Trends in Global Ocean Economy

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Classification of the ocean economy by sector

GOODS

- A Marine fisheries
- B Aquaculture and hatcheries[a]
- C Seafood processing
- D Sea minerals
- E Ships, port equipment and parts thereof
- F High-technology and other manufactures not elsewhere classified (NEC)

SERVICES

- G Marine and coastal tourism
- H Trade in fisheries services
- I Maritime transport and related services[b]
- J Port services, related infrastructure services and logistical services
- K Coastal and marine environmental services
- L Marine research and development and related services

ENERGY

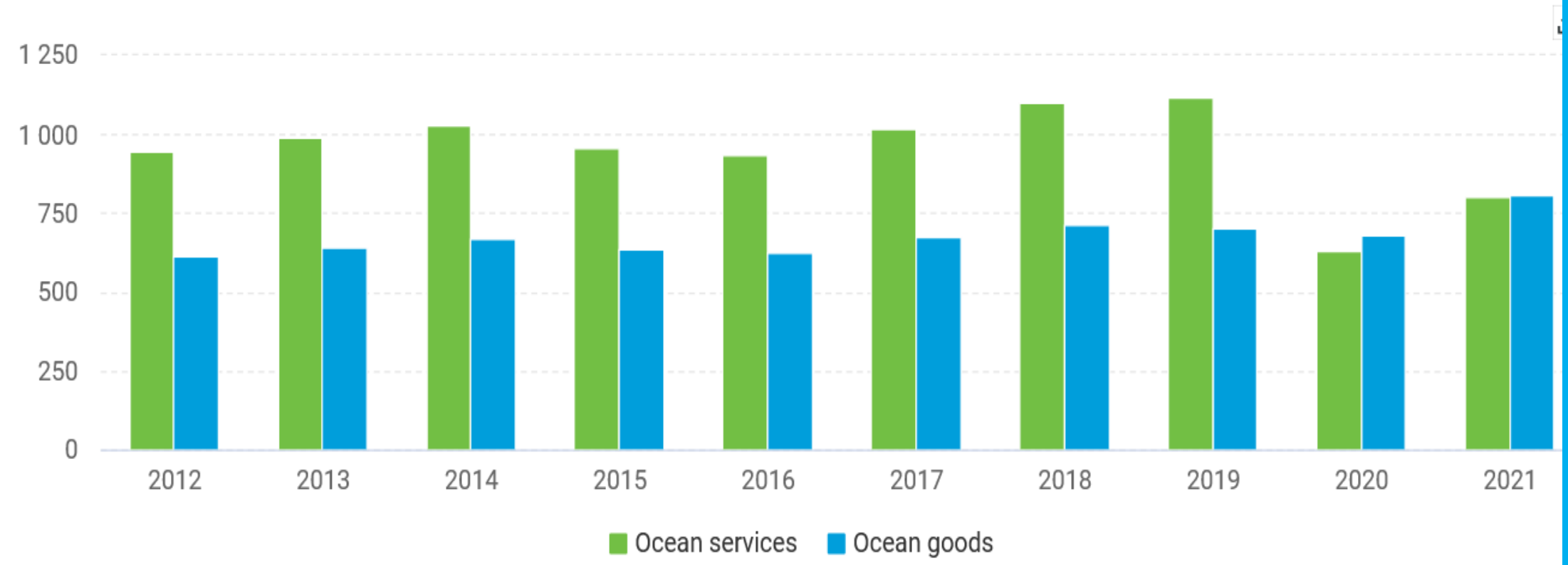
- M Ocean energy and renewable energy[c]

a Production only.
b Excludes services specific to trade in fisheries that are not related to transport.
c E.g., offshore wind energy, tidal/wave power, etc.

Now we can measure trade flows of the Ocean Economy

Figure 1. Exports of ocean services are yet to recover back to pre-pandemic levels

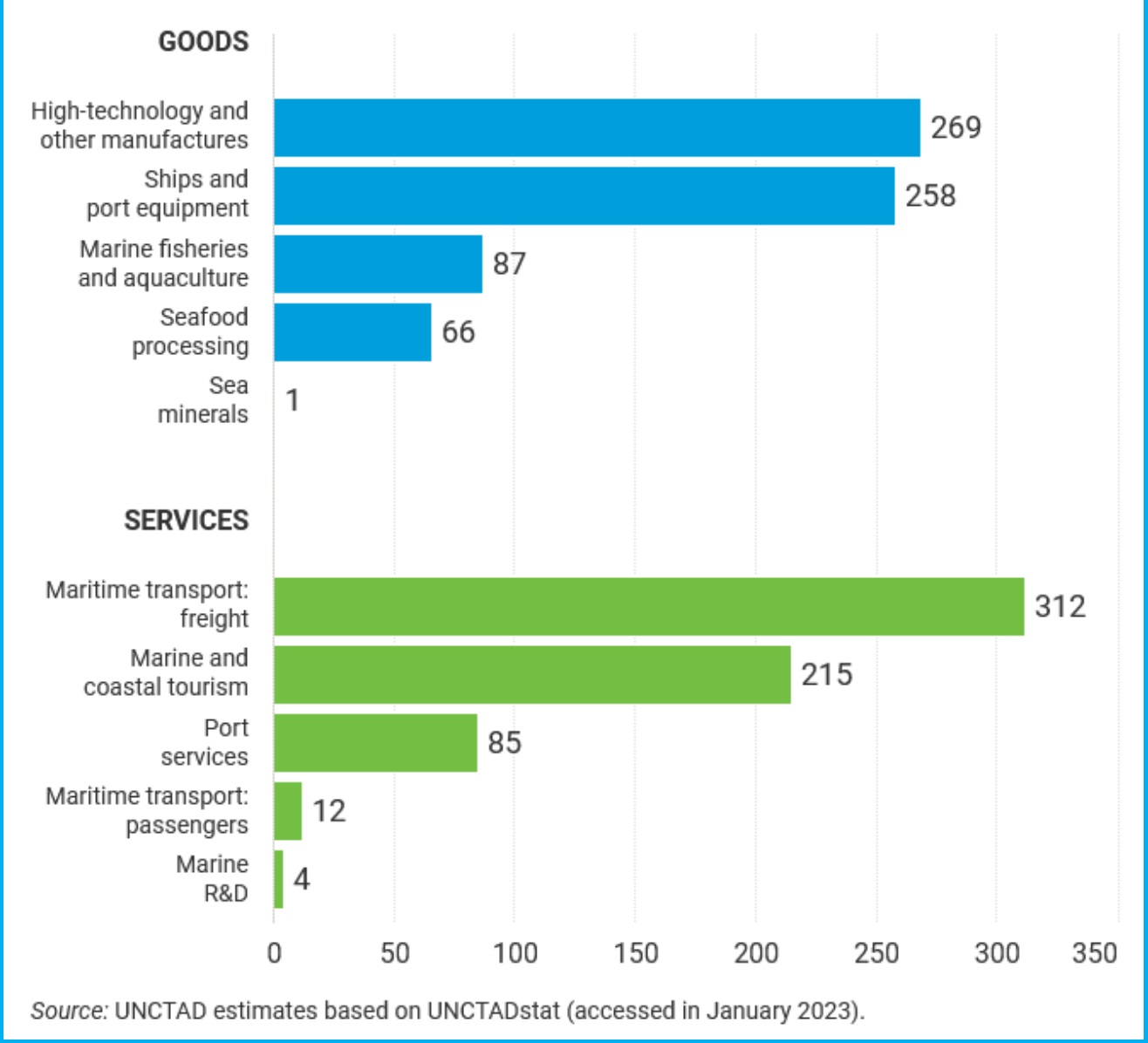
(Billions of US$)



