



# The Skills of Asian Institute of Maritime Studies Cadets on MARPOL Training and Their Readiness on Pollution Prevention at Sea Onboard Ship

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## Abstract

This study focused on determining the significant relationship between the skills of AIMS cadets in MARPOL training to their readiness for pollution prevention at sea onboard ships. The respondents were the forty (40) Asian Institute of Maritime Studies Marine Transportation and Marine Engineering cadets who were on international voyages that travelled internationally chosen using non-probability purposive sampling. The study utilized a descriptive-correlational technique through the validated questionnaire to approach and to analyze the relationship between the skills and readiness of the cadets. The questionnaires were distributed through online media platforms using Facebook, and Messenger and analysed using Pearson Correlation. The findings indicated that the majority of the respondents are knowledgeable and properly trained with regard to the discharge of oily mixture when there was no emergency or life-threatening situation; and have the ability to properly segregate the garbage wastes onboard the vessel. The respondents also express the utmost understanding with the proper incineration onboard and for the protocols issued for incinerating wastes. The respondents also understand the different criteria of the discharge of sewage that follows the MARPOL convention.

**Keywords:** MARPOL, pollution, readiness, skills, training

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## Introduction

Concerning the problems of pollution, one of the greatest contributors identified as those in the shipping industry. Approximately 90% of global trade was transported by sea. These goods are transported by different ships all across the globe. As useful and beneficial as it seems, the environmental cost was considered negative, especially in terms of pollution. For example, every year, container ships ply the world's waterways emit about 1 billion metric tons of carbon dioxide into the atmosphere, accounting for roughly 3% of global greenhouse gas emissions. These greatly contribute to air pollution causing more greenhouse gas in the atmosphere and further worsening the global warming experience at present (Oceana Protecting the World's Oceans, n.d.).

In response to this alarming situation, the International Maritime Organization establishes a major action to take care of this problem. The introduction of the International Convention for the Prevention of Pollution from Ships (MARPOL) in 1973 which was modified in 1978 has brought major changes in the shipping industry, especially in the protection of the environment. The MARPOL convention is bound to protect all matters regarding pollution prevention, especially for the huge pollution caused by the maritime industry (IMO, 2019).

The MARPOL training includes the compliance of consolidated certificates for MARPOL annex I-VI. According to the Labor Communications Office (2010), “a consolidated single course on the 1973 International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978, or MARPOL 73/78 program, will be included in the training of seafarers, in response to growing concern about the worsening pollution of the marine environment. The memorandum further said that if MARPOL training is provided by a manning agency's training entity, that training entity must be accredited by the MTC and that the training must be completed for a minimum of five days.” Similarly, according to Azimuth Solutions (2017), “the course aims to increase your understanding of the standards of MARPOL Annexes I through VI, allowing you to better safeguard the environment, yourself, and your company, while lowering risk, expense, deficiencies or nonconformities, detentions, reputational harm, and fines.” The International Convention for the Prevention of Pollution from Ships (MARPOL) and its six Annexes have been in effect for a number of years, but as regulations tighten and zero tolerance for

environmental damage becomes more prevalent, the need for companies to fully comply with MARPOL has become increasingly important.

This study aimed to determine the skills of AIMS cadets on MARPOL training and their readiness on pollution prevention at sea onboard ship. Specifically, it sought to determine the skills gained by the respondents through MARPOL training and assess their preparedness on demonstrating readiness on pollution prevention at sea onboard ship.

## **Methodology**

The study used the descriptive-correlational research design as it aimed to find the relationship between two different variables. In this study, it sought to prove any relationship between the skills of AIMS cadets on MARPOL training and to their readiness regarding pollution prevention at sea onboard ships.

The study utilized the purposive sampling technique. The respondents were selected through a sampling method which the researchers deemed them suitable as the right participants for the population to take part in the survey. The researchers also look for cadets that go on international voyages by which incineration and sewage are applicable. The study randomly selected forty (40) AIMS cadets enrolled in the Marine Transportation program or Marine Engineering program that undergone MARPOL training and in their cadetship program onboard a vessel.

