

Existing International Cooperation Mechanisms and Proposals to Enhance Their Effectiveness for Marine-Based Geoengineering Governance

Authors : Aylin Mohammadalipour Tofighi

Abstract : Marine-based geoengineering methods, proposed to mitigate climate change, operate primarily through two mechanisms: reducing atmospheric carbon dioxide levels and diminishing solar absorption by the oceans. While these approaches promise beneficial outcomes, they are fraught with environmental, legal, ethical, and political challenges, necessitating robust international governance. This paper underscores the critical role of international cooperation within the governance framework, offering a focused analysis of existing international environmental mechanisms applicable to marine-based geoengineering governance. It evaluates the efficacy and limitations of current international legal structures, including treaties and organizations, in managing marine-based geoengineering, noting significant gaps such as the absence of specific regulations, dedicated international entities, and explicit governance mechanisms such as monitoring. To rectify these problems, the paper advocates for concrete steps to bolster international cooperation. These include the formulation of dedicated marine-based geoengineering guidelines within international agreements, the establishment of specialized supervisory entities, and the promotion of transparent, global consensus-building. These recommendations aim to foster governance that is environmentally sustainable, ethically sound, and politically feasible, thereby enhancing knowledge exchange, spurring innovation, and advancing the development of marine-based geoengineering approaches. This study emphasizes the importance of collaborative approaches in managing the complexities of marine-based geoengineering, contributing significantly to the discourse on international environmental governance in the face of rapid climate and technological changes.

Keywords : climate change, environmental law, international cooperation, international governance, international law, marine-based geoengineering, marine law, regulatory frameworks

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