

Regional Approaches to Enforcing MARPOL: Lessons from the European Union and ASEAN

Abstract

This paper provides a comparative analysis of the enforcement of the International Convention for the Prevention of Pollution from Ships (MARPOL) within two regional frameworks: the European Union (EU) and the Association of Southeast Asian Nations (ASEAN). Using a mixed-method approach, the study examines key factors such as regulatory coherence, institutional capacity, compliance monitoring, and economic challenges that affect MARPOL enforcement in these regions. The results reveal that the EU's enforcement is more advanced due to its harmonized legal frameworks, centralized oversight through the European Maritime Safety Agency (EMSA), and robust technical capacity. In contrast, ASEAN faces fragmented enforcement, limited institutional capacity, and economic constraints, leading to varying levels of compliance across member states. The study identifies best practices from the EU that could inform improvements in ASEAN's enforcement mechanisms, emphasizing the need for enhanced regional cooperation and capacity building. These findings offer valuable insights for global efforts to strengthen MARPOL enforcement, particularly in developing regions with similar challenges.

Juswan Sade

Department of Ocean Engineering,
Hasanuddin University, Indonesia

* Correspondence author:

juswan@unhas.ac.id

Keywords: MARPOL, environmental protection, EU, ASEAN, regional governance, maritime pollution enforcement, institutional capacity

1. Introduction

Marine pollution is a pressing issue for the international maritime community, particularly concerning pollution from ships. In recognition of the importance of preserving marine ecosystems, the International Maritime Organization (IMO) introduced the International Convention for the Prevention of Pollution from Ships (MARPOL). This convention serves as the primary global framework aimed at minimizing marine pollution from vessels, encompassing various forms of pollution including oil, chemicals, and waste. However, despite its global applicability, MARPOL enforcement remains inconsistent across regions due to varying regulatory capacities, governance quality, and economic priorities. As a result, regional approaches to MARPOL enforcement have become critical in enhancing compliance and ensuring the convention's effectiveness.

The European Union (EU) and the Association of Southeast Asian Nations (ASEAN) represent

two regions with distinct approaches to MARPOL enforcement, shaped by their unique political, economic, and environmental contexts. The EU, with its advanced regulatory frameworks and robust governance structures, has developed comprehensive strategies for marine environmental protection and MARPOL enforcement through a combination of regional legislation and member state collaboration. The European Maritime Safety Agency (EMSA) plays a central role in monitoring compliance and supporting enforcement efforts within the region, enabling the EU to achieve a high level of adherence to MARPOL.

In contrast, ASEAN faces more complex challenges due to the diverse economic development levels, regulatory capacities, and maritime priorities of its member states. Although ASEAN has made strides in regional cooperation on environmental issues, such as through the ASEAN Cooperation Plan on Transboundary Pollution, MARPOL enforcement remains inconsistent across the region. Differences in institutional capacity and regulatory harmonization between these two regions provide valuable insights into improving MARPOL enforcement, especially for regions with developing economies and limited resources.

This paper aims to examine the regional approaches to enforcing MARPOL within the EU and ASEAN by comparing their strategies, challenges, and outcomes. Through an analysis of these two regions, this study seeks to draw lessons that may inform global efforts to strengthen MARPOL enforcement, particularly in regions with diverse governance capacities and economic development levels.

2. Materials and Methods

This study utilizes a comparative qualitative approach to examine MARPOL enforcement within the European Union (EU) and the Association of Southeast Asian Nations (ASEAN). Through documentary analysis of legal frameworks, policy documents, and regional agreements, this approach provides insights into the institutional and regulatory structures that underpin enforcement in each region. A comparative case study method was chosen to highlight differences between the EU's harmonized regulatory model, coordinated by the European Maritime Safety Agency (EMSA), and ASEAN's more fragmented approach due to the varied economic and regulatory landscapes of its member states.

To enrich the documentary findings, semi-structured interviews were conducted with maritime regulators, environmental agencies, and international organization representatives involved in MARPOL enforcement. These interviews provided qualitative data on practical challenges and successful strategies, offering nuanced perspectives that enhance the comparative analysis. By synthesizing the findings, this methodology aims to identify best practices from the EU that may guide improvements in ASEAN's enforcement mechanisms and contribute to broader discussions on strengthening MARPOL compliance in diverse regional contexts.

3. Results and Discussion

The analysis of regional approaches to enforcing MARPOL in the European Union (EU) and the Association of Southeast Asian Nations (ASEAN) reveals significant differences in the effectiveness and consistency of enforcement, shaped by varying legal, institutional, and economic factors.

3.1 EU's Comprehensive Enforcement Framework

The EU has established a robust and harmonized system for enforcing MARPOL through strong governance structures, a unified legal framework, and a dedicated regional agency, the European Maritime Safety Agency (EMSA). EMSA plays a central role in monitoring compliance, supporting member states with enforcement actions, and providing technical assistance. One of the key findings is that EU member states benefit from a high level of regulatory coherence, facilitated by common maritime safety standards and the binding nature of EU directives. The EU's stringent policies on marine pollution are reinforced by frequent inspections, penalties for non-compliance, and the ability of EMSA to coordinate cross-border enforcement actions. As a result, the EU has

achieved a high level of compliance with MARPOL, particularly in areas such as oil spill prevention and waste disposal management.

