

THE EFFORTS TO INCREASE DRY BULK UNLOADING PERFORMANCE AT THE PORT OF PT. BANDAR BAKAU JAYA BANTEN

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Abstract: PT. Bandar Bakau Jaya Port (BBJ) Banten is a public port managed by the Port Business Entity (BUP) with the concession agreement number number HK. 107/2/6KSOPBTN 2020 is a private company that focuses on transportation to support port and goods services. The less than optimal level of loading and unloading services at ports is not only human resources, but also elements of facilities and infrastructure as well as types of goods are closely related. The length of loading and unloading time at the BBJ port makes it necessary to evaluate to improve the loading and unloading performance at the port. The analysis of loading and unloading performance at the BBJ port has an impact on efforts to improve ship service performance, productivity performance, and utility performance by analyzing existing conditions. A study is needed to analyze the performance of loading and unloading services at the current BBJ port with the standards set by the 2016 Director General of Sea Transportation (DJPL) regarding port operational service performance standards at commercially operated ports, so as to determine efforts that can improve the performance of loading and unloading services. load at the BBJ Banten port. The results of the analysis of the performance of loading and unloading services with performance standards that have been set by the 2016 DJPL, currently the average operational performance of the BBJ port is said to be quite good. There is a need for improvement to achieve maximum performance results with several steps that will get ideal performance results for the BBJ Banten port.

Keywords: *port of Bandar Bakau Jaya Banten (BBJ), loading and unloading performance, flow of visiting ship.*

