UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

Ocean economy, trade policy and the climate and development nexus

Background Note by UN Trade and Development and Food and Agriculture Organization of the United Nations to the 5th United Nations Ocean Forum

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OVERVIEW

The 5th United Nations Ocean Forum on trade-related aspects of Sustainable Development Goal 14 seeks to gather and prepare a cohesive set of policy recommendations to contribute to the discussions at the United Nations Ocean Conference in Nice, France, on 9-13 June 2025 and UNCTAD 16 in Viet Nam, in October 2025. With the support of the UNCTAD Secretariat, these recommendations will be compiled by France and Costa Rica, the co-chairs of the Forum, in the form of the Chairs' summary.

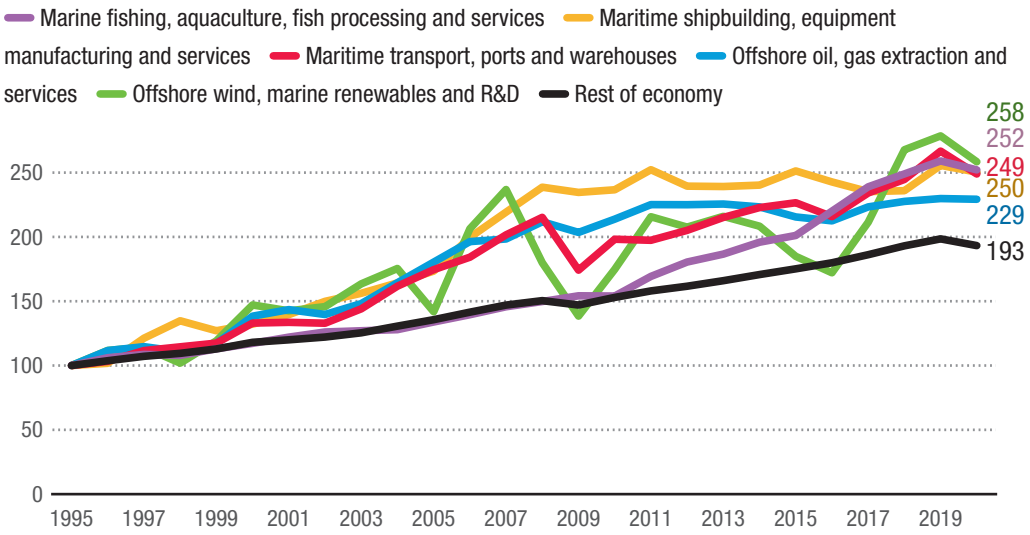
The Forum will explore the intersection of ocean economies, trade policy, climate, and development. This note provides background information and potential recommendations for the consideration of Member States and the co-chairs, structured around the Forum's high-level segment and five thematic sessions. Discussions will cover current trade-related trends in the ocean economy, including its decarbonisation, potential of South-South trade in fisheries and aquaculture products, trade policies and tools for innovative marine-based, sustainable, and low-carbon products, and blue finance for a sustainable ocean economy. The note underscores the urgent need for transformative action to address the interconnected climate, social, and economic challenges facing the ocean economy; challenges that demand international cooperation. It also emphasises the critical role of trade and finance as vital drivers of sustainable development, inclusive economic growth and resilience.

Chapter 1

Trends in the Ocean Economy

The ocean provides significant social, economic, and environmental benefits to human well-being. It is central to global food security, supports rich biodiverse habitats, provides vital ecosystem services, and absorbs 31 per cent of carbon dioxide emissions.[1] The ocean economy is valued between $3 trillion and $6 trillion per year, directly sustaining at least 150 million jobs across diverse sectors, including but not limited to fishing, aquaculture, shipping, tourism, offshore wind energy, and marine biotechnology.[2] These sectors have been growing at a faster pace than the rest of the economy (see figure 1.1), with annual growth rates ranging from just over 2 per cent to nearly 3 per cent over the last two decades.[3]

Figure 1.1
Global ocean economy growtht has outpaced global growth
1995 = 100



Source: UNCTAD (2025) based on OECD Ocean Economy Monitor, preliminary estimates, June 2024.

However, many activities have expanded with insufficient regard for environmental and social considerations. As a result, the ocean faces increasing pressures, including eutrophication, acidification, declining fish stocks, rising temperatures, rising sea levels, and widespread plastic pollution. According to the FAO,[4] the share of fish stocks within biologically sustainable levels has declined from 90 per cent in 1974 to 62.3 per cent in 2021. UNEP estimated that the volume of plastics in the ocean is around 75-199 million tonnes and with 19 to 23 million tonnes of plastic waste entering aquatic ecosystems every year.[5] Additionally, record-high ocean temperatures have triggered a fourth global coral-bleaching event, the second within a decade.[6]

1 NCEI (2024). Quantifying the Ocean Carbon Sink | News | National Centers for Environmental Information (NCEI)
2 UNCTAD (2023a). Trade and Environment Review 2023. Available at https://unctad.org/publication/trade-and-environment-review-2023
3 OECD (2024). OECD Ocean Economy Monitor, preliminary estimates, June 2024.
4 FAO (2024). The State of World Fisheries and Aquaculture 2024 – Blue Transformation in action.
5 See https://www.unep.org/topics/ocean-seas-and-coasts/ecosystem-degradation-pollution/plastic-pollution-marine-litter
6 See https://unstats.un.org/sdgs/report/2024/The-Sustainable-Development-Goals-Report-2024.pdf

1.1 Defining sustainable ocean economy

Sustainable Development Goal (SDG) 14 on life below water calls for the conservation and sustainable use of oceans, seas, and marine resources for sustainable development. However, despite the international community's growing interest in the ocean, there remains a lack of common understanding, definitions, and principles to align cooperation efforts supporting sustainable ocean economies. UNCTAD defines the sustainable ocean economy as encompassing "*all industries that sustainably utilise and contribute to the conservation of ocean, seas and coastal resources for human benefit in a manner that maintains all ocean resources over time*."[7] In line with this definition, the High-Level Panel for a Sustainable Ocean Economy considers that a sustainable ocean economy must balance the needs of people, planet, and prosperity by ensuring the "*long-term, sustainable use of ocean resources in ways that preserve the health and resilience of marine ecosystems and improve livelihoods and jobs, balancing protection and prosperity*."[8]

To monitor progress towards more sustainable ocean economy, UNCTAD launched an ocean trade in goods database in 2022 and an ocean trade in services database in 2023, drawing on official data reported by United Nations Member States and published in UN Comtrade[9]. The databases build on a product classification identifying 100 clusters from over 780 goods, services, and energy industries dependent on the ocean for the primary, secondary, and tertiary sectors.[10] In early 2025, the database has been further enriched by a set of additional economic indicators.[11]

1.2 Trade in ocean goods and services

These databases show global exports of ocean goods reached a record level of $900 billion in 2023, while exports of ocean services peaked at $1.3 trillion in the same year.[12] Figure 1.2 provides an overview of the composition of global exports of ocean goods and services in 2023. The most significant ocean services sector in terms of export value was marine and coastal tourism ($725 billion), followed by maritime freight transport ($386 billion). For goods, the leading sector was high-technology manufactures ($346 billion), which comprises manufactures for fishing, pharmaceuticals, marine sports, clean energy, and electrical equipment, followed by ships and port equipment ($340 billion). Marine fisheries and seafood processing added $203 billion in food and non-food-related goods exports. Ocean services account for more than half of the total trade in ocean goods and services. The extensive linkages that marine tourism has with other sectors, such as construction, infrastructures and facilities, food and beverages, or cultural and recreational goods and services, give it a strong potential to foster development.

7 UNCTAD (2020). Advancing Sustainable Development Goal 14: Sustainable Fish, Seafood Value Chains, Trade and Climate. Available at https://unctad.org/system/files/official-document/ditcted2019d3_en.pdf.

8 Winther, J-G., M. Dai, et al (2020). Integrated Ocean Management. World Resources Institute. Available at www.oceanpanel.org/blue-papers/integrated-ocean-management

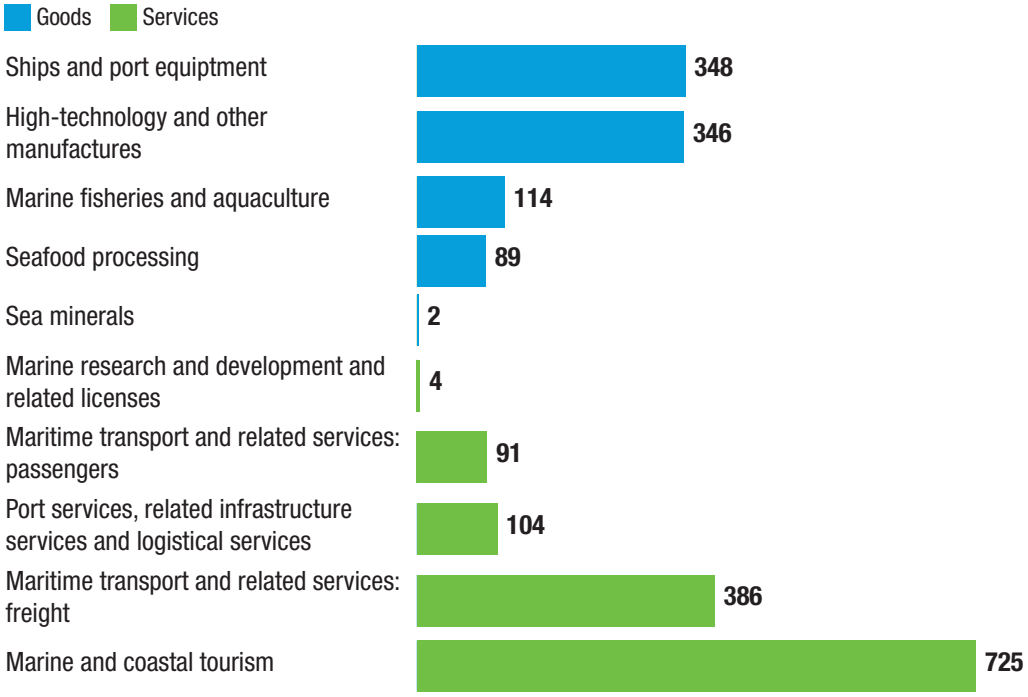
9 See https://comtradeplus.un.org/

10 See https://unctad.org/webflyer/towards-harmonized-international-tradeclassification-development-sustainable-ocean-based. The database excludes offshore fossil fuel industries and seabed mining considered as unsustainable. It currently includes information on trade in ocean-based goods since 2012, and trade in ocean-based services since 2005.

11 See https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?IF_ActivePath=P%2C207996.

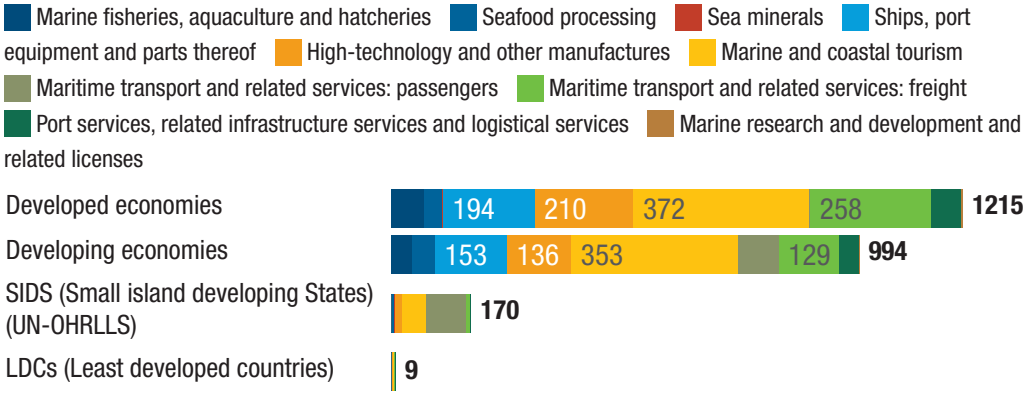
12 See UNCTADstat Data Centre (2025).