Source: UNCTAD calculations based on UNCTADstat (UNCTAD, 2023a).

Note: Refers to ocean economy goods and services as classified by UNCTAD (2021c) based on HS codes.

Sizing up the global ocean economy – the rise of ocean-based goods



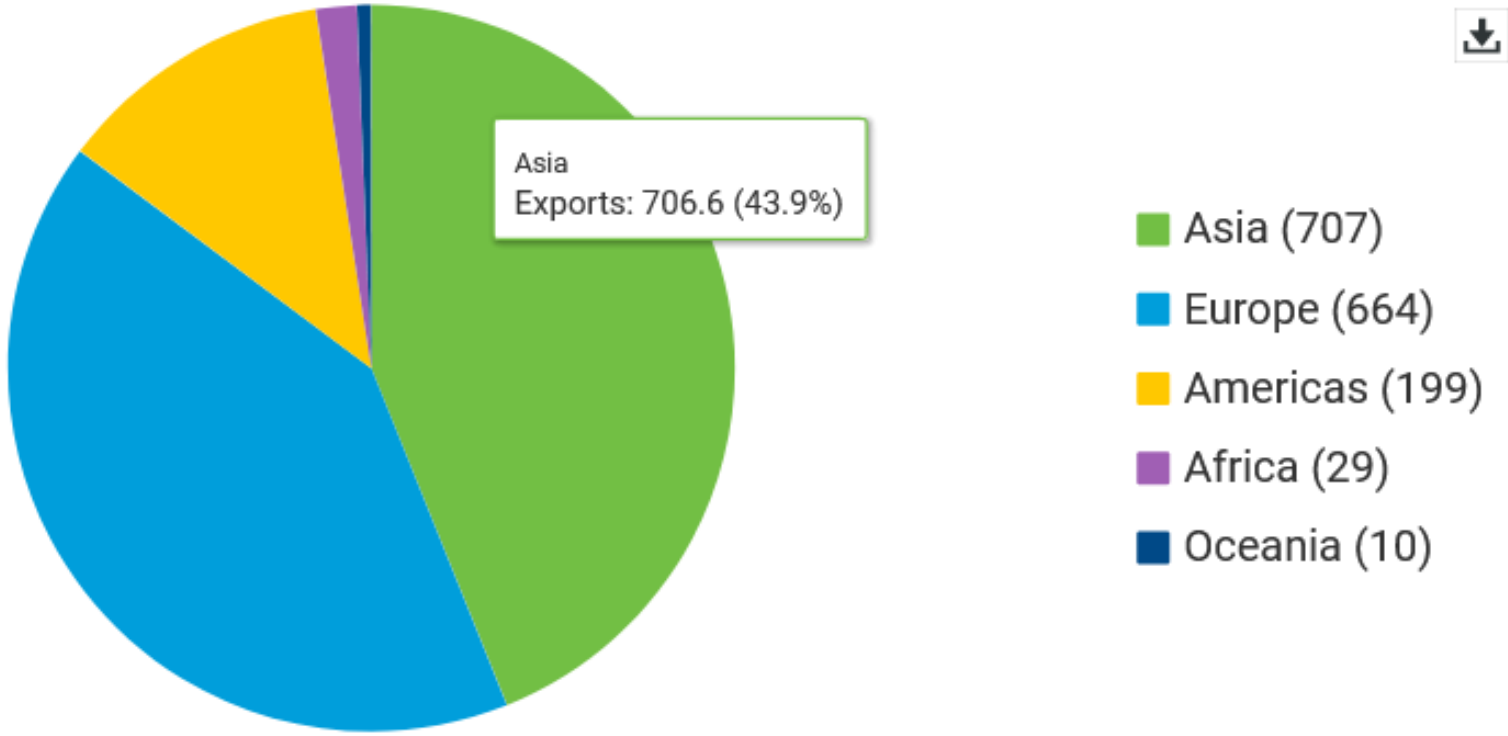
Source: UNCTAD estimates based on UNCTADstat (accessed in January 2023).

