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Operational Evaluation Of Kmp. Siginjai Crossing Jepara – Karimunjawa In Central Java Province.

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Abstract

Jepara Ferry Port is a port that connects Java to Karimunjawa islands. This port is busy being used to transport vehicles, passengers, and basic food items for crossings, one of the ships used is KMP. Siginjai. The purpose of this study was to determine the operational load factor of KMP. Siginjai in the Jepara - Karimunjawa crossing and to arrange ship schedules based on the required frequency. The method used in this study is a survey method which is divided into two data collection methods, those are primary data and secondary data, primary data in the form of observation and secondary data in the form of institutional methods. In analyzing the data, several types of analysis were used, those are load factor analysis, passenger growth analysis, ship scheduling analysis and ship operational time analysis. Based on data analysis, it is known that the number of ships serving the Jepara – Karimunjawa route is not in accordance with the needs of service users. Based on the analysis of ship needs and facilities to serve the number of existing ships. The number of trips and the frequency of ship departures are currently not in accordance with the needs of service users. this is because the trip on the Jepara - Karimunjawa route is only 1 (one) trip / day which causes service users not to be transported to the ship and have to wait for the next departure. because the ship has excess load capacity.

Keywords: Operational Evaluation; Loading Factor; Jepara-Karimunjawa Crossing.

1. Introduction

Jepara Regency is a regency that is directly adjacent to the Java Sea in the west and north, while in the east it is bordered by Kudus and Pati regencies and in the south it is bordered by Demak Regency. Administratively, Jepara Regency has an area of 104,740,657 ha with 16 sub-districts and is further divided into 195 villages/kelurahan.

Jepara Regency is one of the regencies located in Central Java Province, which is on the island of Java. In Jepara Regency there is a Jepara Ferry Port which is managed by the Jepara Regency Transportation Service and the Technical Implementation Unit is managed by PT. ASDP Indonesia Ferry (Persero) Jepara Branch. The Jepara Ferry Port serves 1 (one) crossing and is served by the Passenger Motor Ship (KMP) Siginjai and the Fast Motor Boat KMC.Expres Bahari 3F.

Jepara Ferry Port is a port that connects the island of Java and the Karimunjawa islands. This port is quite close to the city center of Jepara and the Jepara terminal. From this ferry port, a sea trip by ship to Karimunjawa can be taken for 3 hours if using the Express Bahari fast boat, while if using the KMP. Siginjai ferry it can be taken for 6 hours with a distance of 41 nautical miles.

The role of transportation is also very closely related to the development, as well as to support the potential of the region, especially tourism which can increase the economic growth of a

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region. because the destination location for the Jepara – Karimunjawa crossing has high potential. This port is busy being used to transport vehicles, passengers, and basic food items for crossings. This is also due to the position of the Jepara ferry port as the main gateway for economic activity in Karimunjawa Regency in Central Java Province. The port service capacity has increased and increased along with the development of the number of passengers and vehicles passing on this main route and not only domestic residents but also many foreign residents who come to the Jepara Ferry Port to cross to Karimunjawa Island.

Based on the Regulation of the Minister of Transportation Number 35 of 2019 concerning the implementation of ferry transportation, Article 24, that the placement of the number of ships at each Crossing must pay attention to the balance between the needs of service users and providers of transportation services. The addition of carrying capacity at each Crossing is carried out by considering: the average load factor of ships at the crossing reaches at least 65% (sixty five percent) within a period of 1 (one) year, the ships placed cannot fulfill the total load required. Yes, the number of ships operating is less than the number of ships that are permitted to serve the traffic in question, the capacity of the port infrastructure and facilities used to serve the available ferry transportation or ferry terminals, the level of channel service capability, and/or the frequency of service of the ships being placed is not yet optimal.

The Jepara – Karimunjawa crossing has a departure frequency of 3 trips a week. Based on productivity data from 2015 - 2020, it can be seen that there is an excess of cargo on KMP. Siginjai, in the form of passengers, vehicles and basic goods. The total passenger capacity is 260 people, while the vehicles with a capacity of only 19 are mixed while those that go up reach 30 more or less plus basic goods which can reach more than 10 tons per day which can increase the weight of the ship's cargo. Observations made by researchers while conducting street vendors at the Jepara Spreading Port were known during the COVID-19 pandemic conditions, the number of vehicles boarding KMP. Siginjai remained as usual, especially when Eid al-Fitr experienced an increase in both passenger and vehicle loads.