Figure 1.2
Ocean trade reached $2.2 trillion in 2023
Billion US dollars



Source: UNCTAD. 2024. Ocean Trade in Goods and Services Database.

Figure 1.3
87 per cent of SIDS' ocean exports are services
2023 (billion $)

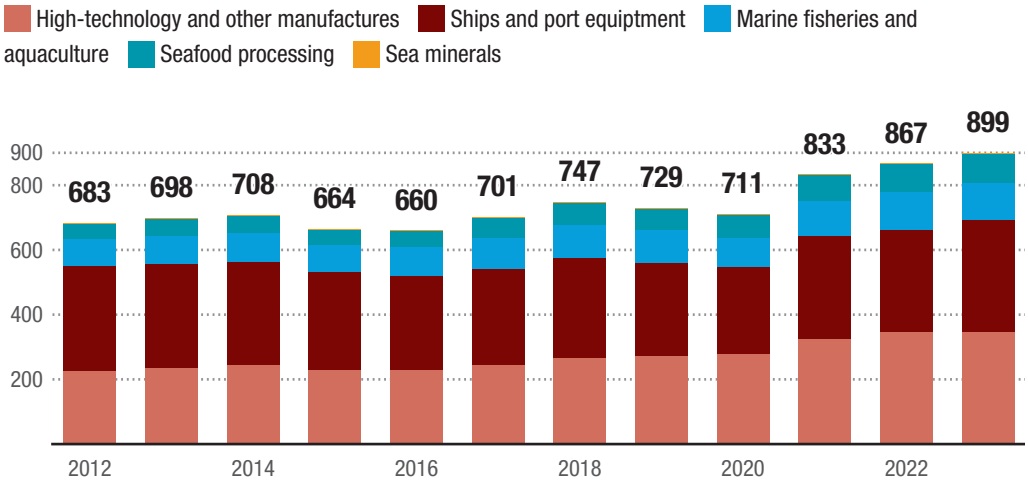


Source: UNCTAD (2024) Ocean trade in goods and services databases

Exports of ocean services were severely affected by the COVID-19 pandemic, experiencing a 59 per cent drop in 2020, largely due to the fall in coastal and marine tourism. Exports of ocean goods have shown more resilience. Since 2022, global ocean services exports have recovered and exceeded their pre-COVID-19 level. While this recovery underscores the ocean economy's capacity to adapt and thrive despite global disruptions, the pandemic caused considerable income losses, highlighting the urgent need to ensure the ocean economy is better prepared to respond and adapt to future shocks, by promoting investments into sustainable, resilient, low carbon activities.

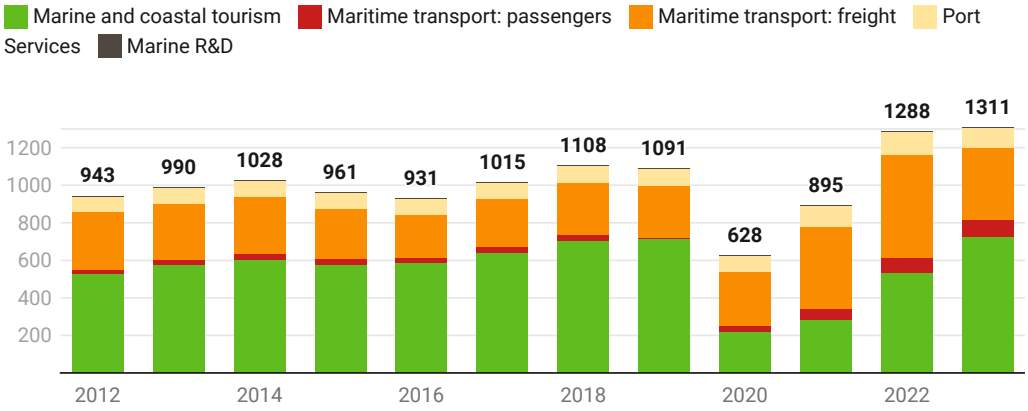
Regionally, Asia and the European Union largely dominate global ocean economy exports, accounting for nearly 80 per cent of trade in ocean goods and 75 per cent of trade in ocean services. Developing countries have steadily increased their shares. In 2023, they contributed $611.18 billion in services and $383.24 billion in goods where68 per cent were manufactures, including ships, port equipment, and parts. Small island developing States (SIDS) contributed $146.08 billion in tourism and maritime transport services and $36.19 billion in goods.

Figure 1.4
77 per cent of ocean goods trade is manufactures
Billion dollars



Source: UNCTAD. 2024. Ocean Trade in Goods Database

Figure 1.5
International maritime tourism recovered pre-COVID-19 levels in 2023
Billion dollars



Source: UNCTAD. 2024. Ocean Trade in Services Database

Tariffs applied on ocean goods are relatively low, particularly in developed countries, and affect mainly seafood processing and marine fisheries where cases of tariff escalation persist. Non-tariff measures (NTMs) essentially comprise sanitary and phytosanitary (SPS) measures on food products and technical and quantity control for industrial goods. Finally, voluntary sustainability standards (VSS) have also grown over the years because of private sector responses to increasing consumer

concerns relating to health, safety, and sustainability. According to ITC Standards Map,[13] out of 351 VSS, nearly 60 applied to fisheries, including wild fish, and 17 contributed specifically to achieving SDG 14. These VSSs primarily consist of private initiatives providing certification or accreditation. While these requirements play a key role in fostering more sustainable practices, compliance can impose costs that constrain market access, especially for small producers. Another challenge relates to the proliferation of sustainability requirements, which vary in focus, level of detail and verification policies.

In recent years, disruptions to global maritime trade routes, including the Suez and Panama Canal, undermined trade. Daily ship transits through these critical international chokepoints have dropped by more than half, driven by geopolitical tensions and conflict in the Red Sea as well as climate change-induced drought that lowered water levels in the Panama Canal.[14] These disruptions threaten the safety of shipping operations and maritime seafarers, while also increasing travel distances, fuel consumption and carbon emissions. SIDS and least-developed countries (LDCs) are especially affected by these disruptions. If the increase in container freight rates observed between October 2023 and June 2024 continues through the end of 2025, global consumer prices could rise by 0.6 per cent by late 2025. Over the past decade, these vulnerable economies have experienced a 9 per cent decline in their maritime connectivity, leaving them ten times less connected to global shipping networks than non-SIDS countries and the four main SIDS hubs (Mauritius, Singapore, Jamaica and Dominican Republic).[15] While a range of factors can result in disruptions, growing climate hazards and related impacts on ports, causing delay and disruption across supply chains, pose a distinct challenge which remains to be adequately addressed. With over 80 per cent of global trade moving by sea, strengthening the resilience of maritime infrastructure and adapting ports and other coastal transport infrastructure to climate-related challenges will be critical[16].

Seaports are vital for a sustainable ocean economy. They provide access to global trade, markets, and supply-chains for all countries and are integral to maritime transport, as well as fisheries, offshore energy exploration, tourism and other economic activities in coastal zones. Ports also perform a key role in the context of disaster response and recovery, in particular in SIDS which are prone to natural disasters exacerbated by climate change. However, these critical infrastructure assets are at considerable and growing risk of climate change impacts from coastal flooding and extreme events. In the absence of timely and effective adaptation, related damage, disruption and delay may have important trade-related repercussion and compromise the sustainable development prospects of SIDS and other vulnerable island and coastal nations.[17] Concerted, multifaceted and innovative approaches to adaptation and resilience building, including supportive policy and legal frameworks, along with adequate financing[18] will be required to address this challenge, and upscaled capacity-building will be critical for those at greatest risk.

[13] See https://www.standardsmap.org/

[14] UNCTAD (2024a). Navigating Troubled Waters: Impact to Global Trade of Disruption of Shipping Routes in the Red Sea, Black Sea and the Panama Canal. Available at https://unctad.org/publication/navigating-troubled-waters-impact-global-trade-disruption-shipping-routes-red-sea-black

[15] UNCTAD (2024b). Review of Maritime Transport. Available at https://unctad.org/publication/review-maritime-transport-2024.

[16] UNCTAD (2024b).

[17] See Monioudi et al (2018) Climate change impacts on critical international transportation assets of Caribbean Small Island Developing States (SIDS): the case of Jamaica and Saint Lucia Reg Environ Change 18, 2211–2225 https://doi.org/10.1007/s10113-018-1360-4

[18] UNCTAD (2022) 'Climate-resilience of seaports: Adequate finance is critical for developing countries but remains a major challenge - UNCTAD Policy Brief No. 103' (UNCTAD/PRESS/PB/2022/11)

1.3. Recent developments in ocean governance and cooperation frameworks affecting trade

According to the 2024 Sustainable Development Goals Report,[19] some progress has been achieved on fisheries subsidies (14.6), marine pollution (14.1), marine and coastal ecosystems (14.2) and conservation of coastal and marine areas (14.5). However, action is not advancing at the speed or scale required to meet Goal 14 by 2030. In fact, the global community is only on track to meet target 14b to provide small-scale artisanal fishers access to marine resources and markets. More worryingly, the report points to regressions on several fronts, including ocean acidification (14.4), sustainable fishing (14.5), and marine resources for SIDS and LDCs (14.7). Swift, coordinated, and cooperative global action is imperative to counter these trends.

Policy and legal instruments are vital tools for the implementation of international law of the sea as reflected in the United Nations Convention on the Law of the Sea (14c) and for achieving the specific targets set out in SDG 14. Faced with the urgency to act, the global community has reinvigorated its commitment to a sustainable ocean through several recent pacts. The Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement) was adopted in June 2023, following nearly 20 years of negotiations. Its adoption marked a historic achievement in efforts to ensure the health and resilience of ocean ecosystems, and to level the playing field in the capacity to participate in and benefit from activities in areas beyond national jurisdiction. The BBNJ Agreement will enter into force 120 days after the deposit of the 60th instruments of ratification, acceptance, approval or accession. As of 20 February 2025, 119 States and the European Union have signed the Agreement, with 17 having also ratified it. [20] The adoption of the World Trade Organisation (WTO) Fisheries Subsidies Agreement (FSA) in June 2022 constitutes another significant breakthrough by prohibiting subsidies to illegal, unreported and unregulated (IUU) fishing, overfished stocks and fishing in the unregulated high seas. So far, 89 members have ratified the new pact out of the 111 formal acceptances required for the agreement to enter into force (i.e., two-thirds of the membership). Meanwhile, WTO Members continue negotiations on subsidies that contribute to overfishing and overcapacity (phase two).

In 2022, the 2nd United Nations Ocean Conference[21] also saw more than 100 Member States voluntarily committing to conserve or protect at least 30 per cent of the global ocean within marine protected areas by 2030. The COP16 of the Convention on Biological Diversity agreed on a new and evolved process to identify ecologically or biologically significant marine areas (EBSAs). This work, identifying the most critical and vulnerable ocean parts, began in 2010 and became a central area of ocean-related work. Finally, negotiations mandated by the UNEA 5/14 resolution of 2022[22] to develop an International Legally Binding Instrument (ILBI) on plastic pollution, including in the marine environment, are advancing despite challenges in defining the scope and measures applicable to plastic pollution across its life cycle. These collective efforts demonstrate a renewed determination to revitalise our ocean and ensure a sustainable future for marine ecosystems and communities worldwide that depend on them.