- Export value of ocean-based goods and services (2021): $1.6 trillion (6± % global trade [$28 trillion])
- The export of ocean-based goods ($808 billion) overtook those of services ($801 billion) in 2021 closely.
- 150 million direct jobs

Asia and Europe dominate the Ocean Trade Flows

Figure 3. Ocean exports dominated by Asia and Europe with an 85 per cent market share, 2021

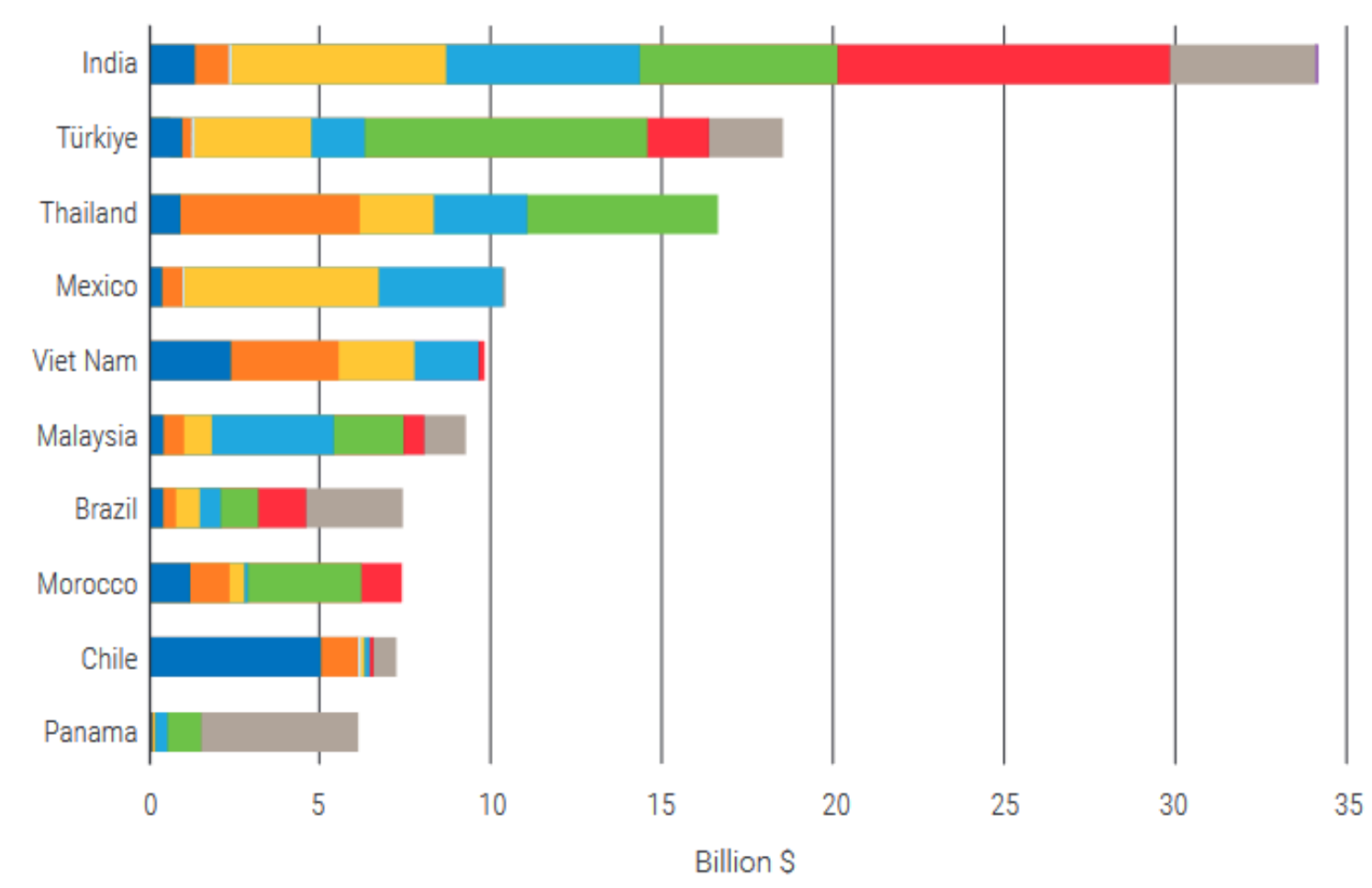
(Billions of US$)



Source: UNCTAD calculations based on UNCTADstat (UNCTAD, 2023a).

Note: Data refer to ocean economy goods and services as classified by UNCTAD (2021c) based on HS codes.

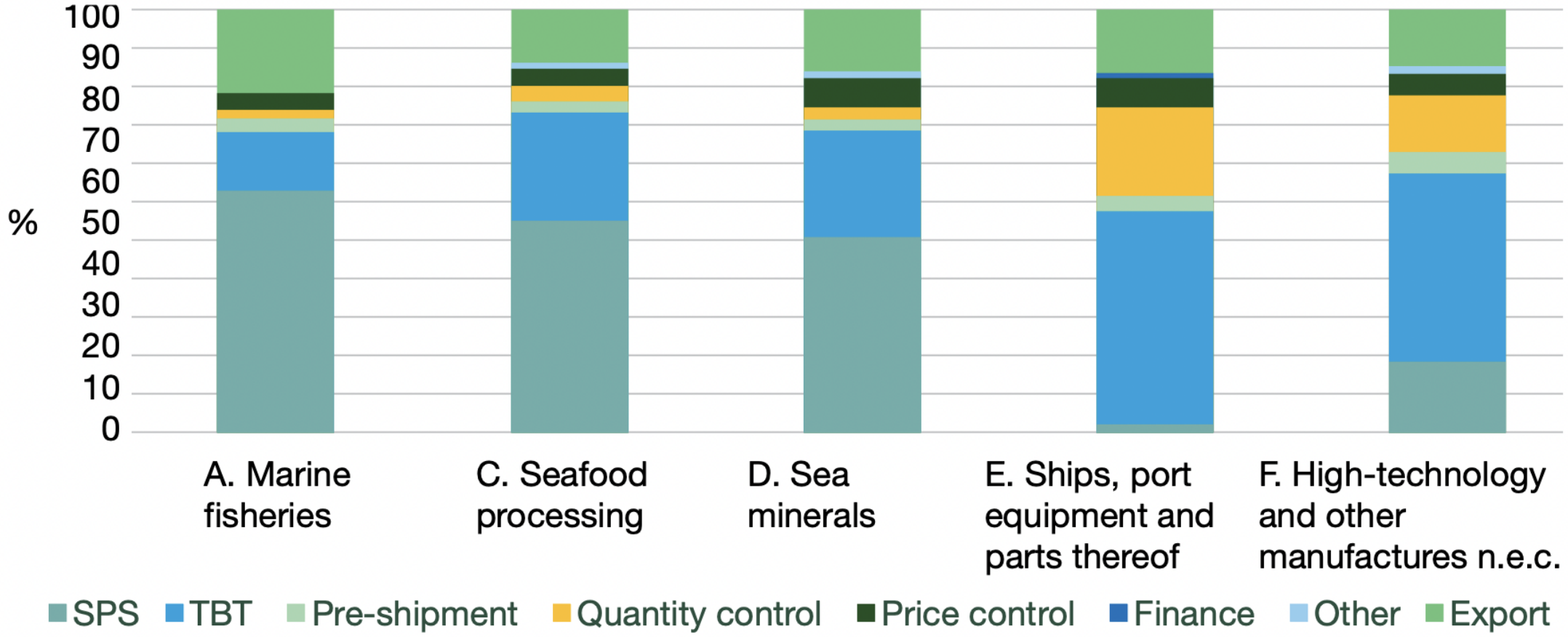
The Ocean economy provide significant opportunities for economic diversification



