

Conference Paper

The Safety of Sea Ferry Transportation and Anticipation of Ship Accidents in Merak-Bakauheni

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Abstract

The Merak-Bakauheni Ferry Port is a connecting route between Java and Sumatra. With its role as a driver of economic growth between islands, it is hoped that the smooth movement of passengers and goods can take place effectively and efficiently. Research on the ferries at the Merak-Bakauheni route is carried out to analyse the movement of people and goods based on the time of service, the number of ferry boats, and the number of docks, so that changes can be implemented to ensure the ferry service is fast, precise, safe, and comfortable. Public transportation in the current era is a very important necessity for every community in supporting all activities and daily routines, PT. ASDP Indonesia Ferry Persero as a ferry operator plays an important role in organizing proper public transportation in our country. The main problem identified by this research is the absence of a safety standard for sea ferries transportation. The expected result with this research is to be able to take inventory of safety standards and to anticipate the extent of safety on the ferry so that recommendations can be formulated to prevent accidents in the future.

Keywords: Ferry; Safety; Sea Ferries.

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1. Introduction

Transportation in the era of globalization is a very important need for the community in supporting all their daily activities and routines. Public transportation generally includes trains and buses, but also includes airline services, ferry ports, taxis and others. The existence of good public transportation greatly affects the economy of a region or region. The success of economic growth in a country cannot be separated from government interference in an effort to create public transportation that is comfortable, safe, clean, and well ordered. (Abrahamson, B.J. (1980) .International Ocean Shipping: Current Concepts and Principles, Colorado. West View Press. p.22)

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Each mode of transportation has its role and capacity in serving passengers. Public transportation that is very supportive of the government's task in development efforts is actually the mode of sea transportation. Sea transportation plays an important role in connecting one island to another so that the distribution of goods and passengers from one island to another can run smoothly, so that equitable development can be carried out and not only concentrated in one region or one island. To create a strong national marine transportation industry, which can act as a driving force for national development, reaching all national and international territorial waters so as to improve people's welfare and create national unity and integrity.

Within the national transportation system, there are ports which are a strategic part of the national transportation system and are an important factor in supporting trade activities. The port sector needs an integrated unit in serving the needs of transportation facilities. The spearhead of the port is the service sector in serving port services. Merak and Bakauheni ports are ports managed by PT. River and Water Transportation (PT. ASDP) Indonesia Ferry Persero. Inside the Merak branch port area there is loading and unloading of goods and passengers for the Java-Sumatra destination. Sometimes port service managers are unable to manage operational activities due to an imbalance of facilities and infrastructure.

The main cause of marine accidents in general is due to the excess transportation factor of the designated carrying capacity, both goods and people. In fact, it is not uncommon for shipping service users to force themselves to board the ship even though the ship is full of determination as long as they get a place on the ship. The transportation system is designed to facilitate the movement of people and goods. (Firdaus & Kurniawan, Agus. (2012). *Tingkat Kepuasan Pengguna Jasa dalam Pelayanan PT. ASDP Indonesia Ferry di Pelabuhan Merak Banten*. p.12) Transportation services are closely related to the safety aspects (safety) of both people and goods. A person traveling is obliged to get a guarantee of safety, even if it is possible to get comfort, while the goods transported must remain intact and not reduce in quality when they arrive at their destination.

1.1. Regulatory Review

In Act No. 17 of 2008 concerning Shipping, it is stated that:

1. Safety and security of shipping is a condition where safety and security requirements are met with regard to transportation in waters, ports, and the maritime environment.

2. Shipworthiness is the condition of a ship that meets the requirements of ship safety, prevention of water pollution from ships, manning, loading lines, loading, crew welfare and passenger health, legal status of ships, safety management and prevention of pollution from ships, and ship security management for sailing on certain waters.
3. Ship safety is the condition of the ship that meets the requirements for material, construction, engineering and electricity, stability, arrangement and equipment, assistive devices and radio, ship electronics, which is proven by a certificate after inspection and testing.

