INTERNATIONAL MARITIME ORGANIZATION

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REPORT OF THE MARITIME SAFETY COMMITTEE ON ITS 103RD SESSION

Attached are the annexes to the report of the Maritime Safety Committee on its 103rd session (MSC 103/21).

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LIST OF ANNEXES

ANNEX 1

RESOLUTION MSC.482(103))
(adopted on 13 May 2021)

AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974 (SOLAS 1974)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"), concerning the amendment procedure applicable to the annex to the Convention, other than to the provisions of chapter I,

HAVING CONSIDERED, at its 103rd session, amendments to the Convention proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Convention, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(aa) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2023, unless, prior to that date, more than one third of the Contracting Governments to the Convention, or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified the Secretary-General of their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2024, upon their acceptance, in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974 (SOLAS 1974)

CHAPTER II-1
CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY, MACHINERY AND ELECTRICAL INSTALLATIONS

Part B-4
Stability management

1 The following new regulation 25-1 is added after existing regulation 25 with the associated footnotes:

"Regulation 25-1

Water level detectors on multiple hold cargo ships other than bulk carriers and tankers

1 Multiple hold cargo ships other than bulk carriers and tankers constructed on or after 1 January 2024 shall be fitted with water level detectors* in each cargo hold intended for dry cargoes. Water level detectors are not required for cargo holds located entirely above the freeboard deck.

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* Refer to the *Performance standards for water level detectors on bulk carriers and single hold cargo ships other than bulk carriers* (resolution MSC.188(79)), as may be amended.

2 The water level detectors required by paragraph 1 shall:

.1 give audible and visual alarms at the navigation bridge, one when the water level above the bottom of the cargo hold reaches a height of not less than 0.3 m, and another at a height not less than 15% of the depth of the cargo hold but not more than 2 m; and

.2 be fitted at the aft end of the cargo holds. For cargo holds which are occasionally used for water ballast, an alarm overriding device may be installed. The visual alarms shall clearly discriminate between the two different water levels detected in each hold.

3 As an alternative to the water level detector at a height of not less than 0.3 m as per sub-paragraph 2.1, a bilge level sensor* serving the bilge pumping arrangements required by regulation 35-1 and installed in the cargo hold bilge wells or other suitable location is considered acceptable, subject to:

.1 the fitting of the bilge level sensor at a height of not less than 0.3 m at the aft end of the cargo hold; and

.2 the bilge level sensor giving audible and visual alarm at the navigation bridge which is clearly distinctive from the alarm given by the other water level detector fitted in the cargo hold.

* Refer to the *Performance standards for water level detectors on bulk carriers and single hold cargo ships other than bulk carriers* (resolution MSC.188(79)), as may be amended."

CHAPTER III
LIFE-SAVING APPLIANCES AND ARRANGEMENTS

Part B
Requirements for ships and life-saving appliances

Regulation 33 – Survival craft embarkation and launching arrangements

1 Paragraph 33.2 is replaced by the following:

"2 On cargo ships of 20,000 gross tonnage and upwards, davit-launched lifeboats shall be capable of being launched, utilizing painters where necessary, with the ship making headway at speeds up to 5 knots in calm water."

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ANNEX 2

RESOLUTION MSC.483(103)
(adopted on 13 May 2021)

AMENDMENTS TO THE INTERNATIONAL CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS AND OIL TANKERS, 2011 (2011 ESP CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.1049(27), by which the Assembly adopted the International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011 ("2011 ESP Code"), which has become mandatory under chapter XI-1 of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

RECALLING FURTHER article VIII(b) and regulation XI-1/2 of the Convention concerning the procedure for amending the 2011 ESP Code,

HAVING CONSIDERED, at its 103rd session, amendments to the 2011 ESP Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the 2011 ESP Code, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2022 unless, prior to that date, more than one third of the Contracting Governments to the Convention, or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified the Secretary-General of their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2023 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS AND OIL TANKERS, 2011 (2011 ESP CODE)