- Marine fisheries, aquaculture and hatcheries
- Seafood processing
- Sea minerals
- Ships, port equipment and parts thereof
- High-technology and other manufactures n.e.c.
- Marine and coastal tourism
- Maritime transport and related services: passengers
- Maritime transport and related services: freight
- Port services, related infrastructure services and logistical services
- Marine research and development and related services

Source: UNCTAD estimates based on UNCTADstat (accessed in January 2023).

Understanding the distribution of these NTMs is crucial for stakeholders to navigate regulatory landscapes and harness trade opportunities

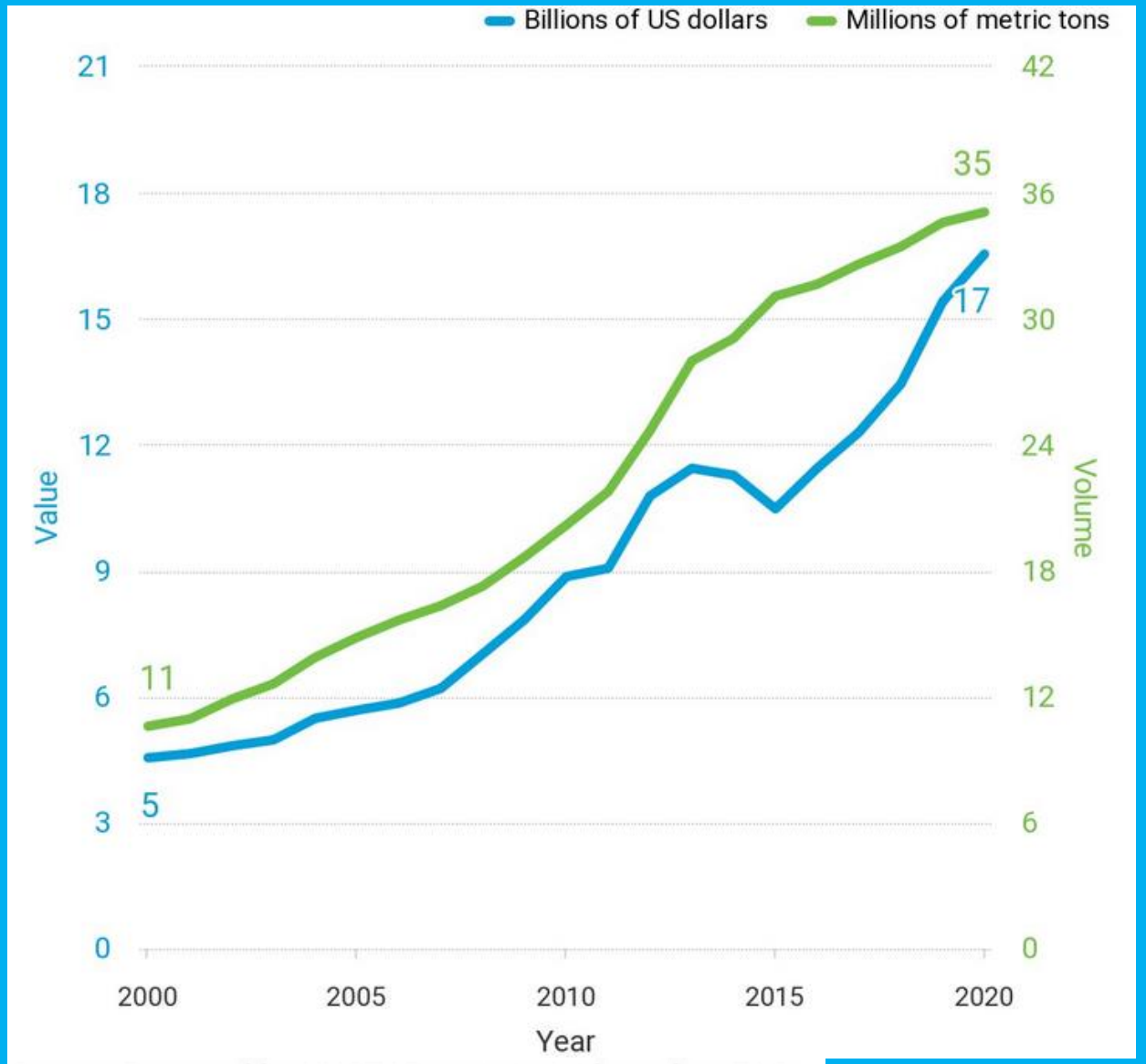


Source: UNCTAD calculations based on UNCTAD TRAINS data (2020).