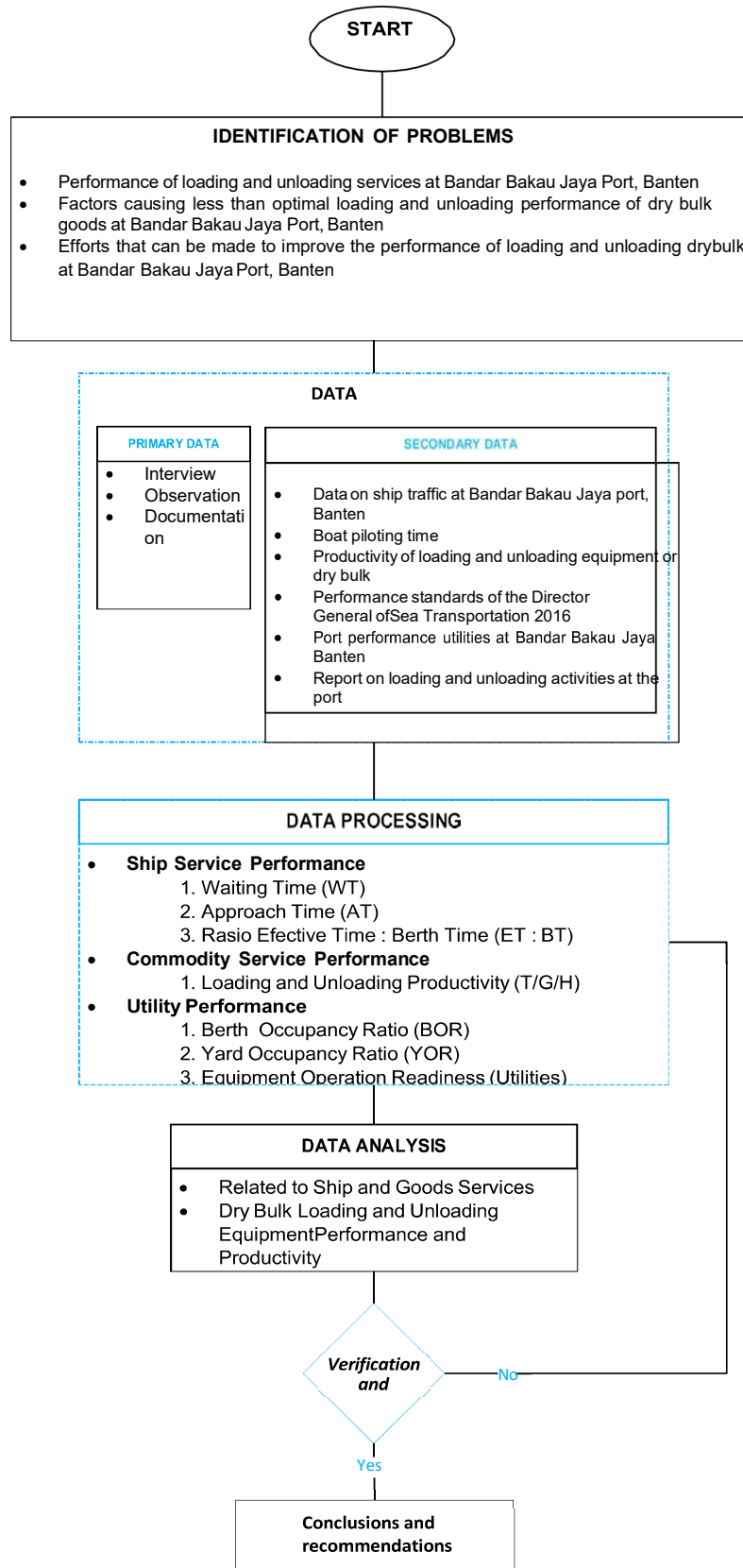
Introduction

The increasing need for freight transportation by sea automatically creates a competition in the shipping industry. Now every shipping company is required to provide the best transportation services. In order to meet these needs, it must be considered in terms of excellent service. In addition, coordination is also very much needed for the ship since the ship will arrive and dock at the dock until the ship sails to the next destination port. PT. Bandar Bakau Jaya Public Port is a public port managed by the Port Business Entity (BUP) with the concession

agreement number number HK. 107/2/6 KSOP BTN 2020 is a private company that focuses on transportation to support port and goods services. PT. Bandar Bakau Jaya focuses on fast and accurate service efforts in accordance with available procedures related to related performance, able to assist service users with fast and responsive and useful services. The slow loading and unloading service in the field does not only stem from human resources, but the factors of facilities and infrastructure as well as types of goods are closely related. The long loading and unloading time at the BBJ port makes it necessary to evaluate to improve the loading and unloading performance at the port. (Port of Bandar Bakau Jaya Banten, 2022).

Generally a loading and unloading activity at the port is disrupted due to inadequate equipment readiness and the occurrence of idle time in loading and unloading activities. Inadequate equipment readiness and the occurrence of idle time in loading and unloading activities at the BBJ port. The occurrence of idle time in loading and unloading activities is due to the realization of loading and unloading times that are not in accordance with the plans that have been made, the slow performance of loading and unloading equipment operators, and waiting for trucks that are not available.

Operational performance activities that will be evaluated based on the standards set by the Director General of Sea Transportation in 2016 regarding Port Operational Service Performance Standards at Commercially Operated Ports include Ship Flow Performance, namely the length of time the ship's service at the Port (Turn Round Time, Waiting Time), Postpone Time, Approach Time, Berthing Time, Berth Working Time, Effective Time, Not Operation Time, and Idle Time), Performance of Loading and Unloading Flow of Goods, namely productivity in a certain period of time, Performance of utilization of port facilities and supporting facilities, namely to measure the extent to which dock facilities and supporting facilities are utilized optimally (berth occupancy ratio, yard occupancy ratio and readiness of operating equipment). The results of the evaluation of these indicators will indicate how far the performance of the Bandar Bakau Jaya Banten port.



Method

Research is the steps to conduct a study to achieve the objectives of the research. The research stages serve to help researchers carry out research activities systematically, so that they run smoothly and finish on time. The location selection in this research is determined at the port of PT. Bandar Mangrove Jaya, Banten. After determining the research location, it is continued by formulating problems, collecting data, processing results, analyzing and concluding along with providing suggestions. All of these stages can be seen in the flow chart below.

a. Problem Identification Stages

The problems raised in this discussion are related to the performance value of goods services, namely the loading and unloading of dry bulk at the Bandar Bakau Jaya Banten port which is still very low and the level of use of the wharf and stacking yard is still very low. Jaya Banten in the future.

b. Data collection stages

Data collection uses primary and secondary data. Primary data is in the form of bucket cycle data. Secondary data is the flow of ship visits, loading and unloading of facilities or equipment at the dock, the effective capacity of the stacking yard, and preparation for the operation of the equipment.

c. Data processing stages

The data is processed and then used to calculate loading and unloading performance. In addition, it is used to identify efforts to improve loading and unloading performance, more details for data processing are described further at the data analysis stage.