ANNEX B

CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF OIL TANKERS

Part A

CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF DOUBLE-HULL OIL TANKERS

ANNEX 2

MINIMUM REQUIREMENTS FOR THICKNESS MEASUREMENTS AT RENEWAL SURVEYS OF DOUBLE-HULL OIL TANKERS

1 In the table for "Minimum requirements for thickness measurements at renewal surveys of double-hull oil tankers", the column for "Renewal Survey No.1" is replaced by the following:

"1 Suspect areas"

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ANNEX 3

RESOLUTION MSC.484(103)
(adopted on 13 May 2021)

AMENDMENTS TO THE INTERNATIONAL CODE FOR FIRE SAFETY SYSTEMS (FSS CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution MSC.98(73), by which it adopted the International Code for Fire Safety Systems ("the FSS Code"), which has become mandatory under chapter II-2 of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

RECALLING FURTHER article VIII(b) and regulation II-2/3.22 of the Convention concerning the procedure for amending the FSS Code,

HAVING CONSIDERED, at its 103rd session, amendments to the FSS Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the FSS Code, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(aa) of the Convention, that the amendments shall be deemed to have been accepted on 1 July 2023 unless, prior to that date, more than one third of the Contracting Governments to the Convention, or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;

3 INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2024 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CODE FOR FIRE SAFETY SYSTEMS (FSS CODE)

CHAPTER 9
FIXED FIRE DETECTION AND FIRE ALARM SYSTEMS

2 Engineering specifications

2.1 General requirements

1 The following new paragraph 2.1.8 is inserted after existing paragraph 2.1.7:

"2.1.8 In cargo ships and on passenger ship cabin balconies, where an individually identifiable system is fitted, notwithstanding the provisions in paragraph 2.1.6.1, isolator modules need not be provided at each fire detector if the system is arranged in such a way that the number and location of individually identifiable fire detectors rendered ineffective due to a fault would not be larger than an equivalent section in a section identifiable system, arranged in accordance with paragraph 2.4.1."

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ANNEX 4

RESOLUTION MSC.485(103)
(adopted on 13 May 2021)

AMENDMENTS TO THE INTERNATIONAL LIFE-SAVING APPLIANCE CODE (LSA CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution MSC.48(66), by which it adopted the International Life-Saving Appliance (LSA) Code ("the LSA Code"), which has become mandatory under chapter III of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

RECALLING FURTHER article VIII(b) and regulation III/3.10 of the Convention concerning the procedure for amending the LSA Code,

HAVING CONSIDERED, at its 103rd session, amendments to the LSA Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the LSA Code, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(aa) of the Convention, that the amendments shall be deemed to have been accepted on 1 July 2023 unless, prior to that date, more than one third of the Contracting Governments to the Convention, or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;

3 INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2024 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5
REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL LIFE-SAVING APPLIANCES CODE (LSA CODE)

CHAPTER IV
SURVIVAL CRAFT

4.4 General requirements for lifeboats

1 Paragraph 4.4.1.3.2 is replaced by the following:

".2 except for free-fall lifeboats, be capable of being launched and towed when the ship is making headway at speeds up to 5 knots in calm water."

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ANNEX 5

RESOLUTION MSC.486(103)
(adopted on 13 May 2021)

AMENDMENTS TO THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978 (STCW 1978)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article XII of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 ("1978 STCW Convention"), concerning the procedures for amending the 1978 STCW Convention,

NOTING the repeated references to "high-voltage" in the Seafarers' Training, Certification and Watchkeeping Code ("STCW Code"), without a specific definition for this term,

HAVING CONSIDERED, at its 103rd session, amendments to the 1978 STCW Convention proposed and circulated in accordance with article XII(1)(a)(i) thereof,

1 ADOPTS, in accordance with article XII(1)(a)(iv) of the 1978 STCW Convention, amendments to the said Convention, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article XII(1)(a)(vii)(2) of the 1978 STCW Convention, that the said amendments shall be deemed to have been accepted on 1 July 2022, unless, prior to that date, more than one third of Parties, or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified the Secretary-General of the Organization that they object to the amendments;

3 INVITES Parties to note that, in accordance with article XII(1)(a)(ix) of the 1978 STCW Convention, the amendments annexed hereto shall enter into force on 1 January 2023 upon their acceptance, in accordance with paragraph 2 above;

4 URGES Parties to implement the amendments to regulation I/1.1 at an early stage;

5 REQUESTS the Secretary-General, for the purposes of article XII(1)(a)(v) of the 1978 STCW Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the 1978 STCW Convention;

6 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Parties to the 1978 STCW Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978 (STCW 1978)

CHAPTER I
General provisions

1 In regulation I/1.1, the following new definition is added:

".44 *High-voltage* means an alternating current (AC) or direct current (DC) voltage in excess of 1,000 volts."

