B. REGULATORY DEVELOPMENTS RELATING TO INTERNATIONAL SHIPPING, CLIMATE CHANGE AND OTHER ENVIRONMENTAL ISSUES

1. Developments under the auspices of the International Maritime Organization related to the reduction of greenhouse gas emissions from ships

Maritime decarbonization and the reduction of greenhouse gas emissions from ships have become a priority area for policymakers and industry to be achieved, among others, through the adoption of energy-efficient technologies, the optimization of ship operations and use of low- and zero-carbon fuels, as well as regulation. A number of measures are being adopted in these areas by Governments, often in collaboration with industry, both nationally and internationally.

The IMO Marine Environment Protection Committee has for some time been addressing greenhouse gas emissions from ships engaged in international voyages. The measures to improve the energy efficiency of international shipping were adopted under a new chapter of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL), annex VI. In force since 1 January 2013, these measures apply to ships of 400 gross tons and above that are engaged in international voyage. They make two key requirements mandatory: The energy efficiency design index for new ships and the ship energy efficiency management plan for new and existing ships.

The energy efficiency design index for new ships has become increasingly strict over time. In May 2019, the Marine Environment Protection Committee approved, for adoption at its next session (initially scheduled for April 2020, but postponed due to the COVID-19 pandemic), draft amendments to MARPOL annex VI. These aimed to significantly strengthen the phase 3 requirements of the index, bringing forward their entry into force date to 2022, from 2025, for several ship types, including container ships, gas carriers, general cargo ships and liquefied natural gas carriers.

The ship energy efficiency management plan for new and existing ships establishes a mechanism for improving the energy efficiency of ships, including by monitoring their energy efficiency performance, new practices and technologies. For instance, it is now mandatory for ships to collect and report ship fuel oil consumption data. Since 1 January 2019, flag States collect consumption data for each type of fuel oil used by ships of 5,000 gross tons and above, which are then transferred to the IMO ship fuel oil consumption database. Reports analysing and summarizing the data collected shall periodically inform the Marine Environment Protection Committee. Information from the reports also benefits analysis on emissions by flag or vessel type as presented in chapter 3.E of the Review.

Already in April 2018, the Marine Environment Protection Committee had adopted the Initial Strategy on reduction of greenhouse gas emissions from ships (IMO, 2018a, annex 1; UNCTAD, 2019a), which envisages a reduction of the total annual greenhouse gas emissions from international shipping by at least 50 per cent by 2050 as compared with 2008, while, at the same time, pursuing efforts towards phasing them out entirely. Candidate short-term measures, to be further developed and agreed upon by member States between 2018 and 2023, include technical and operational energy efficiency measures for both new and existing ships, such as speed optimization and reduction, the development of robust life cycle greenhouse gas and carbon intensity guidelines for all types of fuels to prepare for the use of alternative low-carbon and zero-carbon fuels, port activities and incentives for first movers.

Innovative emissions-reduction mechanisms, possibly including market-based measures, to incentivize greenhouse gas emission reduction – a controversial issue for a number of years – were included among candidate midterm measures. These are to be agreed and decided upon between 2023 and 2030, along with possible long-term measures to be undertaken beyond 2030 that would ultimately lead to zero-carbon or fossil-free fuels to enable the potential decarbonization of the shipping sector in the second half of the century (for more information, see UNCTAD, 2018). In October 2018, the Marine Environment Protection Committee approved a programme of follow-up actions of the Initial Strategy on reduction of greenhouse gas emissions from ships up to 2023. It is planned that a revised strategy on reduction of greenhouse gas emissions from ships will be adopted in 2023.

The Marine Environment Protection Committee Working Group on Reduction of Greenhouse Gas Emissions from Ships met for its sixth intersessional meeting in November 2019 and made progress on several issues, leading towards achieving the levels of ambition set out in the Initial Strategy (see IMO, 2019a). These include the following:

- Development of a draft resolution on national action plans to address greenhouse gas emissions

[36] For solutions that involve the use of electronic documents, scanned, faxed or emailed images and potential scenarios in the delivery of documents during the COVID-19 crisis, see International Chamber of Commerce, 2020b.

from international shipping. The development and update of relevant national action plans was envisaged as a candidate short-term measure in the Initial Strategy. The resolution suggests that national action plans could include, without being limited to, the following actions: improving domestic institutional and legislative arrangements for the effective implementation of existing IMO instruments; developing activities to further enhance the energy efficiency of ships; initiating research and advancing the uptake of alternative low-carbon and zero carbon fuels; accelerating port-emission reduction activities, consistent with resolution MEPC.323(74); fostering capacity-building, awareness-raising and regional cooperation; and facilitating the development of infrastructure for green shipping. Potential legal, policy and institutional arrangements to be put in place by Member States should be elaborated in accordance with national circumstances and priorities and relevant experiences shared with IMO.