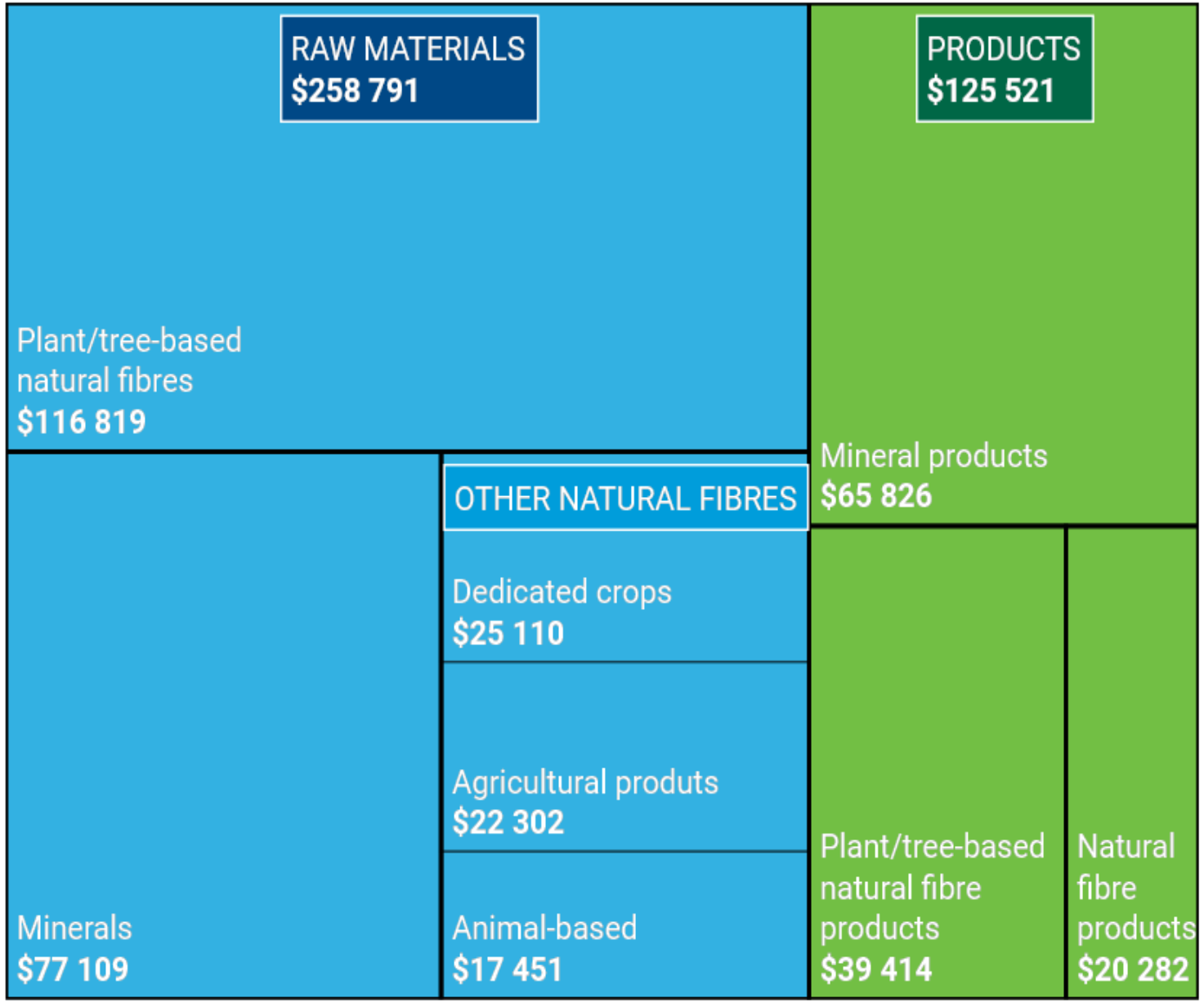
Emerging ocean economy sectors - the next normal

Seaweed and by-products

- The seaweed farming boom (Low carbon, no freshwater use, no land and no fertilizers or antibiotics)
- A lot of innovation on food and non-food uses
- Value and volume of farmed seaweed, 2010-2020, billion of US dollars, millions of metric tons
- Trade in seaweed product was estimated at 1.2 billon in 2021



Source: Prepared by UNCTAD secretariat based on FAO.