Sets of modified questionnaires were used as research instruments that were handed to the respondents through Google Forms. The questionnaires were composed of close-ended questions and were divided into three (3) parts. The first part was the questions to establish the demographic profile of the respondents and the duration of their cadetship program. The second part was a close-ended question pertaining to the skills gained by the respondents through MARPOL training. The third part was the close-ended questions pertaining to the readiness of the respondents on pollution prevention at sea onboard ship. The researcher-made questionnaire has been validated by experts and was reliability tested by a Statistician using Cronbach's Alpha (SPSS, 2019). The computation resulted in "Acceptable to Excellent" consistencies or inter-item reliabilities.

To achieve the necessary data needed for this study, the researchers sent a letter to the respondents for their consent to the survey. The survey was administered on different social platforms via Facebook, Messenger, and Gmail. The respondents were assured of the

confidentiality of the private information that was put in the survey which was in line with their privacy rights. The data acquired was submitted to the statistician for tabulation and statistical treatment. With the help of the statistician, the collected data were analyzed and interpreted by the researchers to answer the hypothesis and come up with the findings, conclusion, and recommendations.

The study used SPSS version 26 in describing the profile of the respondents, specifically, frequency, percentage, weighted mean, and standard deviation. For the data analysis, the researchers utilize Pearson Correlation Analysis using SPSS version 26.

## **Findings**

In terms of the length of cadetship training program, the respondents joined for about 9-12 months ( $f= 33$ , 82.5%) and some enrolled for 6-9 months ( $f= 4$ , 10%). One (1) participated in 1-3 months and 3-6 months, while another participant did not provide data.

Under the descriptive statistics of the participants' skills gained through MARPOL training, results indicated that the participants generally "strongly agree" ( $M= 4.44$ ,  $SD= 0.58$ ) that they have the skills in pollution prevention learned from MARPOL training. Furthermore, the participant's agreement to each of the items pertaining to the skills learned or gained from MARPOL training in pollution prevention on board was found to be strongly agreed helping them reduce the cause of pollution, specifically from accidental oil spills and leakages, disposal of garbage, burning off waste materials, and proper disposal of sewage. Likewise, the result of readiness on pollution prevention at sea onboard ship by the cadets suggested that the respondents strongly agree ( $M=4.52$ ,  $SD=0.44$ ) that they were ready or had sufficient readiness for pollution prevention at sea onboard ship.

Using SPSS version 26 (IBM, 2019), the Pearson Correlation Statistical Analysis examined the significant relationship between the skills gained by the respondents through MARPOL training and their readiness for pollution prevention at sea onboard ships in terms of reducing oil leakages and oil spills, proper garbage disposal, proper incineration on board, and discharge of sewage. The results revealed significant relationships at a .05 p-value, between the skills gained from MARPOL training and the readiness to prevent pollution of the participants. More specifically, all the skills developed and learned from the MARPOL training program were found to have a significant correlation, at a .01 p-value, with all the preparedness and readiness of the participants to prevent pollution at sea. The results

indicated that MARPOL was highly effective in both acquiring skills and for preparation to achieve the level of readiness when it comes to the worst possible scenarios pertaining to the pollution at sea caused by the maritime industry. The preparedness and capacity of personnel engaged to carry out certain emergency response and management duties significantly impact how effective a response will be. This required, at the slightest, the assignment of roles and responsibilities, the definition of incident response plans and processes, as well as training to impart the relevant knowledge and skills as asserted by the International Maritime Organization. It was therefore implied that acquiring knowledge and skills from MARPOL training has a lot of significance to the level of readiness of the cadets on pollution prevention at sea.

## **Conclusion**

To ensure a safe and healthy working environment on board ships and to maintain a pollution-free marine ecosystem, every effort must be made to reduce and manage waste. To reduce waste, seafarers need to be actively involved in efficient ship operations and waste reduction on board. Therefore, the results revealed that the respondents have learned or acquired skills proving the effectiveness of MARPOL training.

On the level of readiness, results proved the effectiveness of the training when it comes to preparation and therefore effectively perform extensive pollution prevention at sea onboard the ship. Therefore, the probability of accidents on board will be reduced because almost everyone who went MARPOL Training was knowledgeable on how to prevent pollution at the sea.

There was a significant relationship between skills and readiness for pollution prevention at sea onboard ships during MARPOL training. The data showed how effective the MARPOL training for the skills and readiness in the future to the preparations of the incoming cadets that plan to go onboard a vessel. The results indicated that MARPOL was highly effective in both acquiring skills and for preparation to achieve the level of readiness when it comes to the worst possible scenarios pertaining to the pollution at sea caused by the maritime industry.

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