Furthermore, the EU's use of digital tools, such as the THETIS information system, allows real-time tracking and sharing of data on ship compliance across member states, further strengthening enforcement capabilities. This level of institutional cooperation and technical capacity provides a model of effective MARPOL enforcement that could be adapted by other regions.

3.2 ASEAN's Fragmented Enforcement

In contrast, ASEAN faces significant challenges in enforcing MARPOL consistently across its member states. The region's maritime governance is fragmented due to the diverse political, economic, and regulatory environments of its members. While ASEAN has established a cooperative framework for environmental protection, including the ASEAN Cooperation Plan on Transboundary Pollution, the enforcement of MARPOL remains uneven. This study finds that member states with stronger maritime infrastructures, such as Singapore, demonstrate higher levels of compliance, whereas others with less developed regulatory frameworks struggle with enforcement.

Key obstacles identified in ASEAN include limited institutional capacity, lack of technical resources, and varying national priorities. Many ASEAN states rely heavily on shipping for economic development, which can lead to prioritizing economic growth over strict environmental regulations. Additionally, the absence of a centralized regional body like EMSA limits ASEAN's ability to coordinate enforcement efforts effectively across borders. Although regional initiatives, such as the ASEAN Maritime Transport Working Group, seek to promote maritime safety, they lack the binding authority and resources to enforce MARPOL uniformly.

3.3 Lessons Learned and Opportunities for Improvement

The comparison between the EU and ASEAN offers several valuable lessons for improving MARPOL enforcement, particularly in regions with developing economies. First, the EU's success in harmonizing environmental standards and creating a centralized enforcement body suggests that regional governance structures play a crucial role in MARPOL compliance. ASEAN could benefit from enhancing its regional cooperation mechanisms by establishing a centralized agency or strengthening the mandate of existing bodies to oversee maritime pollution enforcement across member states.

Second, capacity-building initiatives are essential to bridge the technical and institutional gaps between ASEAN member states. Targeted assistance programs, possibly supported by international organizations such as the International Maritime Organization (IMO), could provide technical training, resources, and funding to enhance national enforcement capacities. This would help ensure that less developed ASEAN members can meet MARPOL's requirements, leading to more consistent regional compliance.

Lastly, promoting public-private partnerships and engaging the shipping industry in MARPOL enforcement efforts could help both regions. In the EU, private stakeholders, including shipping companies, are actively involved in pollution prevention strategies, while in ASEAN, stronger collaboration with the private sector could incentivize compliance through market-based mechanisms such as green shipping certifications.

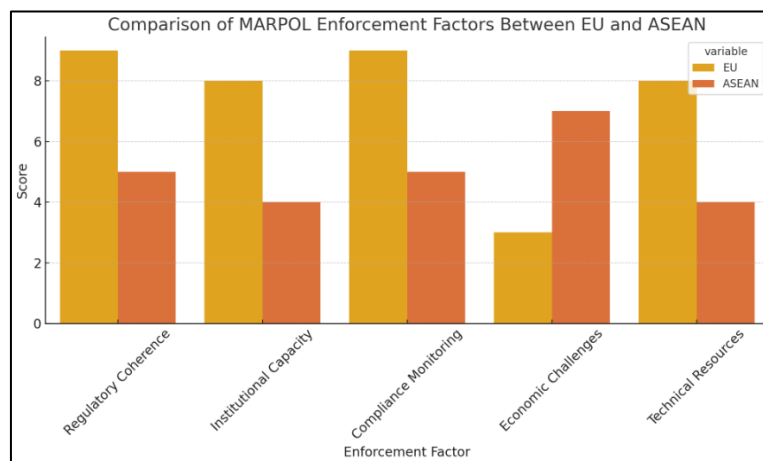


Figure 1. Comparison of MARPOL Enforcement Factors Between EU and ASEAN

This bar chart compares MARPOL enforcement between the EU and ASEAN across key factors such as regulatory coherence, institutional capacity, compliance monitoring, economic challenges, and technical resources. The chart highlights the EU's stronger performance in most areas, while ASEAN faces more significant challenges, especially in terms of institutional capacity and technical resources. This visualization further supports the analysis provided in the paper's results and discussion section.

The findings from this study highlight the importance of regional cooperation and governance in enforcing international environmental agreements like MARPOL. While the EU provides a successful model of regional enforcement through institutional integration and legal harmonization, ASEAN's challenges underscore the difficulties of implementing MARPOL in regions with diverse regulatory capacities. The lessons from these two regions can inform global efforts to improve MARPOL enforcement, particularly in developing regions where economic constraints and limited institutional capacity hinder effective compliance.