d. Stages of Result Analysis and Discussion

The processed data was then analyzed as the result of this research. The next stage is a discussion by connecting the value of the analysis results to national standards, international standards and expert opinions. The discussion is focused in order to answer the

problem formulation.

e. Stages of conclusions and suggestions

The last stage is to draw conclusions from the research conducted. The conclusion must be the answer to the problem formulation, and relevant to the results of the analysis and discussion. The results of the conclusions are given relevant suggestions to answer the formulation of the problem.

f. Research variable

The variables in this study were determined based on the identification contained in the problem formulation, namely as follows:

1. Waiting Time (WT);
2. Approach Time (AT);
3. Comparison Effective Time and Berth Time (ET:BT);
4. Productivity Ton/Gang/Hour (T/G/H);
5. Berth Occupancy Ratio (BOR);
6. Yard Occupancy Ratio (YOR).

g. Data analysis

The data analysis carried out is the performance of ship services, performance of goods services or productivity and utility performance or the level of utilization of port facilities.

1. The formula for ship service performance.

Waiting Time (WT) = Service Time – Service Appointment Time.

Data obtained during the study period, then averaged and averaged compared to the standard DJPL 2016.

2. The formula for ship service performance.

Approach Time (AT) = (the ship moves from the anchoring location until the rope is tied) + (release the rope until Departure).

3. The formula for ship service performance.

Effective Time : Berth Time = $\frac{\text{Effective Time}}{\text{Berth Time}} \times 100\%$

Data obtained during the study period, then averaged and averaged compared to the standard DJPL 2016.

4. The formula for goods service performance.

$$T/G/J = \frac{\text{Commodity unloaded/loaded per shift}}{\text{gang per shift per ship} \times \text{effective hours tiap shift}}$$

5. The formula for utility performance or port facility utilization.

$$BOR = \frac{\text{Total mooring time (BT) of all ships in one period}}{\text{Time available in one period}} \times 100\%$$

6. The formula for utility performance or port facility utilization.

$$YOR = \frac{\text{Ton} \times \text{Average stacking time}}{\text{Field Capacity (Ton)} \times \text{Period}} \times 100\%$$

7. The formula for utility performance or port facility utilization.

$$\text{Utility} = \frac{\text{waktu pemakaian (Operation Time)}}{\text{waktu tersedia (Possible Time)}} \times 100$$

Discussion and Result

The average value of operational performance at the Port of Bandar Bakau Jaya Grouped by type of service consisting of ship service performance, goods service performance, utility performance, So get the following assessment.

Table 1 Results of existing performance values with 2016 DJPL standards

No	Performance	Standard DJPL 2016	Current Performance Value (Existing)	Performance Difference	Description
A	Ship Service Performance Assessment				
1	Waiting Time (WT) hour	1.00	0.35	`+ 0.65	Good
2	Approach Time (AT) hour	1.00	0.91	`+ 0.09	Good
3	ET:BT (hour)	80	54.97	-25.03	Deficient
B	Productivity Performance Assessment				
1	Dry Bulk Productivity (T/J)	150	112	-70	Deficient
C	Utility Performance				
1	BOR (%)	70	17	`+ 53	Good
2	YOR (%)	65	11	`+ 54	Good
3	Equipment Operation Readiness (%)	80	68	-12	Deficient
Rating Description					Passably

Source: Author Analysis

Table 1 above can be concluded that the performance at the BBJ Port from the criteria for ship service performance and utility performance has a fairly good performance. However, the performance has poor performance.

The causes of Non-Optimal Performance Indicators

- a. The causes of the ratio of effective time: berth time is not optimal.

The length of time for preparation before and after loading and unloading activities, rest periods and idle time during loading and unloading activities such as waiting for trucks, waiting for loading and unloading workers, and waiting for cargo are also causes of not optimal performance

- b. The causes of the operational readiness of loading and unloading equipment is not optimal.

At the time of operation there is equipment maintenance time so that the loading and unloading equipment is not optimal when carrying out loading and unloading activities.

- c. The causes of non-optimal productivity.

loading and unloading activities there is no standard effective time for each work shift, thus making production in (tons) during effective hours low and there is idle time during activities such as waiting for trucks, loading and unloading workers.

