

THE READINESS OF SHIPPING COMPANIES IN TEGAL REGION TO IMPLEMENT IMO REGULATIONS IN THE FIELD OF MARINE POLLUTION PREVENTION

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ABSTRACT

Marine pollution that occurs due to ship waste increasingly threatens Indonesian waters. Sources of marine pollution are caused by shipping and port activities. Handling this pollution must be carried out with facilities and infrastructure holding marine pollution in accordance with international standards on board ships and at loading and unloading ports, so competent professionals are also needed in their fields. The purpose of this study is to determine and analyze the readiness of shipping companies in Tegal region to implement IMO rules in the field of marine pollution prevention. The study used qualitative description methods by conducting observations, interviews, and literature. Based on the results of the research, it was found that the problem that occurred was administrative companies related to human resources could meet competencies, polluting factors, and the readiness of companies to implement IMO regulations. Shipping agents in the Tegal area are limited to serving ship document management, while the procurement or repair of pollution prevention equipment is under the authority of the ship owner through his representative, who will conduct a survey when the ship carries out docking/repair in Private-interest Terminal and Special Terminal (TUKS or Tersus). There are still docking companies that handle the remaining sludge waste from OWS, which is landfilled, so if it accumulates a lot, it can cause soil pollution. The lack of public awareness and limited facilities and infrastructure for ship waste management in the port area are problems for the government and other stakeholders at the port.

Keywords: Shipping Company, Prevention, Pollution

INTRODUCTION

Indonesia is the largest archipelagic country in the world. The proportion of ocean area is 2/3 larger than land. It's very strategic geographical position makes Indonesia a cross position for foreign ships that make international shipping (*ocean-going*). For this reason, Indonesia must play an active role in improving international relations with maritime member countries and business people because of Indonesia's strategic geographical position and becoming a "bridge" for various interests, especially the movement of people and goods (Buntoro, 2023).

As an international citizen, Indonesia plays an active role in the association of international organizations, one of which is a member of the *International Maritime Organization* (IMO) (Saputra, 2022). The task of the IMO contained in article 1(a) of the SOLAS Convention is "To provide for the driving force of cooperation between States in the field of governmental regulation and its implementation in relation to technical matters of all forms relating to shipping using international trade: to encourage and facilitate/facilitate a general adoption of the highest practical standards in matters relating to safety in the world. Sea, efficiency when navigating and prevention and control of pollution at sea from ships. IMO has the authority to determine international regulations on safety and security standards in regulating all international shipping activities (Sagala, 2021).

Pollution is currently a scorching issue, especially pollution of the maritime environment or marine environment. Strategic issues launched by IMO today include pollution of the marine environment, in addition to shipping safety. Sources of marine pollution are caused, among others, by shipping activities (Widodo & Wahyuni, 2020). Marine pollution that occurs due to ship waste increasingly threatens Indonesian waters.

Ships are one of the means of sea transportation that directly or indirectly cannot be separated from the ocean as the main supporting factor because the ocean is an area for ships to operate, and all ship operational activities produce remnants of dirt or garbage that will be forcibly disposed of and can cause pollution of the maritime environment. Of course, the physical condition and chemical characteristics of polluted seawater will affect ecosystems, marine life (Robertua & Karyoprawiro, 2019), and fisherman activity (Katiandagho et al., 2023). Marine pollution is a threat that must be addressed seriously. For example, oil spills, hazardous and toxic liquids both in bulk and packaging on a large scale, as well as the potential for pollution from ship operations that cannot be avoided, such as dirty oil and exhaust gases from ship engines and waste dirt or garbage or sourced from oil spills from ship accidents.

This oil contamination can cause pollution to waters and seas, which decreases the carrying capacity of the environment and disrupts the survival of organisms in these waters. According to Government Regulation Number 21 of 2010 concerning Maritime Environmental Protection, it is stated that activities on board ships can contribute pollutants, including oil, toxic liquids, cargo of hazardous materials in the form of packaging, dirt, garbage, air, ballast water, and or goods and materials harmful to the environment on board. Therefore, every crew member is obliged to prevent and overcome pollution sourced from their ships (Pamungkas et al., 2018). Oil cargo is a cargo that has very risky potential in environmental pollution, so handling must be done safely. Handling this pollution must be carried out with facilities and infrastructure handling marine pollution in accordance with international standards on board ships and at loading and unloading ports, so competent professionals are also needed in their fields. A little carelessness in the procedures for handling oil pollution and errors in equipment and human error will be fatal.

