2025 Review of maritime transport

Chapter V

Legal issues and regulatory developments

This chapter provides an overview of important international legal issues and regulatory developments affecting maritime transport and trade. Part A focuses on recent IMO developments to reduce greenhouse gas emissions from ships, notably, the agreement on draft midterm measures in line with the 2023 IMO strategy on greenhouse gas emissions.

Part B explores international regulatory developments to strengthen the rights of seafarers, global key workers who operate in a challenging environment exacerbated by geopolitical tensions and supply chain instability.

Part C highlights other important legal developments and initiatives. These include the entry into force of the 2009 Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships, the preparation of the draft code on maritime autonomous surface ships (MASS) under IMO auspices, and ongoing IMO work to combat fraudulent ship registration and registries, both matters of growing global concern.

United Nations

Key policy takeaways

- The proposed IMO Net-Zero Framework, agreed by the Marine Environment Protection Committee in April 2025, will be considered for formal adoption as a mandatory chapter to Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL Convention) in October 2025. Its entry into force and effective implementation could significantly advance the strategic objective of achieving net-zero greenhouse gas emissions from shipping close to 2050. Development of clear, fit-for-purpose implementation guidance will, however, be critical to assist stakeholders in understanding complex requirements and to facilitate full and effective compliance. The active engagement of all relevant stakeholders in related IMO work is therefore strongly encouraged.

- Revenues generated under the Net-Zero Framework – if adopted – could make an important contribution to supporting a just energy transition and related infrastructure adaptation in developing countries, especially the least developed countries and small island developing States. Much more investment will be required, however, to decarbonize the global shipping fleet and cover the costs of onshore production and distribution of fuels, and the required port infrastructure. Private sector support for green and sustainable investments, green and sustainability-linked loans, and blended finance should therefore be promoted.

- Maritime contracts would need to factor in monitoring, reporting and financial obligations for individual vessels under the Net-Zero Framework. This requires commercial parties to consider potential adjustments to their commercial transactions and contracts. UNCTAD can provide related analysis and guidance, as appropriate. Industry associations can assist in developing standard clauses to support effective implementation and facilitate appropriately balanced allocations of commercial risks and costs.

- Accelerated development, deployment and use of alternative fuels could considerably reduce emissions from ships and contribute to the achievement of IMO targets. But their carriage and use also pose important new risks in terms of pollution and personal injury; these need to be effectively addressed. New IMO Legal Committee work on the suitability of IMO liability and compensation regimes with respect to alternative fuels is an important first step in developing appropriate

liability and compensation frameworks before such risks materialize. UNCTAD research and analytical work can assist in this process. All countries, including vulnerable coastal developing countries and small island developing States, as well as shipping industry and seafarer representatives are encouraged to engage actively in this important work.

- In an era marked by geopolitical tensions and supply chain disruptions, seafarers continue to face challenges, including regarding their rights to repatriation, shore leave, fair treatment and working conditions. Strengthened efforts by Governments, intergovernmental organizations and industry stakeholders to monitor, implement and enforce existing regulatory frameworks, including the most recent amendments to the 2006 Maritime Labour Convention (MLC), will be critical to effectively protect seafarers' rights – and to address the seafarer shortage that continues to affect the maritime industry.

- Accelerated collaborative efforts are needed to reduce cases of seafarer abandonment. Regular updates of contact points in the relevant ILO-IMO database and effective implementation of updated guidelines on managing abandonment cases can contribute to the resolution of cases and facilitate the repatriation of seafarers.

- The entry into force of the Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships on 25 June 2025 could make a major contribution to safer, more environmentally sustainable ship recycling operations. All United Nations Member States are encouraged to consider acceding to the Convention to ensure its widespread application at the international level.

- Important ongoing IMO work includes the preparation of a non-mandatory draft MASS code, expected to be finalized in 2026, as well as the development of non-mandatory guidelines or best practices on ship registration, initiated by the IMO Legal Committee, in part to assist in addressing fraudulent registration. A regulatory scoping exercise was also launched to develop actions to prevent unlawful operations, including substandard ships. All United Nations Member States and stakeholder representatives are strongly encouraged to actively engage in the related IMO work. UNCTAD stands ready to provide related advice and assistance.

A. Reducing greenhouse gas emissions from ships

Greenhouse gas emissions from international shipping increased by nearly 10 per cent between 2012 and 2018, accounting for almost 3 per cent of global anthropogenic emissions in 2018 (IMO, 2020). Without further action, these emissions are projected to rise by up to 50 per cent until 2050 (equivalent to 130 per cent over 2008 levels) despite further efficiency gains. This trend goes in the wrong direction at a time when "all countries must urgently speed up economy-wide, low-carbon transformations to avoid escalating economic and social costs" (United Nations, 2024, p. 34; see also UNCTAD, 2023).

While article 2.2 of the 2015 Paris Agreement on climate change,[1] which is in force for 195 States Parties, reflects a collective commitment to hold the global average temperature increase "to well below 2°C above pre-industrial levels", recent data suggest that by 2100, global warming of around 2.7°C is "very likely" under an intermediate emissions scenario. It could exceed 3.3°C under a high emissions scenario (IPCC, 2023).[2] Implementing existing policies and pledges would limit the increase to only 2.5–2.9°C by 2100 (UNEP, 2024; Climate Action Tracker, 2024).

With international maritime transport a central transnational economic sector, and emissions from international shipping set to rise in line with steady growth in demand for seaborne trade, regulatory efforts to cut emissions are of particular interest and increasing importance. While the control and management of emissions from domestic shipping falls within the national responsibility of Parties to the United Nations Framework Convention on Climate Change[3] and the Paris Agreement, this is not the case for emissions from international shipping. Recent and ongoing regulatory initiatives to reduce emissions from international shipping therefore play a particularly important role in diminishing overall emissions from maritime transport. This includes global regulatory measures introduced under IMO auspices and regulatory measures introduced by way of legislation at the European Union level[4] (UNCTAD, 2023).

A recent advisory opinion by the International Tribunal for the Law of the Sea highlights the legal obligation of States under article 211 of the 1982 United Nations Convention on the Law of the Sea "to prevent, reduce and control pollution of the marine environment from vessels".[5] This entails an obligation "to prevent, reduce and control pollution of the marine environment in relation to the deleterious effects that result or are likely to result from climate change" (ITLOS, 2024, para. 441(3)(g)).

Emissions from international shipping projected to rise in line with steady growth in demand for seaborne trade

[1] The 2015 Paris Agreement, under the United Nations Framework Convention on Climate Change, has been in force since 2016. For the latest information about the status of its ratification, see https://treaties.un.org/pages/viewdetails.aspx?src=treaty&mtdsg_no=xxvii-7-d&chapter=27&clang=_en.

[2] See also IPCC, 2018, B.2, which highlights how global warming of 2°C above the pre-industrial level may be reached by 2050.

[3] The 1992 United Nations Framework Convention on Climate Change has been in force since 1994. As of 4 July 2025, it had 198 Parties. See https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXVII-7&chapter=27&Temp=mtdsg3&clang=_en.

[4] These include the extension of the EU ETS to maritime transport (European Union, 2023a) and the new European Regulation on the use of renewable and low-carbon fuels in maritime transport (European Union, 2023b).