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ANNEX 6

RESOLUTION MSC.487(103)
(adopted on 13 May 2021)

AMENDMENTS TO PART A OF THE SEAFARERS' TRAINING, CERTIFICATION AND WATCHKEEPING CODE (STCW CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article XII and regulation I/1.2.3 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 ("1978 STCW Convention"), concerning the procedures for amending part A of the Seafarers' Training, Certification and Watchkeeping Code ("STCW Code"),

NOTING that all the functions for the capacity "electro-technical officer", introduced as part of the 2010 Amendments (the Manila Amendments), are provided at the "operational level",

HAVING CONSIDERED, at its 103rd session, amendments to part A of the STCW Code, proposed and circulated in accordance with article XII(1)(a)(i) of the 1978 STCW Convention,

1 ADOPTS, in accordance with article XII(1)(a)(iv) of the 1978 STCW Convention, amendments to the STCW Code, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article XII(1)(a)(vii)(2) of the 1978 STCW Convention, that the said amendments to the STCW Code shall be deemed to have been accepted on 1 July 2022, unless, prior to that date, more than one third of Parties, or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified the Secretary-General of the Organization that they object to the amendments;

3 INVITES Parties to note that, in accordance with article XII(1)(a)(ix) of the 1978 STCW Convention, the amendments to the STCW Code annexed hereto shall enter into force on 1 January 2023 upon their acceptance, in accordance with paragraph 2 above;

4 URGES Parties to implement the amendments to section A-I/1 of the STCW Code at an early stage;

5 REQUESTS the Secretary-General, for the purposes of article XII(1)(a)(v) of the 1978 STCW Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the 1978 STCW Convention;

6 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Parties to the 1978 STCW Convention.

ANNEX

AMENDMENTS TO PART A OF THE SEAFARERS' TRAINING, CERTIFICATION AND WATCHKEEPING CODE (STCW CODE)

CHAPTER I
Standards regarding general provisions

1 In section A-I/1, sub-paragraph .3.1 under the definition for "*Operational level*" is replaced by the following:

".3.1 serving as officer in charge of a navigational or engineering watch or as designated duty engineer for periodically unmanned machinery spaces or as electro-technical officer or as radio operator on board a seagoing ship, and"

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ANNEX 7

RESOLUTION MSC.488(103)
(adopted on 13 May 2021)

AMENDMENTS TO THE REVISED RECOMMENDATION ON TESTING OF LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Assembly, when adopting resolution A.689(17) on *Testing of life-saving appliances*, authorized the Committee to keep the annexed Recommendation on testing of life-saving appliances under review and to adopt, when appropriate, amendments thereto,

RECALLING FURTHER that, since the adoption of resolution A.689(17), the Committee has amended the Recommendation annexed thereto by resolutions MSC.54(66) and MSC.81(70), and by circulars MSC/Circ.596, MSC/Circ.615 and MSC/Circ.809,

RECOGNIZING the need to ensure that the references in the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)) are kept up to date,

1 ADOPTS the *Amendments to the Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)), set out in the annex to the present resolution;

2 INVITES Contracting Governments to the SOLAS Convention to bring the above amendments to the attention of all parties concerned.

ANNEX

AMENDMENTS TO THE REVISED RECOMMENDATION ON TESTING OF LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))

PART 1– PROTOTYPE TESTS FOR LIFE-SAVING APPLIANCES

5 LIFERAFTS – RIGID AND INFLATABLE

5.17 Additional tests applicable to inflatable liferafts only

Material tests

1 Paragraph 5.17.13.2.2.7.1 is replaced by the following:

".1 Test for porosity

A specimen of the fabric should be prepared and tested in accordance with ISO 15372:2000, paragraph 6.2.9.2."