To control shipping safety internationally, it is regulated with the following conditions:

1. International Convention for the Safety of Live at Sea (SOLAS), 1974, as revised and this international rule concerns the following provisions:
 - (a) Construction (structure, stability, machinery and electrical installations, fire protection, fire detectors and fire fighting);
 - (b) Radio communication, navigation safety;
 - (c) Assistive devices, such as buoys, lifeboats, rescue rafts;
 - (d) Application of provisions to improve shipping safety and security, including the implementation of the International Safety Management (ISM) Code and the International Ship and Port Facility Security (ISPS) Code.
2. International Convention on Standards of Training, Certification, and Watch keeping for Seafarers, 1978 and last modified in 1995.
3. International Convention on Maritime Search and Rescue, 1979.
4. International Aeronautical and Maritime Search and Rescue Manual (IAMSAR).

1.2. Overview of the Peak River Port - Bakauheni

A port is a place consisting of land, lake or water which with certain boundaries serves as a place for government activities and company activities that are used as a place for ships to dock, board and disembark passengers, or load and unload. The port in general is a means of supporting transportation activities, inter-island transportation and even international which of course can benefit the regional government if its management is carried out clearly by the local government for the welfare of its people. (Morlok, K. Edward. (1985). Introduction to Transportation Planning; Pengantar Teknik

Perencanaan Transportasi. Alih bahasa: K. Hainim. Jakarta: Erlangga. p.2) The port is organized for the benefit of community service not for profit only.

Ferries transportation is transportation that functions as a bridge that connects the road network or railroad network separated by water to carry passengers and vehicles and their cargo (Article 22, Act No. 17 of 2008). The criteria for ferries the ferries are:

1. Connecting road networks and/or railroad networks that are cut off by the sea, strait, bay, river and/or lake;
2. Serving traffic regularly and regularly, based on a set schedule;
3. Serves as a moving bridge.

The Merak ferry port, located in Banten Province, is a public port that serves ferries between the western tip of the island of Java and the southern tip of the island of Sumatra. This port is a public port that is vital in moving the wheels of the Indonesian economy in general. The Merak ferries port as the gateway for land connecting routes between Java and Sumatra, is located at the position of 106 ° 00'00 "East Longitude, and 05 ° 56'59" South Latitude. The total area of the Merak ferry port, including Merak Market, is 15 hectares, with territorial physical boundaries:

1. North with hills;
2. East side with hills;
3. West side with the Sunda Strait;
4. South of the Sunda Strait.

Before the Bakauheni port which was built in Lampung, Panjang port was operating, and during the construction of the Bakauheni port from 1970-1980, a special shadow port for ferries was operated, namely Srengsem port, which is located close to Panjang port. After the Bakauheni port began operating in 1980, transportation became increasingly smoother, especially the ferries between Java and Sumatra. Bakauheni ferry port is a public port that serves ferries between the southern tip of Sumatra island - the western tip of Java island and is located at a position of 105 ° 45 '10 "East Longitude and so 51' 59" South Latitude, with an area of 452,458 m² and physical boundaries. the following areas: (Menheim, Marvin L. (1978). Fundamental of Transportation System. Graw-Hill Inc. p.11)

1. In the north with Ketapang district;

2. To the east with the Sunda Strait;
3. West side with Kalianda district;
4. South of the Sunda Strait.



Figure 1: Merak-Bakauheni Map

PT. ASDP (River and Ferries Transportation) Indonesia Ferry Persero is a state-owned company (Persero) under the Ministry of Transportation, Directorate General of Land Transportation, and is engaged in the business of ferries services less than 17 miles away. The facilities provided by PT. ASDP Indonesia Ferry Persero is in the form of providing a dock, implementing an integrated ticket which will later share the revenue from the integrated ticket with private companies, providing port facilities in order to support port services. Besides that, there is also another role, namely as a ship operator or service provider.