[19] See https://unstats.un.org/sdgs/report/2024/The-Sustainable-Development-Goals-Report-2024.pdf

[20] See https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXI-10&chapter=21&clang=_en

[21] See: https://www.un.org/en/conferences/ocean2022

[22] The negotiations was mandated by the UNEA resolution 2022 to develop an International Legally Binding Instrument (ILBI) on plastic pollution, including in the marine environment. Negotiations will continue in 2025.

1.4 Potential recommendations member States and other participants of the 5th UN Ocean Forum could consider for submission to UNOC 2025

- Strengthen and expand the role of the Ocean Forum partners such as UNCTAD, FAO, UNEP, UNDOALOS, and other interested partners in developing relevant economic, environmental, and social indicators and providing regular data, including in the form of country profiles on production and trade of ocean-based goods and services, and strengthen national capacities to collect and compile those data.
- Ensure that the BBNJ Agreement and WTO FSA enter into force rapidly and strengthen the policy and legal framework supporting the implementation of SDG 14. Conclude phase two of the WTO fisheries subsidies negotiations as soon as possible and support the implementation of existing instruments with the support of UNCTAD and FAO.
- Intensify multilateral cooperation to accelerate the adoption and subsequent ratification of a United Nations treaty on plastic pollution by 2025.
- Incorporate climate resilience considerations in infrastructure planning and in NDCs and invest in resilient maritime transport and chokepoint infrastructure, services, equipment, as well as management practices that aim to build resilience and agility and allow industries and communities to better prepare to respond, cope, recover, and adapt to disruptions and shocks.
- Explore the possibility of developing an early warning system on disruptions of international maritime trade routes involving relevant United Nations agencies, including within the World Meteorological Organization (WMO).

Chapter 2

Decarbonisation of the Ocean Economy and Climate Change Adaptation and Resilience Building

According to the European Union Copernicus Global Climate Highlights 2024, 2023 was the warmest year on record for seawater surface temperatures, with an increase of 1.52 to 1.56 degrees compared to 1850 – 1900 levels.[23] All regions, particularly those on or close to the equator, are experiencing significant shifts in fish stock distribution due to ocean warming, ocean acidification, and extreme weather events reducing fish harvests and threatening food security. Deoxygenation and the loss of marine biodiversity are common threats affecting coastal communities dependent on fisheries.

Mean and extreme sea level rise is resulting in habitat loss and coastal erosion as well as damages to critical coastal infrastructure, such as ports, with implications for shipping and international trade and the sustainable development prospects of the most vulnerable countries, notably SIDS. Coastal tourism and maritime infrastructure and operations are particularly vulnerable to the effects of extreme weather events. More frequent and intense extreme weather events threaten essential infrastructure and livelihoods and lead to increases in economic losses and insurance premiums. Growing climate hazards necessitate urgent action to integrate clear adaptation strategies, strengthen infrastructure resilience, and advance research into adaptive fisheries management to mitigate their impact on ocean economies and global trade.

The ocean economy is both a victim of climate change and a significant contributor to Green House Gas (GHG) emissions. While critical data gaps remain, overall, it is estimated that the ocean economy in total contributes about 11 per cent of global GHG emissions. Coastal and marine tourism alone account for about 4 per cent, representing approximately 50 per cent of global tourism emissions.[24] Aggregated data for other ocean-based sectors indicate that shipping accounts for 2.9 per cent,[25] offshore oil and gas operations for 2.7 per cent,[26] fisheries[27] and aquaculture[28] for 0.5 per cent each, while mangrove deforestation adds 0.2 per cent.[29] For key sectors like port activities and shipbuilding, reliable data, especially time-series data, remain unavailable, hindering efforts to monitor, analyse and address the ocean economy's carbon footprint.

[23] Copernicus (2025). Global Climate Highlights 2024. See: https://climate.copernicus.eu/global-climate-highlights-2024

[24] High Level Panel for a Sustainable Ocean Economy. 2022. Advancing Action Towards Sustainable Coastal and Marine Tourism. Available at https://oceanpanel.org/wp-content/uploads/2022/06/Sustainable-Tourism-Full-Report.pdf.

[25] UNCTAD (2024c). Energy transition of fishing fleets: Opportunities and challenges for developing countries. Available at: https://unctad.org/system/files/official-document/ditcted2023d5_en.pdf.

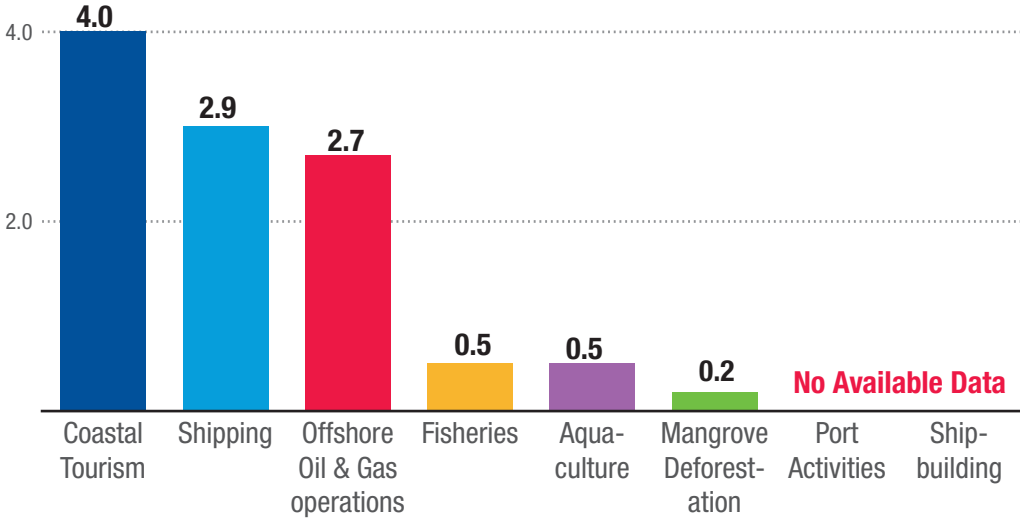
[26] IEA (2023). See: https://www.iea.org/reports/emissions-from-oil-and-gas-operations-in-net-zero-transitions.

[27] UNCTAD (2024c).

[28] FAO (2019). Quantifying and mitigating greenhouse gas emissions from global aquaculture. Available at: https://openknowledge.fao.org/server/api/core/bitstreams/5665da8b-0f77-4c2a-b987-1057d545e6ed/content.

[29] See https://www.fs.usda.gov/psw/publications/4154/psw_2011_donato001.pdf.

Figure 2.1
The ocean economy contributes to at least 11 per cent of global GHG emissions
Percentage change



Source: UNCTAD (2025) calculations based on UNCTAD (2024), High Level Panel for a Sustainable Ocean Economy (2022), FAO (2021), Donato et al., (2011), MacLeod et al. (2020), IEA (2024), Statista (2024)

Note: All are latest estimates available.

2.1 Maritime transport

With international shipping responsible for around 3 per cent of global GHG emissions, decarbonisation remains an urgent priority for the sector. Over the last decade, emissions have continued to grow, driven mainly by tankers, bulkers, general cargo carriers, and container ships. The IMO indicates that by 2050, maritime trade could increase between 40 per cent and 115 per cent in comparison to 2020 levels. With 99 per cent of the energy demand from the international shipping sector currently met by fossil fuels, if no action is taken GHG emissions could grow between 50 and 250 per cent by 2050 compared to 2008.[30]

Unlike most other sectors, international shipping is not referenced in the Paris Agreement. The global regulator for shipping, the IMO, adopted a Revised Strategy for Reduction of GHG Emissions from Ships in 2023, including clear ambitions for the sector's full decarbonisation by 2050.[31] According to the strategy, total annual GHG emissions should peak as soon as possible and reach net zero by or around 2050, with indicative targets for reductions in 2030 and 2040. While some short-term measures have already been adopted,[32] a proposal for a basket of candidate mid-term measures, including a global standard for marine fuels and a GHG emissions pricing mechanism, is currently under consideration at the IMO. UNCTAD estimates that decarbonising shipping by 2050 will require an additional annual investment of $8 billion to $28 billion and up to $90 billion to scale up fuel production, distribution, and bunkering infrastructure.[33] Increased investment in ship

[30] IMO (2020). Fourth IMO GHG Study 2020, IMO, London
[31] IMO (2023). Strategy on Reduction of greenhouse gas (GHG) emissions from ships. Available at https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/annex/MEPC%2080/Annex%2015.pdf
[32] See the Annex to the IMO GHG strategy
[33] UNCTAD (2023d). Review of maritime Transport 2023, Towards a green and just transition. Available at https://unctad.org/system/files/official-document/rmt2023_en.pdf

capacity, alternative fuels, energy efficiency equipment, green technologies, longer travel routes, lower sailing speeds, and smart sailing are all expected to result in increased maritime transport and logistics costs.

Based on the impact assessment of the proposed basket of candidate mid-term measures, stipulated by the IMO GHG Strategy, UNCTAD estimates that in 2050 maritime logistics costs for the transportation of SIDS exports will on average be 42 to 45 per cent higher than in a scenario without those measures, depending on the policy combination applied. For the transportation of their imports this difference will amount to 36 to 39 per cent. This is estimated to lead to a reduction of SIDS' imports by 0.26 to 0.30 per cent and of their exports by 0.07 to 0.08 per cent compared to the baseline scenario, resulting in a negative impact on GDP of 0.32 to 0.34 per cent. This impact is estimated to be considerably stronger for SIDS than for developed economies and developing economies, and some individual SIDS have been found to be much stronger affected than these averages suggest.[34]

Together with decarbonization, addressing the impacts of climate change on maritime transport infrastructure and operations is becoming an increasingly urgent imperative. Seaports are key nodes in global supply chains, providing access to global markets as well as the ocean economy, and vital to trade and sustainable development.[35] At the same time, these critical infrastructure assets are at the frontline of climate change.[36] Related impacts can result in significant damage, costly operational disruptions and delays across supply chains, with repercussions for commercial contracts[37] and insurance, as well as far-reaching consequences for international trade and the sustainable development of the most vulnerable nations,[38] such as SIDS that depend on their ports in the context of trade, energy, food, tourism and DRR.[39] In light of long infrastructure lifespans, worsening projections and the cost of inaction, timely adaptation is a matter of strategic economic importance and should be an urgent priority for all stakeholders. Multifaceted approaches to adaptation are required, including risk assessments, technical measures supportive policy and legal frameworks, finance and capacity-building.[40]

In this context, ensuring a just and equitable transition will require addressing the disproportionate negative impacts of policy measures on SIDS and LDCs, allowing equal access to the necessary infrastructure and technologies, supporting broader climate adaptation and climate mitigation efforts, and unlocking global opportunities for bio-fuel production.

