DEPARTMENT OF INTERNATIONAL AND EUROPEAN ECONOMIC STUDIES

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS

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Working Paper Series

25-13

January 2025

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Abstract

The Global Climate Hub (GCH) has been developed under the United Nations Sustainable Development Solutions Network (UN SDSN). It is an international research-led initiative for tackling complex sustainability challenges. The SDSN GCH develops national and regional pathways (optimal dynamic and spatial mixture of policies, technologies, and fiscal and financial instruments) for the transition to climate neutrality and climate resilience, using a holistic and interdisciplinary methodology: We co-design pathways for climate resilience and neutrality with stakeholders, based on the integration of downscaled climate scenarios with science-based national and regional systems modelling (energy, land and marine use systems, health and socioeconomics systems). The approach is aided by an open-access AI-driven data gathering, aggregation and visualization platform, various innovation accelerators and a training and education unit, aimed at strengthening stakeholder involvement and capacity. The work of the GCH is the result of the coordination of nine distinct research units, covering a wide range of expertise in digital applications, climate science, land, water, food, biodiversity, and marine and maritime systems, energy and decarbonization, land and maritime transport, public health, solutions' application, policy, finance, labour markets, participatory approaches, education and training. The coordinated work of these nine units provides a unique approach of holistically addressing all levels of the human-environmental interface for providing truly sustainable solutions tailored per case study or region.

In this presentation, we describe for the first time how maritime operations are seen as a part of a broader sustainability framing of the nine research units of the GCH. First, the importance of “Data, Platforms and Digital Applications” (unit 1) in modelling sustainable maritime operations is outlined. Then, the actual modelling is briefly presented (unit 3), combining the use of climate change projections (unit 2), and the optimal maritime operations, considering energy-fuels-emissions models (unit 4), as well as the economy and finance tools to ensure a just transition (unit 7). Moreover, their interactions and impacts on “environment and public health” (unit 5) are discussed. To bridge science to practical application and policy, and ensure the long-term implementation, we present the role of: the “Transformative and Participatory Approaches” (unit 8) to co-design solutions with stakeholders; the “Innovation/ Acceleration” unit 6, to practically implement these solutions’ and the “Education, Training, Upskilling and Reskilling” (unit 9), to develop the necessary expertise for the stakeholders to own and manage the solutions. This approach comprehensively addresses all aspects of human-environment interaction, providing comprehensive and long-lasting sustainable solutions.

Keywords: MaritimeGCH; Global Climate Hub; Sustainability; Shipping; Sustainable maritime operations; Model integration.

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