[5] The Convention has been in force since 1994. As of 4 July 2025, it had 170 Contracting States. See https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=_en.

1. Decisions by the Marine Environment Protection Committee

The revised 2023 IMO strategy on greenhouse gas emissions (IMO, 2023) reflects an enhanced common ambition to reach net-zero emissions from international shipping close to 2050; a commitment to increase the uptake of alternative zero and near-zero-emissions fuels by 2030; and indicative checkpoints for 2030 and 2040 (UNCTAD, 2023). It also sets out a number of revised and additional candidate emissions reduction measures with possible timelines:

- Short-term measures include those finalized and agreed between 2018 and 2023 (as detailed in IMO, 2023, appendix 1), such as the enhanced ship energy efficiency management plan (SEEMP), a technical energy efficiency existing ship index (EEXI) and an operational carbon intensity indicator (CII);[6] these should be reviewed by 1 January 2026.
- A basket of midterm reduction measures should be finalized and agreed by 2025 (with entry into force dates to be defined individually or collectively); other candidate midterm measures could be finalized and agreed between 2023 and 2030.
- Possible long-term measures, to be developed as part of the 2028 review of the IMO strategy, could be finalized and agreed beyond 2030.

The mid-term GHG reduction measures will be considered for formal adoption in the extraordinary MEPC session in October 2025

At its eighty-second session, in 2024, the Marine Environment Protection Committee adopted new guidelines to develop the SEEMP (IMO, 2024a); these were further amended at the eighty-third session (IMO, 2025a).

The latter session marked the end of the first phase of the review of short-term measures, resulting in the adoption of amendments relating to the CII reduction factors for the 2027–2030 period (IMO, 2025b; see also chapter II). The Committee further approved draft amendments to regulation 27 of the MARPOL Convention, Annex VI,[7] to make the IMO data collection system on ship fuel consumption accessible to the public and to reinforce data anonymization (IMO, 2025c). The Committee also agreed on a workplan for the second phase of the review of short-term emissions reduction measures from the spring of 2026 to the spring of 2028.[8]

In line with the timeline included in the 2023 strategy, the Committee's eighty-third session approved important draft amendments to Annex VI of MARPOL that introduce midterm measures for emissions reductions. The full draft amendments are available in an IMO Circular (IMO, 2025c). Collectively referred to as the IMO Net-Zero Framework, the measures include a new fuel standard for ships (technical element) and a global pricing mechanism for emissions (economic element) as well as the establishment of a Net-Zero Fund to collect and disburse revenues.

The draft amendments were introduced following intensive and lengthy discussions by the Intersessional Working Group on Reduction of Greenhouse Gas Emissions from Ships. They are based on the revised version of a bridging proposal initially submitted by Singapore (IMO, 2025d). They will be finalized by the Greenhouse Gas Working Group, which was established by the Marine Environment Protection Committee at its eighty-third session, and considered for formal adoption at the second extraordinary session of the Committee on 14–17 October 2025.

[6] A series of 10 technical guidelines was adopted in 2022 to support the implementation of short-term measures (IMO, 2022a, annexes 8–17).

[7] Annex VI addresses air pollution from shipping and is binding for its 108 Contracting States, representing 97 per cent of the merchant shipping fleet by tonnage. See https://wwwcdn.imo.org/localresources/en/About/Conventions/StatusOfConventions/Status%202025.pdf.

[8] Phase two will look at enhancing the SEEMP, further developing CII metrics and creating synergies between the IMO carbon intensity/energy efficiency framework and IMO Net-Zero Framework.

They would then be incorporated as a new Chapter V in Annex VI of MARPOL, under the tacit acceptance procedure, as envisaged in the MARPOL Convention (Article 16 (2)(f)(ii) and (iii))[9] and enter into force 16 months later, in the spring of 2027, with implementation starting in 2028. To facilitate the implementation of the new Net-Zero Framework, detailed implementation guidelines are to be developed by the Greenhouse Gas Working Group for adoption at the eighty-fourth session of the Committee in April 2026.

2. Key features of the Net-Zero Framework

Under the draft regulations (IMO, 2025c), with few exceptions, ships of 5,000 gross tonnage and above will be required to comply with the technical and economic elements of the Net-Zero Framework:

Global fuel standard: Ships must reduce, over time, their annual greenhouse gas fuel intensity (GFI) – that is, how much is emitted for each unit of energy used. This is calculated using a well-to-wake approach.

Global economic measure: Ships emitting above GFI thresholds will have to acquire remedial units to balance deficit emissions, while those using zero- or near-zero-emissions technologies will be eligible for financial rewards.

There will be two levels of compliance with fuel intensity targets: a base target and a direct compliance target at which ships would be eligible to earn "surplus units".

Ships that emit above the set thresholds can balance their emissions deficit by:

- Transferring surplus units from other ships
- Using surplus units they have already banked
- Using remedial units acquired through contributions to the Net-Zero Fund

The IMO Secretary-General will establish the Net-Zero Fund to collect contributions related to emissions. Revenues will then be disbursed to:

- Reward low-emissions ships
- Support innovation, research, infrastructure and just transition initiatives in developing countries
- Fund training, technology transfer and capacity-building to support the IMO greenhouse gas emissions strategy
- Mitigate negative impacts on vulnerable States, such as small island developing States and the least developed countries

According to the proposed amendments, "after the end of calendar year 2028 and after the end of each calendar year thereafter", with few exceptions, all ships of 5,000 gross tonnage and above[10] will be required to calculate their attained annual GFI for the preceding calendar year (reporting period), using ship fuel oil consumption data collected for transmission to the IMO database (draft regulation 27) and taking into account guidelines to be issued by the IMO. The attained annual GFI will be calculated in accordance with a methodology provided in draft regulation 33, taking into account fuel types used, their emissions intensity on a well-to-wake basis,[11] energy consumption by fuel type,

Ship GFI calculation and reporting process

Collect fuel consumption data

Gather data on fuel usage for the year

Calculate attained annual GFI

Compute the attained GFI using collected data and IMO methodologies

Report to the administration

Submit the attained and target GFI, the collected data and the GFI compliance balance to authorities for verification

Balance compliance deficit to reach GFI targets

Purchase remedial or use surplus units

Compliance statement issued

Receive a statement of compliance from authorities

[9] An amendment to the Annexes of the MARPOL Convention is considered to be accepted at the end of a period, which shall not be less than 10 months after the date of adoption, unless within that period "an objection is communicated [...] by not less than one third of the Parties or by the Parties the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, whichever condition is fulfilled" (article 16(2)(f)(iii), MARPOL).

[10] Excluding "ships solely engaged in voyages within waters subject to the sovereignty or jurisdiction of the State the flag of which the ship is entitled to fly, […] ships not propelled by mechanical means, and platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion; and semi-submersible vessels […]" (draft regulation 30(2)).

[11] Draft regulation 34 envisages a sustainable fuels certification scheme to establish the greenhouse gas emissions intensity of different fuels.