2.2 Fisheries and aquaculture

Measuring emissions from the fisheries and aquaculture sector is complex and elusive due to the limitations of existing methodologies, the use of different criteria to determine vessel types or sizes, and the activities measured. Based on the IMO's analyses and the most recent academic studies, a recent UNCTAD report estimates that fishing vessels could contribute between 0.1 and 0.5 per cent of global GHG

[34] UNCTAD (2024e). Reduction of GHG emissions from ships, Report of the Steering Committee on the comprehensive impact assessment of the basket of candidate GHG reduction mid-term measures. Executive summary of the report on Task 3 (Impacts on States), MEPC 82/7/4/Add.3.
[35] Verschuur, J., Koks, E. E. & Hall, J. W. (2022). Ports' criticality in international trade and global supply-chains. Nat. Commun. 13, 4351. https://doi.org/10.1038/s41467-022-32070-0.
[36] Izaguirre, C., Losada, I.J., Camus, P. et al. (2021). Climate change risk to global port operations. Nat. Clim. Chang. 11, 14–20. https://doi.org/10.1038/s41558-020-00937-z.
[37] UNCTAD (2024b).
[38] UNCTAD SDG Pulse 2024 (https://sdgpulse.unctad.org/sustainable-transport/).
[39] Vousdoukas MI et al. (2023). Small Island Developing States under threat by rising seas even in a 1.5 °C warming world. *Nature Sustainability*. 6(12):1552–1564
[40] UNCTAD (2022); https://SIDSport-ClimateAdapt.unctad.org;

emissions.[41] They represent approximately 4 per cent of the carbon emissions generated by global food production due to their heavy reliance on fossil fuels.[42] Asia has the largest fishing fleet, producing the most CO2 emissions, followed by Europe and Africa. Global aquaculture accounted for an estimated 0.49 per cent of GHG emissions in 2017.[43] While mariculture generates 37.5 per cent of total aquaculture production, its contribution to GHG emissions is likely to be proportionally smaller, with most of the emissions situated upstream (e.g., feed production and processing) and downstream (e.g. packaging, refrigeration, and transport) of the supply chain. In its report, UNCTAD provided a range of recommendations for the energy transition of fishing fleets, ranging from establishing a globally harmonised system for data collection, monitoring and reporting of fishing fleet emissions to the adoption of renewable fuels. A first step could be to redirect fossil fuel subsidies towards the adoption of technologies improving energy efficiency.

2.3 Coastal and marine tourism

Reliable estimates of the emissions from travel and tourism globally remain elusive, with available estimates ranging from 8 to 11 per cent of global GHG emissions. These are mainly driven by air transport, accommodation, and cruise.[44] Coastal and marine tourism accounts for roughly 50 per cent of all global tourism. The sector thus roughly contributes 4 to 5.5 per cent to global GHG emissions. Overall, the industry has a higher carbon intensity of value added than major economic sectors such as manufacturing, construction, and other services. Globally, around 49 per cent of tourism-related emissions are generated by transport, an area where the transition to net zero is relatively slow due to its high dependency on fossil fuels. Besides transport, accommodation accounted for 6 percent of tourism emissions, retail for 12 percent, food and beverage for 9 percent, agriculture for 8 percent, services for 8 percent, the rest being generated by other sources including construction.[45] Cruise ships, which generate significant GHG emissions, are of particular concern.[46] Excessive coastal and marine tourism, in addition to generating a large carbon footprint, can contribute to the destruction of important ecosystems, with repercussions for carbon storage capacity, coastal buffer protection zones, and marine biodiversity.

2.4 Nationally Determined Contributions (NDCs) for sustainable export-oriented ocean economy sectors

In recent years, Nationally Determined Contributions (NDCs) have increasingly incorporated ocean-related mitigation and adaptation actions, particularly by developing countries, including SIDS. The approaching 2025 iteration of NDC submissions opens a unique opportunity to elevate the level of ambition and granularity of NDCs by promoting specific mitigation and adaptation targets within ocean sectors. Based on analyses by the Ocean Conservancy, figure 2.3 provides an overview of ocean-based climate solutions in NDCs identified in a review of 100 NDC submissions from coastal countries, 93 of which included at least one element associated with the ocean economy.

41 UNCTAD (2024c).

42 Parker R et al. (2018). Fuel use and greenhouse gas emissions of world fisheries. *Nature Climate Change*. 8(4): 333–337.

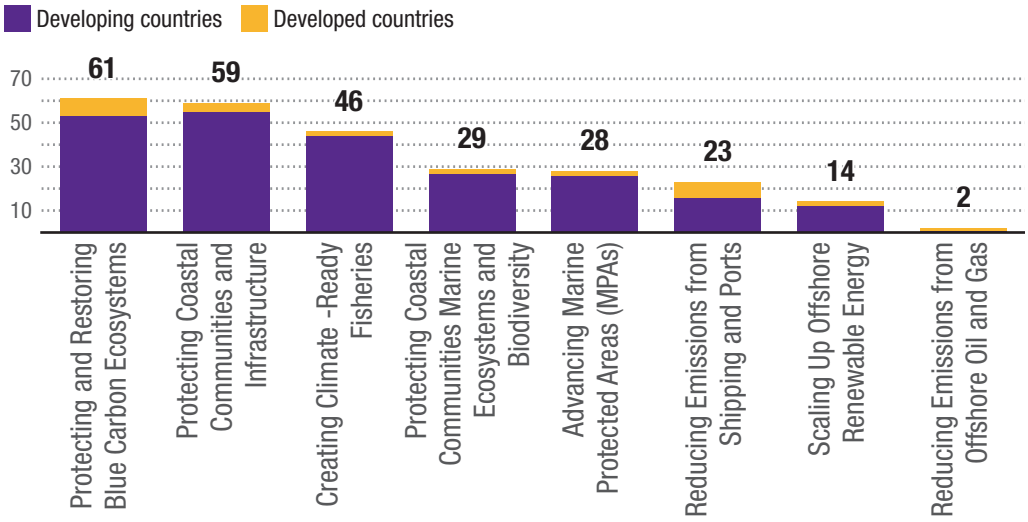
43 MacLeod et al. (2020). Quantifying greenhouse gas emissions from global aquaculture | Scientific Reports

44 World Travel & Tourism Council (2021). A Net Zero Roadmap for Travel & Tourism. Proposing a new target Framework for the Travel & Tourism Sector. London

45 World Tourism and Travel Council (2021) A Net Zero Roadmap for Travel and Tourism 2021. See: https://action.wttc.org/climate-environment

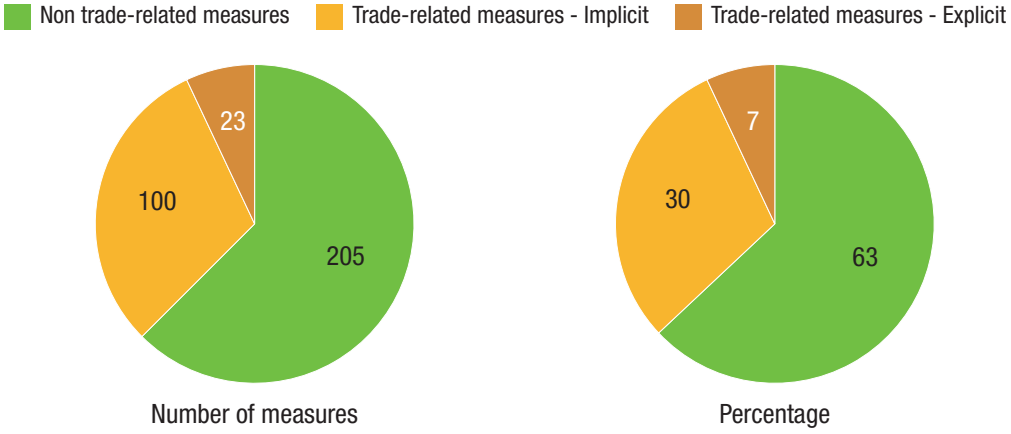
46 See https://theicct.org/marine-cruising-flying-may22/

Figure 2.2
Developing countries account for an overwhelming share of ocean solutions in NDCs[47]
Number of NDCs



Source: Ocean Conservancy, 2023.

Figure 2.3
37 per cent of measures in NDCs are trade-related
Number (left) and share (right)

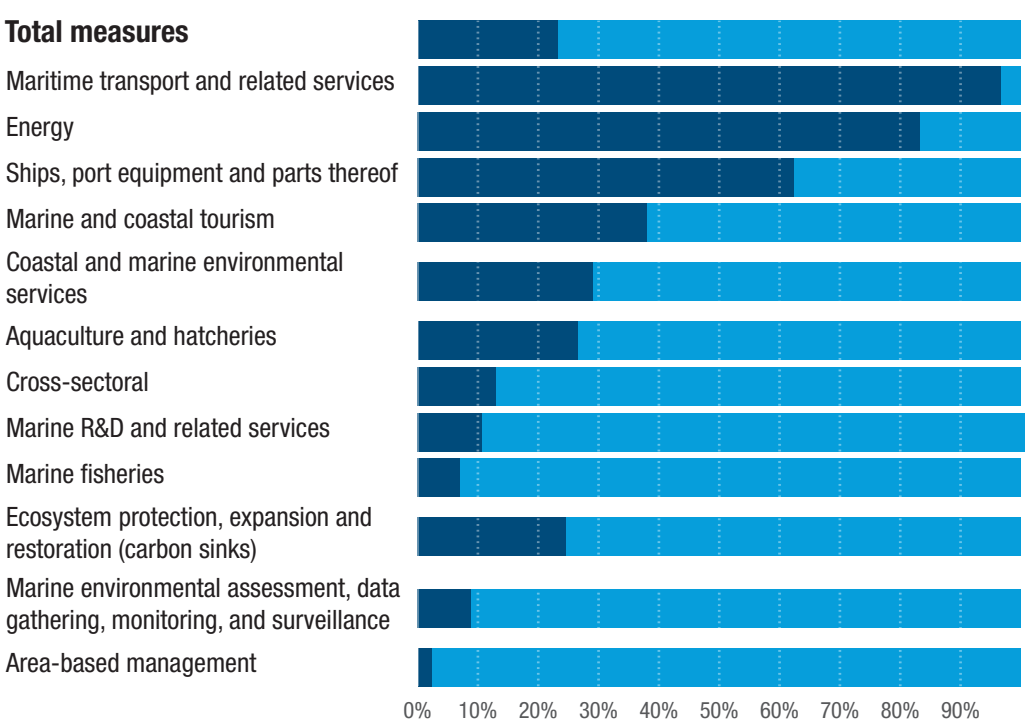


Source: UNCTAD's analysis (2024) based on UNFCCC's NDC Registry
Note: SIDS: Small Island Developing States; NDCs: Nationally Determined Contributions

UNCTAD undertook a detailed analysis of the most recent NDCs submitted by 39 SIDS prior to 2025. Overall, the analysis identifies 328 measures relating to the sustainable use of the ocean and 278 relating to ocean conservation. Of those total ocean-related measures, 77 per cent focused on adapting to the immediate effects of climate change and building long-term resilience, while mitigation measures accounted for the remaining 23 per cent (see figure 2.4).

[47] See https://oceanconservancy.org/climate/publications/ndcs/

Figure 2.4
77 per cent of ocean measures in SIDS' NDCs focus on adaptation
Percentage



Source: UNCTAD's analysis (2024) based on UNFCCC's NDC Registry

Note: SIDS: Small Island Developing States, NDCs: Nationally Determined Contributions

As shown in figure 2.3, only 37 per cent of NDCs' ocean economy measures incorporated instruments related to international trade, such as tariffs, non-tariff measures, subsidies, or other blue policies affecting trade, revealing an untapped potential of international trade in supporting SIDS in their mitigation and adaptation efforts.[48] To be sure, trade policies and measures can positively support climate action, for example, such as by reducing transport emissions, improving traceability to curb illegal fishing, and reducing and phasing out harmful fisheries subsidies. Notably, 64 per cent of ocean-related measures depend on financial, technical, or other international support, highlighting the necessity for solidarity in assisting SIDS in their climate action.

2.5 Potential recommendations member States and other participants of the 5th UN Ocean Forum could consider for submission to UNOC 2025

- Enhance and expand the availability of source data for the UNCTAD Ocean Trade Database, FAO FishStatJ, IMO, and UNFCCC data, with a view to develop more comprehensive GHG emissions-related databases for the ocean economy.
- Support developing countries, in particular SIDS and LDCs, through targeted investments, innovative solutions, affordable technologies, finance, and

[48] UNCTAD (2024f). A deep dive into ocean-related measures in the nationally determined contributions of small island developing States. Available at https://unctad.org/publication/deep-dive-ocean-related-measures-nationally-determined-contributions-small-island

international collaboration to ensure the equitable decarbonisation and resilience-bulding of the ocean economy.