- Consideration of various concrete proposals for mandatory short-term measures to further reduce greenhouse gas emissions from existing ships. Proposals of a technical nature included, for example, an energy efficiency existing ship index, which would require ships to make technical modifications, for example, mandatory engine power limitation, to improve their energy efficiency. Proposals for an operational approach included focusing on carbon-intensity-reduction targets using appropriate carbon-intensity indicators, including by means of strengthening the ship energy efficiency management plan based on regular energy audits of the ship. This approach could include measures to limit or optimize speeds for voyages. There was general agreement that a mandatory goal-based approach for both the technical and operational approaches would provide the needed flexibility and incentive for innovation.
- Assessment of impacts of the proposals on States, with particular attention to be paid to the needs of developing countries, especially the least developed countries and small island developing States.
- Consideration of the use of alternative fuels, in particular with regard to measures in the medium and long term. This is also important to encourage the uptake of low- and zero-carbon fuels in the shipping sector. The establishment of a dedicated workstream for the development of life cycle greenhouse gas or carbon-intensity guidelines (for example, from well to wake or tank to propeller) for all relevant types of alternative fuels was suggested. This could include, for example, biofuels, (renewable) electro- or synthetic fuels such as hydrogen or ammonia. The issue of methane slip, including enhanced understanding of the problem, how methane slip could be measured, monitored and controlled and which measures could be considered by IMO to address the matter, was discussed in relation to the uptake of methane-based fuels such as liquefied natural gas (IMO, 2019a).

Other recent IMO collaborative work to address greenhouse gas emissions from ships engaged in international voyage include the following:

- Fourth IMO greenhouse gas study. This study, published in August 2020, includes an inventory of current global emissions of greenhouse gases and relevant substances emitted between 2012 and 2018, from ships of 100 gross tons and above engaged in international voyages, as well as their carbon intensity, and projects scenarios for future international shipping emissions from 2018–2050. It builds on the third IMO greenhouse gas study, issued in 2014. The fourth study, mentioned above, indicates that the share of shipping emissions in global anthropogenic emissions increased from 2.76 per cent in 2012 to 2.89 per cent in 2018. Using a new voyage-based allocation of international shipping, the study indicates that carbon-dioxide emissions increased from 701 million tons in 2012 to 740 million tons in 2018 – a 5.6 per cent increase – but at a lower growth rate than that of total shipping emissions. Using the vessel-based allocation of international shipping taken from the third IMO greenhouse gas study, carbon-dioxide emissions grew from 848 million tons in 2012 to 919 million tonnes in 2018 – an 8.4 per cent increase. The study also notes that ship emissions are projected to rise from about 90 per cent of 2008 emissions in 2018 to 90–130 per cent of 2008 emissions by 2050. Thus, much work lies ahead to meet the IMO strategy goal of cutting greenhouse gas emissions from international shipping by at least 50 per cent from 2008 levels by 2050. Also, to phase out greenhouse gas emissions from the sector as soon as possible, regulations that encourage innovation and the widespread adoption of the cleanest, most advanced technologies are needed (International Council on Clean Transportation, 2020). Consideration and approval of the fourth IMO greenhouse gas study 2020 by the Marine Environment Protection Committee is still pending (IMO, 2020b).
- Multi-donor trust fund for reduction of greenhouse gas emissions from ships. This fund was established to provide a dedicated source of financial support to sustain IMO technical

cooperation and capacity-building activities to support the implementation of the Initial Strategy.

- Collaboration with UNCTAD on an expert review of the impact assessments submitted to the Intersessional Working Group on Reduction of Greenhouse Gas Emissions from Ships. The collaborative efforts aim to produce a review of the comprehensiveness of the impact assessments of the concrete proposals to improve the energy efficiency of existing ships submitted to the Working Group, taking into account the procedure for assessing impacts on States of candidate measures set out in MEPC.1/Circ.885 and the available data.