The purpose of this study was to determine the operational load factor of KMP. Siginjai in the Jepara - Karimunjawa crossing and to arrange ship schedules based on the required frequency.

2. Research Method

The method used in this study is a survey method which is divided into two data collection methods, namely primary data and secondary data, primary data in the form of observation and secondary data in the form of institutional methods. Observations are carried out by making direct observations carefully and in accordance with the current situation in a precise and accurate manner. Activities carried out include passenger and vehicle productivity surveys as well as loading and unloading time surveys. While the institutional method obtained data from data collected from various agencies involved in this research, such as, UPTD Jepara Ferry Port, BPTD Office Region X Central Java Province and D.I.Yogyakarta and PT. ASDP Japan. In analyzing the data, several kinds of analysis were used, namely load factor analysis, passenger growth analysis, ship scheduling analysis and ship operational time analysis. Based on data analysis, the results show that the number of ships serving the Jepara - Karimunjawa route is not in accordance with the needs of service users.

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3. Results and Discussion

1) Overview Of Research Object

The people of Jepara Regency use ferry transportation to carry out the movement to the Karimunjawa Islands. The geographical conditions of Jepara Regency and Karimunjawa District are separated by the Java Sea, so that to travel to the Karimunjawa Islands they can only use this crossing to reach their destination. This section will discuss the means of ferry transportation at the Jepara Ferry Port which is divided into 2 types of ships, namely the Ferry Motor Ship (KMP.SIGINJAI) which is used to transport passengers and vehicles. The following is the Ship Particular KMP.SIGINJAI which includes the specifications of the existing ships:

Figure 1. KMP. Siginjai

Table 1.1 Ship Particular KMP.Siginjai

KARAKTERISTIK KMP.SIGINJAI		
DATA DECK KAPAL:		
No	Jenis	Keterangan
1	Nama Kapal	KMP. SIGINJAI
2	Nama Panggilan Kapal/Register	PODM/Jakarta
3	G.R.T	616 GRT
4	N.T	185 GRT
5	D.W.T	155 T
6	Panjang seluruhnya	45,50 M
7	Panjang garis tegak	40,920 M
8	Panjang garis muat/air	40,150 M
9	Lebar terbesar	12,00 M
10	Lebar dalam	8,20 M
11	Tinggi	3,20 M
12	Sarat air/Draft	2,14 M
No	Jenis	Keterangan
13	Tahun pembangunan	TH. 2010

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14	Dibuat oleh	PT. Dumas Tanjung Perak Shipyard 2010
15	Bendera	Indonesia
16	Jenis kapal	Ro-Ro
17	Area service	Jepara-Karimunjawa
DATA MESIN INDUK		
No	Jenis	Keterangan
1	Jumlah	2 buah
2	Merk	Yanmar
3	Type	6 AYM-WET
4	HP	830 X 2 kr/kn
5	Jumlah Cylinder	6 X 2 kr/kn
6	Rpm Max	1900 kr/kn
7	Dibuat tahun	2009 PT. YANMAR DIESEL
8	Nomor mesin	a. 1827 (Sb)
		b. 1826 (Ps)
DATA MESIN BANTU		
No	Jenis	Keterangan
1	Jumlah	2 buah
2	Merk	Dongfeng Cummings
3	Type	BT 5,9 GM.3
4	Daya	64 Kw/87 HP
5	Dibuat tahun	2009 Altrak 1978

2) Crosswalk

In research at the Jepara Ferry Port there is 1 crossing path, namely the Jepara - Karimunjawa and Karimunjawa Jepara route, the following is a description of the trajectory:

