

# Evaluation of Motor Boat Passenger Safety Equipment to Support Ecotourism at Bukit Cinta Pier, Rawa Pening Lake, Semarang Regency, Central Java Province

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## ABSTRACT

Rawa Pening Lake is a lake located in Semarang Regency, Central Java. With an area of about 2,670 hectares, it occupies the area of Ambarawa, Bawen, Tuntang and Banyubiru Districts. This study discusses safety equipment based on the Regulation of the Director General of Land Transportation Number: KP.3424/AP.402/DRJD/2020. The purpose of this study is to determine the suitability and availability of safety equipment on ships operating at Bukit Cinta Pier using qualitative methods. Based on the results of the research that has been carried out, the condition of the safety equipment on motorboats operating at the Bukit Cinta Pier is not in accordance with existing regulations. This is because there are still ships that have not equipped safety equipment on their ships and there are safety equipment that are not suitable and not in accordance with the number they should be. So it is necessary to add safety equipment to every ship operating at the Bukit Cinta Pier to comply with applicable regulations.

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## 1. INTRODUCTION

Transportation is a service that functions to deliver or move passengers and goods from one location to another. Transportation is a means of facilities that are often used by the community in supporting various daily activities [1].

One of the means of transportation that has been used for a long time by the community in facilitating daily activities is river transportation. River and Lake Transportation is a transportation activity using ships carried out in rivers, lakes, reservoirs, swamps, canal floods, and canals to transport passengers and/or goods organized by river and lake transportation companies [2].

Along with the development of transportation, river and lake transportation must be equipped with adequate safety equipment. *Safety equipment* is a tool specifically designed to protect the lives of crew members and passengers in an emergency [3].

The completeness of safety equipment on the ship is very important because it functions directly related to saving lives in times of emergency. It can be seen in the KM event. Sinar Bangun sank in

Lake Toba due to overload and lack of adequate safety equipment, resulting in 3 deaths and 164 people declared missing.

Occupational safety is an aspect that must be fulfilled to ensure protection for crew members during work. With safety equipment as a safety support, the risk of work accidents on ships can be minimized or even eliminated completely so that all crew members can carry out their duties optimally and avoid danger [4].

However, for now the rate of traffic accidents and river and lake transportation in Indonesia is currently still quite high. This condition is caused by the lack of feasibility of the transportation used and the lack of awareness among users who often ignore existing safety standards [5].

In Central Java province there are 7 River and Lake Ports, one of which is the Rawa Pening Lake Port which is located in Ambarawa District, Semarang Regency with an area of 2,670 hectares and has 3 piers, one of which is the Bukit Cinta Pier which is used as a research location.

The existence of Rawa Pening is used by some local residents to carry out economic activities. The economic activities carried out by the residents include: fishery businesses (fishermen), water hyacinth finders, peat miners, farmers, traders, boat services, and vehicle parking services [6]. According to the Regulation of the Director General of Land Transportation Number KP.3424/AP.402/DRJD/2020 concerning River and Lake Ships regarding aspects of safety equipment for ships with GT<7, namely Life Buoys, Life Jackets, Rocket Parachutes, Fire Buckets and Whistles.

Based on the results of observations and interviews that have been obtained by the author, there are still ships at Bukit Cinta Pier that have not equipped safety equipment on their ships. Realizing the importance of safety in crossing transportation, ship operators must constantly improve the quality of their services, it is a form of commitment to water transportation safety standards [7].

From the explanation above, attention to safety equipment in river and lake transportation is considered important to protect the crew and passengers in an emergency. This research focuses on the Port of Lake Rawa Pening regarding safety equipment on ships operating at Bukit Cinta Pier, namely comparing the conditions in the field with applicable regulations. So that it can be known the availability and suitability of safety equipment on the ship and it is hoped that if there is a discrepancy related to safety equipment on the ship, procurement and planning will be carried out immediately in order to improve safety and security during sailing.