- Support developing countries, particularly vulnerable economies such as SIDS and LDCS, in adapting to climate change and leveraging opportunities for sustainable production and trade in ocean goods and services.
- As countries prepare their 2025 NDCs, provide tools and capacity building to support the greater integration of international trade, ocean economy and climate resilience strategies to unlock transformative opportunities for sustainable growth and infrastructure development.
- Assist countries in navigating the energy transition to low carbon emissions through formation of policies suited to cope with the changes in average and relative costs due to GHG reduction measures and to leverage any comparative advantages in renewable energy production.

Chapter 3

The Potential of South-South Trade in Fisheries and Aquaculture Products

Over the last three decades, South-South merchandise trade has grown faster than the world average, from $500 billion in 1995 to $5.7 trillion in 2023. Today, South-South trade is one of the leading forces responsible for growth and development, and plays a critical role in achieving progress on the SDGs.[49] The Global System of Trade Preferences (GSTP) among developing countries, established in 1989, provides a unique framework that could foster South-South cooperation on trade through preferential tariff reductions and cooperation around para-tariffs, non-tariff measures, medium and long-term contracts or sectoral agreements.

The GSTP is yet to be implemented; it currently encompasses 42 countries[50] and forms a potential US$16 trillion market with a population of 4 billion. The last round of negotiations concluded with adopting the 2010 São Paulo Round (SPR) Protocol, under which 8 participants (11 countries including four member States of Mercosur) exchanged tariff concessions.[51] Beyond pure market access considerations, the GSTP provides a valuable platform that could be used by developing countries to leverage broader South-South trade cooperation to respond to critical contemporary challenges such as the climate crisis, disruptions in physical connectivity, and food insecurity.

3.1 The rise of South-South trade in fisheries and aquaculture products

Fisheries are vital to South-South trade and global food security, with developing economies such as China, Chile, Indonesia, Viet Nam, and India leading global exports in processed fish and seafood products. Fisheries sustain 600 million livelihoods worldwide, significantly benefiting women and other individuals in LDCs.[52] In 2023, developing country exports of primary marine fisheries, aquaculture, and hatcheries reached $47 billion - out of $114 billion for global exports. These countries also accounted for roughly half of global exports of processed fisheries and seafood ($46.5 billion out of $88 billion globally). Between 2012 and 2023, trade in processed fisheries grew at nearly twice the rate (79 per cent) of trade in marine fisheries (42 per cent) (See figure 3.1).

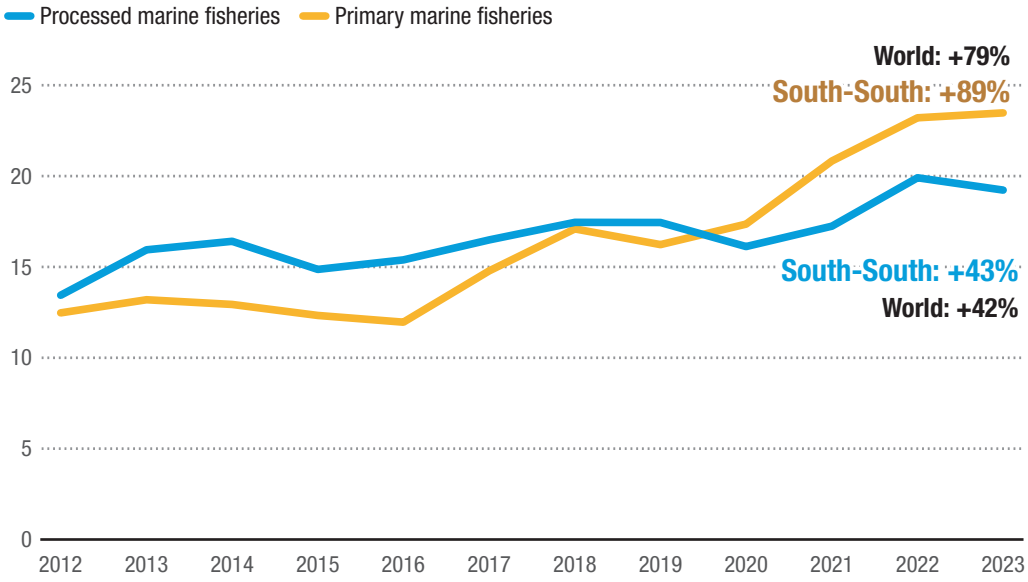
[49] UNCTAD (2024g). South- South trade in the marine fisheries and aquaculture sectors. Available at https://unctad.org/publication/south-south-trade-marine-fisheries-and-aquaculture-sectors

[50] Algeria, Argentina, Bangladesh, Benin, the Plurinational State of Bolivia, Brazil, Cameroon, Chile, Cuba, the Democratic People's Republic of Korea, Ecuador, Egypt, Ghana, Guinea, Guyana, India, Indonesia, the Islamic Republic of Iran, Iraq, Libya, Malaysia, Mexico, Morocco, Mozambique, Myanmar, Nicaragua, Nigeria, Pakistan, Peru, Philippines, Republic of Korea, Singapore, Sri Lanka, Sudan, Thailand, Trinidad and Tobago, Tunisia, the United Republic of Tanzania, the Bolivarian Republic of Venezuela, Viet Nam, Zimbabwe, and Mercosur.

[51] These are Argentina, Brazil, Paraguay and Uruguay (forming Mercosur), the Republic of Korea, India, Indonesia, Malaysia, Egypt, Morocco and Cuba. The tariff concession modalities call for "an across-the-board, line-by-line, linear cut of at least 20 per cent on their dutiable tariff lines" applicable to "the valid MFN tariff applied on the date of importation" covering "at least 70 per cent of their dutiable tariff lines". For the full text of the Protocol, see https://unctad.org/system/files/official-document/gstp-sprncfozd3_en.pdf.

[52] World Bank (2024). Oceans, Fisheries and Coastal Economies.

Figure 3.1
South-South marine fisheries exports have outpaced global export growth
Billion dollars (left axis) and growth rate 2012–2023



Source: UNCTAD (2025) Ocean trade database.

3.2 Trade barriers affecting South-South trade

Average customs duties levied by GSTP governments on imported fisheries and aquaculture products vary from 3.5 per cent on fishing vessels to over 20 per cent on certain processed products[53]. Overall, the sector still faces tariff escalation, with higher rates being applied on more processed products such as prepared or preserved fish, crustaceans, and molluscs. This reflects domestic sensitivities and political economy considerations to protect the livelihood of producers or encourage domestic transformation and processing.

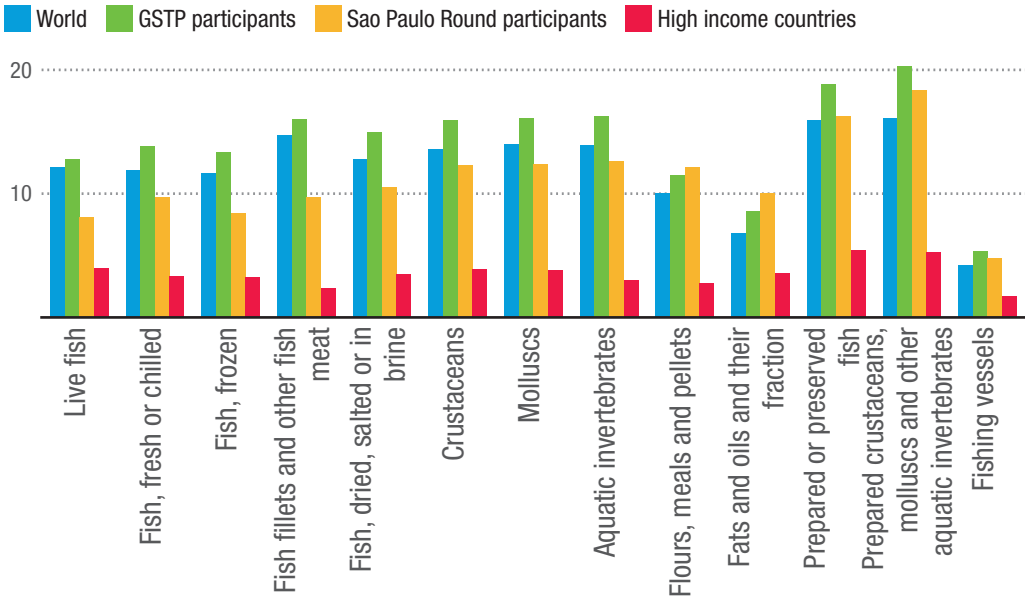
However, developing countries tend to face higher tariff barriers when exporting to GSTP participants. This is particularly the case for the most processed products, which are among the most heavily traded among developing countries. To illustrate this point, figure 3.2 provides an overview of tariffs applied on a most favoured nation (MFN) basis at the 4-digit level of the harmonised system (HS) by GSTP participants, participants in the São Paulo Round Protocol, high-income countries, and the world in general.[54] It shows an untapped potential for cooperation among GSTP participants to stimulate further South-South trade.

[53] UNCTAD (2024g).
[54] It should be noted, however, that tariffs effectively applied among GSTP participants do not always correspond to MFN applied rates. Over the years, some GSTP participants have negotiated free trade agreements among themselves as part of regional integration processes or in the context of bilateral relations covering around 20 per cent of the bilateral trade relations among GSTP participants.

Figure 3.2

GSTP participants maintain on average higher applied MFN tariffs on fisheries and aquaculture products

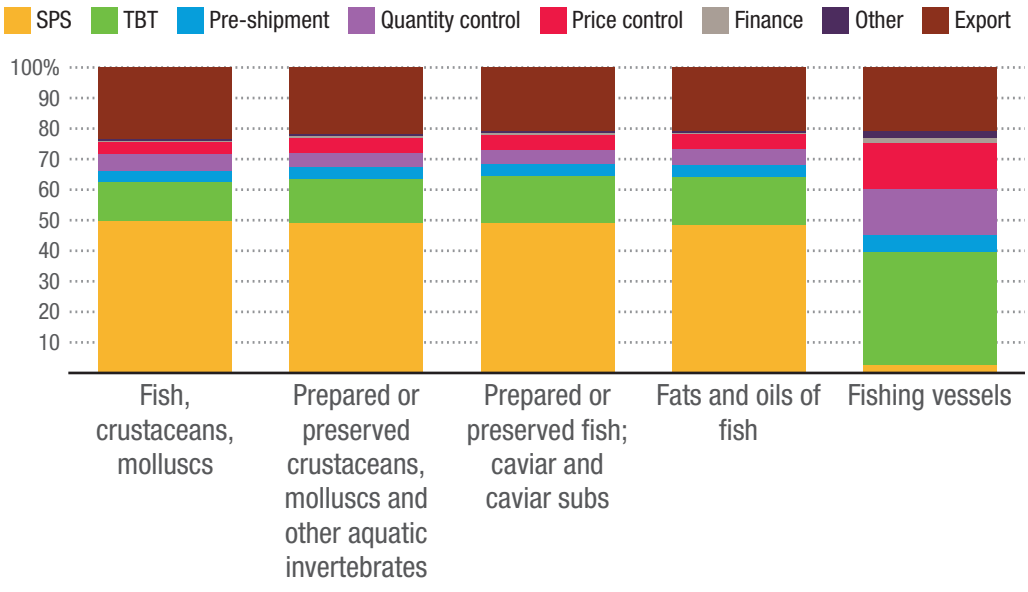
Ad valorem applied MFN tariffs (%)



Source: UNCTAD. 2024. Elaboration based on the World Integrated Solution Database (WITS).

