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ANALYSIS OF CIVIL SERVANT'S UNDERSTANDING OF BALLAST WATER MANAGEMENT CONVENTIONS

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Abstract

Ballast water is water used by ships to maintain balance when the ship is unloaded. Ballast water is known to contain microorganisms that are detrimental to human health and the environment, as well as economic losses. IMO enacted the Ballast Water Management Convention to regulate the management of ballast water before it is discharged into the sea, as an effort to prevent the spread of microorganisms into the environment. This study aims to determine the understanding of civil servant in the shipping sector. The research method is an analytic description with a cross sectional approach using questionnaires and in-depth interviews. The results show that most of the respondents do not understand the provisions of BWM correctly. Many incorrect statements, ignorance and forget about the rules of BWM with a high percentage value. Our suggestion is to socialize the BWM Convention to civil servant in the shipping sector or maritime as a provision in carrying out work through training, seminars and workshops.

Keywords: Water ballast, Pollution, BWM Convention, Civil Servant in the Shipping Sector, Socialization.

Abstrak

Air ballast adalah air yang digunakan kapal untuk menjaga keseimbangan ketika kapal tanpa muatan. Air ballast diketahui mengandung mikroorganisme yang merugikan bagi kesehatan dan lingkungan, serta kerugian secara ekonomis. IMO memberlakukan Ballast Water Management Convention untuk mengatur pengelolaan air ballast sebelum dibuang ke laut, sebagai upaya untuk mencegah tersebarnya mikroorganisme ke dalam lingkungan. Penelitian ini bertujuan untuk mengetahui pemahaman ASN (Aparatur Sipil Negara) sektor pelayaran sebagai pengajar, marine inspektor, Perwira di kapal negara dan Pandu terhadap ketentuan BWM Convention. Metode penelitian adalah deskripsi analitik dengan pendekatan cross sectional menggunakan kuesioner dan wawancara mendalam. Dari hasil menunjukkan bahwa sebagian besar responden belum memahami ketentuan BWM secara benar. Banyak pernyataan yang salah, tidak tahu dan lupa tentang aturan BWM dengan nilai persentase yang tinggi. Saran kami adalah sosialisasi tentang BWM Convention kepada ASN sektor pelayaran sebagai bekal dalam melaksanakan pekerjaan melalui diklat, seminar maupun workshop.

Kata Kunci: Air ballast, Pencemaran, BWM Convention, ASN Sektor Pelayaran, Sosialisasi.

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INTRODUCTION

The large carrying capacity makes sea transportation (ships) the main choice for export-import activities. Fugazza et al. (2017), Erga et al. (2019) in his paper mention that more than 80% of world trade commodities with high economic value are carried by sea transportation.

Ships without cargo, in order to sail safely, must be in a stable position, so as a counterweight, ballast water will be carried in the tank (Golash et al., 2018; Ardura et al., 2021). So that the ship will be stable because it does not tilt to one part of the ship, whether it is tilted to the right, left or leaning forward or standing backwards. Ballast water which is filled into the tank, is taken when the ship unloads the load at a port without going through first processing. The water taken is water in port waters, whose quality is unknown (Sayinli et al., 2021). Over the past 100 years alien species have been introduced by ship, but it wasn't until the 1970s that the first biological samples were taken from ballast water samples. Currently, it has been widely reported that ballast water contains pathogenic microbes that are harmful to health and the environment. Since then, more than 1,000 species have been identified from ballast water, including human pathogenic bacteria, even Golash (2014) estimates that 3,000–7,000 species were removed. every day around the world. Of the approximately 10 billion tons of ballast water transported worldwide each year, the equivalent of about 4 million Olympic-sized swimming pools (IMO, 2019) Rivera and his friends in 2012 discovered organisms in ballast water tanks. They found live bacteria (32%) rather than 18% plankton. In 2013 Dobbs et al. Researching ballast water discharged into the waters of Singapore, Mexico and Virginia, America, ships that have the potential to spread Vibrio cholerae bacteria to all ports in the world. They also assessed antibiotic resistance in Vibrio cholerae bacteria found in ballast water. In 2009 to 2010, Altug et al. studied ballast water discharged in Turkey's Sea of Marmara to study alien species from ballast water discharge. The result was found 38 species of bacteria, with 27 bacteria are pathogenic bacteria. El-Husna et al. in 2017 conducted a study on bacteria on the coast of Cilacap by comparing the bacteria in ballast water discharged to the coast of Cilacap. Pathogenic microbes (Vibrio cholerae, Escherichia coli and Enterococcus intestinal) were found from ballast water with no difference with pathogenic microbes in coastal water. In 2022, 9 (nine) types of pathogenic microbes were found from ballast water discharged at the port of Tanjung Emas Semarang, containing V. cholerae (> 800 cfu/100 ml sample), E. coli (400 cfu/100 ml sample) and E. intestinal (300 cfu/100 ml sample) which exceeds the threshold allowed by the Standard D-2 Ballast Water Management (BWM) Convention. (IMO, 2009 & IMO, 2017) conducted by El-Husna et al. (2022). Table 1 shows the performance of pathogenic bacteria that may be present in ballast water.

Table 1. D-2 BWM Convention Performance Standart

Microorganism category	Regulation D-2
Plankton, size > 50 μm	< 10 viable cells / m3
Plankton, size 10-50 μm	< 10 viable cells / mL
Toxicogenic Vibrio Cholerae	< 1 Colony Forming Unit / 100 mL
Escherichia Coli	< 250 Colony Forming Unit / 100 mL
Intestinal Enterococci	< 100 Colony Forming Unit / 100 mL

Ballast Water Management (BWM) Convention is an international convention for the control and management of ballast water and ship sediments. The BWM Convention is a 2004 international maritime treaty that requires signatory countries to the convention to ensure that ships flying their flag comply with standards and procedures for the management and control of ship ballast water and sediment. This convention aims to prevent the spread of harmful aquatic organisms from one area to another and to stop the damage to the marine environment due to the discharge of ballats water (IMO, 2009; IMO, 2017).