Ships can balance their GFI deficit by purchasing remedial units from the IMO Net-Zero Fund or using surplus units transfered from other ships or banked from previous reporting periods

and the total amount of energy used by the ship in the reporting period, including but not limited to fuel oil, electricity delivered from shore power, and zero-emissions energy sources, such as wind propulsion and solar power. The attained annual GFI will be reported separately for each ship to the responsible administration, which in turn will issue a statement of compliance valid for the calendar year in which it was issued, the following calendar year and the first nine months of the subsequent calendar year (draft regulations 6(10) and 9(13)).

Under draft regulation 35, the target annual GFI of a ship shall consist of two tiers, namely, a base target annual GFI and a direct compliance target annual GFI. Both are determined by a gradually increasing annual GFI reduction factor with reference to the average GFI of international shipping in 2008.[12] The base target annual GFI requires a 4 per cent reduction by 2028, rising to 30 per cent by 2035. The direct compliance target annual GFI requires a 17 per cent reduction by 2028, increasing to 43 per cent by 2035.

The attained annual GFI should aim to be equal to or less than the direct compliance target.

- If the vessel has an attained annual GFI greater than the direct compliance target, then it shall balance its tier 1 compliance deficit through remedial units acquired through emissions pricing contributions to the Net-Zero Fund. For reporting periods from 2028 to 2030, the initial price of a tier 1 remedial unit shall be $100 per ton of carbon dioxide equivalent on a well-to-wake basis (draft regulations 36(5) and 36(8)).
- If the vessel's attained annual GFI is greater than the base target, it shall balance its tier 2 compliance deficit through surplus units transferred from other ships, surplus units banked from previous reporting periods and/or remedial units acquired using emissions pricing contributions to the Net-Zero Fund. For reporting periods from 2028 to 2030, the initial price of a tier 2 remedial unit shall be $380 per ton of carbon dioxide equivalent on a well-to-wake basis (draft regulations 36(6) and 36(9)).
- A vessel in direct compliance will earn surplus units equal to its positive compliance balance, which can be transferred to another ship to balance that ship's tier 2 compliance deficit, banked for use in the following reporting periods or voluntarily cancelled as a mitigation (draft regulation 36(11–15)).
- In addition to any surplus units, if technologies, fuels and energy sources used by the ship fall below the IMO threshold, they would qualify as zero or near-zero-emissions technologies, and the vessel using them may receive rewards from the Net-Zero Fund (draft regulation 39).[13]

Draft regulation 38 envisages establishing an IMO GFI registry to facilitate the implementation of the system by maintaining an account for each vessel falling under the scope of the regulations and keeping track of surplus, remedial and cancelled units, along with other information.

Of particular importance for developing countries, especially the least developed countries and small island developing States, is the envisaged disbursement of revenues from the Net-Zero Fund to promote a just and equitable transition and facilitate "environmental and climate protection, adaptation and resilience building within the boundaries of the energy transition in shipping, paying particular attention to the needs of developing countries", in particular these two country groups (draft regulation 41(2)). To this end, the Net-Zero Fund, in addition to providing rewards for the use of "zero or near-zero GHG emissions

[12] The average GFI of international shipping in 2008 has been determined as 93.3 grams of carbon dioxide equivalent per megajoule of energy (well-to-wake).

[13] According to the proposed amendments, the threshold has been determined as 19 grams of carbon dioxide equivalent per megajoule of energy for an initial period until 31 December 2034.

technologies, fuels and/or energy sources (ZNZs)" (draft regulation 39) and covering operational and administrative costs, is to allocate "sufficient revenue", under draft regulation 41, for:

1. researching, developing and making globally available and deploying zero and near-zero [greenhouse gas] emission technologies, fuels and/or energy sources, supporting the energy transition of shipping, and developing the necessary maritime, coastal and port-related infrastructure and equipment;
2. enabling a just transition for seafarers and other maritime workforce;
3. facilitating information-sharing, technology transfer, capacity-building, training and technical cooperation supporting the implementation of the regulations in this chapter;
4. supporting the development and implementation of National Action Plans (NAPs),[14] including fleet renewal and upgrade; and
5. addressing, as appropriate, disproportionately negative impacts on States, including on food security, resulting from the implementation of the regulations in this chapter.[15]

Other aspects of the Net-Zero Framework that are of particular interest for developing countries include draft regulation 42, on the promotion of technical cooperation and transfer of technology related to continuous improvement in the greenhouse gas fuel intensity of ships, and draft regulation 43, which requires the Marine Environment Protection Committee to "address […] the disproportionately negative impacts of this chapter on food security, paying particular attention to countries exposed to food insecurity", and "keep the potential impacts of this chapter on food security under continuous review".

While still subject to formal adoption, the approval of draft amendments to MARPOL Annex VI represents a milestone for climate action and has been hailed as an "important step towards establishing a legally binding framework to reduce [greenhouse gas] emissions from ships" (IMO, 2025n). The midterm measures were not agreed by consensus, however, but by the majority, with a number of countries voicing opposition.[16]

An initial impact assessment by a multistakeholder non-governmental organization indicates that the measures may not be ambitious enough to achieve the targets of the IMO strategy, support the uptake of zero- and near-zero-emissions fuels, and enable a just and equitable transition. Further, they allow too much leeway for fuels considered transitional (such as LNG). The same assessment suggests that the measures are likely to raise about $10 billion a year to support the uptake of zero- and near-zero-emissions fuels and technologies and contribute to various objectives linked to a just and equitable transition. This sum is significantly less than was projected to be raised by a carbon levy. Moreover, it remains to be decided how and when the revenues will be distributed (T&E, 2025).

Some similar concerns have been echoed by the International Chamber of Shipping, the global shipowner association, which emphasizes the complexity of the amendments and burdens on shipowners already navigating various regulations and reporting demands. It highlights stakeholder calls for urgent action and cross-industry and political collaboration to unlock the Net-Zero Framework's full potential (ICS, 2025).

> Of particular importance for developing countries is the envisaged disbursement of revenues from the Net-Zero Fund to promote a just and equitable transition and facilitate environmental and climate protection, adaptation and resilience building

[14] Refer to resolution MEPC.367(79) on the encouragement of Member States to develop and submit voluntary national action plans to address [greenhouse gas] emissions from ships.

[15] Refer to resolution MEPC.377(80) on the 2023 IMO strategy on the reduction of [greenhouse gas] emissions from ships and MEPC.1/Circ.885/Rev.1 on the revised procedure for assessing impacts on States of candidate measures.

[16] 63 member States were in favour and 16 were opposed, leading to a 79 per cent majority in favour (IMO, 2025e, para. 7.41 and annex 10). The United States of America did not participate in the negotiations.

If and when the proposed amendments to MARPOL Annex VI enter into force, monitoring, reporting and financial obligations for individual vessels will need to be factored into commercial maritime contracts. What this will mean in practice depends, among other factors, on further clarification on implementation, including related IMO guidance, which is yet to be developed.

From the perspective of developing countries, financial support for the development of "the necessary maritime, coastal and port-related infrastructure and equipment" will be particularly critical. The International Association of Ports and Harbors points to an important need for investment in suitable fuel supplies outside Europe. There are no LNG bunkering facilities in sub-Saharan African countries, for instance, which makes it challenging to use LNG-powered equipment and adapt to renewable fuels. At the same time, many developing countries have abundant solar and wind resources and existing renewable energy infrastructure as well as legacy infrastructure that could be repurposed for low-carbon hydrogen production and transport (IAPH, 2024).

