

Analysis of Facilities and Infrastructure in Supporting the Safety and Comfort of Service Users at Merak Port

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Abstract

Merak Port is one of the important ports in Indonesia because it is the main access for sea transportation from Sumatera and / to Java Island. Therefore, the facilities and infrastructure in Merak Port are very important to maintain the safety and comfort of service users. This observation aims to analyze facilities and infrastructure in Merak Port that can affect the safety and comfort of service users. In the implementation of observations, we conduct activities in the form of interviews and direct observations to the field and the data we obtain in the form of photos and reports on the results of observations of basic facilities and infrastructure, supports, service facilities, and also service support facilities. We also get results that Merak Port has adequate infrastructure facilities in supporting safety and comfort in carrying out passenger crossing activities.

Keywords: comfort, infrastructure, efficiency, port, safety.

A. INTRODUCTION

Marine Logistics was established in 2020 at the Indonesian University of Education, Serang Campus and continues to be committed to organizing comprehensive and competent higher education in the field of Marine Logistics. Marine Logistics focuses more on supply chains that handle logistics flows, information flows, and money flows through the process of procurement, warehousing, transportation, distribution, and shipping services according to the type, quality, quantity, time, and place desired by consumers, safely, effectively and efficiently, starting from the destination point through water or shipping.

In this case, we will review the facilities and infrastructure at Merak Port and what things must be improved or developed to improve the level of comfort and efficiency of the port itself. Dr. Jean Paul Rodrigue explains "Land distribution is becoming a very important dimension of the globalization/sea transport paradigm" This means that improvement and development is an ongoing process to ensure that port activities can run smoothly and can improve passenger comfort and satisfaction.

During the implementation, we encountered several obstacles that reduced the level of efficiency at the Port. Judging from the loading and unloading process, there are still queues that increase the loading and unloading time of vehicles to/out of the ship and also we review that the bridge to the pier has only one access, thus reducing the level of comfort of pedestrian passengers. Moreover, while on the bridge, passengers usually carry

quite a lot of luggage so, we find many passengers who are exhausted because the distance from the port access to the dock is too far.

Therefore, it would be better if an evaluation is carried out related to the problem and there are also changes to support the level of efficiency of the port. Thus, Merak Port can become a port that is not only capable in shipping and services, but can become a port that can improve the economy for port service users.

B. METHODS

This study aims to analyze the facilities and infrastructure that support the safety and comfort of service users at Merak Port. The research methods used are field surveys, observations, and interviews with service users and related experts. Field surveys are conducted to collect data on the physical condition of facilities and infrastructure at the port, while observations are used to observe user interactions with existing facilities. Interviews were conducted to obtain additional information regarding user perceptions and experiences regarding safety and convenience.

The preparation of a mindset in the study approach is needed to facilitate problem solving, so that the purpose of preparing this research is achieved. The object of research analyzed is the passenger gate access point to the pier at Merak Port located in the administrative area of Cilegon Municipality, Banten Province. This port connects Java Island with Sumatra Island through sea transportation (Sunda Strait). The position of Merak Port is located at coordinates -5.930441416663007, 105.99817451588326.

What is obtained and needed in this study is through primary data and secondary data. Primary data were obtained through interviews with related parties such as BPTD VIII Banten Region, PT. ASDP Indonesia Ferry Merak branch. Primary data is obtained to identify problems about passenger gateway access points with secondary data obtained from literature studies from related agencies.

This study used a qualitative descriptive approach. Qualitative descriptive approach is a method used by researchers to find knowledge or theory of research at one particular time (Mukhtar (2013: 10)). Data analysis in this study used several methods used such as interview methods, observation, literature studies, and focus group discussions.

C. RESULT AND DISCUSSION

Merak Port is one of the busiest crossing ports in Indonesia and is an entry point for commodities and passengers from or to Bakauheni Port. This port also plays an important role in maintaining price stability and is the key to smooth supply chains in Java and Sumatra. The efficiency level of the Merak port has direct implications for productivity and economic competitiveness in the region. By optimizing port operations, loading and unloading times for goods and passengers can be reduced, which in turn reduces logistics costs and improves distribution efficiency. This allows companies and industries to deliver goods quickly and efficiently between the two islands, increasing the supply of goods and services to consumers.

The problems found in this study are problems that have the potential to hinder smooth running and reduce efficiency levels. This is shown by observations made in the field is the buildup of vehicles when queuing to enter the ship due to the one-way loading and unloading system of vehicles from or to the ship. Efficiency is a word that expresses

the success of a person or organization for the business it runs and is measured in terms of the amount of resources used to achieve the results of the activities carried out.

Efficiency can also be interpreted as a comparison between input or input and output or output (Novendra, 2014). In the application at the passenger crossing port, the efficiency of the safety factor is an important factor to be taken into account. Dolphin access, which has a wide area that fits the vehicle, is very vulnerable to shifting when faced with bad weather and high waves. This can potentially cause incidents and result in reducing the level of port efficiency and passenger comfort levels. Accidents consist of five interrelated factors, including working conditions, human negligence, unsafe actions, accidents and injuries. (Heinrich, 1931) argued that accidents in workers occur as an interrelated series. However, safety is the number one thing that must be taken into account, minimizing the number of accidents where vehicles that want to enter or exit the ship plunge into the sea due to lack of safety factors (CNNIndonesia, 2022).

Several factors cause accidents at the port, but this study will focus on the relationship between infrastructure facilities to the efficiency and safety of vehicles and passengers when going to board or get off the ship at the Merak-Bakauheuni crossing port through the pier, dock specifications can be seen in table 1.