METHOD

This study uses an analytical description method with a cross sectional approach. Using questionnaires and in-depth interviews to obtain data. The study was conducted on 36 civil servants who have work experience at sea and are now working at civil servants in the shipping sector. The following is a list of questions as a guide when conducting an interview.

Table 2. List of Questions (1)

No	Question	Strongly Agree	Agree	Not Agree
1	Indonesia ratified about the promulgation of the BWM Convention by IMO			
2	The Indonesian government makes laws and regulations as a derivative of the BWM Convention			
3	Whether it was decided for ships that did not exchange ballast water			
4	Whether it is agreeable for ships that do not treat ballast water before being discharged			
5	Whether they agree to meet the requirements of the D-2 standard, ballast water treatment facilities are provided at the port			

Table 3. List of Questions (2)

No	Question	Correctly	Incorrectly	Not Know	Forget
1	when the BWM Convention was promulgate				
2	when Indonesia ratified the BWM Convention				
3	the number and year of the laws and regulations which are derivatives of the BWM Convention				
4	what is known about the D-1 BWM Convention standard				
5	what is known about the D-2 BWM Convention standard				
6	how far is the ballast water discharge from the outermost land				
7	how many kinds of ballast water treatment on the ship before being discharged				

No	Question	Correctly	Incorrectly	Not Know	Forget
8	what chemical compounds are used for ballast water treatment				
9	what chemical compounds are used for ballast water treatment				
10	whether ballast water treatment before being discharged is urgent				

RESULTS AND DISCUSSION

The results of the study on the question of whether respondents agreed with the promulgation of the BWM Convention by IMO Indonesia ratified it 36 people (100%) strongly agreed. On the question of whether they agree if the Indonesian government makes laws and regulations as a derivative of the BWM Convention to protect Indonesian waters, 36 (100%) people answered strongly agree. When the question was asked whether it was agreed for ships that did not exchange ballast water, 36 (100%) people answered they agreed. On the question of whether it is agreed for ships that do not treat ballast water before it is discharged, 36 (100%) people answered agree. On the question of whether they agree to meet the requirements of the D-2 standard, ballast water treatment facilities are provided at the port, 36 people agree. Seeing the answers given by respondents, they are quite optimistic that civil servants in the shipping sector understands the importance of regulations governing shipping activities in order to protect the maritime environment from the invasion of foreign microorganisms that pose a risk to the environment and health.

When asked about when the BWM Convention was enacted, 0 people answered correctly, 12 (33.4%) answered incorrectly, 16 (44.4%) answered they didn't know and 8 (22.2%) forgot. In question no 2, when did Indonesia ratify the BWM Convention, 2 (5.5%) people answered correctly, 6 (16.8%) people answered incorrectly, 20 (55.5%) people answered incorrectly, and 8 (22. 2%) people answered forgot. For question no3, regarding the number and year of the laws and regulations which are derivatives of the BWM Convention, 3 (8.4%) people answered correctly, 24 (66.7%) people answered they did not know, 4 (11.1%) answered incorrectly. and 5 (13.8%) people answered forgot. In question no 4, what is known about the D-1 BWM Convention standard, there are 1 (2.9%) people who answered correctly, 23 (63.9%) people answered they didn't know, 6 (16.6%) people answered incorrectly and 6 (16.6%) people answered forgot. For question no 5, knowledge of the D-2 standard, the results are 4 (11.1%) people answered correctly, 16 (44.4%) people did not know and 11 (30.7%) people answered incorrectly and 5 (13.8) %) people answered forgot. In question no 6, how far is the ballast water discharge from the outermost land, 2 (5.5%) people answered correctly, 18 (22.2%) people did not know and 9 (25%) people answered incorrectly and forgot as many as 7 (19.4%) people. In question no 7, how many meters deep is ballast water discharge 5 (13.8%) people answered correctly, 15 (41.7%) people answered they didn't know and answered 10 (27.9%) incorrectly and 6 (16.7%) answered incorrectly. 6%) people answered forgot. In question no 8, how many types of ballast water are treated on ships before being discharged, 1 (2.9%) people answered correctly, did not know 23 (63.9%) people, 5 (13.8%) people answered incorrectly and 7 (19.4%) people answered forgot. In question no 9, what chemical

compounds are used for ballast water treatment 3 (8.5%) people answered correctly, 23 (63.9%) people answered they didn't know, 5 (13.8%) people answered incorrectly and 5 (13.8%) people said they forgot. And for question no 10 is the ballast water treatment before being discharged urgently, 18 (50%) people answered correctly, 13 (36.2%) people answered they didn't know and 5 (13.8%) people answered wrong and no one answered forgot.

CONCLUSION

From the results of the respondents' answers, their level of knowledge varies greatly, depending on their experience while sailing and their literacy. If you look at the answers, most of the respondents do not understand about the BWM Convention regulations. Even for the question when BWM was enacted, no one answered correctly (0 %). Then wrong answers, don't know answers and forgot answers dominate in almost all questions. This means that the civil servants in the shipping sector do not want to find out, which causes them not to know. This low literacy rate is certainly very concerning. For questions about the urgency of ballast water management before being discharged, 18 (50%) people answered correctly, meaning that there is concern from the civil servants to treat ballast water before it is disposed of so as not to pollute the environment. There is a need for further socialization and education to civil servants, about the dangers of ballast water and its management as well as an understanding of the BWM Convention. It can be through seminars, work shops or training on the BWM Convention.

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