Optimization and improvement of port facilities for marine pilot activities in Container Terminal Port 2 of Tanjung Priok Jakarta

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Abstract. Tanjung Priok Port is a compulsory pilotage area, where all commercial ships that will enter, leaving and moving within Tanjung Priok Port should be assisted by harbour pilot. Pilot service is one of the ports services given to support and facilitate the activities of the traffic flow of transport ocean freight to ships that perform the movement in the Container Terminal 2 (UTPK) Tanjung Priok, Jakarta. The purpose of this study is to know the existing condition of pilot service and providing the fix strategy. The methods use in this research is qualitative methods, with primary data derived from interviews the informant, observation, 3 (three) months movement report in container terminal 2, Tanjung Priok and other official documents. This research concluded in order to increase the institutional capacity of pilotage by optimizing pilotage and improve port facilities for harbour pilot.

1. Introduction

The maritime industry is the backbone of the world economy the success in building the economy of a country is strongly supported by many factors, one of the important factors including the availability of transportation systems or transportation services that are adequate for both land, sea and air transportation[1].

Indonesia is the largest archipelagic country in the world and desperately needs a sea transportation system that can reach all regions in the country, one of the supporters of the sea transportation system which is very important is the port, the port has a role and function as a berth and loading and unloading of goods and passengers. and the port also acts as a gateway and interface for a country. Ports as a two-way mode meeting place or sea transportation and land transportation system, ports must provide facilities and services and services needed for the transfer from ships to land transportation or otherwise and move goods from one ship to another[2].

Port of Tanjung Priok is the main port in Indonesia. As the largest port in Indonesia, this port has a big impact on the economy. The trading volume using shipping lines through Tanjung Priok has significantly boosted Indonesia’s economic performance. Port of Tanjung Priok is building modern infrastructure and facilities for years for cargo and container services. To get a good and maximum performance value, the port of one of the arteries of national finance must be managed efficiently, to achieve a high level of performance, the port must provide good services for users of port services. One of the services provided by ships that can be provided by ships in the service of ships is pilotage, towage, and mooring boat. [3]
A maritime pilot, marine pilot, harbor pilot or simply pilot is a mariner who maneuvers ships through dangerous or congested waters, such as harbors or river mouths. They are navigational experts possessing knowledge of the particular waterways such as its depth, currents and hazards locally. Pilotage is an activity that guides the ship captain who will entering waters guiding him to a particular port wherever his activities[4].

Marine pilot is a person who is knowledgeable or experienced and skilled in carrying out ship movements and has fulfilled his skills as a sailor, where he can be tasked with carrying out ship pilotage in the waters of the port area by providing assistance to the captain or ship leader to sail, while the final decision remains in the hands of the captain. However, the responsibility for carrying out their duties can be subject to administrative action. A pilot’s role is equally important as that of a captain. Although captains are experts at navigating their vessels, they are not experts on the regulations and specific environments of each port at which their vessels call. Therefore, captains require the local expertise of a marine pilot to ensure that their vessel and its crew, passengers and cargo arrive at their next port of call in a safe and efficient manner[5].

As with pilotage, towage is an essential part of the maritime environment. It is one of the most important maritime activities as ports could not operate without tugs and the vast majority of imports and exports would simply stop. Towage is the vital and primary guardian that provides the safety and environmental protection for ports, approaches and coastlines. Large ships normally require tug assistance for maneuvering to and from their berth. The need for tug assistance increases with the ship’s size, complexity of the waterways and docking facility as well as weather conditions. Tug assistance of a vessel consists of a number of tugs pushing and/or pulling for holding, slow movement and/or positioning of the floating object. Tugs are primarily used to assist ocean-going ships in ports. However, many additional applications have been developed for coastal towages, for ship to ship towage carrying out port service tasks is one of the tools as a supporting element in ship services at the port, because this is the first and foremost tool and also begins and ends the task of port services to users of sea transportation services, when a vessel entering and exit port must be serviced by tugboats[6].

Service providers must process speed and reliability in response to service users, The company must be quality-oriented. The services provided must follow the targets set by the pilotage service company, so that ships that want to get out and enter from the port through mandatory waterway areas can run safely not having accidents or undesirable things, the accuracy and speed of guiding service times are indicators whether or not in the port service system, the accuracy and speed of ship pilotage services is largely determined by the availability and readiness of the main important facilities that it has, which is ready to operate, will be an important factor in maintaining port quality, and faster and timely service pilotage, the value of port performance will increase[7].

For the service of the ship to run optimally in accordance what is wanted, it is necessary to increase the services provided by ship maid services such as pilotage and routine maintenance, which aims to provide adequate port facilities in the service of ships to be safe and controlled[8].