## 2. RESEARCH METHODS

The method used by the researcher is a qualitative method. The way to obtain data is through observation, interviews and documentation. In collecting data through the observation method, the researcher made direct observations of the conditions in the field using a survey form regarding the completeness of safety equipment on each ship operating at the Bukit Cinta Pier. In addition to the observation method, the researcher also used the interview method. In this case, the researcher conducted direct interviews with each ship operator with the aim of obtaining information about the availability and suitability of safety equipment on the ship.

Table 2.1 Safety Equipment Inventory Survey Form

|  |                  | SURVEY FORM FOR THE COMPLETENESS OF SAFETY EQUIPMENT FOR THE PALEMBANG RIVER TRANSPORTATION POLYTECHNIC AND CROSSING FOR THE 2024/2025 ACADEMIC YEAR |           |              |             |              |
|-----------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-------------|--------------|
| SHIP NAME :                                                                       |                  |                                                                                                                                                      |           |              |             |              |
| DAY/DATE :                                                                        |                  |                                                                                                                                                      |           |              |             |              |
| SURVEYORS:                                                                        |                  |                                                                                                                                                      |           |              |             |              |
| NO                                                                                | SAFETY TOOLS     | SUM                                                                                                                                                  | CONDITION |              | INFORMATION |              |
|                                                                                   |                  |                                                                                                                                                      | PROPER    | NOT ELIGIBLE | APPROPRIATE | NOT SUITABLE |
| 1                                                                                 | Life Jacket      |                                                                                                                                                      |           |              |             |              |
| 2                                                                                 | Life Buoy        |                                                                                                                                                      |           |              |             |              |
| 3                                                                                 | Rocket Parachute |                                                                                                                                                      |           |              |             |              |
| 4                                                                                 | Fire Bucket      |                                                                                                                                                      |           |              |             |              |
| 5                                                                                 | Whistle          |                                                                                                                                                      |           |              |             |              |

3. RESULTS AND DISCUSSION

3.1. Overview of the Research Area

Geographically, Rawa Pening Lake includes the Tawangarum area, Ambarawa District, Semarang Regency, Central Java Province. Semarang Regency is one of the 35 Regencies/Cities in Central Java Province. It is located at 110°14'54.75" - 110°39'3" East Longitude and 7°3'57" - 7°30' South Latitude with an area of 1,019.27 km2 which is divided into 19 sub-districts and 235 villages/sub-districts. The Semarang Regency area is divided into 19 sub-districts, 208 villages and 27 sub-districts. The number of Local Environmental Units (SLS) in 2024 will increase. The number of Neighborhood Units (RW) is 1,615 and for Neighborhood Units (RT) as many as 6,861 RTs. This is due to the expansion of RW and RT in the Semarang Regency area.

3.2. Data Analysis

The data presented in this study are the results of surveys that have been conducted by researchers directly in the field or research places. Based on the results of observations that have been obtained by the researcher, of the 31 ships operating at the Bukit Cinta Pier, there are still ships that have not equipped safety equipment on their ships and the number of safety equipment available is not in accordance with the Regulation of the Director General of Land Transportation Number: KP.3424/AP.402/DRJD/2020. At Bukit Cinta Pier, the number of safety equipment in the form of life buoys, life jackets and whistles is not in accordance with applicable regulations and there are still safety devices that are not suitable for use. Then all ships operating at Bukit Cinta Pier have not been equipped with Rocket Parachute and Fire Bucket. The following conditions of existing safety equipment can be seen below.