Figure 3.3

Half of non-tariff measures on fisheries are sanitary and phytosanitary



Source: UNCTAD calculations, 2024, based on UNCTAD TRAINS data.

Beyond tariffs, imported goods must comply with several NTMs. Figure 3.2 illustrates the type of NTMs applied to fisheries and aquaculture products in developing countries (UNCTAD TRAINS database).

However, the data does not indicate whether these measures are protectionist or necessary to achieve legitimate objectives such as safeguarding human health or safety, or protecting the environment. It

also does not reveal whether compliance with those measures entails any significant cost. In some cases, one single NTM may be particularly difficult to comply with and effectively block trade, while in other instances, complying with several NTMs may not result in significant transaction costs.

3.3 The potential benefits of enhanced South-South trade cooperation

Exports and imports of fisheries and aquaculture products among GSTP participants rarely compete in specific species, as they are in different seas, ecosystems, and geographical latitudes. GSTP participants also tend to have different consumption habits regarding species. Revealed comparative advantages show that many countries have a comparative advantage in fishery products, with few overlapping products. All these elements show a high complementarity among GSTP members and point to the high potential for further growth in trade by addressing existing trade obstacles. South-South trade, especially when regional and for SIDS, would help reduce transport costs and emissions.

3.4 Potential recommendations member States and other participants of the 5th UN Ocean Forum could consider for submission to UNOC 2025

- Revitalise and make effective use of the GSTP and other South-South cooperation platforms, including a new round of negotiations on sustainable ocean-based products from the perspective of the South.
- Expand market access in complementary sustainable ocean-based products to improve access, availability, and affordability of critical products from a food and nutrition security perspective and reduce tariff escalation to foster diversification and value addition.
- Undertake a survey and qualitative market access assessment of NTM in fisheries and aquaculture products affecting South-South trade involving local producers with the support of UNCTAD and FAO.
- Address NTMs by fostering mutual recognition of catch records and reporting requirements at vessels, and in landing ports to streamline border procedures, expedite goods movement, and reduce waste.
- Explore sectoral cooperation to improve the environmental sustainability of fisheries through exchanges of best mitigation and adaptation measures practices for fisheries and aquaculture.

Chapter 4

Trade Policies and Tools for Innovative Marine-Based, Sustainable, and Low-Carbon Product

Marine-based innovation offers a vast potential for sustainability and economic growth. With only 5 per cent of the ocean floor explored and documented,[55] the ocean remains a largely untapped source of high-value resources that can support climate objectives and sustainable development goals. Innovations such as bio-based alternatives to plastics, renewable energy technologies, and sustainable aquaculture systems reduce emissions and pollution and create opportunities to fund critical ecosystem restoration projects. Advancing such products requires increased investment in research, partnerships, and policies prioritising sustainable marine solutions.

4.1 Transforming the marine and aquatic food sector to end hunger

As highlighted in the latest FAO State of World Fisheries and Aquaculture (SOFIA) 2024,[56] the contribution of aquatic foods to global food security and nutrition continues to increase, with aquaculture holding the potential to meet the growing demand for aquatic foods globally. Mariculture products offer a climate-friendly, high-protein food source, as they often have lower GHG emission footprints compared to the equivalent products farmed on land. With the world's population projected to increase to 9.7 billion by 2050, the global supply of aquatic food will need to increase by 22 per cent globally and up to 74 per cent in Africa to meet current per capita consumption rates. This will require significant investments and transformation in the sector, as envisaged by the FAO Blue Transformation Roadmap.[57]

More specifically, in coming years, transforming the sector will require (i) sustainable aquaculture expansion and intensification that meet the global demand for aquatic foods while ensuring equitable distribution of benefits and minimise impact on ecosystems; (ii) effective management of all fisheries, ensuring healthy stocks and equitable livelihoods; and (iii) upgraded aquatic value chains that guarantee the social, economic and environmental sustainability of aquatic food systems.[58] To support this transition, the Social and Solidarity Economy (SSE) models can ensure a just transition and promote sustainable and equitable practices while helping to preserve ecosystems (see box 4.1).

Trade and trade-related policies will be fundamental in this transformation (see, for example box 4.2 on the case of Blue BioTrade). Aquatic animal products represent some of the most extensively traded food commodities globally. The proportion of total aquatic animal production entering international trade has increased significantly. [59] It rose from 25 per cent in the mid-1970s to approximately 38 per cent in 2022 – attesting to the sector's increasing integration into the global economy.

Innovative trade-related tools to support this transition include the FAO guidelines for Sustainable Aquaculture (GSA). Upgraded aquatic value chains will also require innovations, including innovative and technologically inclusive approaches to traceability and certification, as well as the reduction of fish loss and waste.

55 UNESCO (2022). See https://oceanliteracy.unesco.org/ocean-biodiversity/
56 FAO (2024).
57 FAO (2022). Blue Transformation - Roadmap 2022–2030: A vision for FAO's work on aquatic food systems. Rome. Available at https://doi.org/10.4060/cc0459en
58 Ibid.
59 FAO (2024).

Box 4.1
Improving sustainable and inclusive practices in small-scale fisheries by supporting social and solidarity entities

SSE plays a pivotal role in addressing pressing global challenges by advancing economic growth, promoting decent work, and fostering sustainable, inclusive practices. In 2023, the United Nations General Assembly adopted the resolution "*Promoting the Social and Solidarity Economy for Sustainable Development*" (A/RES/77/281)[60] with the support of the co-chairs of the United Nations United Nations Inter-Agency Task Force on Social and Solidarity Economy (UNTFSSE). It defines SSE as encompassing "*enterprises, organisations and other entities that are engaged in economic, social and environmental activities to serve the collective and/or general interest, which are based on the principles of voluntary cooperation and mutual aid, democratic and/or participatory governance, autonomy and independence and the primacy of people and social purpose over capital in the distribution and use of surpluses and/or profits, as well as assets*".

SSE entities help ensure the viability of local economies, improve access to essential services, address global challenges such as climate change while ensuring social inclusion, and empower marginalised communities while contributing to a more resilient and equitable society. In the small-scale fisheries sector, structuring networks of producers, fisheries, and aquatic value chains around the values and principles of social and solidarity economy models makes it possible to place cooperation, mutual support, and social and environmental impact at the heart of practices. For example, cooperatives are working to promote a sustainable fishing model for local communities in the Mexican State of Quintana Roo. They coordinate fishing activities, helping members to launch their businesses while ensuring coordinated, sustainable management of marine resources.[61]

Source: UNCTAD compilation (2024).

Box 4.2
Promoting sustainable livelihoods and conservation of marine biodiversity in the Caribbean

Blue BioTrade aims to promote trade and investment in marine biological resources in line with the social, economic and environmental dimension of sustainable development, known as the BioTrade. Integrating BioTrade principles and criteria (2020) into the marine environment can promote the sustainable use of scarce and vital oceanic living resources and can lessen the negative impacts of human and economic activity over marine ecosystems. In 2020, UNCTAD, the Organisation of Eastern Caribbean States (OECS) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) joined forces to design a pilot project to test the application of the revised BioTrade Principles (2020) in the Queen Conch value chain. Queen conch is a highly appreciated seafood delicacy with important non-food uses, including therapeutic products and handicrafts. While global demand is booming, in many locations, early uncontrolled harvesting has resulted in overfishing, illegal landings and a rapid deterioration of stocks. The absence of certification schemes and traceability systems limits access to markets – in particular international buyers – and constitute a significant challenge. The project empowered small-scale coastal producers in the Caribbean to sustainably manage, harvest, and legally trade queen conch products in domestic, regional and international markets under the Blue BioTrade environmental, social and economic sustainability criteria.

Source: https://unctad.org/project/blue-biotrade-promoting-sustainable-livelihoods-and-conservation-marine-biodiversity

[60] https://documents.un.org/doc/undoc/gen/n23/118/68/pdf/n2311868.pdf
[61] UNDP (2012). Fish Production Cooperative Societies of Cozumel and Vigia Chico. Equator Initiative Case Study Series. New York, NY.

4.2 Reducing plastic pollution through marine-based non-plastic substitutes and alternatives

UNEP estimates that plastic accounts for 85 per cent of marine litter and warns that by 2040, volumes of plastic pollution flowing into marine areas will nearly triple, adding 23-37 million metric tons of plastic waste into the ocean annually.[62] From microplastics to larger plastic items like bottles and bags, these pollutants pose a threat to marine life, the food chain, human health, and the delicate balance of the planet's aquatic environments.

Marine-based non-plastic substitutes and alternatives (MBSAs) derived from seaweed, algae, or marine minerals offer great potential to replace conventional plastics in various applications. They can represent viable alternatives to fossil fuel-based plastics due to their biodegradability, functionality, and relatively low environmental footprint.[63] The potential applications are vast. For example, microalgae and other microorganisms show strong potential as a source of biopolymers, such as polyhydroxyalkanoates, which are used directly as building blocks for bioplastics.[64] Conversely, inorganic compounds such as minerals can serve as inputs to produce non-plastic substitutes. For example, high-purity silica sands have broad applications in producing glass, an insulating and non-toxic material.[65] Also varios biodegradable alternative materials to plastics are being developed and tested in developing countries to reduce the impacts from lost or discarded fishing nets (box 4.3).

Box 4.3:
Replacing Harmful Polyethylene Fishing Nets with Biodegradable Nets

Plastic pollution, particularly from lost or discarded fishing nets—often referred to as "ghost nets"—is one of the most significant sources of plastic waste in the ocean. These nets pose a serious threat to marine life and coral reefs. It is estimated that discarded fishing nets contribute approximately 0.6 million tons of plastic waste to the ocean each year. To address this issue, the UK-FCDO-UNCTAD Sustainable Manufacturing and Environmental Pollution (SMEP) programme, in collaboration with GAIA Biomaterials and partners in South Africa, is developing biodegradable fishing nets as a sustainable alternative to traditional polyethylene nets. These innovative nets are designed to match the performance of conventional fishing nets while offering an eco-friendly advantage—if lost or discarded, they break down into biomass without releasing harmful toxins or microplastics. By integrating technological innovation, awareness campaigns, and policy development, this initiative aims to help the fishing industry adopt more sustainable practices, reducing its impact on marine ecosystems and promoting ocean conservation.

Source: SMEP Programme and FAO & UNEP (2009) – Abandoned, lost, or otherwise discarded fishing gear.

From a development perspective, trade in MBSAs also offers significant potential ranging from job creation, economic diversification, and improved livelihoods, particularly for youth and women, as well as fostering indigenous innovation and resilience to economic and environmental shocks. Recent UNCTAD research

[62] UNEP (2021). From Pollution to Solution: A global assessment of marine litter and plastic pollution. Nairobi. Available at https://www.unep.org/resources/pollution-solution-global-assessment-marine-litter-and-plastic-pollution

[63] UNCTAD (forthcoming) Leaving the shore: Marine-based substitutes and alternatives to plastics.

[64] Song, H.M. et al. (2022). Production of polyhydroxyalkanoates containing monomers conferring amorphous and elastomeric properties from renewable resources: Current status and future perspectives. Bioresource Technology, vol. 366 (2022). Available at https://doi.org/10.1016/j.biortech.2022.128114.

[65] See UNCTAD (forthcoming).

reveals that the global export market for MBSAs is still relatively small compared to the global plastics market. In 2022, it amounted to $10.8 billion, representing 1 per cent of global plastics exports and 14 per cent of synthetic polymer exports.[66] The participation of coastal developing countries in this market has increased over time. Four of the 10 top exporters are developing economies (China, Indonesia, the Republic of Korea, and the Philippines).

