parties involved in the validity & reliability of research instruments are as follows:

**Party I (internal)**
- **Name**: I Nyoman Wiyasa
- **Position**: Head of Operations and Equipment Control
- **Company**: Regional Container Lines

**Party II (external)**
- **Name**: Mrs. Rizqi Aini Rakhman, MMTr.
- **Position**: Lecturer
- **Company**: Surabaya Shipping Polytechnic

The following is a table of results from the validity and reliability of sources carried out with several parties mentioned above:

**Table 1. Table of Source Validity and Reliability Results**

<table>
<thead>
<tr>
<th>Question</th>
<th>Consistent answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How and what stages must be passed in returning empty containers to the depot?</td>
<td>Flow, stages and process of returning empty containers to the depot, starting from administration until the container arrives at the depot. a. There are 8 important documents used to manage the return of empty containers: Depot Working Instruction, Bay block, Travel letter, Tally sheet, Discharging list, Loading list, Delivery, Equipment Interchange Receipt</td>
</tr>
<tr>
<td>2. What documents are needed for returning an empty container to the depot?</td>
<td>a. Parties involved: Consignee, Shipping/EMKL, Customs, Quarantine.</td>
</tr>
<tr>
<td>3. Who are the parties involved in returning empty containers to the depot?</td>
<td>2. Special conditions: a. Returning empty containers must be within the free time given by the shipping company.</td>
</tr>
<tr>
<td>4. Are there any special provisions for returning empty containers to the depot?</td>
<td>b. There are shipping companies that require you to pay demurrage fees (fines) in advance when empty containers are returned to the depot.</td>
</tr>
<tr>
<td></td>
<td>c. Some require you to make a deposit first, after the container is empty, return to the depot and then calculate the actual demurrage costs incurred.</td>
</tr>
</tbody>
</table>

**Source: Researcher (2023)**

From the data consistency test with the data sources above, data is obtained that is credible or valid, namely data that has the same accuracy results (consistent) from the three parties above. Data that has passed validity & reliability will then be analyzed using the FishBone analysis technique.

b. Fish Bone Analysis

From the data and information that has passed the validity above, the following are the results of the fishbone analysis:

**Fig 2. Fisbone/Fishbone Diagram Results**

![Fishbone Diagram](image)

**Source: Researcher (2023)**
From the analysis of the fishbone diagram above, the root of the problem or cause of the delay in returning empty containers to the shipping company depot is obtained. Table 2. Summary of Brainstorming from Fishbone Diagram

<table>
<thead>
<tr>
<th>No</th>
<th>Main Cause</th>
<th>Possible Root Cause</th>
<th>Root Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Man</td>
<td>1. The number of employees in managing empty container returns is lacking</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Lack of employee competence</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Heavy workload borne by employees</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>Money</td>
<td>1. Expensive operational costs, burden of fines (demurrage)</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. The productivity of using containers is high</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Demand is greater than supply (availability of empty containers)</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Theft, physical damage to containers</td>
<td>Y</td>
</tr>
<tr>
<td>3</td>
<td>Method</td>
<td>1. Bureaucracy in the management flow is complicated because it goes through many stages</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. A lot of documents are required</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Each document requires a process that is not short</td>
<td>N</td>
</tr>
<tr>
<td>4</td>
<td>Environment</td>
<td>1. The depot is full</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Risk of losing the container by unloading it in the wrong place</td>
<td>N</td>
</tr>
</tbody>
</table>

Source: Researcher (2023)

Discussion

Based on the root cause analysis of the fishbone diagram that appeared or was obtained above, the researcher explained the discussion and analysis as follows:

1. **Empty container return flow**

Company cargo/container depot provides container maintenance and storage services with the maintenance/repair process for containers. A container depot must meet the requirements of the Indonesian Container Depot Association (ASDEKI), the government, and container owners. In the activity of returning empty containers, there are several special provisions that must be completed within the free time given by the shipping company:

a. **Freetime** Borrowing given by the shipping company to the consignee 14 days from the ship's berth. So within 14 days the consignee must return it to the designated depot. If the specified time exceeds, it will be returned to the internal procedures of each shipping company.

b. Some shipping companies require you to pay demurrage fees (fines) in advance when empty containers are returned to the depot, some require you to make a deposit first, after the empty container returns to the depot, the actual demurrage fees incurred will be calculated.