2 Amend paragraph 5.17.13.2.2.8, as follows:

".2.2.8 *Oil resistance*

.1 When tested by the method prescribed below, after exposing the outer surface to oil IRM 901, for 2 h at 20± 2°C, there should be no separation of coating from textile and no residual tackiness when two exposed faces are pressed together. The coating should not smear when rubbed with a single pass of the finger.

.2 The test should be carried out not less than 16 h after vulcanization or curing.

.3 The apparatus, preparation of specimens and test procedure should be in accordance with ISO 15372:2000/Amd 1:2021, paragraph 6.2.5. Each coated face should be tested."

11 HYDROSTATIC RELEASE UNITS

11.2 Technical tests

3 Paragraph 11.2.5.5.3 is replaced by the following:

".5.3 *Test for surface resistance to oil*

Number of specimens	2 membranes
Temperature	+18°C to +20°C
Type of oil	A mineral oil meeting the following requirements: Aniline point: 120 ± 5°C Flashpoint: minimum 240°C Viscosity: 10–25 cSt at 99.0°C

The following oils may be used:	IRM 901 IRM 905 ISO Oil No. 1
Testing period:	3 h on each side
Requirements:	The material should show no deterioration."

PART 2 – PRODUCTION AND INSTALLATION TESTS

5 SURVIVAL CRAFT

5.4 Launch test

4 Paragraph 5.4 is replaced by the following:

"Except in the case of a free-fall lifeboat, it should be demonstrated that the fully equipped lifeboat on cargo ships of 20,000 gross tonnage and upwards and rescue boat can be launched from a ship proceeding ahead at a speed of not less than 5 knots in calm water and on an even keel. There should be no damage to the lifeboat or the rescue boat or their equipment as a result of this test."

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ANNEX 8

OUTCOME OF THE REGULATORY SCOPING EXERCISE FOR THE USE OF MARITIME AUTONOMOUS SURFACE SHIPS (MASS)

1 INTRODUCTION

1.1 This document presents the outcome of the regulatory scoping exercise **(**RSE) for the use of Maritime Autonomous Surface Ships (MASS), conducted by the Maritime Safety Committee (MSC).

1.2 The outcome of the RSE, approved by MSC 103 (5 to 14 May 2021), provides the assessment of the degree to which the existing regulatory framework under its purview might be affected in order to address MASS operations. It further provides guidance to MSC and interested parties to identify, select and decide on future work on MASS and, as such, facilitate the preparation of requests for, and consideration and approval of, new outputs.

Content of this document

1.3 The Intersessional Working Group on MASS, which met from 2 to 5 September 2019, agreed that the outcome of the RSE to be finally approved by MSC should contain (MSC 102/5/1, paragraph 4.17):

.1 a background section, including the process followed during the RSE;

.2 information for all degrees of autonomy for every instrument expected to be affected by MASS operations under the purview of the MSC;

.3 the most appropriate way(s) of addressing MASS operations in those instruments, as appropriate;

.4 identification of themes and/or potential gaps that require addressing;

.5 identification of possible links between instruments;

.6 identification of priorities for further work, including terminology and the order in which instruments could be addressed taking into account common themes and potential gaps; and

.7 references to the material produced before and during the RSE, in particular IMO documents.

1.4 Taking into account the information in paragraph 1.3, the document is arranged in the following manner.

1.5 Section 2 contains the background section and section 3 provides a summary of the process followed during the RSE with reference to the framework as agreed at MSC 100 (MSC 100/20/Add.1, annex 2). The list of mandatory instruments related to maritime safety and security considered as part of the RSE is set out in appendix 1.

1.6 Section 4 provides an overview of the assumptions made, by the volunteering Member States, for the purpose of the RSE and refers to appendix 2 for the results of the RSE at instrument level.

1.7 Appendix 2, being the most substantial part of this document, provides the summary of the outcome of the first and second step of the RSE as available in IMO documents published during the RSE (see appendix 3) and the web platform (see paragraph 3.9), and includes:

.1 information for all degrees of autonomy for every instrument expected to be affected by MASS operations under the purview of MSC;

.2 the most appropriate way(s) of addressing MASS operations in those instruments, as appropriate; and

.3 identification of themes and/or potential gaps that require addressing.

