

Written evidence submitted by the Southampton Marine and Maritime Institute, University of Southampton

Executive summary:

In response to this call for evidence on “[Net zero aviation and shipping](#)” by the Environment Audit Committee, this submission provides evidence and policy recommendations in relation to the following question:

- What further action is needed by [...] the International Maritime Organization to drive emissions reductions? What can the UK Government do to drive international action on emissions?

The following policy recommendations are made:

- Recent research has found that the market-based measures (MBM), essential for the implementation of the International Maritime Organization’s (IMO) initial Greenhouse Gas Reduction Strategy (GHG Strategy), create a risk *vis-à-vis* Small Islands Developing States (SIDs), Least Developed Countries (LDCs) and developing States due to a higher likelihood that they would experience increased transport costs and import prices compared to the rest of the world. To overcome the political deadlock hampering efforts to decarbonise the shipping industry globally, future diplomatic efforts at the Marine Environment Protection Committee (MEPC) must focus on *designing mechanisms to effectively offset this risk*.
- In parallel, and in order to achieve its ambitions, the IMO should establish a fund to finance research into green fuels and technologies and maritime infrastructure, taking due regard of the principle of common but differentiated responsibility.
- The United Kingdom (UK) must continue to invest and lead in research, development and deployment at scale of various decarbonising fuels and technologies, most notably with regards to ship operations, port infrastructure, energy storage, electrification, Carbon Capture Utilisation and Storage (CCUS), automation, safe handling, *etc.* It must also continue to support zero emission feasibility and demonstration projects to push forward the transition to zero emission fuels for the shipping industry. Underlying these efforts, it must ensure that its laws and regulations are updated to accommodate the energy transition, and develop forward-looking and coherent policies for an over-abundance of renewable energy, green hydrogen production, and energy storage.
- The knowledge gained should then be shared with the wider maritime community, notably through the IMO via a leadership stance from HM Maritime and Coastguard Agency, for the UK to continue to play an influential and leading role in driving international action on emissions from shipping.

Response author:

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About the Southampton Marine and Maritime Institute (SMMI):

The SMMI is a community of academics from across the University of Southampton, whose interests and research are linked to the marine/maritime realm. It is an internationally recognised multi-

¹ With thanks to [Professor Damon Teagle](#), Director of the SMMI, for his critical review of this submission.

disciplinary centre of excellence for research, innovation and education spanning both the marine and maritime sectors. Read more [here](#).

What further action is needed by [...] the International Maritime Organization to drive emissions reductions? What can the UK Government do to drive international action on emissions?

1. Agree on the design and operation of proposed MBMs (such as a carbon levy or an emissions trading system) to affect behavioural change and incentivise towards the use of green fuels (categorised as mid-term measures in the IMO's GHG Strategy), taking account of political tensions between developed and developing States. This requires a recognition of the imperative to *effectively offset the risk* which the adoption of such measures would create *vis-à-vis* SIDS, LDCs and developing States due to [a higher likelihood that they would experience increased transport costs and import prices compared to the rest of the world](#).
2. The IMO should set more the more ambitious decarbonisation targets of achieving net-zero shipping by 2050 in line with efforts of other industries, [including aviation](#).
3. In parallel, and in order to achieve its ambitions, the IMO should establish a fund to finance research into green fuels and technologies and maritime infrastructure. Crucial to the successful creation of the fund, due regard must be had to the mechanism based on which money would be collected from States with varying capabilities in accordance with the principle of common but differentiated responsibility (CDR) amidst an environment of [strong opposition from developing States to a globally uniform levy through fuel consumption or taxation](#).
4. The foregoing fits within a wider imperative of integrating considerations of climate justice within decarbonisation efforts for shipping to overcome the political deadlock during the recent 76th session of the IMO's Marine Environment Protection Committee (MEPC).
 - a) From a legal perspective, climate justice is achieved through the implementation of the principle of CDR. Although the principle is not yet recognised as a norm of customary international law, it has already been incorporated in numerous international instruments, including the United Nations Framework Convention on Climate Change (UNFCCC). The principle in its UNFCCC form entails that "the Parties should protect the climate system [...] on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities". Thus, it nuances the efforts from states with varying national circumstances to solve environmental problems of a global nature on the basis of two criteria: responsibility (for causing the environmental problem – both historical and present); and capability (to tackle the problem – both financial and technical). Importantly, not only is the principle incorporated in several IMO documents (*e.g.* the London Convention), the IMO's GHG Strategy also recognises the need to be "cognizant of the principles enshrined in instruments already developed, such as [...] the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances". Focusing on the design and operation of climate mitigating measures proposed to/by the IMO, the GHG Strategy provided that their impacts "should be assessed and taken into account as appropriate before adoption of the measure[s]", and added that "particular attention should be paid to the needs of developing countries, especially small island developing states (SIDS) and least developed countries (LDCs)". In practice, this assessment has been difficult to conduct, as demonstrated in the experience of the technical and operational measures to improve the energy efficiency of ships, the scope of which were expanded during the

MEPC's 76th session. According a [United Nations Conference on Trade and Development's \(UNCTAD\) report \(July 2021\)](#), the impact assessments conducted were inaccurate and highlighted important challenges, including the existence of many uncertainties and variables due to the limited availability of data. Recognising these limitations, the MEPC adopted the measures while agreeing to keep under review their potential impacts on the most vulnerable states in order to make adjustments where necessary. A similar approach to MBM is very unlikely as implications on SIDS, LDCs and developing States would be more substantial. Hence, the MEPC agreed to formally address them but deferred the discussion to its next session (22 to 26 November 2021).

- b) From a policy perspective, the universal agenda embodied in the United Nations (UN) Sustainable Development Goals (SDGs) requires member states to adopt an integrated and indivisible approach to tackling the SDGs and their 169 associated targets in order to achieve "[inclusive, people-centred and sustainable development with no one left behind](#)". This entails that prospective MBM adopted by the IMO towards achieving SDG 13 (Climate Action) should at least not contravene SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities).
5. In order to be in a position to drive international action on emissions reduction from shipping, the UK must:
- a) Fill important knowledge gaps through investing and leading in research and development around ship design/efficiency, green fuels and technologies, safe handling, port infrastructure, CCUS; and continue to investigate how remote operation and autonomy optimisation of uncrewed or lean-crewed vessels can reduce environmental impacts.
 - b) Continue to support zero emission feasibility and demonstration projects to push forward the transition to zero emission fuels for the shipping industry and urgently move ahead with the deployment of carbon capture and storage (CCS) at scale, including shipping of CO₂ from orphan-industrial clusters with no regional geostorage.
 - c) Update its laws and regulations to accommodate the energy transition (including the transport of CO₂, Renewable Transport Fuel Obligation obligations, HM Maritime Coastguard Agency's codes of practice, Emission Trading System and carbon pricing), and develop forward-looking and coherent policies for an over-abundance of renewable energy, green hydrogen production, and energy storage.
6. In order to deliver the abovementioned, research must be financed beyond the clean maritime demonstration and CCUS Innovation competitions, and would need to tap into the £240m Net Zero Hydrogen fund recently announced in the UK Hydrogen Strategy. The knowledge gained should then be shared with the wider maritime community, notably through the IMO via a leadership stance from HM Maritime and Coastguard Agency, for the UK to continue to play an influential and leading role in driving international action on emissions from shipping.

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