



Evaluation Of Bakauheni River Vessel Capacity

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Abstract

The Bakauheni Ferry Terminal is a ferry port that connects Sumatra and Java Island, which has a crossing distance of 15 miles. The Bakauheni - Merak route has 71 (seventy one) ships which operate for a regular boat travel time of 108 minutes while the executive ship travel time is 90 minutes. The average passenger productivity on the Bakauheni-Merak route is 477 passengers and the vehicle is 184 vehicles. The large productivity of passengers and vehicles on the Bakauheni-Merak route causes the ship's carrying capacity to be incompatible with the ship's particular ship. It is known that the Jatra 3 ship in the particular ship particular has a allowable capacity of 115 vehicles. However, based on observations it is known that the carrying capacity of more than 115 vehicles,

The method of analyzing the carrying capacity on the ship uses the analysis of the daily load factor calculation. The primary data used is in the form of productivity data under normal conditions (January-March 2020) and during the covid-19 pandemic (April-May 2020)

The results of the analysis show that the average daily load factor under normal conditions is 105% and during the Covid-19 pandemic it is 88%.

Keywords: Load Factor, Productivity, Transport Capacity, Ships, Crossings

1. Background

The need for transportation in an area is not only caused by the interaction of social and economic activities in that area, it is also followed by the human desire to travel that never ends by moving from one place to another. Ferry transportation is a connecting bridge for transportation networks separated by water, in its development it must be balanced with various facilities according to the needs of ferry operational activities.

Lampung is a Province southernmost on the Island Sumatra, Indonesia with the Capital Bandar Lampung. Geographically, Bandar Lampung City is located at 5 ° 20 'to 5 ° 30' South Latitude and 105 ° 28 'to 105 ° 37' East Longitude. The city of Bandar Lampung has a land area of 19,722 hectares (197.22 km²) and an area of approximately 39.82 km² of water which consists of Kubur Island and Pasaran Island. The number of sub-districts and villages is 20 districts and 126 sub-districts. Administratively, the city of Bandar Lampung is directly adjacent to several regencies in Lampung Province, namely:

- In the north, it is bordered by Natar District, South Lampung Regency
- In the south, it is bordered by Padang Cermin District, Pesawaran District, Ketibung District, South Lampung Regency and Lampung Bay
- In the west, it is bordered by Gedung Tataan District and Padang Cermin District, Pesawaran Regency
- In the east, it is bordered by Tanjung Bintang District, South Lampung Regency

Most of the city of Bandar Lampung is located at an altitude between 0 - 500 meters above sea level which plays an important role in supporting the existence of sea transportation in the area. Sea transportation is one part of the national transportation system that plays an important role in the economy of a region in particular and the country in general.



The port is an important infrastructure to support sea transportation facilities. The port becomes the stop for ships after making a voyage. At the ferry port, ships carry out various activities, including loading and unloading goods, loading and disembarking passengers, making repairs or repairs to ships in the event of damage, refueling, and so on. A sea port is a sub-system of sea transportation which is one of the centers where the movement of goods and

services as well as passengers using sea routes, which plays an important role in connecting land and sea transportation networks. In connection with the role of this sea port, the port located in Bakauheni, Bandar Lampung Province is one of the crossing ports between the islands of Sumatra and Java which plays an important role in the mobility of the cargo of Ro-Ro ships. The Bakauheni Ferry Port is located in South Lampung Regency, Lampung Province, which is useful for connecting Sumatra Island and Java Island, with a strategic location making the Bakauheni Ferry Terminal one of the sea centers in the world.

Based on the results of preliminary observations, it is known that currently the safety and comfort factors of ship operators and service users at the Bakauheni Ferry Port are not considered, it can be seen from the fact that the load space is more than the capacity because it is not in accordance with existing regulations. Therefore, awareness and knowledge of ship operators or ship owners is needed in order to support the comfort and safety of service users who will cross. Based on the foregoing, the writer intends to take the title of Mandatory Working Paper: "**EVALUATION OF BAKAUHENI RIVER VESSEL CAPACITY**".

a. Formulation of the problem

Based on the results of the survey conducted, there are several problems that can be raised to support this title, namely:

1. What is the load factor during normal conditions and the Covid-19 pandemic?
2. What is the load factor for executive ships and regular ships?
3. What are the requirements for executive and regular ships?
4. What will be the productivity of passengers and vehicles on the Bakauheni - Merak track in the next five years?

b. Objectives and benefits

- 1) The purpose of this Compulsory Working Paper is as a requirement for graduation at the Palembang River, Lake and Crossing Polytechnic of the Palembang River, Lake and Crossing River Transport Traffic Diploma III study program while the aims and objectives of the research are as follows:

The objectives of this study are to:

1. Know the load factor during normal conditions and the Covid-19 pandemic
2. Knowing the load factor for executive ships and regular ships.
3. Knowing the needs of executive ships and regular ships.
4. Knowing the productivity of passengers and vehicles on the Bakauheni - Merak track in the next five years.

2. Scope

In order for the issues to be discussed in this Mandatory Working Paper not to deviate



and expand from the research focus, there is a need for restrictions. In writing this Mandatory Working Paper, the discussion limits on the load factor of passengers and vehicles on all

Bakauheni crossing ships are given.