Investment in facilities to accommodate new cargo types and bunkering will be key to a just and equitable transition

Investment in new facilities to accommodate new cargo types and bunkering in developing countries will be key to a just and equitable transition. At the same time, mainstreaming climate adaptation in the planning, operation and development of port infrastructure, along with appropriate policy and legal measures, and scaling up adaptation finance for developing countries will be critical to protecting ports against infrastructure damage, operational disruptions and extensive economic losses, and safeguarding the flow of goods across interconnected global supply chains (UNCTAD, 2022b and 2024a; UNECE, 2025).

3. Initiatives supporting green and sustainable investments in shipping

Decarbonizing the global shipping fleet requires significant investment. The annual cost of vessel construction and operation to decarbonize the global fleet is estimated at between $8 billion and $28 billion. Additionally, the onshore production and distribution of fuels, along with necessary port infrastructure (bunkering) might require an additional $30 billion to $90 billion per year (UNCTAD, 2023). Sustainable finance instruments, including green, blue and blended finance, that combine concessional and commercial funding will be central in generating required funds (UNCTAD, 2021a).

Global and regional decarbonization measures have sent strong signals to investors and financial institutions providing credit to shipping operations. Numerous industry initiatives aim to increase sustainability. Examples of recent bond initiatives by some of the largest global liner shipping companies include the Nippon Yusen Kabushiki Kaisha Green/Transition Finance Framework, launched in February 2025;[17] the CMA-CGM $1.5 billion Fund for Energies to accelerate the energy transition in shipping and logistics, announced in 2022;[18] and a 10-year, €500 million green bond issued by Maersk in 2021.[19]

Other relevant initiatives include the Poseidon Principles, a global framework for responsible ship finance, which promotes sustainable shipping by aligning lending practices with climate goals.[20] Adopted in 2019, the principles establish a framework for assessing and disclosing the climate alignment of ship finance portfolios, increasing transparency. The participation of financial institutions has grown to 36 leading banks, jointly accounting for approximately 80 per cent of global shipping

[17] See https://www.nyk.com/english/sustainability/envi/esg-finance/pdf/index_17.pdf.
[18] See https://www.cmacgm-group.com/en/news-media/cma-cgm-a-fund-for-energies.
[19] See https://www.maersk.com/news/articles/2021/11/19/maersk-issues-first-green-bond-to-fund-first-green-methanol-vessels.
[20] See https://www.poseidonprinciples.org/finance/.

finance.[21] Similar voluntary initiatives exist for charterers and shipowners, through the Sea Cargo Charter Framework developed in 2020,[22] as well as for marine insurers, through the 2024 Poseidon Principles Technical Guidance for Marine Insurance.[23]

Incorporating environmental, social and governance (ESG) criteria in the corporate governance of a shipping company might provide access to a larger pool of financiers (Kavussanos, 2024), reputational benefits and preferential margin adjustments in financing. Loans remain the preferred method of financing among shipowners, especially small and midsized operators. Global loan market associations have developed voluntary recommended guidelines, namely the Green Loan Principles and Sustainability Linked Loan Principles (APLMA, LMA and LSTA, 2025a and 2025b). Such voluntary industry guidance, together with innovative funding mechanisms, policy support and global collaboration, can help to bridge the financing gap in reducing greenhouse gas emissions in the shipping sector.

Green loans require using finance for an eligible green project, meaning one with clear environmental benefits.[24] Sustainability-linked loans are not specifically for green projects but instead aim to improve the borrower's ESG performance by setting sustainability performance targets measured against key performance indicators. These loans may play a part, among others, in providing the finance needed for new vessels and alternative fuels (ICS, 2025).

The definition of green or environmentally sustainable projects may vary depending on the sector, location or applicable taxonomy systems. For instance, the European Union's Taxonomy Regulation (European Union, 2020) establishes specific criteria for determining whether an economic activity qualifies as environmentally sustainable. A Commission Delegated Regulation (European Union, 2023c) supplements the Taxonomy Regulation by providing specific technical criteria for numerous industry sectors, including sea and coastal freight water transport, vessels for port operations and auxiliary activities, as well as the retrofitting of sea and coastal freight and passenger water transport.[25] The European taxonomy framework has its own approach to sustainable activities in shipping[26] but takes into consideration the short-term IMO measures to reduce greenhouse gas emissions. The approval of the IMO midterm measures could assist in developing a more harmonized global view of green or environmentally sustainable investment in the shipping sector, creating the necessary legal certainty in the global financing market.

4. Liability and compensation for pollution damage

The use of alternative fuels (including hybrid hydrocarbon fuels and LNG, ammonia, methanol, hydrogen and biofuels) or new battery technologies could contribute considerably to reducing greenhouse gas emissions from ships and achieving IMO targets. As with any new technology, however, the use of alternative fuels poses

[21] See https://www.poseidonprinciples.org/finance/signatories/.
[22] See https://www.seacargocharter.org/.
[23] See https://www.poseidonprinciples.org/insurance/wp-content/uploads/2021/12/Poseidon-Principles-for-Marine-Insurance-Technical-Guidance.pdf.
[24] The Green Loan Principle, in a non-exhaustive list, refers to eligible green projects as those addressing pollution prevention and control (including greenhouse gas emissions); clean transportation (including electric, hybrid and multimodal transportation) as well as the reduction of harmful emissions in transportation; green technologies (such as carbon capture); and climate resilience and adaptation (notably investment in infrastructure, and development of information support systems, such as climate observation and early warning systems) (APLMA, LMA and LSTA, 2025a).
[25] European Union, 2023c, annex I, sections 6.10 and 6.12.
[26] For example, transportation of fossil fuels is considered an unsustainable activity, irrespective of the vessel's performance (ibid., section 6.10).

risks. New fuels can be toxic, flammable, explosive and difficult to disperse. Addressing these risks effectively will require regulatory action to complement the existing regulatory framework governing civil liability for ship-source pollution. This framework currently consists of the following legal instruments:

- The liability framework under the 1992 International Convention on Civil Liability for Oil Pollution Damage and the 1992 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage,[27] collectively referred to as the CLC-IOPC Fund regime 1992, addresses civil liability for oil pollution damage from vessels "constructed or adapted for the carriage of oil in bulk as cargo".[28] The two Conventions have been widely ratified[29] and provide an autonomous two-tier liability system to compensate victims of oil pollution from tankers. The regime provides for the strict, channelled and limited liability of the shipowner. This is combined with mandatory insurance and a right of direct claims against the insurer, and supplemented by a second tier of compensation provided by the International Oil Pollution Compensation Fund, which pools contributions from oil cargo receivers.[30] In 2003, an optional third tier of compensation was introduced by the Supplementary Fund Protocol,[31] which is in force in some States,[32] mainly in Europe. It raises the maximum compensation available to victims of tanker oil pollution to 750 million Special Drawing Rights (SDRs)[33] per incident.
- For bunker oil pollution from vessels other than tankers, the 2001 International Convention on Civil Liability for Bunker Oil Pollution Damage (Bunkers Convention)[34] establishes the strict liability of the shipowner.[35] In contrast to the CLC-IOPC Fund regime 1992, it does not provide for an autonomous liability system or access to an international fund. Liability and compensation depend on the size of the vessel and may be limited in accordance with "any applicable national or international regime, such as the Convention on Limitation of Liability for Maritime Claims [LLMC] 1976, as amended" (article 6) (see also UNCTAD, 2020, 2022a and 2023).
- The 2010 International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS Convention)[36] governs liability arising in connection with the carriage of hazardous and noxious substances (either in bulk or packaged form), as specified in the Convention. A continuously updated list of substances can be found through an online tool,[37] including certain types of methanol and ammonia when carried as cargo.