1.8 Section 5 provides an overview of the common potential gaps and/or themes that require addressing for MASS operations and potential links between instruments. This overview has been developed by using the available information in appendix 2.

1.9 In section 6, priorities for further work are identified, including terminology and the order in which instruments could be addressed taking into account common themes and potential gaps. This section has been developed by using the available information in appendix 2.

1.10 Finally, section 7 provides references to the material produced before and during the RSE, in particular IMO documents (see also appendix 3).

2 BACKGROUND

2.1 MSC 98 (June 2017) noted that the maritime sector was witnessing an increased deployment of MASS to deliver safe, cost-effective and high-quality results. In this context, MASS could include ships with different levels of automation, from partially automated systems that assisted the human crew to fully autonomous systems which were able to undertake all aspects of a ship's operation without the need for human intervention. Significant academic and commercial research and development (R&D) was ongoing on all aspects of MASS, including remotely controlled and autonomous navigation, vessel monitoring and collision avoidance systems.

2.2 Although technological solutions were being developed and deployed, delegations were of the view that there was a lack of clarity on the correct application of existing IMO instruments to MASS. Delegations believed that IMO needed to ensure that MASS designers, builders, owners and operators had access to a clear and consistent regulatory framework, guided by the *Principles to be considered when drafting IMO instruments* (resolution A.1103(29)), in order to be able to demonstrate compliance with IMO instruments.

2.3 Following consideration, MSC 98 agreed to include in its 2018-2019 biennial agenda an output on "Regulatory scoping exercise for the use of Maritime Autonomous Surface Ships (MASS)" with a target completion year of 2020.

2.4 At MSC 99 (May 2018), the Committee started to develop a framework for the RSE and defined the aim, the objective, the preliminary definition of MASS and degrees of autonomy, the list of mandatory instruments[1] to be considered and the applicability in terms of type and size of ships.

[1] According to resolution A.911(22), "instrument" encompasses mandatory and non-mandatory conventions, codes, guidelines, recommendations, etc.

2.5 MSC 100 (December 2018) approved the framework for the RSE, which contained definitions, a methodology consisting of a two-step approach and a plan of work and procedures (MSC 100/20/Add.1, annex 2) and invited interested Member States and international organizations to participate actively in the exercise. The Committee also approved the holding of an intersessional meeting of Working Group on MASS between MSC 101 and 102. Furthermore, the Committee requested the Secretariat to develop a web platform as part of the Global Shipping Information System (GISIS) to facilitate the RSE.

2.6 MSC 101 (June 2019) noted the progress made with the RSE and invited volunteering Member States to submit the result of the first step to the intersessional Working Group on MASS (ISWG/MASS). MSC 101 further developed and approved *Interim guidelines for MASS trials* (MSC.1/Circ.1604).

2.7 As instructed by the Committee, ISWG/MASS (September 2019) considered and agreed on the result of the first step of the RSE, and commenced the second step. The Group also developed the guidance on the required format and content of the necessary input to MSC 102.

2.8 Due to the COVID-19 pandemic, MSC 102 (November 2020) deferred consideration of this matter to MSC 103.

2.9 MSC 103 (May 2021) finalized the RSE and approved the outcome as set out in this document.

3 FRAMEWORK AND PROCESS OF THE RSE

Aim

3.1 The aim of the regulatory scoping exercise was to determine how safe, secure and environmentally sound MASS operations might be addressed in IMO instruments.

Objective

3.2 The objective of the RSE on MASS conducted by MSC was to assess the degree to which the existing regulatory framework under its purview might be affected in order to address MASS operations.

Glossary

3.3 For the purpose of the RSE, "MASS" was defined as a ship which, to a varying degree, can operate independent of human interaction.

3.4 To facilitate the process of the RSE, the degrees of autonomy were organized as follows:

Degree One: *Ship with automated processes and decision support:* Seafarers are on board to operate and control shipboard systems and functions. Some operations may be automated and at times be unsupervised but with seafarers on board ready to take control.