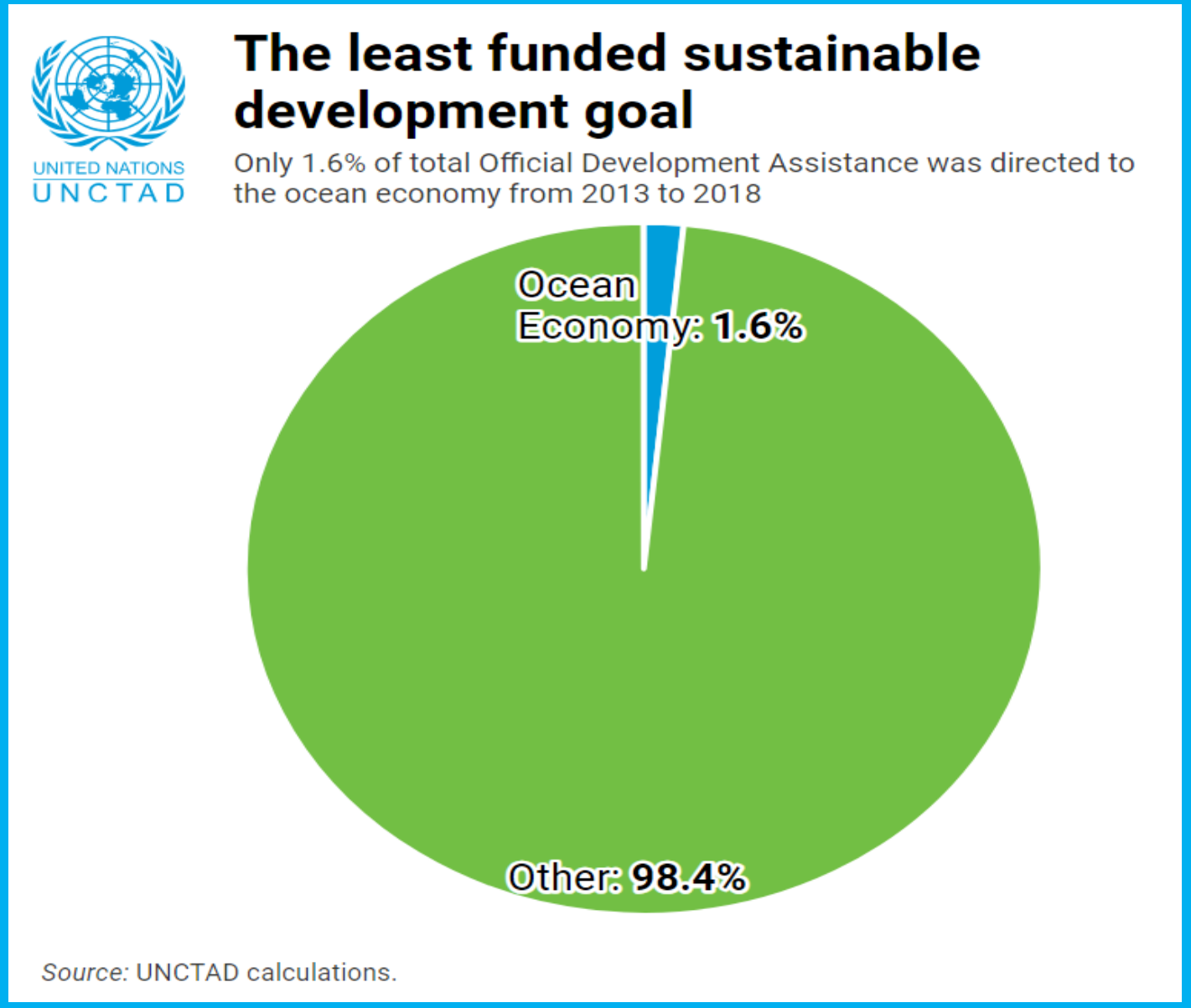


Non plastics Substitutes

- **Trade in Non plastic substitutes estimated at 388 billion (global plastic trade is 1.2 trillion)**
- **The role of non -plastic substitutes is recognised in the Third draft text of the UN Plastic treaty**

SDG 14 is the least funded of all SDGs:

Only $2.9 DG 14 billion was allocated to support the ocean economy in 2018



Climate change and the fishing industry

Status of Trade in National Determined Contributions under the Paris Agreement and options for developing countries

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Opportunities and Challenges

The context

The Fishing Sector plays a Vital Role:

- food security, jobs & livelihoods, especially in developing nations (+40 millions jobs)

Urgent Need for a Just Energy Transition

- All sectors need to contribute to Paris agreement objectives
- With agriculture and tourism, the fisheries is one of the most vulnerable sectors to climate change.
- Motorized vessels depend today in its entirely on marine diesel and other fossil fuels

Challenges for Artisanal Fishers

- Unmotorized vessels face climate change effects, lack support, and technological limitations.

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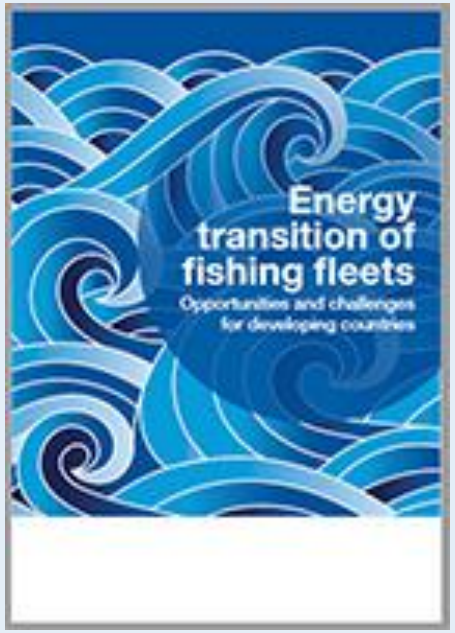
Fisheries and CO2 emissions



Global fisheries trade is significant ($179 billion in 2021)

Fishing vessels contribute to between 0.1 % and 0.5 % of global GHG emissions, representing about 4 % of GHG emissions from global food production.

Emissions estimates range between CO2 40 to 179 million tonnes annually

- IMO Bottom-up: 37.8 to 40 million tonnes of CO2 (2012-2018)
- Under Annex I Kyoto protocol notifications: 21.3 to 12.9 million tonnes (1990-2021)
- Academic sources on global estimates (Greer et Al): 179 million tonnes annually (2019)

Fisheries subsidies for fuel:

- At least $2.1 billion was given in fuel subsidies by 30 OECD Members and ten emerging economies during the period 2018 to 2020 (OECD, 2022).

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Some challenges to consider

Economic

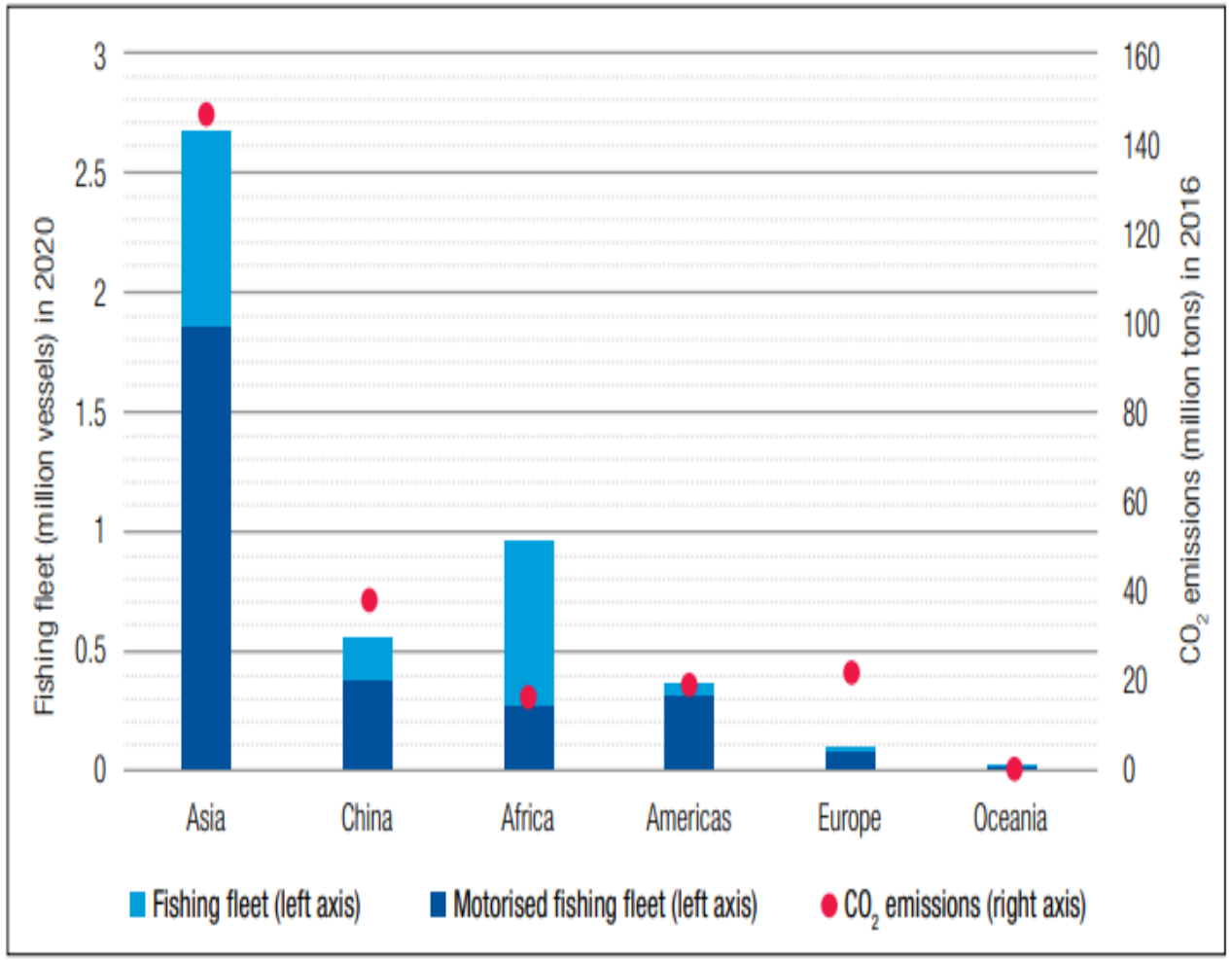
- **Asia** has the largest fishing fleet, producing most CO2 emissions, followed by **Europe** & **Africa**
- **Technological solutions are not mature enough**