Despite their environmental benefits, all MBSAs except marine minerals are subject to higher tariffs and more stringent NTMs than conventional plastics, limiting their competitiveness in international markets. For example, marine invertebrates, shells, and coral face relatively high tariffs at 12.8 per cent and 8.1 per cent, respectively. MBSAs are also significantly more impacted by NTMs than synthetic plastic polymers. They face up to five times more NTMs than their synthetic equivalents at the global level. Besides trade barriers, other challenges include cost competitiveness, access to affordable technology, and sustainable harvesting practices.[67] Robust supply chains need to be established, with targeted investments in research and development and public-private partnerships to support the growth of the sector. Finally, with sustainability being a key driver for the development of MBSA, the industry requires appropriate policy frameworks that enable fair supply chain relationships and sound natural resource management. In this context, life cycle assessments (LSA) are critical to ensure that the environmental benefits of MBSAs, such as the low carbon footprint in production, are not offset by unfavourable impacts at other life cycle stages. UNCTAD created a LSA trade and pollution dashboard for African and South Asian countries.[68]

4.3 The seaweed sector as a vector for economic growth, environmental sustainability, and women's economic empowerment

Seaweed farming and processing can increase economic income, enhance food security, preserve marine biodiversity, and empower women. In addition to plastic alternatives, its multiple uses include food, nutraceuticals, cosmetics, pharmaceuticals, aquatic animal or livestock feed, biofertilisers, textiles, and fourth-generation biofuels.[69] The global seaweed market has more than tripled in the last two decades, growing from $5 billion in 2000 to $17 billion in 2022, with the Asian region dominating the trade.[70] Exports, however, only represented 22 per cent of the market, indicating that seaweed remains primarily produced for domestic consumption with untapped trade potential.[71] Tariffs and NTMs also hinder the development of downstream markets. The average most-favoured-nation (MFN) tariff applied to raw seaweed and algae is about 6 per cent - higher than that applied to algae-based bioplastics. At the same time, countries continue to classify seaweed-based products as food, subjecting them to NTMs that are not necessarily needed for non-food applications such as packaging. These include SPS measures, which often require certifications that can be both costly and complex to obtain.[72]

While today, most farmed seaweed is used for direct human consumption, as fresh feed in aquaculture, or as hydrocolloids, seaweed-farmed products may be able to displace fossil fuels in sectors such as fabrics and plastics. The most promising new applications include bio-stimulants,

66 Ibid
67 Ibid
68 See https://smepprogramme.org/dashboard-shows-environmental-impacts-of-exports-from-african-and-south-asian-countries/
69 UNCTAD (2024h). An Ocean of Opportunities: The Potential of Seaweed to Advance Food, Environmental and Gender Dimensions of the SDGs.
70 Ibid and FAO (2024).
71 Ibid.
72 UNCTAD (forthcoming).

animal feed, pet foods, and methane-reducing additives - a market that could reach $4.4 billion by 2030.[73] According to UNCTAD, this economic potential provides critical opportunities for income diversification, new business activities, and local employment, with several case studies showing how the sector has been a key driver of women's, youth, and Indigenous Peoples' empowerment in coastal communities of developing countries, including through SSE entities.[74]

Today, the industry is dominated by Asia, including China, Indonesia, the Republic of Korea, and the Philippines, but emerging regional champions include the United Republic of Tanzania in Africa and Chile in Latin America. Exploiting the full potential of the seaweed sector will require active policies integrated into marine spatial planning, national development plans, and in NDCs. Scaling up sustainable production will require coordinating technical assistance and adequate policy infrastructure, including harmonising legal frameworks and standards, linking private sector investors with affordable technologies and environmental requirements, and promoting South-South cooperation. Creating a United Nations Task Force on seaweed to enable system-wide coordination and technical support in this emerging sector, including UNCTAD, FAO, UNIDO, UNEP, and UN Compact can facilitate this coordination.

4.4 Fostering sustainable coastal and marine tourism

Coastal and marine tourism is a critical economic sector for most SIDS and some coastal states. The sector is already the most traded ocean economy sector, and it is expected to become the largest in terms of gross value added by 2030. It employs approximately 8.5 million people, superseded only by small-scale fisheries in terms of employment.[75] It also provides vital socio-economic opportunities, such as increased living standards, employment, diversification, and socio-cultural benefits for local communities. At the same time, the sector's high dependence on the quality of coastal and marine ecosystems to attract visitors makes it highly vulnerable to environmental threats such as climate change, pollution, and biodiversity loss.[76] The COVID-19 pandemic highlighted this unique fragility, particularly in SIDS, calling into question the economic viability of the traditional mass tourism model characterised by high levels of economic leakage, seasonality, and vulnerability to natural and economic shocks.

Ensuring that the tourism sector contributes to a more sustainable ocean economy will require reducing the negative impacts on the local environment, economy, and community while regenerating ecosystems and building resilience to future shocks and crises. Some examples are already emerging (see box 4.4). However, they remain isolated and do not occur at the scale necessary for the systemic transformation needed to ensure the sector's sustainability. Systemic change will require long-term government policy and regulatory commitments to attract and support investments targeting sustainable and regenerative forms of tourism, including from SSE entities, and provide the stability needed by the private sector to pursue new business models confidently.

[73] Ibid.
[74] UNCTAD (2024h).
[75] High Level Panel for a Sustainable Ocean Economy (2022). Advancing Action Towards Sustainable Coastal and Marine Tourism. Available at https://oceanpanel.org/wp-content/uploads/2022/06/Sustainable-Tourism-Full-Report.pdf
[76] Ibid.

Box 4.4:
Palau carbon neutral destination program

Sustainable Travel International is implementing a project in partnership with Slow Food and the Palau Bureau of Tourism to help the archipelago become the world's first carbon neutral destination. The project provides an online platform that will enable tourists to calculate the carbon footprint of their trip to Palau, including flights, lodging, dining, excursions, and ground transport. Visitors will be able to offset their carbon footprint by contributing to conservation projects. These projects will reduce emissions and boost climate resilience by protecting and restoring coastal ecosystems that act as blue carbon sinks and natural storm barriers. At the same time, the project aims to improve the livelihoods of local food producers and increase local food security by supporting the capacity of local farmers, fishers, and other producers to produce high quality products and market them to tourism businesses including hotels and restaurants.

Source: https://sustainabletravel.org/

4.5 Potential recommendations member States and other participants of the 5th UN Ocean Forum could consider for submission to UNOC 2025

- Promote the implementation of the FAO, Blue Transformation Roadmap, in cooperation with UNCTAD and UNEP, by fostering the production and trade of sustainable aquaculture products, ensuring effective management of marine fisheries with healthy stocks and inclusive and sustainable livelihoods, and upgrading aquatic value chains.
- Encourage the adoption of the FAO Guidelines for Sustainable Aquaculture (GSA) and the UNCTAD Blue BioTrade Principles and Criteria to guide innovation and transformation of the aquatic food sector and support implementing programmes that allows SSE entities to increase offering.
- Facilitate trade, investment, and innovation over marine-based non-plastic substitutes and alternatives derived from seaweed, algae, and marine minerals to replace conventional plastics. Address barriers to market development, such as high production costs, including through the creation of a United Nations Task Force on Seaweed.
- Encourage action aimed at simultaneously reducing the negative impacts of tourism on the local environment, economy, and community; regenerating ecosystems, local markets, and communities; and building resilience to threats and future shocks and crises

Chapter 5

Blue Finance for Sustainable Ocean Economies

Supporting a fair and inclusive transition to sustainable ocean economies. This will require using traditional and innovative financial mechanisms, including core public concessional and grant finance, risk management tools, and blended finance. According to recent estimates, $175 billion per year will be the minimum needed to achieve SDG 14 by 2030 (see also box 5.1).[77]

In practice, however, with less than $30 billion effectively disbursed since 2010, SDG 14 remains the least funded of all SDGs.[78] While different forms of private finance are readily available for tradicional ocean economic activities that can viably capture revenues, manage risks, and earn profits, such as aquacultures, seafood processing, shipping, and port services, or coastal and island tourism; other essential activities such as conserving coastal and marine ecosystems, wastewater management and other pollution controls remain underfunded. Public finance through Official Development Assistance (ODA), grants, private philanthropy, or highly concessional loans remain crucial for these activities but are financed less. According to the OECD, in 2022, total climate finance provided and mobilized for developing economies amounted to $115.9 billion, for the first time exceeding the annual $100 billion goal. However, of this total, only $32.4 billion, (28 percent) was for adaptation. [79]

In 2022, ODA commitments to the sustainable ocean economy totalled $2.4 billion[80] and remained unchanged between 2017 and 2022. During the same period, philanthropic contributions added just over $1 billion, accounting for less than 1 per cent of global philanthropic funding,[81] while private sector finance showed modest growth, increasing from $311.8 million in 2017 to $409.2 million in 2022 (see figure 5.1).[82] The slow development in blue finance sourcing highlights the pressing need for transformative investments to address the growing challenges facing the sustainable ocean economy. The 5th UN Ocean Forum in Geneva, the Blue Economy and Finance Forum in Monaco, the United Nations Ocean Conference in Nice, and UNCTAD16 Conference will represent critical opportunities to drive new commitments, political impetus, and partnership building.

[77] Johansen, Despina F., Rolf A. Vestvik (2020). The cost of saving our ocean - estimating the funding gap of sustainable development goal 14, Marine Policy: Volume 112, Elsevier, 2020, https://doi.org/10.1016/j.marpol.2019.103783

[78] See OECD SDG Financing Lab

[79] OECD (2024), *Climate Finance Provided and Mobilised by Developed Countries in 2013-2022*, Climate Finance and the USD 100 Billion Goal, OECD Publishing, Paris, https://doi.org/10.1787/19150727-en.

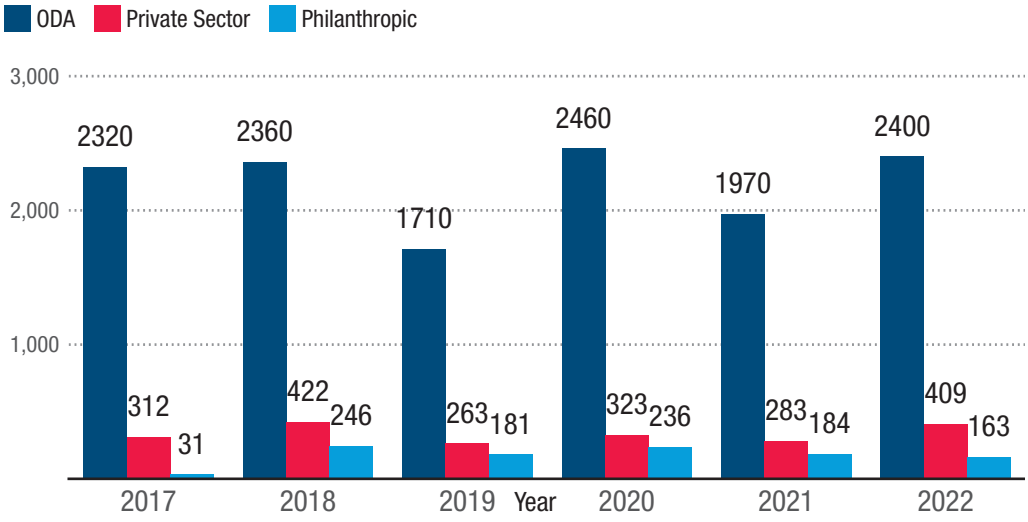
[80] OECD (2024). Data Platform on Development Finance for the Sustainable Ocean Economy.