[27] In force since 1996. See https://www.iopcfunds.org/. Note that earlier versions of the two Conventions, from 1969 and 1971, are still in force in a number of jurisdictions. See also UNCTAD, 2012.
[28] Article 1(1) of the 1992 International Convention on Civil Liability for Oil Pollution Damage.
[29] As of 20 June 2025, the International Convention on Civil Liability for Oil Pollution Damage had 146 Contracting States; the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage had 122 Contracting States. See IMO, 2025m.
[30] For further details, see UNCTAD, 2012.
[31] The 2003 protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992 (in force since 2005).
[32] As of 20 June 2025, 33 States. See IMO, 2025m.
[33] For the daily exchange rate, see https://www.imf.org/external/np/fin/data/rms_five.aspx.
[34] In force since 2008. As of 20 June 2025, the Convention had been ratified by 107 States. See IMO, 2025m.
[35] Articles 1(1) and 4(1). Vessels that fall within the scope of application of the 1992 Conventions are exempted.
[36] Not yet in force. As of 20 June 2025, the Convention had been ratified by eight States. See IMO, 2025m and https://www.hnsconvention.org/.
[37] Available at https://www.hnsconvention.org/hns-finder/.

Similar to the CLC-IOPC Fund regime 1992, the 2010 HNS Convention provides for an autonomous two-tier liability system and replicates other main elements of the regime.[38] It allocates liability for HNS pollution damage between the shipowner and an international fund, providing for a maximum compensation of 250 million SDR per incident. However, the Convention has not yet entered into force.

New types of fuels are outside the substantive scope of the CLC-IOPC Fund regime 1992 as they do not fall under the definition of "persistent oil", which comprises "any persistent hydrocarbon mineral oil such as crude oil, fuel oil, heavy diesel oil and lubricating oil, whether carried on board a ship as cargo or in the bunkers of such a ship".[39] Some alternative fuels, when carried as cargo, might fall within the definition of a hazardous and noxious substance under article 1(5) of the 2010 HNS Convention. The Convention has not yet entered into force, however. If and when it does, its application would not extend to hazardous and noxious substances used as fuel.

In relation to alternative fuels used to propel vessels, the 2001 Bunkers Convention might be applicable. Article 1(5) defines "bunker oil" as "any hydrocarbon mineral oil used or intended to be used for the operation or propulsion of ships", potentially including some types of hybrid fuels, but excluding fuels not based on hydrocarbons.

Finally, with the exception of the 2010 HNS Convention (which, as noted, is not yet in force), all other liability regimes for pollution incidents exclude claims related to loss of life or personal injury on board or outside the ship. This is a major concern since the carriage or use of new fuels can pose significant risks, both for crews and potential pollution victims, considering their toxicity, volatility and flammability.

This issue was underlined at the 112th session of the IMO Legal Committee by the IMO and the IOPC Funds secretariats, which highlighted the importance of ratification and entry into force of the 2010 HNS Convention in view of the increase in transportation of alternative fuels and, therefore, of potential risks to coastal States (IMO, 2025f). In this regard, the Committee approved a new output on the "Suitability of IMO liability and compensation regimes with respect to alternative fuels", with a target completion year of 2027. It also invited interested member States and international organizations to informally work together in the intersessional period (IMO, 2025g).

As the overview of key developments and issues in this section illustrates, while regulatory and technological progress in reducing greenhouse gas emissions from international shipping is underway, a number of important challenges remain and need to be effectively addressed. United Nations Member States as well as affected industry stakeholders are encouraged to actively engage in related work going forward. UNCTAD can provide related analysis, advice and assistance to help ensure the legitimate concerns of developing countries are appropriately taken into account.

The use and carriage of alternative fuels pose new risks which need to be effectively addressed before they materialize

[38] Such as the strict, channelled and limited liability of the shipowner, combined with mandatory insurance and the possibility to claim compensation directly from the insurer. An international fund on hazardous and noxious substances has been set up under conditions similar to those of the International Oil Pollution Compensation Fund.

[39] Articles 1(1) and 1(5) of the 1992 International Convention on Civil Liability for Oil Pollution Damage.

B. Strengthening the rights of seafarers in times of uncertainty

Consistent application of labour standards requires the active support of flag States, port States and the shipping industry

The world's 1.9 million seafarers – many of whom come from developing countries[40] – play a vital role in maintaining the continuous flow of critical goods along supply chains. They keep the world's shipping and trade moving, including and particularly during supply chain disruptions, as illustrated during the COVID-19 pandemic (UNCTAD, 2021b and 2021c). Protecting the rights of seafarers poses significant challenges due to the transnational nature of the maritime industry. Consistent application of labour standards onboard ships of different flags, especially when multiple jurisdictions are involved, is complex, requiring the active support of flag States, port States and the shipping industry. Long periods of isolation, beyond the reach of local labour inspectors or unions, complicate the situation and present additional risks to the health and well-being of seafarers. Overall, difficult working conditions, including during crises, contribute to perceptions of the maritime sector as an unattractive industry. Seafarer labour shortages have reached a 17-year high (Global Maritime Forum, 2025).

Against this background, coordinated multistakeholder action is crucial, as has been highlighted by UNCTAD as part of its extensive work on seafarer issues, including the humanitarian crew change crisis, during the pandemic (UNCTAD, 2021b and 2021c). International organizations, such as IMO and ILO, provide important fora for cooperation by port States, flag States and other interested stakeholders. In this context, the ILO/IMO Joint Tripartite Working Group was established in 2022 to identify and address seafarers' issues and the human element. UNCTAD participates in this work as an observer.

Effective legal frameworks are instrumental in protecting the rights of seafarers globally. They include the 2006 MLC as amended,[41] often referred to as the fourth pillar of international maritime law, along with the 1974 International Convention for the Safety of Life at Sea,[42] the MARPOL Convention and the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers.[43] The MLC consolidates and updates 68 international labour standards related to the maritime sector. It provides a comprehensive, structured approach to the rights of seafarers, set out in articles, regulations, and a code with standards and guidelines.

[40] In 2021, leading crewing nations, accounting for almost 50 per cent of global seafarers, included the Philippines (13.3 per cent), the Russian Federation (10.5 per cent), Indonesia (7.6 per cent), China (7.1 per cent), India (6 per cent) and Ukraine (4 per cent). See UNCTADstat, 2021.

[41] In force since 2013. As of 4 July 2025, the Convention had been ratified by 110 States. See https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:11300:0::NO::P11300_INSTRUMENT_ID:312331.

[42] International Convention for the Safety of Life at Sea, 1974, in force since 1980. As of 20 June 2025, the Convention had 168 Contracting Parties. See IMO, 2025m.