Environmental

- All CO2 emissions measuring systems for the fisheries sector **only cover a partial view of the reality**
- Increasing energy efficiency may not improve fuel efficiency vs ton of catch if **overfishing** continues

Regulation

- No specify decarbonization plan for the fisheries sector globally but an IMO Revised GHG Strategy for shipping (2023)
- Subsidies to fossil fuels by fishing vessels are not regulated



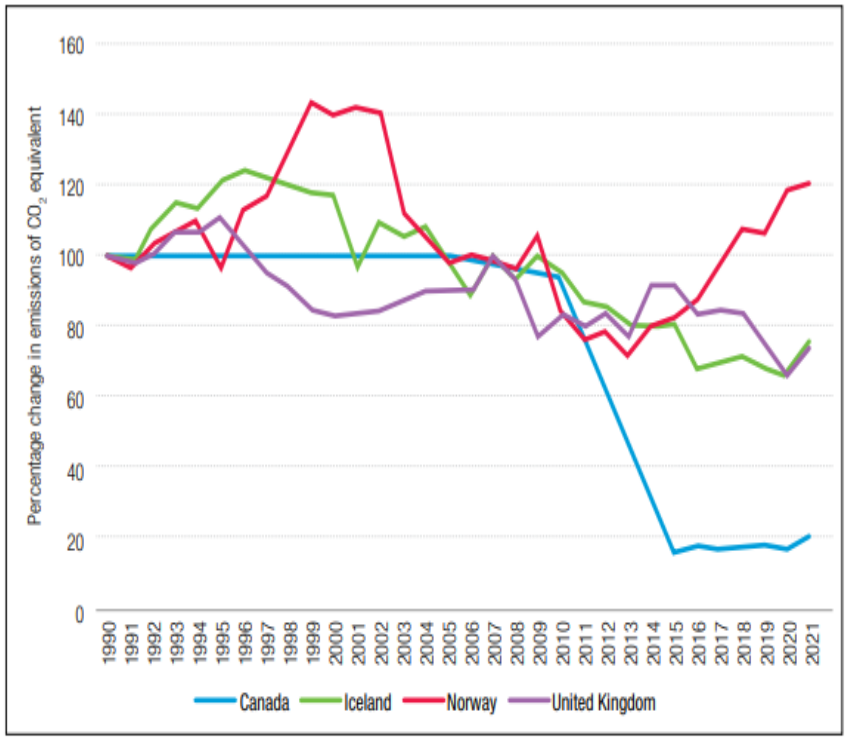
Source: UNCTAD based on data from FAO (2022a) and Greer (2019).

Fisheries CO2 emissions by Annex I Kyoto Protocol Parties (1990-2021)

Figure 1. Carbon dioxide emissions (in million tons) of the fishing fleets of the European Union and Japan (1990–2021)

Source: UNCTAD based on data from UNFCCC (2023).

Figure 2. Percentage change in the carbon dioxide emissions of the fishing fleets of selected countries (1990–2021)



Source: UNCTAD based on data from UNFCCC (2023).

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NDCs by main seafood traders

Direct (energy-saving & emission reduction) measures

China: **Energy-saving and emission-reduction technology** and equipment in **fishery** .

Vietnam: **Improve energy efficiency and conversion in fisheries**.

Ecuador : National Climate Change Strategy (2012-2025) lists **fisheries and aquaculture as a priority**

(In)direct (ocean-prioritizing) measures

The Russian Federation: adapt economic sectors to climate change including in **fishing, nature management and activities in the Arctic zone**.

Chile: **Adaptation Plans for the Fisheries and Aquaculture sectors** (2022 & 2027).

Canada: protecting **25% of their oceans** by 2025 and working towards 30% of each by 2030.

Absence of ocean-related commitments

Thailand: **First National Adaptation Plan** provides a framework for a climate-resilient society with focus on **water management, agriculture and food security**.

Others, showing **no specific reference**, include:

India, the Netherlands, and Norway.

Regulatory Frameworks

IMO Revised GHG Strategy (2023)	• **The IMO recently adopted a revised GHG strategy for global shipping (2023)** that seeks to reach net-zero GHG emissions from international shipping close to 2050 and a commitment to ensure an uptake of alternative zero and near-zero GHG fuels by 2030. • Their **application to fishing vessels is rather limited as the IMO policies mainly apply to vessels with very large tonnage (+500GT) and engaging in international shipping routes**.
The European Union	• The inclusion of **shipping activities in the monitoring, reporting and verification of CO2 emissions from maritime transport (MRV) Regulation** and the **EU Emission Trading System (ETS)** may have some implications for the fishing industry, albeit **indirectly**.
WTO's Fisheries Subsidies Agreement (2022)	• **It prohibits** subsidies that contribute to **illegal unregulated and unreported (IUU) fishing, and fishing on overfished stocks**. • Negotiations are still ongoing for additional provisions on **overcapacity and overfishing** under a comprehensive agreement including specific fuel subsidies in the illustrative list of prohibitions. Non-specific fuel subsidies would need to be notified. We need a balance between sustainability of stocks and climate goals. Current text should include the term **"fossil" fuels** to allow support for a just energy transition.