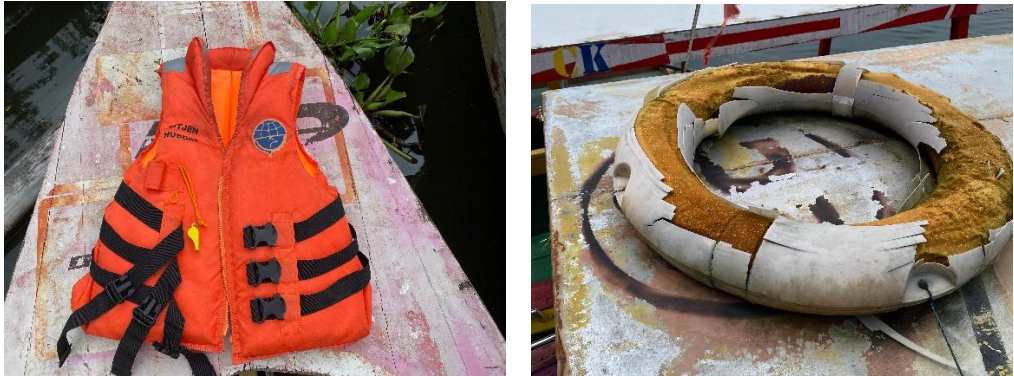


Figure 3.1 Existing condition of safety equipment at Bukit Cinta Pier

### 1. Life Jacket

Based on the results of the analysis at the Rawa Pening Lake Port, precisely at the Bukit Cinta Pier, it is still not in accordance with applicable regulations. This is because there are ships that are not equipped with life jackets and the number of life jackets that are not suitable. Conditions in the field include:

- 1) 5 ships are only equipped with 6 (six) life jacket units
- 2) 11 ships are only equipped with 5 (five) units of life jackets
- 3) 7 ships are only equipped with 4 (four) life jacket units
- 4) 8 boats do not have life jackets

Based on the Regulation of the Directorate General of Land Transportation Number: KP.3424/AP.402/DRJD/2020 concerning River and Lake Ships, it is explained that the number of Life Jackets that must be available on ships at the Bukit Cinta Pier is 7 (seven) units. This is obtained from the number of passenger capacity plus 10% of the number of passengers for children.

### 2. Life Buoy

Based on the results of the analysis, the number of auxiliary buoys on ships operating at the Bukit Cinta Pier is still not in accordance with applicable regulations. In the conditions in the field, it is obtained, including:

- 1) 2 ships equipped with Life Buoys with conditions suitable for use.
- 2) 2 ships equipped with Life Buoys with unsuitable conditions for use
- 3) 27 ships have not been equipped with life buoys

Based on the regulation of the Director General of Land Transportation Number: KP.3424/AP.402/DRJD/2020 concerning River and Lake Ships, each ship with a GT<7 size must be equipped with 1 (one) unit of Auxiliary Buoy.

### 3. Rocket Parachute

At the Port of Lake Rawa Pening, precisely at Bukit Cinta Pier, every ship is still not equipped with a rocket parachute. This is not in accordance with the Regulation of the Director General of Land Transportation Number: KP.3424/AP.402/DRJD/2020 concerning River and Lake Ships, that each ship with GT<35 is required to provide 1 (one) rocket parachute.

### 4. Fire Bucket

From the results of the survey at the Port of Rawa Pening Lake, precisely at the Bukit Cinta pier, every ship still has not equipped its ship with a fire bucket. This is not in accordance with the Regulation of the Director General of Land Transportation Number: KP.3424/AP.402/DRJD/2020 concerning River and Lake Ships that each ship with a GT<7 size must be equipped with a fire bucket of 1 (one) unit.

### 5. Whistle

Based on the results of the analysis, the number of whistles in the conditions on the field is not in accordance with regulations. After the survey was conducted, it was found that out of 31 ships in operation, only 11 ships were equipped with whistles on their ships. This is not in accordance with the Regulation of the Director General of Land Transportation Number: KP.3424/AP.402/DRJD/2020 concerning River and Lake Ships, that each ship with GT<7 is required to equip its ship with 1 (one) unit of whistle.

## 3.2.1. Discussion

The results of the analysis show that the number of life safety equipment on the getek motor boat operating at the Bukit Cinta Pier has not met the provisions set out in the Regulation of the Director General of Land Transportation Number: KP.3424/AP.402/DRJD/2020 concerning River and Lake Ships. The recapitulation of the number of life safety equipment can be seen in the following table.