Table 1 Dock Specifications

Description	Dock				
	1	2	3	4	5
Pier length	120 m	80 m	168 m	90 m	150 m
Pool width	80 m	20 m	20 m	20 m	20 m
Depth	5.5 m	6.5 m	6.5 m	6.5 m	6.5 m
Dolphin	10	6	10	5	5
Frontal frame	10	7	11	Dampra Tyre	7
Cell fender	31	16	40		14
Dock capacity	6000 GRT	6000 GRT	15000 GRT	15000 GRT	15000 GRT
Side ramp	73.66 m	73.66 m	92.66 m		
Alleyway	90.07 m	96.92 m	96.2 m		
Transparency	30 tons	4,200 m	8,700 m	45 Tons	30 Tons

source: Profile and Performance of OPP Merak Office

In 2016 data on passenger and vehicle loads that fit into ships can be seen in table 2.

Table 2 Data of Passenger and Vehicle

description	Capacity	
	Passenger (person)	Vehicles (units)
Total capacity	35.411	6.909
Flat capacity	544	106

Source: balitbanghub (revision before final)

Data is also needed to determine the level of efficiency in service time, entry and exit of vehicles, loading and unloading, and processing of motion when entering and exiting vehicles to ships, then the data can be seen in table 3.

Table. 3

Activities carried out	Activity duration (time/minute)
Dock entry maneuver	12
Unloading	12
Loading process	12
Vehicle service	12
SPB management and exit	12

Source: Syahbandar Serang Banten Annual Report. Year 2017

The study identified two problems that have the potential to impede smooth operations and reduce efficiency in the analyzed context. The first problem observed is the accumulation of vehicles during the queueing process for entering or exiting the ship. This issue arises due to the implementation of a one-way loading and unloading system for vehicles. As a result, the flow of vehicles becomes congested, leading to delays and inefficiencies in the overall process. This bottleneck can significantly impact the timeliness of operations and the satisfaction of service users.

The second problem identified is related to the passenger gateway line, specifically its inefficiency in terms of its distance from the waiting room to the ship. Passengers have expressed complaints regarding the long distance they have to cover, which can be time-consuming and tiresome. This issue can cause delays in boarding and disembarking procedures, affecting not only the convenience of passengers but also the overall efficiency of the port. Addressing this problem is crucial to enhance the user experience and optimize the utilization of resources.

These identified problems indicate the need for interventions and improvements in the facilities and infrastructure of the Merak Port. In order to address the issue of vehicle accumulation, a reevaluation of the loading and unloading system should be conducted. Alternative approaches, such as implementing a two-way system or optimizing the scheduling of departures and arrivals, could help mitigate congestion and facilitate a smoother flow of vehicles. Additionally, expanding the capacity of the vehicle queueing area and ensuring efficient traffic management strategies can contribute to alleviating this problem.

To tackle the inefficiency of the passenger gateway line, a redesign of the layout and configuration should be considered. By reducing the distance between the waiting room and the ship, passengers can experience a more seamless boarding process. This may involve constructing covered walkways or implementing shuttle services to facilitate the movement of passengers with their luggage. Moreover, improving signage and providing clear directions can assist in enhancing the overall efficiency of the embarkation and disembarkation procedures.



Figure 1. Shuttle Bus at Soekarno Hatta Intl Airport Tangerang, Banten.



Figure 2. Economy Shuttle Bus at Mekar Sari Adventure Park (mekarsari.com)

It is crucial to prioritize the safety and comfort of service users when addressing these issues. Engaging with stakeholders, such as port authorities, service providers, and passengers, is essential in gathering feedback, identifying potential solutions, and implementing effective strategies. Regular evaluations and monitoring of the implemented interventions should also be conducted to assess their effectiveness and identify any further areas for improvement. By proactively addressing these problems and implementing

appropriate measures, Merak Port can enhance its operations, improve user satisfaction, and promote a more efficient and reliable transportation hub.

In conclusion, the identified problems of vehicle accumulation and the inefficiency of the passenger gateway line pose challenges to the smooth functioning and efficiency of operations at Merak Port. These issues require comprehensive interventions, including a reevaluation of the loading and unloading system for vehicles and a redesign of the passenger gateway line. By implementing appropriate measures, engaging stakeholders, and prioritizing user safety and comfort, the port can overcome these challenges and enhance its overall performance.

D. CONCLUSION

In conclusion, the analysis of facilities and infrastructure at Merak Port has identified two critical problems that can hinder smooth operations and reduce efficiency. The first problem is the accumulation of vehicles during the queueing process, caused by the one-way loading and unloading system. This leads to congestion, delays, and inefficiencies in the overall process. The second problem is the inefficiency of the passenger gateway line, where the distance between the waiting room and the ship is inconvenient for passengers, causing delays in boarding and disembarking procedures.

To address these problems, interventions and improvements are necessary. For vehicle accumulation, a reevaluation of the loading and unloading system, such as implementing a two-way system or optimizing scheduling, can help alleviate congestion. Expanding the capacity of the vehicle queueing area and implementing efficient traffic management strategies are also important. For the inefficiency of the passenger gateway line, a redesign of the layout, including reducing the distance, constructing covered walkways, and providing clear signage, can enhance efficiency and improve the passenger experience.

Safety and user comfort must be prioritized throughout the interventions. Engaging stakeholders, such as port authorities, service providers, and passengers, is crucial for gathering feedback and implementing effective solutions. Regular evaluations and monitoring should be conducted to assess the effectiveness of the implemented measures and identify further areas for improvement.

By addressing these problems and implementing appropriate measures, Merak Port can enhance its operations, improve efficiency, and provide a safer and more comfortable experience for service users. This, in turn, will contribute to increased productivity, economic competitiveness, and the smooth functioning of supply chains in the region.

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