During the United Nations Climate Action Summit, held in New York in September 2019, many business leaders and local government representatives announced concrete actions to address climate change (United Nations, 2019). For example, the industry-led initiative "Getting to Zero Coalition", supported by UNCTAD, committed to the deployment of viable zero-emissions vessels by 2030 to further the achievement of the goals of the IMO Initial Strategy (United Nations, 2019).

With regard to the European Union and the European Economic Area, an important legal requirement is worth noting. Since 1 January 2018, large ships of over 5,000 gross tons that load or unload cargo or passengers at ports in the European Economic Area have been required to monitor and report their related carbon-dioxide emissions and other relevant information, in conformity with Regulation 2015/757, as amended by Delegated Regulation 2016/2071 (see https://ec.europa.eu/clima/policies/transport/shipping_en). As a result, since 2019, ships calling at ports in the European Economic Area must report under both the European Union regulation and the IMO data collection system. Every year, the European Commission publishes a report to keep the public abreast of trends in carbon-dioxide emissions and provides energy efficiency information concerning the monitored fleet (European Commission, 2020a; European Commission, 2020b).

2. Developments under the United Nations Framework Convention on Climate Change and related issues

The Conference of the Parties to the United Nations Framework Convention on Climate Change on its twenty-fifth session, held in Madrid, in December 2019, once again highlighted how much work lies ahead on both the domestic and international fronts with regard to climate action that is consistent with the goal of the Paris Agreement[37] of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels (article 2). In respect of greenhouse gas emissions from international shipping, the Subsidiary Body for Scientific and Technological Advice is one of two permanent subsidiary bodies to the United Nations Framework Convention on Climate Change. The body, which supports the work of the Conference of the Parties by providing information and advice, including on emissions from fuel used for international aviation and maritime transport, did not reach agreement and postponed discussions until the next session, to be held at the twenty-sixth session of the Conference of the Parties in November 2021 (United Nations, 2020).

Documents and publications launched at the twenty-fifth session of the Conference of the Parties to assist countries in their efforts to implement the Paris Agreement include the following:

- A yearbook (United Nations Climate Change Secretariat, 2019).
- An online database in which a diverse range of stakeholders have registered their climate change mitigation and/or adaptation commitments, as well as a number of climate action pathways, developed by the Marrakech Partnership for Global Climate Action (United Nations Framework Convention on Climate Change, 2020).
- The Global Climate Action portal, formerly known as the Non-State Actor Zone for Climate Action, which outlines transformational actions and milestones in some key sectoral and cross-cutting areas, such as transport and resilience.

Also launched at the twenty-fifth session of the Conference of the Parties was a declaration on climate change by the World Association for Waterborne Transport Infrastructure, also known as PIANC (World Association for Waterborne Transport Infrastructure, 2019). The declaration highlights a number of priority actions to strengthen adaptation and resilience-building. These include inspection and maintenance; monitoring systems and effective data management; and risk assessments, contingency plans and warning systems. It also provides a focus on flexible and adaptive infrastructure, systems and operations, and engineered redundancy to improve resilience.

With regard to climate change adaptation and resilience-building for seaports, the transport pathway action table of the Marrakech Partnership for Global Climate Action includes two distinct action areas with a focus on adaptation for transport systems and transport infrastructure, respectively, as well as related milestones for 2020, 2030 and 2050 (Marrakech Partnership for Global Climate Action, 2019a). Inter alia, these milestones, which have also been integrated into the cross-sectoral resilience and adaptation pathway action table, envisage that, by 2030, "All critical transport infrastructure assets, systems/networks components are [made] climate resilient to (at least) 2050"; and,

[37] Ratified by 188 States. See https://unfccc.int/process/the-paris-agreement/status-of-ratification.

by 2050, "[A]ll critical transport infrastructure assets, systems/networks components are [made] climate resilient to (at least) 2100" (Marrakech Partnership for Global Climate Action, 2019b).[38] While this represents an important and timely ambition, a major acceleration of efforts will be required to put relevant measures in place.