[81] Ibid.

[82] Ibid.

Figure 5.1
Ocean economy ODA, private sector and philanthropic contributions only reached $3 billion in 2022

Million $



Source: UNCTAD (2025) calculations based on OECD data.

Box 5.1:
Financing needs for a transition to a sustainable ocean economy

As an illustration of particular financing needs to achieve a sustainable ocean economy, the Marrakesh Partnership and the UN High Level Climate Champions have identified a set of 'Ocean Breakthroughs' across key areas and sectors of the ocean economy for priority action, including indicative financing goals. Together, these investments could deliver up to 35 per cent GHG emissions reduction and contribute to a resilient, nature-positive, and net zero future by 2050. Examples of these action include:

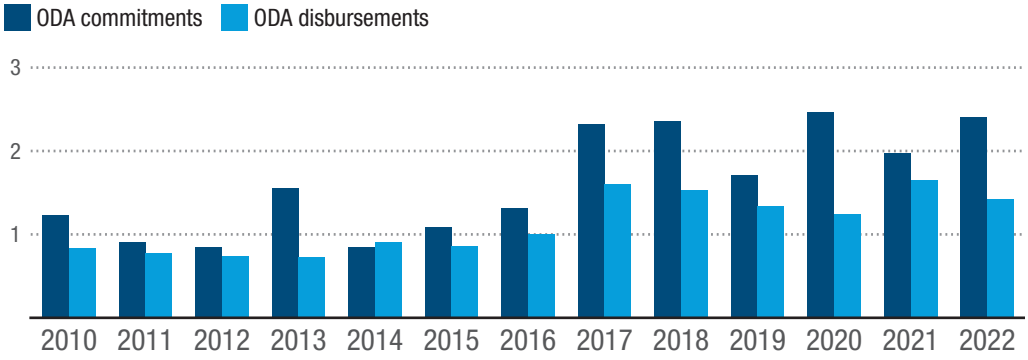
- Marine Conservation: The protection, conservation and/or restoration of coastal and marine ecosystems such as mangroves, seagrasses and saltmarshes can significantly contribute to achieving the long-term temperature goal of the Paris Agreement. It also delivers numerous co-benefits for local communities and provides natural buffers against coastal erosion or the impacts of extreme weather events. The initiative calls for investments of at least $72 billion by 2030 to secure the integrity of ocean ecosystems by protecting, restoring, and conserving at least 30 per cent of the ocean.
- Ocean Renewable Energy: As the most mature ocean-based energy technology, offshore wind offers a promising pathway to deliver on both the goals of the Paris Agreement and Kunming-Montreal Global Biodiversity Framework. In this area, the initiative calls for mobilising $10 billion in concessional financing for developing economies to install at least 380 GW of offshore wind capacity by 2030.
- Aquatic Foods: With 17 per cent of the population relying on aquatic food for its protein intake, the initiative calls for at least $4 billion per year to support resilient aquatic food systems that contribute to healthy, regenerative ecosystems, and sustain the food and nutrition security for three billion people.

Source: https://climatechampions.unfccc.int/system/oceanbreakthroughs and https://ocean-climate.org/en/launch-of-the-ocean-breakthroughs-5-pathways-to-catalyse-action-to-achieve-a-healthy-and-productive-ocean/

Figure 5.2 shows ODA commitments and disbursements to the benefit of a sustainable ocean economy between 2010 and 2022. While commitments have roughly doubled in that period to reach $2.4bn in 2022, they only represent 0.82 per cent of total ODA commitments and 0.51 per cent of total disbursements. They fall short of what is needed. They are also primarily outweighed by harmful fisheries subsidies estimated at $22bn in 2018.[83]

Figure 5.2
Sustainable ocean economy ODA disbursements have lagged ODA commitments

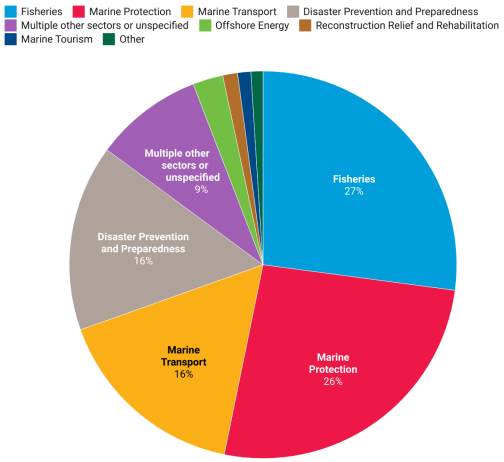
Million $



Source: UNCTAD (2025) based on OECD Data Platform on Development Finance for the Sustainable Ocean Economy.

A sectoral breakdown of ODA disbursements for the sustainable ocean economy shows a large preponderance of support for maritime protection, fisheries, and maritime transport, accounting for nearly three-quarters of bilateral and multilateral disbursements (see figure 5.3).

Figure 5.3
Marine protection and fisheries account for half of multilateral ODA disbursements for the sustainable ocean economy



Source: UNCTAD (2025) based on OECD Data Platform on Development Finance for the Sustainable Ocean Economy

[83] See Sumaila, U. R., Skerritt, D., Schuhbauer, A., Ebrahim, N., Li, Y., Kim, H.S., Mallory, T.G., Lam, V.W.L., & Pauly, D. (2019). A global dataset on subsidies to the fisheries sector. Available at https://www.sciencedirect.com/science/article/pii/S2352340919310613

5.1 Philanthropic financing

Data on philanthropic contributions is based on private foundations and philanthropy reporting their activity towards development in the Creditor Reporting System. Between 2017 and 2022, the OECD estimates that philanthropic contributions amounted to more than $1 billion, with slightly declining donations in recent years (see figure 5.1). More than half of these contributions were targeted at environmental protection and around a quarter at fisheries.

5.2 Private finance

As demand increases for decarbonised shipping, green port infrastructure, offshore renewable energy, and sustainable food systems, aligning private finance flows with sustainability objectives will require re-directing investment priorities. Overall, sustainable ocean investments deliver high public returns, with every $1 invested generating an average of $5 in global benefits by 2050.[84] While only a tiny portion of global financial assets, which stand at more than $470 trillion, has been channeled toward sustainable ocean activities,[85] recent years show growing efforts to adapt existing private finance mechanisms to the specific ocean finance opportunity. These include blue-focused Exchange Traded Funds (ETFs), targeted venture capital, growth private investment and public equity investment, from ocean-focused impact funds to sustainability-linked lending and specific capital market instruments, such as blue bonds.[86]

5.3 Blended finance

Blended finance mechanisms go beyond traditional public, taxpayer-funded resources or purely commercial returns-driven finance by providing risk-adjusted returns to commercial partners. The combination of multiple finance sources can address different expectations on the return to risk by adding a grant or a lower return tranche to the overall finance package, potentially distributing the risk or lowering the overall costs. Blended finance can also facilitate project development by providing initial grant support to help make sustainable ocean economy projects more "bankable" or integrate different partners' goals and process complex transactions toward financial closure. Such mechanisms include using public money, whether domestic, ODA, or private philanthropy grants and concessional funding - often more capital - to support the initial de-risking of projects and facilitate other financial flows that consider different return and risk requirements. It also refers to going beyond corporate debt provision from commercial banks or equity investments from venture funds to impact-driven and results-oriented finance, considering a broader range of stakeholders and outcomes such as debt-for-nature swaps (see box 5.2).

5.4 Towards a systemic Blue Deal approach

United Nations calls for a Blue Deal approach to coherently bring together the interlinked issues of ocean finance, investment, trade, technology, and innovation and align them with sustainable ocean economies, particularly in developing countries.[87] The initiative builds on the recommendations from the 4th UN Ocean Forum and the 2nd UN Ocean Conference held in 2022. It is a sister extension to the oceans of the climate and sustainability-aligned transformation

[84] Sumaila, UR et al. (2021). Financing a sustainable ocean economy. Nature Comms.
[85] https://unctad.org/publication/trade-and-development-report-2023
[86] Blue bonds are debt instruments to fund the sustainable use of maritime resources. Since 2019, there have been $9bn issued through blue bonds, up from US$5 billion for 2018-2022. See Bosmans, P and de Mariz, F (2023). The Blue Bond Market: A Catalyst for Ocean and Water Financing Journal of Risk and Financial Management.
[87] UNCTAD (2023). Global 'Blue Deal' urgently needed to protect and invest in our ocean. See: https://unctad.org/news/global-blue-deal-urgently-needed-protect-and-invest-our-ocean

approach, sometimes described as a Green New Deal.[88] Such an approach should be retaken at UNOC 2025 to drive more investment into emerging sustainable sectors that benefit developing countries.

Box 5.2
Debt-for-nature swaps

With 2.3 billion people living in countries where government spend more on debt service than education or health, debt-for-nature swaps are receiving renewed attention as a potential form of environmental finance and blended finance for developing countries with scarce fiscal resources. Under such schemes, creditors provide debt relief in return for a government commitment to protect the environment. They allow countries to free up fiscal resources and protect nature while still being able to focus on other development priorities, without triggering a fiscal crisis.

For example, a partnership between the Government of Ecuador, the United States International Development Finance Corporation (DFC), Inter-American Development Bank (IDB), Credit Suisse, Oceans Finance Company (OFC), and the Pew Bertarelli Ocean Legacy established a Galápagos marine conservation-linked bond - the Galápagos Marine Bond - to finance a debt conversion exchanging $1.628 billion of Ecuador's international bonds for a $656 million loan. The debt conversion aims to generate an estimated $323 million for marine conservation in the Galápagos Islands over the next 18.5 years, including approximately $12.05 million of new funding annually and around $5.41 million annually, on average, to capitalise an endowment for the Galapagos Life Fund (GLF). Combined, the debt conversion and endowment will generate more than $450 million for marine conservation in the Galápagos Islands.

More recently, the Bahamas has unlocked more than $120 million to fund the conservation and management of its ocean and mangroves with a debt swap financed by Standard Chartered and backed by the private sector. The government of Indonesia announced in July 2024 a deal to redirect more than US$ 35 million it owes to the United States of America into the conservation of coral reefs. The debt swap will fund coral restoration in two key areas of the Pacific Ocean's Coral Triangle.

Source: https://www.dfc.gov/media/press-releases/financial-close-reached-largest-debt-conversion-marine-conservation-protect and https://www.weforum.org/stories/2024/04/climate-finance-debt-nature-swap/

[88] UNCTAD Trade and Development Report (2019). Financing a Global Green New Deal. Trade and Development Report 2019. United Nations: Geneva. Available at https://unctad.org/publication/trade-and-development-report-2019

5.5 Potential recommendations member States and other participants of the 5th UN Ocean Forum could consider for submission to UNOC 2025

- Promote an integrated approach to coherently bring together the interlinked issues of ocean finance, investment, trade, technology, and innovation as envisaged under UNCTAD's proposal for a Blue Deal and FAO's Blue Transformation, including by leveraging natural ocean assets in developing countries to create blue carbon schemes, debt-for-nature swaps, and blended finance to fund national and global ocean economy goals, as well as upscale accessible and affordable adaptation financing for ports in developing countries.
- Build more coherent sources for the private sector's notification and gathering of non-confidential financial investments and philanthropic disclosure into the sustainable ocean economy.
- Explore the possibility of one single United Nations Ocean Finance Facility to support trade and ocean economy activities that are not eligible for funding from the Green Fund or the Global Environmental Facility.
- Align public and private economic incentives, including taxes, fees, market incentives, fossil fuel or fisheries subsidies, and other fiscal policies with long-term ocean health.
- Create a specific window for supporting and financing SSE entities that provide environmental, social, and economic returns for the ocean economy.