Competency Gap of Filipino Seafarer of the IMO Decarbonization Regulation

Erwin James S. Lazaro
htpps://orcid.org/ 0000-0002-0880-8806
Email Address: erwinjames.lazaro@yahoo.com.ph
Affiliation: Asian Institute of Maritime Studies (AIMS) School of Graduate Studies (SGS)
Manila, Philippines

Abstract

This study investigates the competency gap of Filipino seafarers in relation to the International Maritime Organization (IMO) Decarbonization Regulation, with a particular focus on management-level officers employed through Star Ocean Manning. The research aims to assess how closely the current competencies of Filipino management-level seafarers align with the requirements set by the IMO's MARPOL Annex VI, which is centered on reducing air pollution and greenhouse gas emissions from ships. A descriptive quantitative survey design was utilized, gathering responses from 150 management-level seafarers. The competencies assessed included regulatory understanding, emissions monitoring, equipment operation, fuel compliance, and environmental leadership. Results show that Filipino management-level seafarers exhibit high competency in regulatory understanding, fuel compliance, and environmental leadership, demonstrating strong awareness of environmental regulations, fuel management, and the ability to foster a culture of sustainability aboard ships. However, the study identified areas needing improvement, particularly in emissions monitoring and advanced equipment operation, such as proficiency with exhaust gas cleaning systems and the analytical assessment of carbon intensity performance. Moreover, the study establishes that there is a moderate positive and statistically significant relationship between the perceived effectiveness of current training programs and the competency levels of seafarers. This finding indicates that respondents who rated their training as effective also demonstrated higher competency across all assessed areas. In light of these findings, the research recommends ongoing curriculum updates to reflect evolving international regulations, increased investment in practical and technology-oriented training—especially in emissions monitoring and new environmental technologies—and targeted interventions to support continuous professional development for seafarers. The implications of this study are significant for maritime education providers, shipping companies, and policymakers. By identifying specific competency gaps and the factors contributing to them, the results can inform the design of responsive training programs that ensure regulatory compliance, operational efficiency, and the continued global competitiveness of Filipino seafarers. Ultimately, this research contributes to the broader goal of supporting the Philippines' position as a leading supplier of competent maritime professionals in a decarbonizing global shipping industry.

Keywords: IMO decarbonization, Filipino seafarers, competency gap, MARPOL Annex VI, emissions monitoring, maritime training, environmental leadership.