Climate change adaptation and resilience-building is an increasingly important issue, in particular from the perspective of vulnerable developing countries that are at the forefront of climate change impacts, such as small island developing States.[39] Critical coastal transport infrastructure in these countries, notably ports and airports, are lifelines for external trade, food and energy security, and tourism, including in the context of disaster-risk reduction (UNCTAD, 2019b; UNCTAD and United Nations Environment Programme, 2019). These assets are projected to be at growing risk of coastal flooding, from as early as in the 2030s, unless effective adaptation action is taken (Intergovernmental Panel on Climate Change, 2018; Intergovernmental Panel on Climate Change, 2019; Monioudi et al., 2018). In the absence of timely planning and of the implementation of requisite adaptation measures, the projected impacts on critical transport infrastructure may have broad economic and trade-related repercussions and could severely compromise the sustainable development prospects of these vulnerable nations (Economic Commission for Europe, 2020; Pacific Community, 2019; UNCTAD, 2020a; UNCTAD 2020b;). However, there are still important knowledge gaps concerning vulnerabilities and the specific nature and extent of exposure that individual coastal transport facilities may be facing.[40]

A number of important issues have emerged as part of the related work of UNCTAD over the past decade. Thus, for the purposes of risk-assessment and with a view to developing effective adaptation measures, the generation and dissemination of more tailored data and information is important, as are targeted case studies and effective multi-disciplinary and multi-stakeholder collaboration. Successful adaptation strategies need to be underpinned by strong legal and regulatory frameworks that can help reduce exposure and/or vulnerability to climate-related risks of coastal transport infrastructure (UNCTAD, 2020a). Appropriate policies and standards also have an important role to play, particularly in the context of infrastructure planning and coastal zone management. Moreover, guidance, best practices, checklists, methodologies (for example, UNCTAD, 2017b) and other tools in support of adaptation are urgently required, and targeted capacity-building is going to be critical, especially for the most vulnerable countries.[41]

3. Protection of the marine environment and conservation and sustainable use of marine biodiversity

Relevant areas where regulatory action has recently been taken or is under way for the protection of the marine environment and conservation and sustainable use of marine biodiversity, are described below.

Implementing the 2020 sulphur limit of the International Maritime Organization

Sulphur oxides are known to be harmful to human health, causing respiratory symptoms and lung disease. They can lead to acid rain, which can harm crops, forests and aquatic species, and contribute to ocean acidification. Thus, limiting sulphur-oxide emissions from ships helps improve air quality and protect human health and the environment (IMO, 2020c). An IMO regulation limiting the sulphur content in ship fuel oil to 0.50 per cent, down from 3.50 per cent, entered into force on 1 January 2020 (UNCTAD, 2019a). In designated emission control areas, the limit remained even lower, at 0.10 per cent.[42]

To support consistent implementation and compliance and provide a means for effective enforcement by States, particularly port State control, IMO in October 2018 adopted an additional MARPOL amendment, which entered into force on 1 March 2020. The amendment prohibits not just the use, but also the carriage of non-compliant fuel oil for combustion purposes for propulsion or operation on board a ship, unless the ship is fitted with an approved equivalent method, such as a scrubber or exhaust gas cleaning system. Also, a comprehensive set of guidelines to support the consistent implementation of the lower 0.50 per cent limit on sulphur in ship fuel oil and related amendments to the Convention were approved in May 2019 (IMO, 2019b, annex 14).

[38] Key recommendations of technical experts, key industry stakeholders and international organizations participating in the ad hoc expert meeting entitled "Climate Change Adaptation for International Transport: Preparing for the Future", held by UNCTAD in 2019, are reflected in the Marrakech Partnership for Global Climate Action pathways on transport and on resilience (Marrakech Partnership for Global Climate Action, 2019a and 2019b). See https://unctad.org/en/pages/MeetingDetails.aspx?meetingid=2092.

[39] For further information and related work by UNCTAD, see https://SIDSport-ClimateAdapt.unctad.org; https://unctad.org/ttl/legal; https://unctad.org/en/pages/MeetingDetails.aspx?meetingid=2354.

[40] This is evidenced by recent port industry surveys and studies on climate change impacts and adaptation (Asariotis et al., 2018; Panahi et al., 2020).

[41] For further information on relevant practices and regulatory and policy approaches, see UNCTAD, 2020a. See also https://SIDSport-ClimateAdapt.unctad.org.

[42] The four emission control areas are as follows: the Baltic Sea area, the North Sea area, the North American area (covering designated coastal areas of Canada and the United States) and the United States Caribbean Sea area (around Puerto Rico and the United States Virgin Islands).

