

Analysis of Waste Handling of Passengers and Crew Members at Km. Tilongkabila Against Pollution Maritime Environment

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ABSTRACT

This study analyzes waste handling by crew members (ABK) and passengers in KM. Tilongkabila in relation to maritime environmental pollution, with reference to the provisions of MARPOL 73/78 Annex V. Using a descriptive qualitative research method, data was collected through interviews, observations, and documentation during marine practices for 12 months. The results of the study show that crew members have understood the basics of the Garbage Management Plan (GMP), but passengers are often not aware, so that waste disposal is not in accordance with the rules. Key problems include inadequate facilities, inconsistent supervision, and suboptimal education, which have the potential to lead to marine pollution. The study recommends increased training, better provision of facilities, and stricter enforcement of rules to improve waste management and protect maritime ecosystems.

Keywords: Rules, Handling, Procedures, Garbage.

ABSTRAK

Penelitian ini menganalisis penanganan sampah oleh anak buah kapal (ABK) dan penumpang di KM. Tilongkabila dalam kaitannya dengan pencemaran lingkungan maritim, dengan mengacu pada ketentuan MARPOL 73/78 Annex V. Menggunakan metode penelitian kualitatif deskriptif, data dikumpulkan melalui wawancara, observasi, dan dokumentasi selama praktik laut selama 12 bulan. Hasil penelitian menunjukkan bahwa ABK telah memahami dasar-dasar Garbage Management Plan (GMP), namun penumpang sering kali kurang sadar, sehingga pembuangan sampah tidak sesuai aturan. Masalah utama meliputi fasilitas yang kurang memadai, pengawasan yang tidak konsisten, dan edukasi yang belum optimal, yang berpotensi menyebabkan pencemaran laut. Penelitian ini merekomendasikan peningkatan pelatihan, penyediaan fasilitas yang lebih baik, dan penegakan aturan yang lebih ketat untuk meningkatkan pengelolaan sampah dan melindungi ekosistem maritim.

Kata Kunci: Aturan, Penanganan, Prosedur, Sampah.

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1. INTRODUCTION

Sea transportation is one of the main pillars of global economic activities, including in Indonesia, which connects different regions and supports international trade. According to Nurwahidah et al. (2025), transportation involves the movement of people, goods, and energy from one place to another, with key elements such as facilities, infrastructure, and regulations. However, activities on board, such as KM. Tilongkabila which is operated by PT. PELNI (Persero), produces waste from crew and passengers which if not managed properly can pollute the marine environment. Marine pollution from ship waste has become a global problem. Jambeck et al. (2015) and UNEP (2021) emphasize that plastic waste and other waste threaten marine ecosystems, human health, and the sustainability of biological resources.

The main problem in this study is how to implement waste handling by crew members and passengers in KM. Tilongkabila in the context of preventing maritime environmental pollution. Specifically, the problems include, lack of awareness and understanding of passengers about the types of waste and disposal rules, limitations of waste management facilities such as incinerators and labeled garbage cans, inconsistent supervision by crew members, and potential violations of MARPOL provisions *Annex V* which can cause marine pollution. This problem is exacerbated by the large number of passengers during the *travel*, which increases the volume of waste and the risk of indiscriminate disposal.

During the marine practice, the researcher observed that waste management was not fully compliant with the Garbage Management Plan (GMP) based on MARPOL 73/78 Annex V. This can be seen from the waste disposal that was not properly separated, lack of facilities, and lack of education to passengers. Based on description above, then a thesis will be prepared with the title "Analysis of Waste Handling of Crew and Passengers of Km. Tilongkabila on the Prevention of Maritime Environmental Pollution".

This study aims to analyze the application of *Garbage Management Plan* (GMP) in KM. Tilongkabila in accordance with MARPOL 73/78 *Annex V*, by assessing the awareness of crew members and passengers, the quality of facilities

and waste management procedures, and providing recommendations to improve the effectiveness of waste management in preventing marine pollution.

2. METHOD

This study uses a descriptive qualitative method to describe and analyze waste handling practices in KM. Third. According to Moleong (2007), qualitative research aims to understand phenomena from the perspective of the subject, while Winarta (2006) emphasizes a descriptive approach to summarize the field situation. This method was chosen because it focuses on a deep understanding of the behavior of crew members and passengers in waste management.

GMP is defined as a waste management strategy to minimize marine pollution through a structured process in accordance with MARPOL Annex V. Supervision is a systematic process to ensure compliance with waste management standards.

The data collection technique in this study involves three main methods, namely: Observation, Direct observation of waste disposal, cleaning of garbage cans, and interaction between crew members and passengers during the voyage. For example, observations on decks 5 and 6 show mixed plastic waste; Documentation, collecting data from documents related to *Garbage Record Book Analysis*, work reports, and photos of waste sites; Interviews, which were conducted with crew members and passengers to get a subjective perspective. Data is analyzed through reduction (selecting relevant data about GMP), display (presentation in narratives and tables), and verification through triangulation of data sources to ensure validity. Conclusions are drawn based on a consistent pattern.

3. RESULTS AND DISCUSSION

3.1. Research Results

During Voyage 03/2025 (22 February–10 March 2025), KM. Tilongkabila serves 3,419 passengers with 35 units of trash cans spread across the main decks. Observations show that waste sorting is often inaccurate. For example, plastic waste is put into green bins (for organic). The crew held a safety meeting, but education to passengers was not intense. Facilities such as incinerators are not available, so waste is accommodated in *Garbage Station* stern and dumped in port.

The picture of the garbage shelter in *Garbage Station* and the process of disposing of garbage to garbage trucks at the port is as follows:



Figure 2. Garbage collection at *Garbage Station*



Figure 3. Dumping of garbage to garbage trucks at the port

GRB is well recorded, but supervision needs to be improved. Interviews with crew members such as Mualim I show a good understanding of GMP, but passengers often throw garbage carelessly. For example, an interview with passenger R (26 years old) stated that waste management is regular, but

observations show otherwise. This has the potential to pollute the ocean if not addressed.

3.2. Discussion

These results are in line with Jambeck et al. (2015) that lack of facilities and education can lead to pollution. The collection procedure is in accordance with MARPOL, but the processing is hampered by the limitations of the equipment. Supervision by the Chief Officer needs to be strengthened through more safety meetings. Recording in GRB ensures accountability, but violations still occur. Overall, the implementation of GMP in KM. Tilongkabila is not optimal, so intervention is needed to protect marine ecosystems. This discussion integrates GMP theory with field practice, demonstrating the need for a holistic approach.



Figure 4. Inadequate bins

4. CONCLUSION

Based on the results of the research, it can be concluded that KM. Tilongkabila basically understands the Garbage Management Plan (GMP), but passengers' awareness of waste management is still low. This can be seen from the still behavior of disposing of garbage in the wrong place and ignorance in sorting the types of waste, such as plastic waste mixed with organic waste. In addition, the lack of education and socialization from the crew and the limited waste handling facilities

cause the implementation of GMP to not run optimally and have the potential to pollute the marine environment.

To overcome these problems, the ship needs to impose strict sanctions for crew members and passengers who litter, as well as hold regular training and socialization on waste management in accordance with MARPOL Annex V. In addition, the installation of posters or visual guides in the strategic areas of the ship needs to be done so that passengers better understand how to sort waste. With these efforts, the awareness and participation of all parties in maintaining the cleanliness of ships is expected to increase, so that the implementation of the Garbage Management Plan runs effectively and supports the preservation of the maritime environment.

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