



Pollution Control Efforts in Bolok Waters and Crossing Ports

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The potential for environmental pollution can occur in shipping activities and port activities, therefore the Ministry of Transportation issued Regulation of the Minister of Transportation Number 39 of 2021 on the amendment of the Regulation of the Minister of Transportation Number 58 of 2013 concerning the prevention of pollution in waters and ports. Based on the conditions found at the port, tier-1 pollution control procedures are still not met, environmental pollution control tools and materials, port personnel competence, and training intensity. The purpose of writing this mandatory hard work is to find out the extent of conformity of the conditions at the port with the applicable regulations. The method used is to use gap analysis where the researcher compares the actual conditions at the port with the expected conditions in accordance with applicable regulations. Based on the results of the analysis, it can be concluded that the conditions at the crossing port are still not in accordance with the Regulation of the Minister of Transportation Number 39 of 2021 so that it is necessary to make procedures for level-1 pollution control, procurement of pollution control tools and materials, improvement of port personnel competence and the creation of a training system.

Keyword:

1. INTRODUCTION

Crossing transportation is a bridge that connects the road network and/or the railway network separated by water to transport passengers and vehicles along with cargo. High vessel activity can result in environmental damage. Where the source of pollution is not only caused by plastic waste, but also caused by oil spills from shipping activities themselves and from ship accidents. Pollution caused by ship and port operations comes from routine activities such as disposal of waste from tank washing, disposal of counter water, disposal of manholes and spills when loading and unloading.

There is a potential source of pollution where the potential for pollution comes from the temporary storage area of the oil drum located in the port, precisely in the trestel area where the existing oil drum causes oil spills around the trestel area where in the event of rain the oil liquid spreads to the port area and not a few fall into the sea. When the rain subsides, the remaining oil liquid that spreads in the port area can endanger service users, both for vehicles and pedestrians. Regulation of the Minister of

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Transportation Number 58 of 2013 mandates that Port Authorities, Port Implementation Units, Port Business Entities and ships are obliged to provide waste storage facilities and also tools for preventing and handling environmental pollution.

2. METHODOLOGY

This study uses a data analysis technique in this study using gap analysis. Gap Analysis is a measurement method to determine the gap between the performance of a variable and the expectations of that variable. Gap Analysis occurs when the actual perception is higher than the expected perception and vice versa. In this study, a gap analysis was conducted on three aspects of the current condition with conditions according to the rules.

3. DISCUSSION

Based on the results of the observations made by the author at the Bolok Crossing Port, it was found that there were several problems regarding pollution control that needed to be followed up and several problem solving.

Oil tank leaks are usually caused by corrosion or rust which is an oxidation process between acids and metals so that rust occurs. Oil tank leaks can also be one of the potential pollution that occurs in waters and ports. Where the oil that comes out of the tank and pipeline will come out and then it will be flowed through the existing sewer. It is not uncommon for oil that passes through sewers to still fall into the sea which results in pollution, due to leaks in tanks and pipelines that not only cause pollution in the waters but can cause ship accidents such as ships burning as shown in the picture below.



Figure 1. Potential pollutant

The diagram image shows pollution stemming from oil spills originating from ship activities. It can be seen clearly if the oil puddle has spread around the waters. Oil spills coming from ships are usually caused by mechanical damage and human error. This can also happen if the port has personnel who have the ability to handle pollution due to ship activities in the waters and ports.

Oil tank leakage can be prevented by performing maintenance on existing tanks and pipelines such as painting, daily maintenance and regular tank washing. When there is a leak in the oil tank and pipeline, the potential for pollution will arise, when the oil that comes out will be flowed through the sewer which will then be filtered using the Oil Water Separator which is used to separate the oil and water before it falls freely into the sea.

Fuel from the tank car which in this process is reasoned to anticipate oil spills that flow fuel from the tank car to the oil tank on the ship. In the process, there is pollution around the ship which is sourced from the former cleaning of tanker residues that spill on the deck area of the ship which is cleaned using soap (rinso) and water which then the soapy water falls with the oil into seawater through the sewer. The handling carried out when oil spills fall on the deck of the ship should be cleaned using sorbents (absorbents), both those made of organic and synthetic materials which are then swept and then disposed of in the garbage dump.