To support the enforcement of the carriage ban and the safe and consistent sampling of fuel oil being carried for use, in February 2020, the IMO Subcommittee on Pollution Prevention and Response made progress in preparatory work and various draft amendments and guidelines to be submitted to the next session of the Marine Environment Protection Committee with a view to their later consideration and adoption. The Subcommittee finalized draft guidelines that provide a recommended method for the sampling of liquid fuel oil intended to be used or carried for use on board a ship. It also finished its revision of the 2015 guidelines on exhaust gas cleaning systems (also known as scrubbers), with a view to enhancing the uniform application of the guidelines by specifying the criteria for the testing, survey, certification and verification of such systems under MARPOL annex VI, to ensure that they provide effective equivalence to the sulphur-oxide emission requirements of regulations. In addition, the Subcommittee agreed to recommend to the Marine Environment Protection Committee that its future work should look at the evaluation and harmonization of rules and guidance on the discharge of was water from exhaust gas cleaning systems into the aquatic environment, including conditions and areas. By way of background, some IMO members have expressed concern that several more factors must be taken into account when assessing the impact of wash water discharge from scrubbers operating in ports and coastal areas. It has also been suggested that open-loop systems currently in use and compliant with the 2015 guidelines may produce harmful impacts in certain coastal areas. A number of coastal States (China, Malaysia, Norway and Singapore) have announced a ban of open-loop exhaust gas cleaning systems in certain coastal areas (Safety4Sea, 2019c), and Egypt has banned the use of such systems when transiting the Suez Canal (IMO, 2020d; Seatrade Maritime News, 2020).

The implementation of the sulphur regulation as of 1 January 2020 was initially considered to be relatively smooth, and compliant fuel oil was reported to be widely available. However, some difficulties have arisen as a result of the disruptions caused by the pandemic. In March 2020, the ban on the carriage on non-compliant fuel oil entered force to support the implementation of the sulphur limit. However, it appears that its enforcement by port State control authorities was suspended, due to measures put in place to reduce inspections and contain the risk of spreading the virus (Heavy Lift, 2020).

Ballast water management

In February 2020, the IMO Subcommittee on Pollution Prevention and Response completed its work on the revision of a guidance document on the testing of ballast water management systems, intended to validate their installation by demonstrating that their mechanical, physical, chemical and biological processes are working properly. This guidance is expected to be adopted by the Marine Environment Protection Committee at its next session, as an amendment to regulation E-1 of the International Convention for the Control and Management of Ship's Ballast Water and Sediments, 2004, also known as the Ballast Water Management Convention, 2004.

Ballast Water Management Convention, 2004, has been in force since September 2017. By 31 July 2020, it had been ratified by 84 States, representing 91.10 per cent of the gross tonnage of the world's merchant fleet. The Convention aims to prevent the risk of the introduction and proliferation of non-native species following the discharge of untreated ballast water from ships. This is considered one of the four greatest threats to the world's oceans and a major threat to biodiversity, which, if not addressed, can have severe public health-related and environmental and economic impacts (UNCTAD, 2011; UNCTAD, 2015). From the date of the Convention's entry into force, ships have been required to manage their ballast water to meet standards D-1 and D-2; the former requires ships to exchange and release at least 95 per cent of ballast water by volume far away from a coast; the latter raises the restriction to a specified maximum amount of viable organisms allowed to be discharged, limiting the discharge of specified microbes harmful to human health. Currently, the regulatory focus continues to be on the effective and uniform implementation of the Convention.

Biofouling

While the Ballast Water Management Convention, 2004 aims to prevent the spread of potentially harmful aquatic species in ballast water, invasive species, such as marine animals, plants and algae, can attach themselves to the outside of ships (for example, ship hulls) and other marine structures. This is known as biofouling. When ships and structures move to new areas, these species can detach themselves, adapt to the new habitat, overcome local fauna and become invasive, with negative effects on the host ecosystem. Therefore, biofouling needs to be addressed as well. Biofouling has other negative effects – it increases the surface roughness of ship hulls and propellers, resulting in speed loss at constant power or power increase at constant speed and higher fuel consumption of up to 20 per cent (Riviera, 2020d; Riviera, 2020e).