In the process, when it arrives at the initial port, the container is carried by a trucking company from the port operator's terminal (container terminal) to the factory or warehouse of the goods owner (shipper). Furthermore, after the loading and unloading process of imported goods, the containers will be stored at the nearest container depot or the shipper's partner to be cleaned, repaired if damaged, and ensured that they are seaworthy for further use. These containers are usually stored in depots for an average of 4 - 8 weeks, before they are finally used for export. This aims to ensure that shippers no longer need to look for containers to rent or use for export activities. After being ordered for export, the container must return to the factory where the shipper loads the goods to be exported. Then, the container is taken back to the destination port to be loaded onto the ship. According to the Decree of the Minister of Transportation No. PM 83 of 2006, business activities at container depots include: 1) Storage and/or stacking of containers. 2) Cleaning or washing, maintenance and repair of containers. 3) Loading and unloading trade goods in containers owned by more than one goods owner (Less than container load cargo). 4) Other activities such as moving, setting and installments, structuring, lo/lo (lift on/lift off), shifting, stacking, carrying out surveys, packaging, labeling, binding or releasing, physical inspection, receiving, storage places intended for activities container depot (Ambarwati, & Supardi, 2021).

Meanwhile, managing the use of empty containers for export/import expedition activities or sending domestic goods goes through several stages as follows: The Request Order shipper/exporter first submits the Shipping Instruction (SI) document, Packing list, invoice, according to the destination and load of goods, and payment after that the shipping party issues a Delivery Order (DO). Based on this Shipping Instruction...
recommendation letter, the shipper requests Booking Confirmation from Shipping. Booking Confirmation is a letter of introduction from the shipping company that asks the Container Depo to provide an empty container as stated in the Shipping Instruction (SI). After that, the shipper brings the Delivery Order documents and proof of payment to the Depot, to be submitted to the cashier/gate out. The depot inputs/releases the Delivery Order according to the job order and loading receipt. The function of this loading receipt is as a travel document for the driver who will take the empty container to the depot. After that, the container is selected according to the type, then there is the activity of loading the container onto the trucking, before the trucking leaves the depot, the gate out party issues an EIR or travel letter to the driver.

2. Factors that influence delays in returning empty containers to the depot

Based on data that has been collected from sources, the intensity of delays in returning empty containers occurs around 5-10% of the total load, meaning that in every activity of sending goods using containers there will definitely be delays in returning empty containers to the depot (Lasse, 2012). Based on the root cause results that emerged from the fishbone analysis, there are several factors or causes that influence the delay in returning empty containers to the depot, the following are the factors that cause delays in returning empty containers to the depot:

a. Lateness reception supporting documents from shipper to consignee

On the process, returning an empty container requires documentation as a condition for its management. The required documents must be available and nothing must be missed because these documents are proof of ownership and legality of the activity of using the container as a medium for sending goods. If in the process of managing the return of the container the required documents have not been obtained then this will have an impact on the processing process stopping so that the activity of returning the empty container delays occur (Hadiarirati, 2019). The documents needed to process the return of empty containers are as follows: 1) DWI (Depot Working Instruction). DWI is a work order that is used as a guide for picking up containers in the stacking yard before transporting the containers onto a trailer truck chassis. 2) Bay Block, Bay block is a document that shows the location of container stacking in certain slots, rows, tiers in the container loading or unloading block area.

3) Travel Document A travel document is a letter containing an introduction to carry goods or containers to their destination or depot to the port terminal. 4) Tally Sheets. A tally sheet is a document or list whose contents contain data about the container to be unloaded or loaded. The tally sheet contains the container number, container type size, status and stowage. 5) Discharging list, Discharging list is a document containing the container (cargo) that will be dismantled. 6) Load List, Load List is a document that contains a list of container numbers that will be loaded onto the ship or a list of goods that will be transferred to CY for loading the ship, 7) Delivery order, Delivery Order is a document that functions as an order for delivery of goods/pickup container to the carrier of the letter, which is addressed to the document storage department, 8) EIR (Equipment Interchange Receipt), EIR is a container release document containing the travel history of the container, 9) Condition warehouse/consignee factory is full, the warehouse or consignee factory is a place for unloading goods loaded in containers, if the warehouse/factory is full then the container that is supposed to be unloaded is delayed because it is waiting for space or a place to carry out unloading which can only be done in the warehouse or consignee factory. This has an impact on increasing the time it takes to use the container so that the empty container return process is delayed.