Degree Two: *Remotely controlled ship with seafarers on board:* The ship is controlled and operated from another location. Seafarers are available on board to take control and to operate the shipboard systems and functions.

Degree Three: *Remotely controlled ship without seafarers on board:* The ship is controlled and operated from another location. There are no seafarers on board.

Degree Four: *Fully autonomous ship:* The operating system of the ship is able to make decisions and determine actions by itself.

3.5 The above list does not represent a hierarchical order. It should be noted that MASS could be operating at one or more degrees of autonomy for the duration of a single voyage.

Instruments

3.6 The list of mandatory instruments related to maritime safety and security considered as part of the RSE is set out in appendix 1. These instruments have been reviewed on a regulation or rule level. Subsidiary mandatory instruments established under each parent instrument have also been considered to the level necessary to establish how they would be affected.

3.7 The review of mandatory instruments was prioritized. In instruments containing both mandatory and non-mandatory parts, non-mandatory parts have been considered as part of the RSE, when deemed necessary, to obtain a complete understanding of how the mandatory provisions would be affected in order to address MASS operations (e.g. STCW Convention and Code).

Type and size of ships

3.8 The application of the regulatory scoping exercise was restricted to the applicability of the instruments under consideration.

Web platform for the conduct of the RSE

3.9 A web platform was developed by the Secretariat as part of GISIS to facilitate the RSE. The web platform was connected to the IMO web accounts, providing access only to registered IMO Members.[2] All IMO Members have read-only access to the web platform and the information contained in the web platform will be retained for future reference until the Committee decides otherwise.

Methodology

3.10 The review of instruments was conducted by volunteering Member States in two steps. The list of mandatory instruments, as set out in appendix 1, also contains the names of the volunteering Member States which undertook and supported the review of instruments. At present intervals, IMO Members were authorized to submit comments on the work done by the volunteering Member States through the web platform.

3.11 As a first step, containing the "initial review of IMO instruments", provisions in IMO instruments were identified which, as currently drafted:

A applied to MASS and prevented MASS operations; or

[2] Whenever the term "IMO Member" is used in this document, it includes Member Governments, associated Member Governments, intergovernmental organizations with observer status and non-governmental organizations in consultative status.

B applied to MASS and did not prevent MASS operations and required no actions; or

C applied to MASS and did not prevent MASS operations but might need to be amended or clarified, and/or might contain gaps; or

D had no application to MASS operations.

3.12 Once the first step was completed, a second step was conducted to analyse and determine the most appropriate way of addressing MASS operations, taking into account, inter alia, human element,[3] technology and operational factors by:

I equivalences as provided for by the instruments or developing interpretations; and/or

II amending existing instruments; and/or

III developing new instruments; or

IV none of the above as a result of the analysis.

3.13 The terminology for the purpose of the RSE was agreed to at MSC 99 (documents MSC 99/22, paragraph 5.27 and MSC 99/WP.9). References to degrees of autonomy in this document refer only to the definitions considered within the scope of the RSE and do not prevent potential future definitions that should be discussed at the later stage.

4 RESULTS OF THE REGULATORY SCOPING EXERCISE AT INSTRUMENT LEVEL

4.1 The results of the RSE at instrument level are set out in appendix 2 and provide for all degrees of autonomy, for every instrument expected to be affected by MASS operations under the purview of the Maritime Safety Committee, the:

.1 most appropriate way(s) of addressing MASS operations in those instruments;

.2 reason for selecting the most appropriate way(s); and

.3 identification of potential gaps/themes that require addressing.

Assumptions made for the purpose of the RSE

4.2 The assumptions listed in table 1 should be considered when interpreting the results in appendix 2, they will not necessarily be used during subsequent work. Any future assumptions would need to be agreed.

[3] Refer to resolution A.947(23), *Human element vision, principles and goals for the Organization*.