[43] International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978. As of 20 June 2025, the Convention had 167 Contracting Parties. See IMO, 2025m.

The articles and regulations establish core rights and principles along with the basic obligations of States Parties to the Convention. They can only be revised by the ILO General Conference (article XIV). The code contains details regarding the implementation of the regulations and can be amended through a simplified procedure (article XV). It comprises part A (mandatory standards) and part B (non-mandatory guidelines). It stipulates that:

- Member States should implement the rights and principles in the mandatory standards in law and practice, and have the possibility, when that is not feasible, to implement substantially equivalent measures.
- Member States should give due consideration to the guidelines when implementing their responsibilities (article VI).

In 2025, the fifth meeting of the Special Tripartite Committee, the body comprising representatives of Member States, shipowners and seafarers that oversees the continuous review of the MLC, agreed on several amendments to strengthen seafarers' rights (ILO, 2025a). These were formally adopted at the 113th session of the International Labour Conference on 6 June 2025 (ILO, 2025b) and are expected to enter into force in December 2027.

1. Repatriation of seafarers and cases of abandonment

Seafarers frequently work on ships that undertake consecutive voyages covering long distances far from their country of residence. In cases of illness or injury, or when a seafarer's employment agreement expires abroad or the prescribed period of service on board ends (with a maximum duration of less than 12 months), seafarers must be confident that shipowners will return them to their homes, the place where they joined the ship or the location required by any applicable collective bargaining agreement. The MLC contains firm provisions so that, in general, seafarers may return home at no cost to themselves (regulation 2.5(1)). To strengthen this right, States Parties are required to ensure that ships flying their flag provide financial security for the repatriation of seafarers (regulation 2.5(2)). Amendments to the Convention adopted in 2014, in force since 2016, established requirements to ensure an expeditious and effective financial security system to assist seafarers in the event of their abandonment. Those provisions were put to the test during the COVID-19 crisis, when the suspension of crew changes due to pandemic-related measures left many seafarers stranded at sea far beyond the expiration of their employment agreements (UNCTAD, 2021b and 2021c).

The 2025 amendments to the MLC (ILO, 2025a) strengthen seafarers' rights to repatriation, as they require each Member "to facilitate the repatriation of seafarers in a manner which excludes discrimination on any grounds and irrespective of the flag State of the ship on which they are employed, engaged or work" (standard A2.5.1 (10)). They introduce binding provisions for shipowners on the minimum costs of repatriation that they are expected to cover (standard A2.5.1 (3)). Learning from the lessons of the pandemic, States are advised to designate and recognize seafarers as key workers and facilitate their movement when travelling in connection with, among other issues, repatriation (guideline B2.5.2 (1)).

Despite regulatory efforts, one persistent problem facing seafarers globally is abandonment. This occurs when, in violation of MLC provisions and the terms of employment agreements, "the shipowner: (a) fails to cover the cost of the seafarer's repatriation; or (b) has left the seafarer without the necessary maintenance and support; or (c) has otherwise unilaterally severed their ties with the seafarer including failure to pay contractual wages for at least two months" (standard A2.5.2 (2)).

The 2025 MLC amendments strengthen seafarers' rights to repatriation

A submission by the International Transport Workers' Federation to the 112th session of the IMO Legal Committee in March 2025 highlighted a record high of 312 cases of abandonment involving 3,133 seafarers on 282 different vessels in 2024, as registered in the ILO-IMO Joint Database on Abandonment of Seafarers (IMO, 2025h).[44] By comparison, in 2020, despite significant operational difficulties due to the COVID-19 pandemic and related response measures, only 78 cases were reported.

At its 112th session, the IMO Legal Committee urged port and flag States and all other interested stakeholders to regularly update the ILO-IMO database on abandonment of seafarers to increase its accuracy (IMO, 2025g). It encouraged member States to provide information on national contact points in the State of the seafarer's nationality for cases of abandonment. Member States were also advised to conduct additional information campaigns to raise seafarers' awareness of financial security in the event of abandonment and to implement the "Guidelines on how to deal with seafarer abandonment cases" adopted by the ILO/IMO Joint Tripartite Working Group in 2022 (ILO and IMO, 2022). The guidelines provide a reference tool for flag States, port States and labour-supplying States to design and implement policies, strategies, programmes, legislation, administrative measures and social dialogue mechanisms related to resolving cases of the abandonment of seafarers.

2. Shore leave

In 2023 and 2024, delays and reduced traffic through the Panama Canal, due to climate-induced low water levels, as well as the decrease in marine transit through the Suez Canal, exacerbated by regional conflicts (UNCTAD, 2024a and 2024b), led to the rerouting of ships. This added significant time, cost and environmental impacts to global shipping operations (UNCTAD, 2024c). Reroutes can add weeks to journeys, intensifying fatigue and mental strain among crew members. The prolonged time at sea often exacerbates feelings of isolation and anxiety, impacting both personal well-being and operational safety (IMO, 2019). Shore leave during port calls provides seafarers with opportunities to visit seafarer welfare centres that offer recreational and other facilities and a change of scenery, among other benefits. This can relieve stress and isolation and is important for seafarers' health and well-being.

A recent joint report by the International Transport Workers' Federation Seafarers' Trust and the World Maritime University highlighted an emerging tendency to restrict the traditional right of seafarers to shore leave (Carrera Arce et al., 2025). This shift was attributed initially to the acceleration of the supply chain and implementation of the International Ship and Port Facility Security Code. It reached a peak during the crew change crisis resulting from the COVID-19 pandemic and related response measures. Despite the resolution of pandemic-related crew change challenges, however, previous levels of shore leave have not been restored.

[44] Available at https://wwwex.ilo.org/dyn/r/abandonment/seafarers/search?clear=6. A summary of abandonment cases submitted to the Legal Committee (IMO, 2025i) indicates that most abandoned seafarers in 2024 were Indian nationals (916), followed by Syrians (423) and Ukrainians (292). Most instances of abandonment occurred in the waters of the United Arab Emirates (42 cases), Egypt (26 cases) and Türkiye (25 cases). Panama, the second-largest vessel registry in 2024 by dead weight tonnage (see chapter II) was the flag State accounting for the most abandonments (50 cases in 2024). Cases of abandonment appear to be rising for vessels registered in several smaller registries (Lloyd's Register, 2025).

The MLC provides for seafarers to be granted shore leave to benefit their health and well-being (regulation 2.4(2)) and promotes the establishment of welfare facilities available to all seafarers (regulation 4.4). To strengthen the right to shore leave, the 1965 Convention on Facilitation of International Maritime Traffic (FAL Convention)[45] was amended in 2022 to facilitate the ability of foreign seafarers on international voyages to go ashore (IMO, 2022b). The latest amendments to the MLC add a new standard, directed at port and flag States, that regulates seafarers' right to shore leave (standard 2.4.2 as amended).