Table 1.2 Description of Crossings

NO	NTASAN PENYEBERANGAN	ARAK (MIL)	WAKTU TEMPUH (JAM)	KETERANGAN
1	Jepara - Karimunjawa	41	6,1	INTASAN KOMERSIL

3) load factor

To determine the load factor of the Jepara - Karimunjawa ferry, there are several things that need to be considered, such as the number of passengers and vehicles and the available capacity of the operating ferry. The number of passengers and vehicles transported affects the load factor of the Jepara - Karimunjawa crossing ship. This track is served by 1 ship with 3 trips per week. So to calculate the average load factor of the incoming and departing ferry boats, the following formulation can be used:

Load Faktor = $\frac{SUP\ Terpakai}{SUP\ Tersedia}$ ×100 %

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Table 1.3 Calculation of Passenger Employed Capacity (In Soup) At the Departure of Kmp. Siginjai

Keberangkatan (Muat)						Load Faktor
No	Tanggal	KMP. Siginjai				
		Penumpang (SUP)		Kapasitas Terpakai	Kapasitas Tersedia	
		Anak	Dewasa			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	28/04/21	0	143	143	260	55 %
2.	30/04/21	0	103	103	260	40 %
3.	03/05/21	1	67	68	260	26 %
4.	05/05/21	0	157	157	260	60%
5.	07/05/21	0	101	101	260	39%
6.	10/05/21	0	84	84	260	32%
7.	15/05/21	0	240	240	260	92%
8.	17/05/21	1	242	243	260	93%
9.	19/05/21	3	256	259	260	100%
10.	21/05/21	0	252	252	260	97%
11.	24/05/21	0	255	255	260	98%
12.	26/05/21	0	224	224	260	86%
13.	28/05/21	0	257	257	260	99%
14.	31/05/21	0	198	198	260	76%
15.	02/06/21	1	178	179	260	69%
Total		**6**	**2757**	**2763**	**-**	**71 %**
Kapasitas/trip		**184 Orang**				

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From the table above, it can be seen that the average loading factor for 15 (fifteen) days is 71%.

4) Vehicle Load Factor

The following is the vehicle deck area data that has been converted into SUP units:

Table 1. 4 Vessel Deck Area in Soup

Nama Kapal	Kapasitas Kendaraan	Luas Dek Kapal (m^2)	Luas Dek Dalam SUP
KMP.Siginjai	19	491,04	629,53
Rata – rata			629,53

The formula used to determine the vehicle load factor on the ferry is as follows:

$$LF = \frac{KP}{KT} \times 100\%$$

Information:
KP = Capacity Used
KT = Available Capacity
LF = Load Factor
The amount of vehicle loading factor on ships operating at ferry ports based on survey results in the last 15 (fifteen) days, 6 months and 1 (one) year can be seen in the table below:
Analysis of Monthly and Annual Passenger and Vehicle Growth Predictions
This calculation predicts the growth or demand for passenger transportation and class vehicles. Based on the realization of transportation productivity in the last six months. To determine the growth of passengers and vehicles per group used linear regression method. The results of the Prediction of Passenger and Vehicle Growth can use the Microsoft Excel program so that the following results are obtained:

Calculation of Passenger Prediction for the Next 6 Months Calculation of passenger predictions in July - December 2021 using Microsoft Excel linear regression calculations as follows:

Table 1.5 Prediction of Passenger Growth

Bulan	Penumpang (orang)
Juli 2021	3339,22
Agustus 2021	3668,10
September 2021	3996,98
November 2021	4325,86
Desember 2021	4983,62

Calculation of Vehicle Predictions for the Next 6 (six) Months
Calculation of vehicle predictions in July 2021 - December 2021 using Microsoft Excel linear regression calculations as follows:

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Table 1.6 Vehicle Growth Prediction

Bulan	Kendaraan (unit)
Juli 2021	7421,29
Agustus 2021	8222,34
September 2021	9023,39
November 2021	10625,49
Desember 2021	11426,54

4. Closing

a. Conclusion

The number of ships serving the route from Jepara to Karimunjawa is not in accordance with the needs of service users. Based on the analysis that the need for ships / facilities to serve the number of existing ships. The number of trips and the frequency of ship departures that are currently not in accordance with the needs of service users are because the trip on the Jepara - Karimunjawa route is only 1 (one) trip/day which causes service users not to be transported to the ship which causes the ship to exceed the loading capacity and service users who not transported have to wait for the next departure.

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