2. Research Methodology
The methods used in this research is qualitative method (j. w. Creswell) with data collection through interviews, observation and processing of data by examining the evidence that comes from the resource and use it to build justification themes coherently. In this study, researchers conduct interviews to a resource person Capt. Yulus Nurdin Assistant Manager in marine pilot Tanjung Priok from PT. Jasa Armada Indonesia as key informants to obtain primary data. Observation workplace environment at the Container Terminal 2 (UTPK) Tanjung Priok includes a look at the condition of facilities supporting activities of pilotage randomly such as the Tugboat, Pilot boat and Pilot Station. Collecting data ship movement report from march until may 2019 in Container Terminal 2 (UTPK 2) Tanjung Priok[9].

3. Result and Discussion
To get the quality of existing human resources, good planning, coordination and supervision are needed. Human resources to be able to carry out their duties more professional, existing human resources need to be further improved by increasing expertise and professionalism that will deliver the desired results to achieve the desired target of the company[10].

Tabel 1. The list of marine pilot and tug boat, pilot boat, mooring boat 2019

| Description        | Amount  |
|--------------------|---------|
| Marine pilot       | 40 persons |
| Tug boat           | 21 unit |
| Pilot boat         | 8 unit |
| Mooring boat       | 3 unit |

Source: PT. Jasa Armada Indonesia 2019

Marine pilot services at Tanjung Priok Port are carried out by guiding assignments which are divided into 4 groups which are in turn for 24 hours which are arranged according to the shift system. To maintain the stamina of pilots as well as the service. Schedule settings as follows:

Shift working hours:
1. 08.00 – 18.00 shift 1
2. 18.00 – 08.00 shift 2

And the condition of the age of the marine pilot who are already averagely 45 - 55 years old can be seen in the attachment, and regular medical check up are needed to maintain the marine pilot stamina. This is very risky in carrying out their duties as a pilot, because a pilotage is required to be able to quickly carry out the ship guiding process so that he can support the smooth flow of ship visits at the port, moreover this matter is not taken care of, it can have adverse consequences for the company. And this condition will greatly affect the quality of services provided by guides and will ultimately create an impression that is not good for the company.

To ensure more good service, pilot personnel, infrastructure, pilotage, and things correlated with improving pilotage service should be enhanced. And all marine pilots agree that the priority of marine pilots is health so that maintaining health with the standards specified in the company that supports pilotage activities becomes absolute. And the health maintenance of pilot personnel is carried out by routine medical check-up to improve the quality of services to be provided maximally and optimally[11].

The education requirements for marine pilot doing pilotage activities in the port of Tanjung Priok Jakarta are at least ANT II and have sailed for ≥ 10 years. And the provision of operational official housing facilities for marine pilot and must get the opportunity to participate in managerial training.

The implementation of the pilotage is carried out following the plan that has been prepared, they have to learn about the ship they will be pilotage. A pilot will pilotage based on the PPKB letter (request for service of ships and goods). Starting with a pilot driven by pilot car to serve the ship that will exit the dock, or by a pilot boat if the pilot will onboard the ship that will dock. The pilot has to know about the draught of the ship when the pilot is in the position on board according to his main function is as an advisor to give instructions to the ship captain to guide telling about the shipping lane to be passed. If the condition is good they are allowed to enter the vessel and see the helm to ask about the readiness of the ship including machine, crew members, gravity moment, ship’s document and cargo. The pilot does the pilotage. And during the pilotage carried out by pilotage is communication with the parties concerned, both regarding the flow of traffic to be traversed with traffic control tower, as well as coordination with other navigation aids participating pilotages such as tugs and mooring boat and other parties. So pilotage activities can run as well and safely[12].

Tabel 2. The realization of the activities pilotage during last 3 month 2019

| Month  | The average per hour |
|--------|----------------------|
| March  | 1,02 hour / ship     |
| April  | 0,91 hour / ship     |
Why can I conclude that on average 1 ship can be done within 1 hour I get data from Pak Yulius Nurdin as my informant that in March there are 283 ships. From the data that I got, I counted the duration of the pilotage and then I added all of it and divided it into 60 minutes, after getting the results I divided again the number of ships that were in March. Likewise as in the following months. Because the standard set by Tanjung Priok Port is that the guide must work for 8 hours a day by the existing laws and regulations in Indonesia, and for pilotage activities it has been set for 1 hour for 1 ship. Based on the above data, the realization for the last 3 months of 2019, fulfilling the target for pilotage according to ministry of transportation (MoT) regulations which complies with international regulations and STS operators under the laws of Indonesia, is the implementation of pilot ship entry is 1 hour and to guide the ship out is 30 minutes. And it can be concluded that the implementation of guiding has run optimally. And in the first month there was a decrease in pilotage according to the target but still not maximal, so what was the cause the author tried to identify and describe the problem.