More specifically, according to the MLC, public authorities of port States shall ensure that seafarers are allowed ashore, provided that the relevant formalities have been fulfilled and public authorities have no reason to refuse permission to come ashore for reasons of public health, public safety and security, or public order. Port States should ensure that seafarers are allowed to come ashore in a non-discriminatory manner, and irrespective of the flag State of the ship on which they are employed, engaged or work. No seafarer shall be required to hold a visa or special permit for shore leave. If public authorities have reason to refuse permission, this should be communicated to the seafarer and the master, in writing if requested. Each flag State shall require shipowners to allow seafarers to take shore leave to benefit their health and well-being, consistent with the operational requirements of their positions, unless leaving the ship is prohibited or restricted by relevant authorities of the port State or due to safety or operational reasons. Importantly, shore leave provided in accordance with the FAL Convention is considered compliant with the MLC, thus promoting harmonization in the applicable legal framework.[46] Guidelines also provide for facilitating shore leave by establishing procedures for cooperation with shipowners' and seafarers' organizations and other relevant stakeholders. Personnel in ports and terminals should also be provided with appropriate information and training on seafarers' rights, including shore leave (guidelines B4.1.1 (2) and (4)).

Implementation of MLC and FAL provisions important to strengthen seafarers' right to shore-leave

3. Working conditions

Chronic overwork heightens the risk of fatigue-related accidents and long-term health issues, a matter of particular concern in maritime operations.[47] While the MLC includes binding provisions on the maximum hours of work and minimum hours of rest (regulation 2.3 and relevant standards), the importance of effective implementation and enforcement of these provisions cannot be overstated.

A 2022 survey on work/rest practices on ships, involving a diverse sample of seafarers in terms of age, nationality, ranking, vessel and company type (Bhatia et al., 2024), suggests that the standard on the maximum hours of work and minimum hours of rest (standard A2.3(5)) may often not be respected. Of approximately 6,300 respondent seafarers, 88.3 per cent admitted to exceeding work/rest hour limits at least once a month, while 16.5 per cent indicated they exceeded the limits more than 10 times a month. An earlier study highlights a "culture of adjustment" among seafarers, with work hours either being underreported or work/rest hour records manipulated for compliance purposes (World Maritime University, 2020). Records of the daily work hours of seafarers should be maintained on board the vessel per the binding standards of the MLC (standard A2.3(12)). Yet one third of seafarers responding to the survey admitted that they had never adjusted their records if they exceeded work/rest limits (ibid.).

[45] In force since 1967. As of 20 June 2025, the FAL Convention had 131 Contracting States. See IMO, 2025m.
[46] FAL Convention, annex, section 3, part G, standards 3.44-3.49.
[47] See, for example, the grounding of the vessel NCL Salten at Byneset near Trondheim. Press reports attributed this to a variety of causes, including an officer falling asleep on watch at the time of the incident, having completed three port calls within 24 hours (Splash, 2025).

The fifth meeting of the Special Tripartite Committee discussed but did not adopt proposals submitted by the seafarers' group to amend the limits of work/rest hours. It adopted a resolution recommending that the ILO/IMO Joint Tripartite Working Group review relevant provisions of the MLC and the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, and consider developing practical guidance on implementation and enhanced monitoring of compliance (ILO, 2025c).

4. Fair treatment of seafarers detained on suspicion of committing crimes

When investigating crimes, States should be mindful that seafarers may unknowingly become implicated in criminal activities and should exercise due caution to avoid the criminalization of seafarers unless this can be supported by relevant evidence. A significant rise in cases of detained seafarers as reported to ILO and IMO (IMO, 2025g, para. 4(c)) suggests that following maritime incidents such as pollution, accidents or the discovery of illicit cargo, seafarers frequently face criminal charges before all relevant facts are thoroughly examined. Geopolitical developments and conflict, including the war in Ukraine, migrant flows in the Mediterranean and attacks on vessels in the Red Sea, have heightened such risks for seafarers.

In accordance with an IMO Assembly resolution (IMO, 2011) and using ILO and IMO guidelines on the fair treatment of seafarers in the event of a maritime accident as a basis, the ILO/IMO Joint Tripartite Working Group adopted the ILO/IMO Guidelines on fair treatment of seafarers detained in connection with alleged crimes at its third session in 2024 (ILO and IMO, 2025). The guidelines address the responsibilities of port, flag and coastal States as well as seafarers' home countries and shipowners. They focus on several issues, including access to consular services and legal assistance and the use of non-custodial measures during investigations. They also aim to raise the awareness of seafarers on the dangers of self-incrimination, arbitrary detention, coercion and intimidation, and their rights to wages and medical care during legal proceedings. Finally, they seek to strengthen cooperation among States and interested stakeholders.

The 2025 MLC amendments refer to the abovementioned ILO/IMO guidelines in the standard on flag State responsibility in cases of marine casualties (standard A5.1.6(1) and (2)) and the guideline concerning seafarers in a foreign port (guideline B4.4.6 (2)).

While the regulatory developments outlined in this section are encouraging, effective implementation and enforcement of the legal framework for the protection of seafarers, involving concerted efforts by flag and port States as well as the shipping industry, remain imperative – both to safeguard the legitimate rights of seafarers and to ensure the flow of goods across supply chains, including at times of disruptions. Drawing on its extensive work on seafarers' issues during the pandemic, UNCTAD will continue to monitor developments and provide related advice and assistance.

C. Other recent developments

While it is not possible to cover the entire range of legal and regulatory developments that may be of interest, this section briefly highlights some recent and ongoing developments regarding issues of particular importance, especially with a view to encouraging the active participation and engagement of United Nations Member States and affected stakeholders.

1. Entry into force of the Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships 2009

The recycling of ships is likely to grow in importance and will have to increase if the global fleet is to be modernized in line with agreed decarbonization targets. Shipbreaking is a harsh and dangerous process, often undertaken by workers using basic tools and facing daily risks from toxic exposure, explosions and unsafe conditions. Many lack proper training, healthcare or sanitation. These issues render shipbreaking one of the most dangerous jobs in the world (ILO, 2015). It can also cause severe environmental damage, releasing hazardous substances (such as asbestos or polychlorinated biphenyl), oil residues and heavy metals into the soil and sea, polluting coastal communities, and threatening ecosystems, fisheries and public health (Shipbreaking Platform, 2023).

To address some of these problems, the Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships was negotiated under IMO auspices and adopted in 2009. In an important and long-awaited development, after more than 15 years, the Convention finally entered into force on 26 June 2025, providing the basis for a significant improvement in health, safety and working conditions as well as the environmental sustainability of global ship recycling practices. The Convention currently has 24 Contracting States (IMO, 2025m). They include Bangladesh, India, Pakistan and Türkiye, which together dominate the ship recycling industry, accounting for approximately 90 per cent of global ship recycling volume (UNCTAD, 2024a; Clarksons Research, 2025; see also chapter II). Major flag States, including Japan, Liberia, the Marshall Islands and Panama, are also Contracting States.

The Convention requires implementation measures by both flag States and States with recycling facilities, to enhance safety and make ship recycling more environmentally friendly. Mandatory regulations cover the design, construction, operation and preparation of ships to support safe and environmentally sound recycling; the operation of ship recycling facilities; and appropriate enforcement mechanisms, including survey, authorization, certification, inspection and reporting requirements.