b. Lateness payment to shipping

When using a container there are terms or conditions from the owner, these provisions are implemented by the shipping company as the owner of the container. Some shipping companies require demurrage (fines) to be paid in advance when empty containers are returned to the depot. From the payment provisions above, there are several consignees or empty container renters who experience obstacles in paying or settling them, this results in the empty container management process taking longer because they wait for the financing requirements to be met first.

c. The management bureaucracy is complicated

In the empty container management process, there are stages that must be gone through, including processing various documents, permits or legalities that must be resolved with several parties such as Customs, Quarantine, Port Authority, and others. The large number of stages that go through results in a long processing time and requires a lot of time, resulting in delays in returning empty containers.
d. Damage & loss of cargo

Containers that have been used usually experience damage due to cargo being piled up and improper handling processes, several cases of lost cargo have also occurred due to theft. This causes the process of returning empty containers to the depot to experience delays because it takes a long time to repair damage and lost cargo.

3. Efforts to overcome empty container delays

To overcome the causes of delays in returning empty containers to the depot, there are several efforts that need to be taken to overcome them:

a. In overcoming delays in receiving supporting documents as a condition for managing empty container return activities, shipping companies need to provide strict time limits for issuing and processing the required documents. So that the required documents can be received before the free time for container use ends.

b. To deal with a full consignee warehouse or factory, another alternative place is needed that has been designated as a place for unloading goods. That way, loading and unloading activities on containers can be carried out according to schedule so that they can be processed as they should.

c. Efforts that need to be made regarding financing or payment for container use, the company needs to issue a new policy in the form of making a deposit first, after the empty container returns to the depot then the actual demurrage costs incurred will be calculated. This is considered to be able to ease the financing burden without reducing the quantity or amount of costs that must be paid according to the actual demurrage costs.

d. To overcome the complicated bureaucracy of container management, there is a need for policy and innovation from the government by issuing a single window system, in this system the management to obtain legality or documents can be completed using one system and one roof without needing to contact various parties. In this way, the process of managing the return of empty containers can be shortened but still go through legal stages or flows in accordance with applicable regulations.

e. Cargo damage and loss can be overcome by proper cargo handling, this requires Man Power or human resources who have competence in the field of cargo handling. In this way, cargo damage due to improper handling can be avoided.

IV. CONCLUSION

Based on the discussion that has been carried out through research regarding delays in returning empty containers to shipping company depots, researchers can provide the following conclusions: 1) Flow of returning empty containers. In the process, the consignee (customer) completes the administration with the shipping company, then a DO (Delivery Order) is given, to pick up the container/cargo from the terminal/harbor to take it to the consignee's warehouse/factory, to then carry out cargo unloading activities. After completing unloading, the empty container will be returned to the depot appointed by the shipping company at the time of handing over the DO (Delivery Order). The process of returning the empty container must be in accordance with the free time given by the shipping company; 2) Factors that influence the delay in returning empty containers: a) Delay in receiving supporting documents from the shipper to the consignee, b) Condition of the consignee's warehouse/factory being full, c) Delay in payment to the shipping company, d) Complicated management bureaucracy, e) Damage & loss cargo; 3) Efforts to overcome empty container delays are: a) Providing strict time limits for issuing and managing the required documents. So that the required documents can be received before the free time period for using the container expires; b) If the consignee's warehouse/factory cannot accommodate the container that will be unloaded, another alternative location that has been designated as the unloading location is required; c) A new policy is needed in the form of making a deposit first, after the empty container returns to the depot then the actual demurrage costs incurred will be calculated;

d) There needs to be policy and innovation from the government by issuing a single window system, in this system the management of obtaining legality or documents can be done using one system and one roof without needing to do it to various parties, e) Increasing the competency of human resources who are
directly involved in handling cargo. After paying attention to the conclusions above, the researcher provides suggestions that may be useful. Researchers realize that this research still has limitations and shortcomings, however, it is hoped that this research can provide a useful contribution. The following are some suggestions for several parties involved in export-import activities using containers as containers: 1) For shipping companies, it is hoped that shipping companies in providing provisions for customers as container renters can pay attention to ease of doing business so that the activity of using containers can benefit both parties; 2) For the consignee/customer, the Consignee as the container renter customer is expected to fulfill the requirements for using the container, so that the container return process can run according to the agreed schedule (free time); 3) For the government, it is hoped that the government through the agencies concerned in container business activities can provide policies or innovations that can make it easier for customers or business actors to carry out their business activities.

REFERENCES