PT. ASDP Indonesia Ferry Persero, the Merak port branch, actually only has 3 ships that are ready to operate every day at Merak port. The names of these ships include the *Jatra 1* and *Jatra 2* ships which were both built in 1980 and the *Jatra 3* which was built in 1985. PT. ASDP Indonesia Ferry Persero as the operator of ferries goods and passengers from one island to another is very important in the implementation of proper public transportation in this country, as seen in the research locations at the ports of Merak and Bakauheni. (Putri, Santasari Ndiwa. (2011). Efektifitas Pelayanan Pelabuhan oleh PT. ASDP (Persero) Merak Propinsi Banten. p.20)

Merak - Bakauheni is a strategic ferries route for movements between Java and Sumatra, especially for the Provinces of Banten and Lampung (Ditjen LLASDP, Ministry

of Transportation, 2012). Currently the Merak - Bakauheni route is the busiest ferries route for Ro-Ro ships in Indonesia. (P.T. Sumaplan Adicipta Persada. (2010). Studi Standardisasi di Bidang Keselamatan & Keamanan Transportasi Laut. Jakarta)

2. Research Methods

Using a descriptive analysis method with data collection techniques in the form of library research and online research. The nature of this research is legal research which is normative juridical in nature. This approach consists of research on legal principles, legal systematics, the level of legal synchronization, and legal comparisons. This research is aimed only at written regulations or other legal materials, where this research is mostly carried out on existing secondary data in library. In addition, research also carries out an in-depth examination of these legal facts and then seeks a solution to the problems that arise in the symptoms concerned.

3. Results and Discussion

3.1. Port Facilities

3.1.1. Merak Ferry Port

The Merak ferry port has several supporting facilities to support the smooth flow of loading and unloading of passengers and motorized vehicles from and into the ferry. The supporting facilities for the Merak ferries port are as follows:

3.1.2. Bakauheni Ferry Port

The Bakauheni ferry port has several supporting facilities to support the smooth flow of loading and unloading of passengers and motorized vehicles from and into the ferry. The supporting facilities for the Bakauheni ferries port, such as parking capacity in the port area, are as follows:

- Parking A = 360 Units/Mixed
- Parking B = 300 Units/Bus
- Parking C = 260 Units/Mixed
- Parking D = 380 Units/Mixed

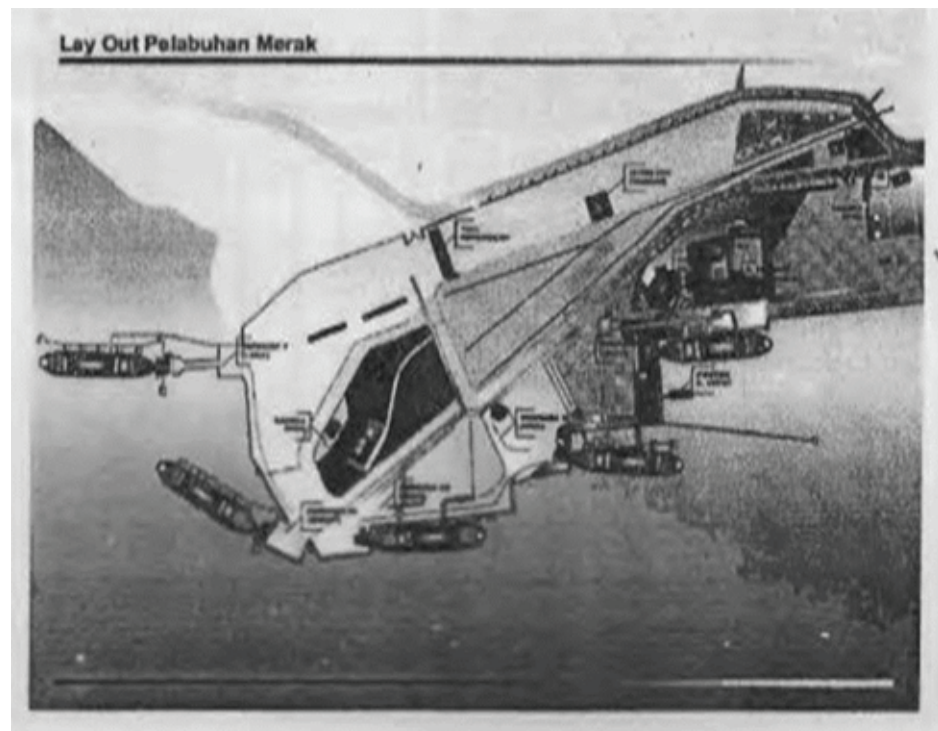


Figure 2: Lay out of Merak port

- Parking E = 60 Units/Mixed
- Parking F = 160 Units/Mixed
- Parking G, H, I = 1,200 Units/Mix
- Parking H = 440 Units/Mixed

TOTAL = 3,160 Units/Mix

The layout of the Bakauheni ferry port is as follows:

3.2. Sea Transport Accident

Accidents that occur in rivers, lakes and ferries that reach the Shipping Court are more caused by human error, and only a few accidents in the waters are caused by natural factors. Judging by the reasons mentioned above, all accidents should have been minimized if there were preventive efforts from all parties so as not to stumble on the same stone. As an illustration, the comparison between water accidents caused by human error and natural factors can be seen in Figure 4 (<http://repositori.usu.ac.id/handle/123456789/24765> accessed on 19 oktober, 2020).