Flag States are required to ensure that all ships of 500 gross tonnage or above flying their flag comply with the Convention's provisions. This includes the development and maintenance of an inventory of hazardous materials that is specific to each ship and updated throughout its operational life. The inventory identifies the location and approximate quantities of hazardous materials on board (articles 5(1) and (3)). Flag States must also ensure that ships undergo surveys to verify the inventory, including an initial survey, periodic renewal surveys and a final survey prior to recycling. After this point, an international ready-for-recycling certificate is issued, confirming that the ship complies with the Convention's requirements for safe and environmentally sound recycling (articles 10 and 11).

The Hong Kong Convention will require implementation from both flag states and states with ship recycling facilities

Non-mandatory MASS Code to be finalized and adopted in May 2026

Ship recycling facilities to which the Convention applies must be authorized by the Contracting State's competent authorities. Authorized facilities are required to develop a ship recycling facility plan detailing procedures for safe and environmentally sound recycling, including worker safety measures, training programmes, emergency preparedness, and systems for monitoring and reporting (articles 18–23). Prior to recycling a ship, the authorized facility must prepare a ship recycling plan specific to the vessel, taking into account its inventory of hazardous materials and other relevant information. Apart from the obligation of States to ensure that recycling facilities within their jurisdiction comply with the Convention's standards, facilities may only accept ships that meet the Convention's requirements. A set of IMO guidelines has been developed to assist States in the implementation and enforcement of the Convention's technical standards.[48]

Prior to the entry into force of the Hong Kong Convention, relevant legislation was already in force at the European level for some time. The European Union Ship Recycling Regulation (European Union, 2013) implemented the Convention at the European Union and European Economic Area level (see UNCTAD, 2024a). The Regulation includes additional requirements, most notably prohibiting European vessels from being recycled in facilities not approved by the European Commission or published in the European list of ship recycling facilities.[49] As the Hong Kong Convention permits more stringent measures (article 1(2)), application of these additional requirements at the European level is not affected by its entry into force. According to some estimations, the application of the European Union Ship Recycling Regulation has ensured that 30,000 vessels already carry an inventory of hazardous materials certificate or statement of compliance. An additional 23,000 vessels need to be certified in the next few years (DNV, 2023).

2. Updated road map for the development of a maritime autonomous surface ships code

Rapid technological advances in the maritime industry are accelerating the development of ships using various degrees of automation, including remotely operated and fully self-navigating vessels. Automation in shipping operations has ramifications for safety at sea, ship navigation and cargo operations, as well as potential environmental, security, social and economic impacts. Acknowledging related risks, IMO has been working since 2017 to identify potential gaps in the existing regulatory framework. This effort is aimed at making sure that rules for MASS keep pace with evolving technology and balance benefits with potential risks and costs. Three regulatory scoping exercises of IMO legal instruments, under the auspices of the Maritime Safety Committee, Facilitation Committee and Legal Committee, took place between 2021 and 2022. They identified potential regulatory gaps and issues that need to be addressed.[50]

Since the completion of these exercises, a joint working group involving the three IMO committees has been working to address common issues identified (such as roles and responsibilities of the master and the crew, certification, cybersecurity, etc.) and consider the definition and terminology of MASS, as well as factors associated with remote operation centres and remote operators. The working group has also developed a table – intended as a living document – to identify preferred options for effectively addressing the common issues identified (IMO, 2024b).

[48] All guidelines can be found at https://www.imo.org/en/MediaCentre/HotTopics/Pages/Recycling-of-ships-and-Hong-Kong-Convention.aspx.
[49] The current eleventh version of the list is available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2023.190.01.0013.01.ENG.
[50] See https://www.imo.org/en/MediaCentre/HotTopics/Pages/Autonomous-shipping.aspx.

In parallel, the Maritime Safety Committee has been working to develop a non-mandatory code for MASS, aimed at providing a global regulatory framework for the safe, secure and environmentally sound operation of autonomous ships. The latest consolidated version of the Draft International Code of Safety for Maritime Autonomous Surface Ships (MASS Code), submitted by the MASS Correspondence Group to the 110th session of the Committee, contains 15 chapters in three parts covering: (1) overarching matters connected to MASS; (2) technical principles applicable in all cases when applying the code, including approval and certification processes; and (3) goals, functional requirements and expected performance applicable to MASS operations and functions (IMO, 2025j, annex 1).

Following additional work on the draft code, the Committee agreed on a revised road map that envisages further work by the re-established Intersessional Working Group on MASS at its upcoming fourth session from 29 September to 3 October 2025, and finalization and adoption of the code at the Committee's 111th session in May 2026 (IMO, 2025k, annex 8). Following a review and assessment of the non-mandatory code as well as an experience-building phase, a mandatory MASS code is then set to be developed in 2028, with a view to its adoption as a new chapter of the International Convention for the Safety of Life at Sea by 1 July 2030 and its subsequent entry into force on 1 January 2032 (ibid.). The IMO Legal Committee also adjusted the timeline of its own workplan and scheduled the assessment of the non-mandatory MASS code in the spring of 2027 (IMO, 2025g, annex 7).

3. Fraudulent ship registration and registries

Fraudulent ship registration and registries remain matters of growing global concern due to the far-reaching implications for maritime safety and security, pollution, seafarer welfare and ocean governance. Following several decisions at its previous session, and after consideration of the final report of the IMO Study Group on Fraudulent Registration and Fraudulent Registries of Ships, prepared by the World Maritime University, UNCTAD and the IMO International Maritime Law Institute (IMO, 2024c; see also UNCTAD, 2024a), the IMO Legal Committee continued to work on the issue at its 112th session. In particular, it considered a report by the Correspondence Group on Due Diligence and IMO Identification Number Schemes (IMO, 2025l), which had been tasked with further developing elements of «due diligence» to be exercised in the process of registration of ships and with developing a draft proposal for a new output on guidelines or best practices on the registration of ships.

IMO Legal Committee set to begin important work on non-mandatory guidelines or best practices for registration of ship

Following consideration of the report, and amid widespread support for a proposal to develop non-mandatory guidelines or best practices related to the registration of ships, the Legal Committee agreed to include a new relevant output in the 2026–2027 biennial agenda, with a target completion year of 2027, and to establish a working group at its next session to carry out the work. In response to a call by many delegations for a more holistic approach that would also focus on existing mandatory and non-mandatory instruments and involve other IMO organs, the Legal Committee also invited the Maritime Safety Committee, the Facilitation Committee and the Technical Cooperation Committee to consider the problem of fraudulent registration and registries as part of their work.

In a related development, acknowledging challenges posed by unlawful operations and substandard ships in terms of safety, security, protection of the marine environment and fair treatment of seafarers, the Legal Committee approved a proposal for a new output to the current biennial agenda in the form of a regulatory scoping exercise to further develop actions to prevent unlawful operations, including substandard ships. Relevant work will commence intersessionally through a correspondence group under the coordination of Germany. It is charged with developing an appropriate methodology and road map for the conclusion of the regulatory scoping exercise as well as a list of relevant legal matters within the scope of the Organization that should be included in it (IMO, 2025g, paras. 6.19–6.28 and annex 3).

The ongoing regulatory developments and initiatives outlined in this section are important and deserve the active support and engagement of all affected public and private sector stakeholders, to ensure that their legitimate interests are appropriately reflected and the overall result accords with commercial expectations, while leaving no one behind. UNCTAD will continue to support developing countries through its analytical work, as well as related guidance and advice.

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