Anti-fouling paints are normally used to coat the bottoms of ships to prevent sea life such as algae and molluscs attaching themselves to the hull, thereby slowing down the ship and increasing fuel consumption. The Convention for the Control of Harmful Anti-fouling Systems on Ships, 2001 defines anti-fouling systems as "a coating, paint, surface treatment, surface or device that is used on a ship to control or prevent

attachment of unwanted organisms". It aims to prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems. The Convention entered into force on 17 September 2008. As of 31 July 2020, 89 States parties, representing 96.09 per cent of the gross tonnage of the world's merchant fleet, had ratified the Convention. Annex 1 to the Convention states that as from 1 January 2003, all ships should not apply or re-apply organotin compounds, which act as biocides in anti-fouling systems, and as from 1 January 2008, ships either (a) shall not bear such compounds on their hulls or external parts or surfaces or (b) shall bear a coating that forms a barrier to such compounds leaching from the underlying non-compliant anti-fouling systems.

In July 2017, the Marine Environment Protection Committee started work on amending annex 1 to the Convention to include controls on the biocide chemical compound cybutryne, since scientific data had indicated that cybutryne causes significant adverse effects to the environment, especially to aquatic ecosystems. Work on this matter is ongoing in the Subcommittee on Pollution Prevention and Response, which in February 2020 finalized a proposed amendment to the Convention to include controls on cybutryne. The draft amendment will be presented to the Marine Environment Protection Committee at its next session for approval. The Subcommittee also began its review of the IMO Guidelines for the Control and Management Of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species, also known as the Biofouling Guidelines (IMO, 2011), which provide a globally consistent approach to the management of biofouling (IMO, 2020d).

Marine pollution from plastics and microplastics

Marine debris in general, and plastics and microplastics in particular, give rise to some of the greatest environmental concerns today, along with climate change, ocean acidification and loss of biodiversity. These directly affect the sustainable development aspirations of developing States and small island developing States in particular, which, as custodians of vast areas of oceans and seas, face an existential threat from and are disproportionately affected by the effects of pollution from plastics. The issue of marine debris, plastics and microplastics in the oceans has been receiving increasing public attention and was the topic of the seventeenth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea in 2016 (United Nations, 2016). Sustainable Development Goal 14.1, committing to prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution by 2025, is particularly relevant in this context. Given the cross-cutting nature of the problem, plastics pollution is also relevant to other Sustainable Development Goals, including Goals 4 (education), 6 (clean water and sanitation), 12 (sustainable consumption and production patterns), and 15 (sustainable use of terrestrial ecosystems).

IMO is implementing an action plan to address marine plastic litter from ships, which contains measures to be completed by 2025, relating to all ships, including fishing vessels, and supports the IMO commitment to meeting the targets set in Goal 14 (IMO, 2018b). At its seventh meeting in February 2020, the Subcommittee on Pollution Prevention and Response prepared draft Marine Environment Protection Committee circulars on the provision of adequate facilities at ports and terminals for the reception of plastic waste from ships and on the sharing of results from research on marine litter and encouraging studies to better understand microplastics from ships. It also established a correspondence group to consider how to amend MARPOL annex V and the 2017 guidelines for the implementation of MARPOL annex V (resolution MEPC.295(71)) to facilitate and enhance reporting of the accidental loss or discharge of fishing gear and consider the information to be reported to Administrations and IMO, as well as reporting mechanisms and modalities (IMO, 2020d).

While the focus of this section of the Review is on developments related to plastic waste from ships, some considerations regarding plastics pollution arise in the context of the COVID-19 crisis. Various protective measures have been implemented as a priority over the past months with a view to controlling the spread of the virus. These include the wearing of surgical face masks and gloves and the frequent disinfection of hands, all of which involve the use of plastic. In addition, because of the threat of contamination, people may tend to use disposable or single-use plastic items such as food containers and utensils, rather than reusable ones. There is a risk for these items to end up as litter in the environment, including in the sea and along beaches, which in many countries are a mainstay of the local tourism industry. Short-term solutions to address an increase in plastics pollution arising from the ongoing pandemic may include imposing fines, placing labels on disposable items and making information on littering and recycling more available to the public. Public attention on plastics pollution is likely to increase, once the immediate COVID-19 health crisis is under control. In the meantime, researchers suggest recycling single-use plastic items, limiting food deliveries and ordering from grocery suppliers that offer more sustainable delivery packaging. In addition, wearing reusable face masks, disposing of single-use face masks correctly and buying hand sanitizer contained in ecologically sustainable packaging should also be considered (see https://earth.org/covid-19-surge-in-plastic-pollution/).