Temporary storage of oil drums around the port area can be a source of pollution for the waters and ports. Likewise, at the bolok port, one of the sources of pollution that occurs is the storage area of oil drums. Where this drum is located in the port area which is not equipped with a protective roof from sunlight and rainwater. Around the drum there are spilled oils that can endanger service users and pollute the port environment. When it rains, the oil liquid that spills on the floor will be scattered around the port area, especially in the trestle and not a few of the oil liquid falls to the surface of the seawater which makes the surrounding waters oily. This temporary storage area is not so much attention to the port operator, it can be seen from the absence of handlers or special attention paid by the port operator. As can be seen in figure 4. The port did not prepare good procedures to handle the existing oil puddles, were not given handlers who could remove or overcome the existing oil puddles, and no port personnel paid attention to how to make the oil spill disappear so that it did not spread around the port.

In an effort to control pollution that occurred at the Bolok Crossing Port, namely the oil spill around the oil drum located in the trestle, the author proposed for the port operator to procure pollution control equipment, namely the procurement of sorbent (absorbent) equipment of 10% of the potential pollution that occurred. If the pollution that occurs is caused by an oil spill of 209 liters, the sorbent is 10% of the existing amount of pollution, so the sorbent needed is $209 \text{ liters} \times 10\%$, which is $20.9 \text{ dm}^3 = 0.0209 \text{ m}^3$. The required sorbent can be stored in the warehouse located at the bolok crossing port and can be seen in the layout of the warehouse in the picture below.

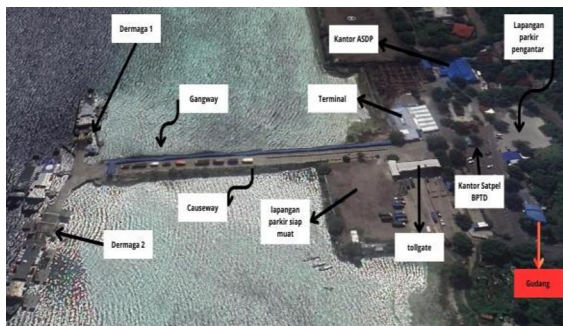


Figure 2. Port Layout

Based on several mappings that are the potential and source of pollution in waters and ports. The researcher conducted an analysis using the Regulation of the Minister of Transportation Number 39 of 2021 concerning amendments to the Regulation of the Minister of Transportation Number 58 of 2013 concerning Pollution Control in Waters and Ports as a reference in solving the following problems

Based on the Regulation of the Minister of Transportation Number 39 of 2021 concerning the amendment of Ministerial Regulation Number 58 of 2013 in article 5 paragraph 2 that ports are required to have tier-1 pollution control procedures as intended to be carried out in the control of pollution that occurs in waters and or ports sourced from ships, and port activities that are able to be handled by personnel, equipment, and materials available at the Port.

Based on observation data and interviews conducted by researchers (attachment 1) to resource persons, it is known that the Bolok Crossing Port does not have a tier-1 pollution control procedure listed in Article 5 paragraph 2 as a minimum procedure that must be available at the Port.

In article 6 paragraph 1, each pollution control procedure contains at least: structure, responsibility, functions, and work procedures of the operational organization, reporting and communication system, and technical guidelines for operations. Therefore, the researcher proposes that port operators and BPTD Class II Satpel Bolok coordinate the creation of tier-1 pollution control procedures in order to carry out the obligations that have been regulated in the Regulation of the Minister of Transportation Number 39 of 2021 concerning Amendments to Ministerial Regulation Number 58 of 2013 concerning Pollution Control in Waters and Ports.

Data on pollution control equipment at Bolok Crossing Port was obtained through direct observation, where the researcher saw firsthand the condition of pollution control equipment in the field and interviews with Bolok Port personnel. Based on a survey (attachment 1) of the researcher, that Bolok Port does not have pollution control equipment and materials, this was confirmed directly by the Bolok Crossing Port personnel that currently the Port does not have tools to deal with pollution procedures and personnel for pollution control.