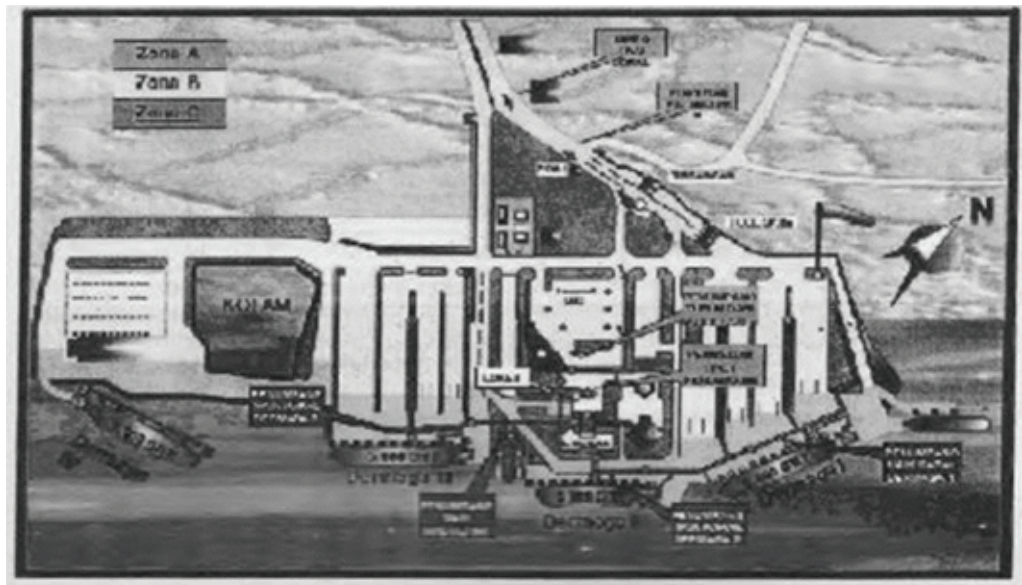


Figure 3: Lay Out of Bakauheni Port

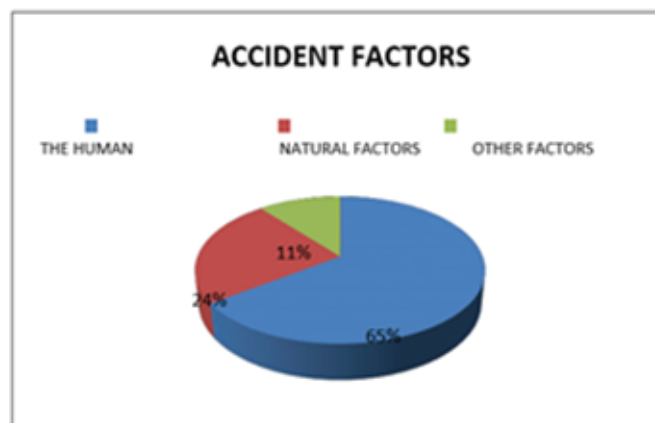


Figure 4: Causes of Accidents Based on the Decision of the Shipping Court

3.3. Problem Solving Efforts

Ship accident examination consists of preliminary examination by the Harbormaster and further examination by the Shipping Court. Whereas in the Law of the Republic of Indonesia Number 17 of 2008 concerning Shipping, Article 245 states that: (Papacotas, C.S. & Prevedouros P.D. (1993). Transportation Engineering and Planning. Prentice Hall. New Jersey. p.16) A ship accident is an incident experienced by a ship that can threaten the safety of the ship and/or human life in the form of:

1. Sinking ship;
2. Ship on fire;
3. Collision ship; and

4. The ship ran aground.

Furthermore, Article 256 concerning Ship Accident Investigation states that:

1. Ship accident investigations are carried out by the National Transportation Safety Committee to find facts to prevent ship accidents with the same cause.
2. (2) Investigation as intended in paragraph (1) shall be carried out for every ship accident.
3. (2) Investigation carried out by the National Transportation Safety Committee as referred to in paragraph (1) is not to determine the error or negligence of a ship accident.