	Assumptions	**Instruments**
1	*Degree of autonomy Four* means no crew on board	SOLAS chapters III and V, 1966 LL Convention and 1988 Protocol, 2008 Intact Stability Code, III Code
2	Alternative arrangement, equivalent arrangement would be allowed and available	SOLAS chapter XI-2
3	Passenger transports without seafarers on board cannot be performed	SOLAS chapters XI-2 and XIV and Polar Code
4	The instrument applies to seafarers serving on board seagoing ships	STCW Convention and Code, STCW-F Convention
5	Determination of whether "remote operator" is a seafarer and whether "remote operator" encompasses all personnel working aboard of a ship or those individuals capable of operational control of the ship are outside of the remit of the RSE	STCW Convention and Code, STCW-F Convention
6	For degrees One and Two, seafarers are on board and available to take control of shipboard systems	SOLAS chapters II-1, II-2, VI, VII IBC, FSS, FTP, IMSBC, Grain, CSS, IMDG, IGC, INF
7	For degrees Three and Four, persons may stay on board during berthing, cargo handling and anchoring	SOLAS chapters II-1, II-2, VI, VII IBC, FSS, FTP, IMSBC, Grain, CSS, IMDG, IGC, INF
8	For degree Four, supervision by person is provided at a remote location	SOLAS chapters II-2, VI and VII IBC, FSS, FTP, IMSBC, Grain, CSS, IMDG, IGC, INF
9	MASS of degree one is considered as a conventional ship with some additional functions to support human decision-making. However, no particular automated process or function of decision support was considered due to their diversities.	SOLAS chapter V
10	As long as MASS is not fully autonomous; the role of master is still required. For degree Three (higher degrees), the responsibility of the master will be extended/amended.	SOLAS chapter V
11	The Safety Management of MASS relates, inter alia, to functions which are autonomous	SOLAS chapter IX

Table 1: List of assumptions used for the RSE

5 COMMON POTENTIAL GAPS AND/OR THEMES AND POTENTIAL LINKS BETWEEN INSTRUMENTS

5.1 The RSE identified the common potential gaps and/or themes that are required for MASS operations, as shown in table 2, and these gaps and themes were developed by using the available information in appendix 2. It should be noted that the potential gaps and themes outlined below are not exhaustive and that the first column on "Common potential gaps and/or themes" does not reflect any order of priorities.

5.2 Table 2 also shows the instruments under the remit of the Maritime Safety Committee, including SOLAS chapters, where the common potential gaps and/or themes were identified, thus indicating the potential links between instruments.

	Common potential gaps and/or themes	**Instruments**
1	Meaning of the terms master, crew or responsible person	SOLAS chapters II-2, III, V, VI, VII IX and XI-1, COLREG, TONNAGE 1969, 1966 LL Convention and 1988 Protocol, Intact Stability Code, III Code, STCW Convention and Code
2	Remote Control Station/Centre	SOLAS chapters II-1, II-2, III, IV, V IX and XI-1, STCW Convention and Code, FSS, ISM, 1966 LL Convention and 1988 Protocol, Casualty Investigation Code
3	Remote Operator as a seafarer	STCW, STCW-F, SOLAS chapter IX, ISM
4	Provisions containing manual operations, alarms to the bridge	SOLAS chapters II-1, II-2, VI and IX, 1966 LL Convention and 1988 Protocol, Intact Stability Code, III Code
5	Provisions requiring actions by personnel (Fire, Spillage Cargo Management, onboard maintenance, etc.)	SOLAS chapters II-2, VI, VII, IX and XII
6	Certificates and manuals on board	SOLAS chapters III, XI-1, XI-2 and XIV
7	Connectivity, Cybersecurity	SOLAS chapters IV, V and IX
8	Watchkeeping	SOLAS chapters IV and V, COLREG
9	Implication of MASS in SAR	SOLAS chapters III, IV and V, SAR
10	Information to be available on board and required for the safe operation	SOLAS chapters II-1and II-2
11	Terminology	SOLAS chapters II-1, IV and V, COLREG, FSS, IBC, IGC, Grain, INF, 1966 LL Convention and 1988 Protocol, Intact Stability Code, SAR, TONNAGE, CSS, Casualty Investigation Code

Table 2: List of common potential gaps and/or themes

5.3 It has been recognized that not all common potential gaps and/or themes in table 2 are of the same nature. Some of them are critical and fundamental issues which may shape the course of addressing MASS operations, while others concern more technical aspects.