Table 2. Safety Equipment Recapitulation

| No | Types of Life Saving Devices | In accordance with the Regulation of the Director General of Hubdat KP.3424/AP.402/DRJD/2020 | Number of Existing | Less Quantity   |
|----|------------------------------|----------------------------------------------------------------------------------------------|--------------------|-----------------|
| 1  | Life <i>Jacket</i>           | A certain amount of sailor capacity plus 10% of the number of passengers is for children.    | 113 units (52%)    | 104 units (48%) |
| 2  | Life <i>Buoy</i>             | Simple float device.                                                                         | 2 Units (6%)       | 29 Units (94%)  |
| 3  | <i>Fire Bucket</i>           | 1 unit.                                                                                      | 0 Units (0%)       | 31 Units (100%) |
| 4  | <i>Rocket Parachute</i>      | 1 unit.                                                                                      | 0 Units (0%)       | 31 Units (100%) |
| 5  | Whistle                      | 1 unit.                                                                                      | 11 Units (35%)     | 20 Units (65%)  |

### 3.2.2. Problem-Solving Efforts

Based on the results of observations made by the author while at the Port of Lake Rawa Pening, Bukit Cinta Pier was found to be still not in accordance with applicable regulations. The following are efforts to meet the needs of ship safety equipment at the Bukit Cinta Pier of Rawa Pening Lake:

a. Scenario 1

Ship operators can make purchases collectively to get a lower price. By combining requests from multiple carriers, they can get cheaper prices due to large purchases.

b. Scenario 2

Ship operators can use the rental system to port managers regarding safety equipment that has not been met. By using a charter system, ship operators can meet shipping safety requirements without having to purchase equipment directly.

c. Scenario 3

Ship operators can work with the government or relevant agencies to obtain financial assistance or subsidies. By taking advantage of government and related agency assistance programs, ship operators can reduce their financial burden.

d. Scenario 4

Ship operators can borrow funds from savings and loan cooperatives or the like to complete safety tools that have not been met. After that, the income he gets from passengers who use transportation services is set aside to pay the funds that have been borrowed from the cooperative. By setting aside funds periodically, ship operators can gradually repay the borrowed funds and equip safety equipment in accordance with applicable standards.

## 4. CLOSING

### 4.1. Conclusion

1. The availability and suitability of safety equipment on motorboats operating at the Bukit Cinta Pier in Rawa Pening Lake is for Life *Jackets*, the availability rate is 52%. For Life *Buoys*, only 2 ships are equipped with *life buoys* with an availability rate of 6%. Furthermore, for whistles, only 11 ships are equipped with whistles with an availability rate of 35%. Then for *fire buckets* and *rocket parachutes* are not available on all ships with an availability rate of 0%.
2. The factor causing ship operators to not equip safety equipment on ships with the highest percentage is that as many as 13 ship operators consider the mileage traveled to be quite close to the percentage of 42%, then the next factor as many as 8 ship operators consider the cost of safety equipment to be quite expensive, which is 26%, then the next factor as many as 6 ship operators consider that not equipping life safety equipment has become a daily habit with a percentage of 19% and the lowest

factor, namely as many as 4 ship operators, think that the risk of accidents at the Port of Danau Rawa Pening is relatively low with a percentage value of 13%.

3. Efforts that can be made to meet the needs of safety equipment are that there are several scenarios, including that ship operators can purchase safety equipment collectively so that they get cheaper prices, in addition, ship operators can use a rental system to port managers to complete safety equipment that has not been met, then ship operators can collaborate with the government and related institutions to get financial assistance or subsidies, as well as ship operators can borrow funds from savings and loan cooperatives to meet safety equipment on ships. Then the income they get is set aside periodically so that gradually the ship operator can pay off the funds that have been borrowed and equip safety equipment in accordance with applicable standards.

#### 4.2. Recommendation

1. To improve shipping safety, it is recommended to relevant agencies to organize socialization and counseling activities for ship operators. This is important to raise awareness among them about the importance of safety equipment on ships as well as the installation of banners or other information media that can help increase awareness of the importance of safety equipment.
2. Related parties are expected to consistently carry out inspections and supervision of the condition of safety equipment on board to ensure that all safety equipment remains in good condition and ready for use. This step is important to ensure shipping safety and prevent potential risks for passengers and crew alike.
3. Ship operators should add life safety equipment to their ships in accordance with the provisions of the Regulation of the Director General of Land Transportation Number KP.3424/AP.402/DRJD/2020 concerning River and Lake Ships.

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