Environmental Considerations in Maritime Transportation: CO_2 Emissions, Regulations, and Reduction Strategies

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ABSTRACT OF THESIS

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In 2021, more than 80% of all cargo in the world's trade will be transported by maritime transportation, according to the UNCTAD. However, the exponential growth of consumption demands has increased concern about the environmental impacts that this means of transportation can cause. To address these concerns, this study's objective is to provide a comprehensive overview of the environmental effects of maritime transportation.

The objective is also to analyze the levels of CO2 emissions in the European Union from 2018 to 2021 and provide an overview of pertinent air pollution resolutions. Additionally, this study presents prospective strategies for reducing carbon emissions and mitigating the shipping industry's negative environmental impacts. For that, data on CO2 emissions in the EEA and the literature review method were used. First, the CO2 emissions data from 2018 to 2021, provided by the European Maritime Safety Agency (EMSA) in accordance with Regulation (EU) 2015/757, was analyzed. For the secondary research method, a systematic method review was used.

The findings reveal that CO2 emissions in the EU are still high—more than 120 million tonnes of CO2 per year—even after the tightening of new regulations. The research also highlights the importance of operational strategies to increase the energy efficiency of ships and consequently reduce CO2 emissions. Also, it is important for stakeholders to find a balance between environmental protection and financial gain. Furthermore, the conclusion of this investigation has the potential to provide shipping companies with helpful insights that may be applied toward the reduction of CO2 emissions.