Safety considerations of new fuel blends and alternative marine fuels

To ensure compliance with the mandatory 0.50 per cent sulphur limit for fuel oil and meet the emission targets set out in the IMO Initial Strategy on reduction of greenhouse gas emissions, new fuels and fuel blends are being developed. At IMO, matters related to such fuels are considered by the Maritime Safety Committee in the context of discussions on the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels. The Code, which entered into force in 2017, aims to minimize the risk to ships, their crews and the environment, given the nature of the fuels involved. It has initially focused on liquefied natural gas, but work is now under way to consider other fuel types.

In preparation for the next meeting of the Committee (scheduled for May 2020 but postponed due to the COVID-19 crisis), the Subcommittee on Carriage of Cargoes and Containers, at its sixth session in September 2019 took the following action:

- Finalized draft interim guidelines for the safety of ships using methyl or ethyl alcohol as fuel, for submission to the Maritime Safety Committee for approval.
- Made progress in developing draft interim guidelines for the safety of ships using fuel cell power installations.
- Agreed to develop amendments to the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels to include safety provisions for ships using low-flashpoint oil fuels and established a correspondence group to continue this work.
- Approved in principle draft amendments to the Code, relating to specific requirements for ships using natural gas as fuel.
- Agreed to develop interim guidelines on safety provisions for ships using liquefied petroleum gas fuels.
- Completed draft guidelines for the acceptance of alternative metallic materials for cryogenic service in ships carrying liquefied gases in bulk and ships using gases or other low-flashpoint fuels, for submission to the Maritime Safety Committee for approval (IMO, 2019c).

Conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction: Legally binding instrument under the United Nations Convention on the Law of the Sea, 1982

Areas beyond national jurisdiction hold unique oceanographic and biological features and play a role in climate regulation.[43] They provide seafood, raw materials and genetic and medicinal resources, which are of increasing commercial interest and hold promise for the development of new drugs to treat infectious diseases that are a major threat to human health – such as antibiotic-resistant infections and potentially, coronavirus disease. From the perspective of developing countries, access and benefit sharing, as well as the conservation of marine genetic resources, are of particular importance in this context (Premti, 2018).

The United Nations Convention on the Law of the Sea, 1982 sets forth the rights and obligations of States regarding the use of the oceans, their resources and the protection of the marine and coastal environment. However, it does not expressly refer to marine biodiversity or to the exploration and exploitation of resources within the water column in areas beyond national jurisdiction. Therefore, ongoing negotiations towards a new international legal instrument 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 are particularly worth noting. Three sessions of the intergovernmental conference on the issue have taken place, the most recent, in August 2019 (see UNCTAD, 2019a for further information on discussions held). Discussions on a broad range of issues were expected to continue during the fourth session of the conference, scheduled to be held from 23 March to 3 April 2020, at United Nations Headquarters in New York, but were postponed due to the COVID-19 crisis.

One gap that the new international legally binding instrument aims to address is the establishment of marine protected areas. According to scientific evidence, these areas are effective tools for conserving and restoring oceans and their resources. However, under the current system of ocean management, there is no way to establish comprehensive marine protected areas for most parts of the high seas. A study was recently conducted to help determine which areas of the high seas should be protected first as ecologically or biologically significant (Visalli et al., 2020). It considered a variety of factors and conservation features and used a conservation prioritization tool to help select areas of the ocean that would include at least 30 percent of these conservation features, while minimizing overlap with areas that are already being heavily fished. This and other similar studies

[43] Maritime zones under the United Nations Convention on the Law of the Sea, 1982 include the following: the territorial sea, extending up to 12 nautical miles from the baseline (article 3); exclusive economic zones, extending from the edge of the territorial sea to 200 nautical miles from the baseline (article 57); the continental shelf, the natural prolongation of land territory to the outer edge of the continental margin, or 200 nautical miles from the baseline, whichever is greater (article 76); and areas beyond national jurisdiction, composed of "the Area" (article 1) and the high seas (article 86).

highlighting specific areas beyond national jurisdiction as high priorities for protection are expected to inform negotiations and decision-making on these issues at the United Nations.