Alternative fuels and engines

- **Green biofuels and energy efficient measures** stands out as the most readily available and mature fuel option for fishing vessels
- **Green methanol and LNG** still face challenges in terms of retrofitting, storage capacity, safety and limited potential to fully decarbonize.
- **Green hydrogen and green ammonia** show promise but require further R&D to address safety, scalability, **cost-effectiveness**, storage capabilities & delivery
- **Alternative engines** such as electric and hybrid ones and wind propulsion offer potential solutions to reduce GHG emissions in the fishing sector in the mediate the future as only they are only in prototype phase
- **Port infrastructure for alternative fuel storage and delivery** will be key for a smooth and just transition
- **Each alternative has its challenges and limitations, requiring continuous R&D to fully realize their potential in the fishing industry.**

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Case studies:

Europe:

- Phasing out fossil fuels use through energy efficient technologies & smart fishing practices
- Investment in energy reduction tech and circular economy
- Coordination with shipping sector essential

Ecuador:

- Efforts to measure the carbon footprint and introduce carbon-neutral production in the tuna value chain
- Cleaner energy alternatives for vessels & supportive public policies are lacking

Asia-Pacific:

- Focuses on clean energy and emissions targets
- Requires investments, targeted policies, & technology transfer

Private sector example:

- Working toward carbon neutrality by 2040.
- Focuses on emissions reduction, energy efficiency, renewable energy & carbon capture.

Policy considerations

1) Develop **specific & measurable global emission reduction goal** for fishing fleets & Include objectives for emission reduction and adaptation goals for the fisheries sector in next NDC iteration (2025)
2) Establish a **globally harmonized data collection system for fishing fleet emissions**, accommodating the needs of artisanal fisheries
3) Explore and adopt **energy efficiency measures and sustainable fuel options.** Products from non-motorized vessels need to be considered as **zero carbon.**
4) Introduce **available technological options** for retrofits, new engines, vessel design, efficient fishing practices, and adequate port infrastructure
5) Phase out **fossil fuel-based subsidies** to the fisheries sector & shift public support to accelerating the energy transition of fishing fleets, particularly to support small scale fisheries
6) **Avoid decoupling** decarbonization efforts from current actions to improve stock management.

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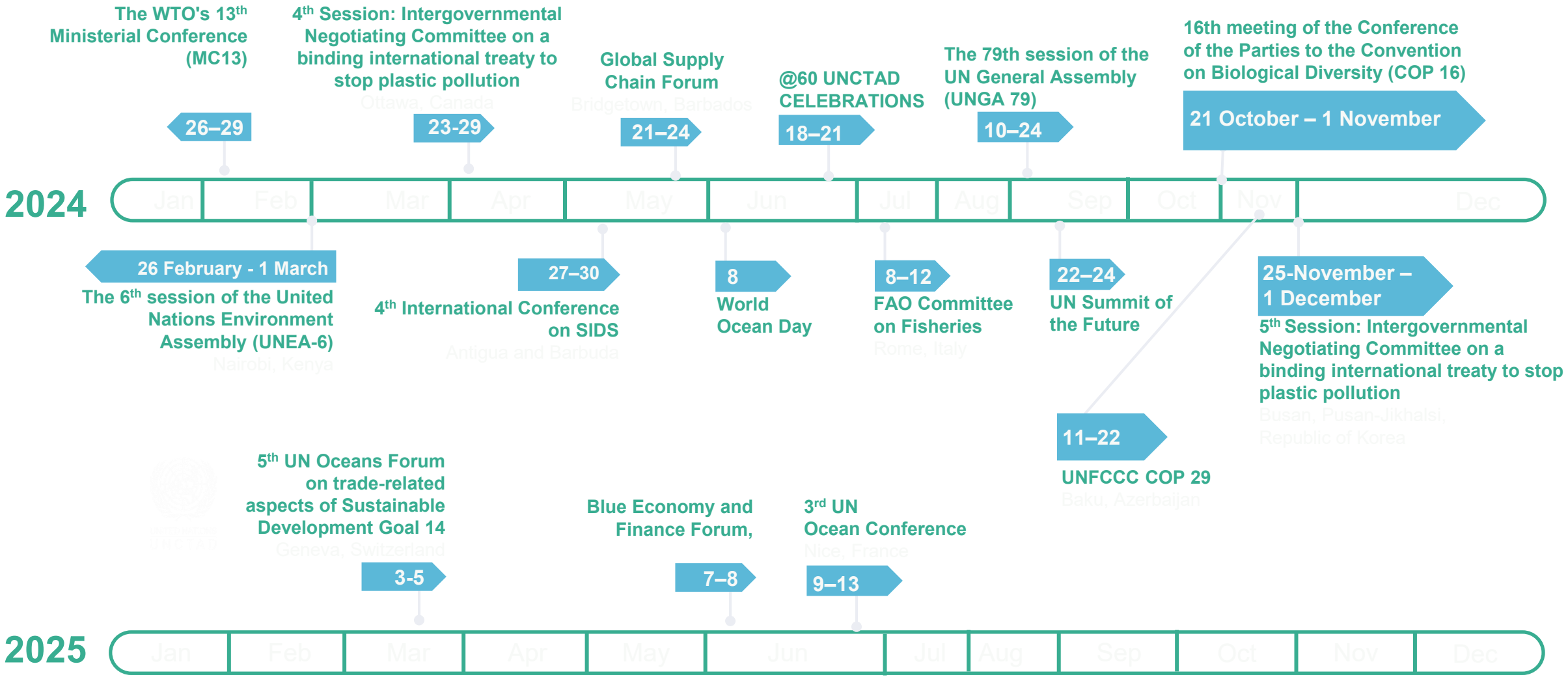
The ocean timeline



Thank you!

LINKS:

Energy transition of fishing fleets: Opportunities and challenges for developing countries | UNCTAD

Oceans Economy and Fisheries | UNCTAD