In the researcher's analysis, the Bolok Crossing Port should have pollution control equipment and materials, remembering article 9 paragraph 1 of the Regulation of the Minister of Transportation Number 58 of 2013 that the port is required to have pollution control equipment and materials.

Table 1. Pollution control equipment in accordance with applicable regulations

Name of Tool and Material	Legal Basis (PM No 39 of 2021)	Number of tools needed
<i>Oil Boom</i>	In article 10, the need for an oil boom is at least one and a half The length of the largest ship	According to the table, the largest ship is KMP Lakaan $1.5 \times 64.52 \text{ m} = 96.74 \text{ m}$ So the oil boom needed is as long as

Name of Tool and Material	Legal Basis (PM No 39 of 2021)	Number of tools needed
<i>Skimmer</i>	In article 11, the need for skimmers according to the potential for pollution	Have the ability to smoke pollutants at least within 10 (ten) hours per day
<i>Temporary Storage</i>	In article 12, the need for temporary stroge according to the potential for pollution	Has a minimum capacity of 2 x 12 Tons
<i>Sorbent</i>	In article 13, the need for sorbent is at least able to absorb 10% of the potential pollution	As per the assessment of potential pollution
<i>Dispersing</i>	In article 14, the need for sorbent is at least able to decompose 10% of the potential pollution	As per the assessment of potential pollution

The assessment of potential pollution according to article 22 is carried out by the city council or port business entity, then the assessment can also be carried out by Indonesia legal entities and or cooperatives that have been determined by the Director General.

Based on the results of interviews conducted by the researchers, it is known that the Bolok Crossing Port does not have pollution control personnel and existing personnel do not have pollution control competence. Based on the Regulation of the Minister of Transportation Number 39 of 2021 concerning amendments to the Regulation of the Minister of Transportation 58 of 2013 article 7 paragraph 2 that ports are required to have pollution control personnel, personnel as intended must have competencies consisting.

Therefore, the researcher proposes 2 alternatives in fulfilling the readiness of pollution control personnel at the Bolok crossing port: Improving the competence of Satpel Bolok employees by participating in skill improvement training. BPTD Class II of NTT Province can send personnel to take part in skill improvement training. Pollution control competency training at the Jakarta Sea Transportation Education and Training Center (BP2TL).

For port managers or operators, they can recruit personnel who have competencies that understand the field of pollution control with the nature of outsourcing. In the Regulation of the Minister of Transportation Number 39 of 2021 paragraph 2 which explains that in order to fulfill the obligation of ports to have personnel, it can be provided by companies engaged in pollution control that are legal entities in Indonesia and/or cooperatives that have been determined by the Director General

Regulations related to pollution prevention training at ports are listed in the Regulation of the Minister of Transportation Number 39 of 2021 concerning Amendments to the Regulation of the Minister of Transportation Number 58 of 2013

article 16 paragraph 1, namely that every port and other activity units are required to carry out pollution control exercises. From the results of interviews conducted to Satpel Bolok personnel, that port managers and Satpel personnel have never conducted regular exercises in accordance with applicable regulations and referring to the Regulation of the Minister of Transportation Number 58 of 2013.

4. CONCLUSION

From the above research, the author draws conclusions, The readiness of pollution control procedures in the waters and the Bolok crossing port is still very low, because the Bolok crossing port does not have procedures in accordance with the Regulation of the Minister of Transportation Number 39 of 2021 which explains that ports are required to have tier-1 pollution control procedures. The readiness of pollution control equipment in the waters and the Bolok crossing port is still very low, because the Bolok crossing port does not provide any equipment for pollution control in accordance with the Regulation of the Minister of Transportation Number 39 of 2021 that ports are required to have pollution control equipment and materials. The readiness of pollution control personnel in the waters and port of the Bolok crossing is still very low because the port does not have appropriate personnel in the field of pollution control in accordance with the Regulation of the Minister of Transportation Number 39 of 2021 that ports are required to have competent pollution control personnel. The bolok crossing port does not yet have a schedule and scheme for pollution control exercises.

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