A number of previous studies on dealing with marine pollution prevention have shown various factors that cause ship accidents. Kamal (2022) study on efforts to improve the handling of marine pollution during loading and unloading shows that the implementation of the loading and unloading process carried out by the ship's crew has not been carried out properly, causing oil spills on ships. This is because there is still confusion and panic from the ship's crew and from the duty officer to control the oil spill on board. Siregar (2022), in his research, found that the fulfillment of the oily water separator on crossing ships in preventing pollution sourced from ship operations has been fulfilled. The purpose of this study is to determine and analyze the readiness of shipping companies in the Tegal region to face IMO rules in the field of marine pollution prevention.

Indonesia has been a member country of the IMO since 1961 (Cribb & Ford, 2009). It is an archipelagic country that is a member of the IMO with the construction of a maritime axis in Indonesia. Indonesia is currently an IMO member country with a position as a member of the council in category "C" which has a special interest in international shipping navigation and has the authority to determine the design of future work programs. IMO has a huge influence on international maritime development. The international provisions produced by IMO related to shipping safety and security, as well as preventing marine pollution, serve as guidelines for all member countries, including Indonesia (Arrafi et al., 2023).

METHOD

The method in this study is qualitative descriptive. Moleong (2017) explained that qualitative research is research that intends to understand the phenomenon of what is experienced by research subjects, such as behavior, perception, motivation, action, and others, holistically and by way of description in the form of words and language, in a special natural context by utilizing various natural methods. The research was conducted on shipping companies in the Tegal region which are PT. Adhiguna Nusantara Shipyard, PT. Bandar Niaga Raya, PT. Separta Putra Adhiyaksa, PT Duta Citra

Wicaksana, PT Berkah Jaya Agensi, PT Berkah Putra Maja, PT Transindo Lanser, PT Maritel Bahtera Abadi, PT Saga Mas Lestari, PT Panah Sakti, PT Putra Segara Abadi, PT Manakala Lintas Samudera, PT Panca Global Energi, PT Maranta In Jaya, PT Athar, and PT Samugara Artajaya. Data collection techniques are carried out by observation, interviews, documentation, and literature studies (Sugiyono, 2015). The analytical approach carried out is qualitative descriptive based on the processing of data obtained from observations and information from various sources as well as from various literature and scientific articles as a comparison and analytical conclusions are obtained. The problems that take place are described, explained, and identified triggers, after which the solution to the problem is analyzed.

In conducting the study on "The Readiness of Shipping Companies in Tegal Region to Implement IMO Regulations in the Field of Marine Pollution Prevention," the respondents involved are the stakeholders within the shipping companies operating in the Tegal region. Surveys were distributed among a diverse sample of shipping company representatives, including executives and crew members, to gather comprehensive insights into their awareness, preparedness, and adherence to IMO regulations. Additionally, in-depth interviews were conducted to create deeper understanding on specific challenges, strategies, and perspectives regarding the implementation of these regulations. Through this detail data collection process, researchers aimed to provide an understanding of the readiness of shipping companies in Tegal to navigate the evolving landscape of marine pollution prevention.

RESULTS AND DISCUSSION

Factors causing marine pollution in the Tegal region

The research location is in a port location adjacent to the Tegalsari Fish Sales Place (TPI), Tegalsari Village, West Tegal District, Tegal City. Where that location has many ship activities, which include loading and unloading catches with fairly high intensity. The source of oil waste in Tegal waters is thought to come from the activities of fishing vessels docked at the port (Pamungkas et al., 2018). Sources of marine pollution from ships are classified into four types, namely ship operations, dumping, activities on the seabed, and activities on land (Gusmayanti & Sari, 2014).

Ships in the port of Tegal produce and dispose of waste oil in the afternoon before evening when carrying out ship maintenance or repair both on ship engines and other components. The movement of ships in and out of the port is the main factor in the breakdown of waste oil in the waters. This causes the waste oil to quickly spread and pollute all parts of the surface waters. In general, fishing vessels operating at PPP (Pelabuhan Perikanan Pantai) Tegalsari, have a size below 100 GT, which ranges from 5 – 30GT, so the vessel is still not equipped with OWS. OWS used to separate oily water from the oil contain in it. This is a major factor leading to an increase in waste oil production in waters. The number of vessels operating at PPP Tegalsari for approximately one week ranges from 30 to 50 units of active fishing vessels, consisting of several types of vessels with different fishing gear and sizes (Pamungkas et al., 2018).