Efforts to save lives at sea are an activity that is used to control the occurrence of accidents at sea which can reduce as little as possible the consequences that arise on humans, ships and their cargo. To minimize accidents at sea, an effort to save lives is needed by complying with all regulations issued by the IMO (International Maritime Organization), ILO (International Labor Organization) and ITU (International Telecommunication Union) as well as by the government. (Suwanto & Amin. (2010).Penelitian Penyeberangan pada Lintas Merak-Bakauheni sampai dengan tahun 2050. Penelitian RISTEK. p.1)

3.3.1. Crew Resources

Even if the ship is in prime condition, if it is not operated by a person who is capable of sailing the ship, and has adequate knowledge of the rules and codes and instructions related to shipping, then the performance will not be optimal. However modern a ship is equipped with automatic equipment, but if it is not supported by the resources of the crew, it will definitely be in vain. Besides crew members must have the ability to prepare their ships, they must also be able to safely sail the ship to its destination.

The crew of the ship, especially the captain and his officers must meet the criteria to be authorized to hold certain positions on board. Because of this, they must first attend formal education before being given a maritime certificate that enables them to serve on ships. Crew members who know and are aware of their duties will be very profitable for the company. If the ship's engine is maintained, the life of the ship can be longer, this means that the depreciation value can be minimized. (<http://ojs.balitbanghub.dephub.go.id/index.php/warlit/article/view/1543>, Accessed on 18 oktober, 2020)

3.3.2. Ship Safety and Worthiness

Indonesia is a Maritime Continent which has its own uniqueness in the marine transportation system, however, from the technical and economic aspects, it needs to be studied more deeply, because many of the current vessels are old, so they can cause unexpected damage and can affect ship safety. The condition of the ship must meet the material requirements, building construction, machinery, and electricity, stability, structure and ship radio/electronic equipment and be proven by a certificate, of course this is after inspection and testing.

Ships that are in prime condition, and in accordance with statutory provisions, and are declared sea-worthy, will be safer to cross people and goods, on the other hand, ships whose conditions are in doubt tend to encounter obstacles while in transit. If the ship is damaged while on the way, it will require additional costs such as exploitation costs caused by delays.

It is not an easy thing to maintain a ship that meets the requirements and safety, prevention of marine pollution, supervision of the loading, health and well-being of the crew, because all of these require substantial capital. Besides that, these shipping businesses also require full cooperation and assistance from the shipyard, while the current condition of the shipyard is also facing a sluggishness. Therefore, it is desirable to touch the hands of the government and its policy instruments, especially in the aspect of capital and the creation of a conducive business climate, so that shipping and shipping entrepreneurs can carry out rehabilitation, replacement and expansion of the ship fleet (Suwanto, Drs. Amin, M.Si, Penelitian Penyeberangan pada Lintas Merak-Bakauheni sampai dengan tahun 2050, Penelitian RISTEK 2010).

3.3.3. Shipping Support Facilities

Apart from the technical factors of the ship and the resources of the crew, the Sailing Navigation Assistance Facility (SBNP) is also a very important element in shipping safety. This facility consists of sea signs which serve as a guide for ships that are sailing, in order to avoid navigation hazards. Coastal radio stations are also useful as a means of navigation assistance to enable ships to undertake economical voyages, because without this instrument the ship has to make a "round" voyage to avoid navigation hazards.

4. Conclusion

The high number of cases of marine accidents in Indonesia today must be the concern of all parties, not only ship owners but also the government, related agencies and the public who must be more active in providing information. From the observation, the main cause of marine accidents is due to the excess transportation factor from the designated carrying capacity, both goods and people. In fact, it is not uncommon for shipping service users to force themselves to board the ship even though the ship is full of determination as long as they get a place on the ship.

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