



PERMANENT MISSION OF THE REPUBLIC OF SINGAPORE
UNITED NATIONS | NEW YORK

CONTRIBUTION BY THE REPUBLIC OF SINGAPORE

“Capacity building and the transfer of marine technology: New developments, approaches and challenges”

This contribution is made in response to the UN Office of Legal Affairs’s Note Verbale LOS/SGR/2024/1/ST. It outlines Singapore’s capacity building efforts in two key areas: (a) management of the coastal and marine environment; and (b) decarbonisation and emissions reduction.

Management of Coastal and Marine Environment

2 Given its global and integrated nature, the effective management, conservation and sustainable use of the coastal and marine environment is fundamentally a shared responsibility. Singapore has harnessed innovation and technologies as well as facilitated knowledge-sharing at the national, regional and global levels to better address the challenges to the coastal and marine environment arising from climate change, such as sea-level rise, increasing sea surface temperatures and extreme weather events.

3 With the goal of improving global ocean monitoring networks and encouraging collaboration with regional and global networks, Singapore has supported the Marine Environmental Sensing Network (MESN), which is a multi-institution effort leveraging on the combined expertise of the National University of Singapore’s Tropical Marine Science Institute, Nanyang Technological University, Agency for Science, Technology and Research (A*STAR) and Singapore University for Technology and Design. This project aims to develop Singapore’s capabilities in real-time monitoring of the marine environment, and strengthen climate change and ecological research. Currently in its five-year development phase from October 2020 to September 2025, MESN allows not only for expanding marine sensing capabilities but also serves as a platform to test-bed new marine technologies for research and development (R&D). In doing so, MESN seeks to amplify the nexus between academia and industry, increasing potential for use-inspired research, technology translation, skills transfers, and commercial partnerships. As part of

MESN, St. John's Island National Marine Laboratory in Singapore organised the inaugural Marine Monitoring for Action workshop in October 2024, which encouraged discussions on how effective marine monitoring can help shape marine management policies and contribute to the implementation of the various national, regional and international legislations and initiatives.

4 Singapore is also forward-leaning in shaping norms in emerging oceans and the law of the sea issues. For example, Singapore will be hosting a symposium on the Agreement under the United Nations Convention on the Law of Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement) in February 2025, which is aimed at facilitating: (a) the expeditious ratification and entry into force of the BBNJ Agreement; and (b) knowledge-sharing on the conservation and sustainable use of marine biological diversity in the high seas. A number of officials from Small Island Developing States (SIDS) will be participating in the Symposium with support provided under Singapore's "SIDS of Change" technical assistance package.

5 In the area of aquaculture, Singapore launched the Singapore Aquaculture Plan (SAP) in November 2024 to support capacity building in the aquaculture industry. Leveraging on the capabilities and solutions developed in the Marine Aquaculture Centre, the Singapore Food Story R&D Programme and AquaPolis Programme, the industry has innovated and pursued collaborative research initiatives, including improved feed conversion ratios and disease resilience. To further enable technology translation, access to intellectual property from research programmes to local farms will be improved, and the AquaPolis Industry Consortium Platform was launched to strengthen research-industry partnerships. In addition, the Singapore Food Agency has operationalised an Aquaculture Sensing Network to support the aquaculture industry in monitoring water quality and nutrient discharges from farms. This provides early warning against environmental threats such as Harmful Algal Blooms while helping to meet environmental quality targets for the protection of sensitive habitats.

6 Finally, in terms of addressing marine litter, Australia, India and Singapore co-organised a virtual East Asia Summit (EAS) Workshop on Marine Plastic Debris in February 2022 to: (a) understand the magnitude of the marine litter problem in the Indo-Pacific; (b) harness regional cooperation to highlight existing best practices, policies, technologies and innovations; and (c) identify opportunities for regional engagement to implement and achieve outcomes.

Decarbonisation and Emissions Reduction

7 As part of broader efforts to develop novel climate mitigation technologies in the global drive towards net zero emissions, Singapore is working closely with industry and academic partners to trial ocean-based carbon dioxide removal (OCDR) technologies. For example, the Public Utilities Board, which is Singapore’s national water agency, will commission a demonstration-scale OCDR in 2025 that uses an electrolytic approach to remove carbon dioxide (CO₂) from seawater and the atmosphere. Singapore welcomes collaboration in OCDR research and development efforts, to facilitate the responsible scaling up of OCDR technologies and capacities.

8 As a key maritime nation and port State, Singapore aims to promote the use of sustainable fuels for international trade and travel by supporting the maritime industry’s transition to alternative fuels. The Maritime and Port Authority of Singapore (MPA) revised the Maritime Singapore Green Initiative (MSGI) from 1 January 2025 to better align it with the emissions reduction targets set by the International Maritime Organization (IMO). A sum of S\$50 million was pledged through the MSGI to encourage the early adoption of zero and near-zero emission fuels and technologies. MPA is also building an enabling environment for the supply and bunkering of alternative fuels such as methanol and ammonia and has established the Maritime Energy Training Facility (METF), supported by 52 industry partners, for training of the global maritime workforce in the operation of vessels using clean marine fuels.

9 Given the global nature of shipping, Singapore is leveraging international partnerships to accelerate maritime decarbonisation. Singapore has established six Green and Digital Shipping Corridors (GDSCs) with like-minded ports and countries¹ to develop alternative fuel supply chains, scale green shipping pilot projects, advance digital shipping, and build consensus on global standards. MPA has also entered into partnerships with international organisations, such as the International Energy Agency and the International Renewable Energy Agency, to encourage value chain collaboration and capacity building in the energy transition.

.....

¹ The six GDSCs were signed with: (a) Australia; (b) Japan; (c) the Ports of Long Beach and Los Angeles; (d) the Port of Rotterdam; (e) Shandong; and (f) Tianjin.