Readiness of Shipping Companies in the Tegal Region To Implement IMO Regulations in the Field of Marine Pollution Prevention Environmental pollution today is a very hot issue, especially in the maritime environment or marine environment. Strategic issues launched by IMO today include pollution of the marine environment, in addition to shipping security. IMO is a special agency of the United Nations responsible for maintaining the safety and security of shipping and preventing pollution of the marine environment due to marine use activities (Erwin, 2022; International Maritime Organization, 1998). Currently, the IMO has produced many international provisions on marine protection, especially those caused by pollution. IMO divides the provisions it produces into 4 (four) parts, namely: maritime safety, marine pollution, liability compensation, and other subjects. The 1954 Pollution Convention was the first attempt by the IMO to regulate the supervision of pollution of the marine environment by oil pollutants (Yulianto & Santoso, 2022). Especially pollution originating from the routine operation of oil transport ships. The substance of this convention prohibits the deliberate disposal of oil or mixtures of oil from all ships sailing on all marine environments within 50 miles of a country's coast.

The development of the increasingly advanced maritime world and the increasing number of ships will greatly affect the level of marine pollution due to waste discharged from ships, especially waste containing oil. It is undeniable that every ship must produce sewage water, especially in the engine room. Sewage water will eventually be discharged into the sea. In addition, the remaining water from engine

cooling, ship washing water, and water that is deliberately put into the ship's hold to balance the ship into the sea, this term is called ballast water or ballast water. The ballast water discharged by these ships contains oil, ship oil, and other materials classified as B3 waste or toxic and hazardous materials that threaten the marine environment.

IMO has established regulations relating to procedures for ship waste disposal along with sanctions for violating ships so as to support and implement the established regulations and prevent sanctions that can be imposed on violating ships, which will bring losses to ships and shipping companies. From now on, each ship has to be equipped with equipment or aircraft that can clean sewage water from the oil content of the Oil Water Separator (OWS) so that when it is thrown into the sea, it does not cause pollution.

Marpol (Convention for the Prevention of Pollution from Ships) ensures that the marine environment is maintained sustainably by eliminating or preventing pollution of all harmful substances that can be disposed of or produced from ships, either intentionally or unintentionally. Marpol is an international convention that aims to avert marine environment pollution by ships operationally and accidentally. Marpol is one of the leading products of IMO related to safety and environmental protection. The shipping industry, which is fully responsible for the sea and the transportation of goods from one port to another, is one of the potential sources that cause marine pollution (Malisan, 2011). With more than 75% of the water covering the planet, the maritime industry is growing daily. With the rapid development of industry, the ecosystem in the sea has become disturbed.

Shipping companies in the Tegal port area are majority ship agencies, where the agent also acts as a representative of the *ship owner* when the ship docks at a specific port. Uniquely, the ship agency company has a majority of ship docking companies. So automatically, the ships undergoing repairs at the dock use ship management services (agent). The relationship between the ship's agent company and the close docking of the boat is undoubtedly a correlation related to information about the ship's condition. And from the docking party must also be responsible for pollution prevention.

Definition of agent based on Law of the Republic of Indonesia Number 17 of 2008 (UU RI, 2008) concerning Shipping Chapter I General Provisions Article 1 paragraph 7, General Agent is a national sea transportation company or national company specifically established to conduct ship agency business, appointed by foreign sea transportation companies to take care of the interests of their ships while in Indonesia. Among the duties of shipping agents are: Based on the Regulation of the Minister of Transportation of the Republic of Indonesia Number PM 65 of 2019 concerning the Implementation and Exploitation of Ship Agency, Ship Agency Business is a business activity to take care of the interests of ships of foreign sea transportation companies and/or ships of national sea transportation companies while in Indonesia. The duties of the agent to take care of the interests of the ship that are entrusted while in port include:

1. Report the arrival or departure of the ship and submit the ship's documents to the Kesyahbandaran office, port authorities, and port operator units.
2. Take care of everything related to port services required by the ship, such as sign fees, berthing fees, and PUP-9 fees (for dangerous goods control).
3. Appoint or coordinate with a Loading and Unloading Company (PBM) for the benefit of the ship owner.
4. Take care of all the needs of the captain and crew about provision.
5. Complete expired ship documents such as measuring letters, safe manning documents, exemption certificates, and others. The cost of handling it will be borne by the ship-owning company.
6. Collect freight fees at the behest of the ship owner.
7. Perform bookkeeping administration and load search carried out by the investigation department or EMKL.
8. Issue a bill of lading and on behalf of the ship owner.
9. Settle bills (Disbursements) and claims for the name of the ship owner.
10. Take care of the needs of fuel oil and freshwater bunkers.
11. Provide the information required by the ship owner.
12. Make reports to the Harbourmaster and Port Authority Office and port authorities as well as port operator units.

a. Administrative readiness

Every shipping company that will operate in the Tegal port area or any port must certainly meet administrative requirements, which include the existence of competent human resources (HR) in the field of shipping or port. This is stated in the Regulation of the Minister of Transportation of the Republic of Indonesia Number PM 65 of 2019 concerning the Implementation and Exploitation of Ship Agency chapter III Ship Agency Exploitation article 25 (3). Experts as referred to in paragraph (2) letters of at least 1 (one) expert in sea and port transportation management or sea transportation management with a minimum diploma of D-III (diploma three), nautical experts (ANT III), or technical experts (ATT III). It was conceived to mean that graduates from the school who incidentally had lessons in college about the rules of IMO, both knowledge of STCW, SOLAS 74, and MARPOL 73/78, so that this personnel could overcome or anticipate the occurrence of pollution so that there were efforts to prevent it and overcome it. Because the handling of pollution in the sea is different from pollution in other places. The sea has its own characteristics, so it needs competent and reliable personnel to overcome them. All ship agency companies in Tegal have met the requirements in terms of human resources in the field of shipping.

b. Readiness of facilities and infrastructure of Shipping Agent Companies

Every ship that is ready to operate should have gone through checks like seaworthy ships, ranging from ship safety equipment, both nautical and technical. Including operable or seaworthy ships is when pollution prevention equipment is feasible. As the focus of the discussion is on Annex I of the Regulation on Regulations for the Prevention of Pollution due to oil and water, then every ship must have OWS (oil-water separation), which is a tool that functions to separate oil and water waste, so that the water can be pure again. The results of field research taken by random samples show that commercial ships that lean to dock at the port of the Tegal region both in Private-interest Terminal and Special Terminal have OWS tools. This means that, by rule, the ship is viable. However, over time, with the age of the equipment or due to other influences such as weather, the OWS equipment cannot function or can be damaged. In conditions like this, the marine surveyor (an officer from the KSOP Tegal Kantor) will always remind that the tool is immediately repaired before the ship sails back.

The consequence if the ship owner does not heed the order, the KSOP office does not issue a National Certificate of Pollution Prevention (SNPP). Therefore, shipping agent companies must be proactive to the KSOP Office in informing the status of the ship / ship particular, the existence of the ship and the condition of the ship. As mentioned above that the shipping agent company in Tegal is not the owner of the ship but an extension of the owner of the ship, so everything damage to the ship including damage to OWS equipment in its repair always depends on the ship owner. Any repairs that occur on the ship, the agent always coordinates with the ship owner, which is usually represented by the shipowner's messenger personnel. And because the ship agency in the Tegal area has the majority of ship docking, the repair of equipment including OWS is immediately addressed.

The following certificates are issued by the KSOP office when a ship meets pollution prevention equipment:

- 1) International Oil Pollution Prevention Certificate
- 2) International Pollution Prevention Certificate For The Carriage Of Noxious Liquid Substances In Bulk
- 3) *International Sewage Pollution Prevention Certificate*
- 4) International Air Pollution Prevention Certificate
- 5) Engine International Air Pollution Prevention Certificate (EIAPPC) and
- 6) International Energy Efficiency Certificate (IEEC) From The Ship.