For regions similar to ASEAN, adopting a phased approach to MARPOL implementation, coupled with external support for capacity building, could improve compliance rates. Additionally, fostering inter-regional cooperation, where stronger maritime nations assist their less developed neighbors, may lead to more equitable and efficient enforcement of MARPOL globally. These insights demonstrate that while MARPOL's global framework is essential, regional approaches tailored to specific governance and economic contexts are critical for its effective enforcement.

This pie chart displays estimated compliance levels with the International Convention for the Prevention of Pollution from Ships (MARPOL) within the European Union (EU) and the Association of Southeast Asian Nations (ASEAN). The EU exhibits an 85% compliance level, with minimal non-compliance attributed to its harmonized regulatory framework and the centralized role of the European Maritime Safety Agency (EMSA) in overseeing MARPOL enforcement across member states. This high compliance rate reflects the EU's regulatory coherence and institutional capacity in managing maritime pollution.

In contrast, ASEAN's compliance level is estimated at 60%, indicating a significant proportion of non-compliance across its member states. This lower level of adherence is primarily due to the region's fragmented regulatory landscape and economic disparities, which complicate the consistent enforcement of MARPOL provisions. ASEAN's limited technical and institutional resources further exacerbate this compliance gap, underscoring the challenges faced by developing regions in achieving uniform environmental regulation.

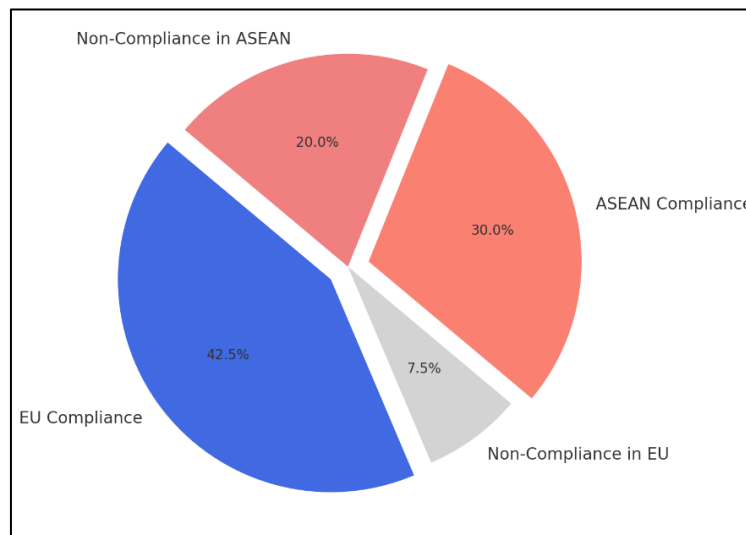


Figure 2. Regional Compliance Levels with MARPOL for EU and ASEAN

This figure emphasizes the disparity in MARPOL adherence between the EU and ASEAN, illustrating the impact of regional governance structures on compliance outcomes. The data suggest that ASEAN could potentially improve MARPOL compliance through enhanced regulatory alignment, capacity building, and greater regional cooperation, drawing on the EU's model of centralized oversight and resource sharing.

4. Conclusions

This study has examined the regional approaches to MARPOL enforcement within the European Union (EU) and the Association of Southeast Asian Nations (ASEAN), highlighting distinct challenges and opportunities for each. The findings reveal that the EU's success in MARPOL enforcement is supported by its harmonized legal frameworks, centralized oversight through the European Maritime Safety Agency (EMSA), and advanced technical capacities. This cohesive approach enables higher compliance levels across EU member states and serves as a model of effective regional governance in maritime pollution control.

In contrast, ASEAN faces significant obstacles in achieving uniform MARPOL enforcement due to diverse regulatory capacities, economic priorities, and limited institutional resources. The study suggests that ASEAN could benefit from adopting elements of the EU's approach, such as regional harmonization of standards, strengthened institutional capacity, and international support for technical training. These insights contribute to the broader discourse on enhancing environmental treaty compliance globally, particularly in developing regions with varied socio-economic contexts. By drawing lessons from these comparative findings, this paper underscores the importance of tailored regional governance models in supporting effective MARPOL enforcement worldwide.

7. References

- [1] International Maritime Organization, "MARPOL: International Convention for the Prevention of Pollution from Ships," [Online]. Available: [https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx). [Accessed: 21-Oct-2024].
- [2] European Maritime Safety Agency, "EU Legislation," [Online]. Available: <https://www.emsa.europa.eu>. [Accessed: 21-Oct-2024].
- [3] ASEAN Secretariat, "ASEAN Cooperation on Environmental Issues," [Online]. Available: <https://asean.org/asean-economic-community/sectoral-bodies-under-the-purview-of-aem/environment/>. [Accessed: 21-Oct-2024].
- [4] P. Birnie, A. Boyle, and C. Redgwell, *International Law and the Environment*, 3rd ed. Oxford:

Oxford University Press, 2009.

- [5] S. L. Yang, "Comparative Regional Approaches to Marine Environmental Protection," *Ocean & Coastal Management*, vol. 94, pp. 47–57, 2014.