Efforts to Improve Performance at the Port of Bandar Bakau Jaya

- a. Efforts to increase the ratio of effective time: berth time

The results of the work value in the current conditions get the ideal number at the BBJ port for the average berthing time is 30 hours and the average effective time is 24 hours.

$$\frac{24}{30} \times 100 = 80 \%$$

Table 2 the results of ET:BT improvement efforts with standard DJPL 2016

Indicator	Performance Standard DJPL 2016	Performance Results After Improvement Efforts Are Made	Performance Difference	Performance assessment
<i>Effective Time: Berth Time</i>	80	80	0	Good

Source: Author Analysis

- b. Efforts to increase the readiness of loading and unloading equipment operations
- The value of ideal equipment operation readiness according to the 2016 Decree of the Directorate General of Sea Transportation for wharves that operate with a minimum standard of 80%;
 - b) Scheduled and regular maintenance of equipment to avoid down time based on current conditions;
 - c) Skilled operator readiness;
 - d) In a period of 1 month there are 12 ships that come;
 - e) Average berthing time is 30 hours.

Table 3 Comparison of the results of improvement efforts with standards DJPL 2016

Indicator	Performance Standard DJPL 2016	Current Performance Value (Existing)	Performance Difference	Performance assessment
Kesiapan Operasi Peralatan (%)	80%	80%	0%	Good

Source: Author Analysis

- c. Efforts to increase loading and unloading productivity
- Ideal Dry Bulk Productivity value according to the 2016 Decree of the Director General of Sea Transportation for wharves that operate with a minimum standard of 150T/J;
 - b) Based on existing data with an average load of 4300Ton;
 - c) Has a standard effective loading and unloading time every 7 hours shift;
 - d) Average Production (Ton) during effective hours 2100 Tons;
 - e) Idle Time Time wasted during non-existent activities.
 - f)

Table 3 Comparison of results of efforts to increase productivity

Indicator	Performance Standard DJPL 2016	Performance Results After Improvement Efforts Are Made	Performance Difference	Performance assessment
<i>Curah Kering (CK) T/J</i>	150	150	0	Good

Source: Author Analysis

Conclusion

Based on the results of the analysis and discussion, the following conclusions are obtained:

- a. The performance of dry bulk loading and unloading services at the Bandar Bakau Jaya port of Banten, as follows:
 - a) Waiting Time 0.35 jam
 - b) Approach Time 0.91 jam
 - c) Rasio Effective Time : Berth Time 54.97%
 - d) Dry Bulk loading and unloading performance productivity 112 T/J
 - e) Berth Occupancy Ratio 17%
 - f) Yard Occupancy Ratio 11%
 - g) Equipment Operation Readiness 68%
- b. Factors causing less than optimal performance at the port are influenced by waiting time, the ratio of effective time: berth time, non-operational time and idle time. The flow of ship visits and cargo entering the port is still very small, so that it affects the value of the berth occupancy ratio and yard occupancy ratio of 17% and 11%.
- c. Efforts to Improve Performance at the Port of Bandar Bakau Jaya to increase the performance value to be ideal at the port, with the following steps:
 - a) Berth Occupancy Ratio/BOR obtained an ideal value of 55%, with an average berthing time of no more than 36 hours for 1 period and 1 month period there are 12 ships that dock with an average berthing time

of 30 hours.

- b) Yard Occupancy Ratio/YOR obtained a maximum value of 65%, with an average shipload of 4300 tons and 1 month period there are 12 ships docked with an average Berthing Time of 30 hours. The average length of accumulation is 3 days, by providing a progressive rate.
- c) The productivity of loading and unloading performance of Dry Bulk obtained a good performance of at least 80%. With an average payload of 4300 tons, the standard effective loading and unloading time per shift is 7 hours, the average production (Tons) during the effective time is 2100 Tons and without any idle time
- d. The researcher suggests choosing the loading and unloading workforce who already have a Certificate of Expertise and a Skills Letter in order to get skilled TKBM and also in terms of readiness to operate excavator equipment, they must prepare everything needed for smooth loading and unloading by ensuring that the equipment is ready for loading and unloading. used in a state of readiness and focus on increasing the number of ships and the number of cargo entering the port in order to increase optimal port productivity.

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