Ships docked in the Tegal area both in TUKS and Tersus are domestic ships, so from Harbourmaster and Port Authority Office Tegal it is enough to issue a National Certificate of Pollution Prevention (SNPP). The requirements for a ship to obtain for such a certificate are:

- 1) Copy of Surat Ukur is the first letter the ship first published to determine gross tonnage.
- 2) Copy of the Ship National Certificate (Surat Laut/Pas Besar) a letter indicating that the ship is of nationality.
- 3) Copy of Provisional SNPP Certificate
- 4) Marine Inspector Inspection Report Book *in accordance with PM. 29/2014*
- 5) Copy of Condition Assessment Scheme (CAS) Certificate for Single Hull oil tanker aged >20 years
- 6) Copy of Safety Certificate, which is a ship's seaworthiness letter issued when the ship finishes repairing / docking

c. Docking Company Readiness

Pollution of maritime areas is usually in the form of garbage and waste, which generally comes from activities at ports such as fishing ship activities, ship loading and unloading, docking, tank cleaning and other activities at ports such as loading and unloading goods. This causes the condition of the port, both Private-interest Terminal and Special Terminal, to look dirty with garbage and waste that greatly pollutes the surrounding waters. Commercial ships that stop at the Tegal port area are mostly ships that will carry out docking. So the ships dock at each Private-interest Terminal and Special Terminal. When a ship carries out docking/repair, there are many potentials that can cause pollution, in this case, pollution caused by oil. Both the ship's fuel oil is because every ship that will dock should be emptied to prevent fires due to repair activities and other unwanted things. And also pollution due to the operation of other ships, which include lubricating oil and others. There are several problems in the distribution of waste oil due to ship operations:

- 1) Waste oil due to engine operation and others such as used oil.
Used oil is one of the wastes produced by engine rotation. Including ship engines, which certainly require a lot of oil/lubricant to facilitate the course of the ship engine. On the other hand, the process produces a lot of used oil, which, in IMO rules, has been regulated so as not to pollute the maritime environment. Used oil is often collected in one container and should not be disposed of carelessly. Even though it is in the form of a former, it still has economic value if used technologically correctly. Usually, the used oil already exists and is accommodated on land for fuel for used oil stoves.
- 2) Water mixed with oil from the ship's sewer.
Oil Water Separation (OWS) is a device on a ship that separates two fluids that are not soluble from each other due to differences in density (density); the two liquid objects in question are water and oil. The specific gravity of water is greater than the specific gravity of oil, so when water is separated, it will be at the bottom, and oil will be at the top. The working principle of oil-water separator separation is done by changing the speed and direction of the fluid from the well (well) so that the fluid can be separated. OWS is used in handling water from the bilge where the water is still mixed with oil and must be separated before being discharged into the sea. Oil water separators use Stokes' Law to define the voltage of an object/particle based on its specific gravity and size. In this tool, oil will accumulate above the surface of the water. OWS produces water that will be discharged back into the sea, producing residual oil/mud mixed with oil. And it is this remaining sludge that can pollute the environment if the disposal does not follow the rules. Some companies are kept in drums. Some docking companies handle the remaining mud, which is only stockpiled to dry around the docking area. And if it continues to be collected in large quantities, it will pollute groundwater. This problem should be solved so that there is a collection of residual mud from OWS to make it more useful. Or at least some dumps do not pollute the soil. For example, there is a study on the remaining sludge from OWS that can be used as valuable items, such as fuel briquettes, because the mud still contains combustible materials.

CONCLUSION

Administratively, companies related to human resources have already met the requirements because there are competent personnel proven by diplomas. Shipping agents in the Tegal area are limited to serving ship document management, while the procurement or repair of pollution prevention equipment is under the authority of the ship owner through his representative, who will conduct a survey when the ship carries out *docking/repair* at Private-interest Terminal and Special Terminal. There are still docking companies that handle the remaining sludge waste from OWS, which is landfilled, so if it accumulates a lot, it can cause soil pollution. The lack of public awareness and limited facilities and infrastructure for ship waste management in the port area are problems for the government and other stakeholders at the port. Awareness and commitment to pollution prevention from the management of ship agency companies which in fact double as ship docking companies need to be increased. Relevant agencies such as local government/municipal environmental services must always provide information about pollution prevention. Pelindo III Tegal, as the majority of ship docking rental land owners, must always warn about the dangers of pollution. And the Tegal Class IV KSOP Office as the regulator in the region must be more intensive in preventing pollution, especially in examining pollution prevention letters from ships.

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