3. Observation Method

This method is carried out by making direct observations in the place which is used as research on things that can be used as data that can be analyzed in accordance with the existing problems. The data obtained is in the form of primary data obtained directly from the source or based on direct observation in the field, in obtaining primary data the author uses the observation method. The data that has been obtained is then recorded and validated so

that it can be used as data to analyze existing problems appropriately, accurately and with certainty. Obtained in the form of data productivity 14 (fourteen) days. Productivity is a numerical value in the form of a table arranged systematically to determine the number of vehicles at the port on a daily basis.

a. Literature Method

Namely, by studying the theory and literature in the Palembang River, Lake and Crossing Polytechnic library as well as from other sources that are useful for research to be carried out related to the problem to be studied as a theoretical basis in analyzing and solving problems. The data obtained are secondary data is data obtained based on observations of other parties and is in the form of written reports or data obtained indirectly, but has existed in every related institution. This secondary data was obtained from literature or books in the Palembang River, Lake and Crossing Polytechnic Library and agencies related to the object of research, namely the office of PT ASDP Indonesia Ferry, Bakauheni Branch and Regional Land Transportation Management Center VI, Bengkulu and Lampung Provinces. . In this study, the authors took secondary data from PT ASDP Indonesia Ferry Bakauheni Branch and Land Transportation Management Center Region VI Bengkulu and Lampung Provinces which were then processed and recapulated so that it became one standard data.

Institutional Method

Namely by collecting data from agencies or offices to obtain data related to the research conducted. Data obtained from related agencies, namely ship characteristic data obtained from the Land Transportation Management Center Region VI Bengkulu and Lampung Provinces. Ship characteristics are everything about ships, from ship construction, ship engines, shipbuilding, to everything about ships, while productivity data for the last 5 (five) years, dock specification data, photos of Bakauheni Ferry Port dock, Bakauheni Ferry Port dock layout, Port layout The Bakauheni crossing and the pair of the Bakauheni - Merak crossing ports were obtained from PT ASDP Indonesia Ferry Bakauheni Branch.



4. Closing

a. Conclusions

1. It is known that under normal conditions the capacity of transporting ships for passengers and vehicles is ideal to transport 100% of the total capacity transported while in covid-19 pandemic conditions the capacity is transported for the ideal

passenger to transport 50% and the ideal vehicle transports 100% of the total capacity transported. This is due to the implementation of social distancing during the Covid-19 pandemic. Based on the analysis of the authors load factor normal conditions in January

by 142%, February by 93%, March by 80%. As for the load factor in the covid-19 pandemic conditions in April obtained a load factor of 80% and in May by 96%. The authors also analyzed the load factor of departures and arrivals during the 14-day survey, found that the average load factor of arrivals was 114% while the departure load factor was 128%

2. Based on the analysis of 2019 data produced that the average load factor of executive ships
3. is 71%. Meanwhile, the analysis of the average load factor of regular ships is 59%.
4. Based on the analysis of the authors of the 2019 data obtained that the number of passengers and vehicles in each month especially during the holiday or the end of the year, there is a buildup of vehicles that will cross because the ships operating are insufficient. The authors' analysis of fleet needs obtained regular ship departure frequency in 2019 of 257 trips/day and executive ship departure frequency of 27 trips/day.
5. Based on the results of analysis of passenger and vehicle predictions using a simple linear regression method obtained predicted passenger numbers in 2020 as many as 1,603,954 passengers, in 2021 as many as 1,666,714 passengers, in 2022 as many as 1,729,474 passengers, in 2023 as many as 1,792,234 passengers and in 2024 as many as 1,854,994 passengers while the predicted vehicles in 2020 as many as 2,363,916 vehicles, in 2021 as many as 2,500,756 vehicles, in 2022 as many as 2,637,596 vehicles, in 2023 as many as 2,774,436 vehicles and in 2024 a total of 2,911,276 vehicles.

b) Suggestions

From the above conclusions, the author advises on the problems that occur, namely:

1. Improve service to service users, by reviewing ship load factor in order to achieve a balance between the needs of crossing transport and the transportation provided and more efficient crossing activities. With the application of social distancing and without the application of social distancing (normal conditions) on the ship, the need for vessels that have a greater carrying capacity or vessels that have a carrying capacity above 5000 gross tonnage (GT) so that the carrying capacity transported by the ship does not exceed the capacity. As for ships that have a carrying capacity below 5000 gross tonnage (GT), the ship must leave the Bakauheni-Merak track in accordance with PM 88 year 2014 after 4 (four) years the regulation is enforced because it has a carrying capacity below 5000 gross tonnage (GT).
2. To improve the service of service users on board, the authors reviewed the load factor



of executive ships and regular ships on each bakauheni crossing to ensure the safety and security of service users.

3. The frequency obtained from the analysis of the authors that the needs of the fleet need to be added under normal conditions with the number of regular ships operating as many as 32 ships / day while for executive ships need to be added ships that operate as many as 3 ships / day. In the Covid-19 pandemic, 20 ships/day of regular operations and executive vessels operate as many as 2 ships/day based on existing operations.
4. By predicting the number of passengers and vehicles to know the growth or demand of passenger transport and vehicles in the future.