There are few things that cause the pilotage service less than optimal. This study found constraints such as:
1. Optimization of service / time to get on board is often late, pilot to be pick up to quickly giving rise to delays in the ship movements.
2. Facilities fleet maintenance are not properly maintained, so many problems with the engine are broken, daily maintenance is not carried out, propellers hits unidentified objects as tug boat and pilot boat.
3. Education to improve expertise is not adequate, only based on habits and certificates.
4. Attitude pilot that might still be bad.
5. Weather factors where wind speed affects service

Facilities pilotage are also needed to optimize the utilization of service. The number of pilotage facilities currently available is as follows:

| Kinds of device | Unit | Condition % |
|-----------------|------|-------------|
| Tug boat        | 21   | 66          |
| Pilot boat      | 8    | 0           |
| Mooring boat    | 3    | 0           |

Source: monthly on the performance of the pilotage

From the table above, the port of Tanjung Priok should improve the condition of the operating vessels. With the number of vessels that are always decreasing, the condition of the ship is damaged so that it cannot operate optimally. Facilities supported by adequate pilotage aids can ensure the smoothness and service of pilotage and ship loading will be late and will ultimately affect overall operational performance. All of the facilities owned by the pilotage division are generally very old in condition, such condition it can be ensured that the smoothness and service of pilotage and ship loading will become too late and will ultimately affect overall operational performance. Pilotage is required to be on time in providing services. The existing supporting facilities are inadequate in number and type (especially for tug boats and mooring boat) so that they are felt to be not optimal in supporting the services of pilotage.

It can be seen from the quality of service pilotage will depend on how services providers consistently meet customer expectations. Where the result achieved have met the target, namely by emphasizing the average waiting time and approach time from the targets set in quality objective in the port of Tanjung Priok in 2019 on the service of the ships, namely waiting time (WT) of 30 minutes and approaching time (AT) of 60 minutes.
Waiting time is the time waiting to get pilotage, calculated from the time the ship is approved ready to be pilotage on board. While the approach time is the time spent on ships moving from the location of lego anchors until the rope is added and vice versa, calculated from the time the ship begins to complete with pilotage activities.

| No. | Month | Movement In | Movement Out | Movement Move | Amount | Waiting Time Amount | Waiting Time Average |
|-----|-------|-------------|--------------|---------------|-------|--------------------|----------------------|
| 1.  | March | 14          | 72           | 197           | 5.905 | 98,41              | 0,34                 |
| 2.  | April | 14          | 73           | 180           | 7.278 | 121,3              | 0,45                 |
| 3.  | May   | 13          | 82           | 184           | 5.433 | 90,55              | 0,32                 |

Source: Data from PT Jasa Armada Indonesia

Based on data from the table, the pilotage performance determined by the port of Tanjung Priok Jakarta for a waiting time of 60 minutes and an approach time of 30 minutes. Waiting time has been better than previous and decreased. With the performance achieved at this time, especially to shorten the length of the waiting time, it is considered to be able to meet the expectations of customers/service users.

The success of this achievement is inseparable from the pilotage principles that have been carried out so far, including:

a. In providing services, marine pilot must treat customers in the same way not to differentiate from one another.

b. Build good communication between other pilot and customers will create a mutually beneficial atmosphere, especially in carrying out activities in the field.

c. Increased knowledge, skills and expertise, as well as professionals, are very necessary to support the improvement of services.

4. Conclusion

Even though from the ships movement data above shows that pilotage activities have been below the time set by Tanjung Priok port, due to implementing “Marine Pilot Service” program but there still have a room for improvement.

“Marine Pilot Service” program is a tools of pilotage that is very influential in improving pilot service, this system very determined by quality of human resources. And the application of a management system at Tanjung Priok Port in Jakarta has improved the quality of services that have been provided, to provide the satisfaction expected by users of port services.

Therefore need to be provided accommodations were good enough for pilots in duty as well as health surveillance at regular intervals so that the health condition of the pilot more awake, if necessary coordinate with order institution such as BNN to make sure the pilot freed from the dangers of drugs that now already applied by airline. In addition to health surveillance, as well as the need for supervision of competency not only refer to the certification. The future might as well there should be a good simulation for testing or qualification update for pilots in order to be better.

In addition it should also routinely socialized program or system marine pilot service to related parties mainly agents of the ships and the imposition of sanctions and fines to the agent of the ship too late to change the ship’s activities that can disrupt port and other vessels schedule.

During my visit at Tanjung Priok, we also found some of the ships supporting the pilot service especially tugboat and pilot boat are only limited number which could work in good conditions while others have machine or other navigation aids such as echosounder problems.
So PT. Jasa Armada Indonesia should provide and follow the maintenance schedule for their fleet and next future to be considered the rejuvenation and increase number of the ships supporting in order to give an excellent pilot service in Container Terminal 2 (UTPK 2) Tanjung Priok in particular.

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