High-priority issues

5.4 Some common potential gaps and/or themes are at the core of how to introduce MASS operation safely and effectively in the regulatory framework and are regarded as high-priority issues that cut through several IMO instruments and may require a policy decision before addressing individual instruments.

5.5 Meaning of the terms master, crew or responsible person

It was recognized that in a substantial number of instruments there was a need to clarify the meaning of the terms master, crew or responsible person. The role, responsibility and definition of master, especially for degrees of autonomy Three and Four where personnel on the shore side might control the ship, were considered to be a common theme identified in several instruments as a potential gap.

5.6 Remote control station/centre

MASS may be operated by a remote control station/centre. It was noted that the functional and operational requirements of the remote control station/centre, as well as for monitoring, needed to be addressed. It was further noted that this was a new concept to be implemented in IMO instruments and a common theme identified in several instruments as a potential gap.

5.7 Remote operator as seafarer

The RSE revealed that the possible designation of a remote operator as seafarer was considered to be a common theme identified in several instruments as a potential gap. Qualifications, responsibility and the role of remote operator as seafarer was one of the most complex issues to be addressed.

5.8 Terminology

Following consideration of terms that should be avoided, some recommended terms and a draft glossary for future work submitted by Finland and France (MSC 101/5/4), MSC 101 agreed that the matter of a glossary should be further considered after the RSE had been completed, together with information from ISO concerning new standards, as appropriate. During step 2, as reported to MSC 102, views were expressed for the degrees of autonomy to be re-evaluated, taking into account the lessons learned during the RSE. New definitions were proposed in several places, which need to be further considered and decided upon.

6 PRIORITIES FOR FURTHER WORK

6.1 Given the complex and extensive output of the RSE (section 4 and appendix 2), establishing priorities for further work is important. This section has been developed by using the available information in appendix 2, to identify the priorities of work on several issues cutting across a number of individual IMO instruments. The main high-priority items include the need to consider the development of a new instrument, review of terminology and definitions and consideration of high-priority common gaps and themes. It should be noted, however, that the identified priorities are non-exhaustive.

Development of a new instrument

6.2 In line with the outcome on "the most appropriate ways of addressing MASS operations" in appendix 2, the many common potential gaps and/or themes, which cut across several instruments, could preferably be addressed holistically through a new instrument (e.g. a MASS Code). Addressing every instrument or SOLAS chapter separately could lead to inconsistencies, confusion and raise potential barriers for the application of existing regulations to conventional ships. Therefore, a MASS instrument, instead of amending individual instruments, may be considered which can be made mandatory by means of amending an existing IMO convention, such as SOLAS. This instrument could preferably be developed following a goal-based approach,[4] in line with the Guidelines developed by the Organization.[5]

[4] See *Generic guidelines for developing IMO goal-based standards* (MSC.1/Circ.1394/Rev.2).

[5] See resolution *Uniform wording for referencing IMO instruments* (resolution A.911(22)).

6.3 In order to facilitate the operation of MASS at an early stage, establishing interim guidelines for MASS may be beneficial for ensuring safe, secure and environmentally-friendly MASS operations.

Terminology and definitions

6.4 It was recognized that consideration of amendments to instruments, or development of a new instrument, requires agreement on the use of terminology and is a policy decision. One of the issues to be addressed was considered to be the re-evaluation of the degrees of autonomy, taking into account the lessons learned during the RSE. This work could include the development of a glossary.

Common gaps and themes

6.5 As mentioned in the previous section, some common potential gaps and/or themes were regarded as high-priority issues that cut across several IMO instruments and might require a policy decision before addressing individual instruments. Among those are, for instance:

.1 meaning of the terms master, crew or responsible person;

.2 remote control station/centre; and

.3 remote operator designated as seafarer.

Possible order to address the instruments

6.6 If the decision is made to amend existing instruments rather than to develop a new instrument the following order of priorities is proposed:

It was concluded that the order to address the instruments for further work should be classified into three groups, as follows:

.1 High-priority: the group of instruments which contain the common potential gaps and/or themes listed in section 5 that need to be addressed before all others;

.2 Medium-priority: the group of instruments which require consideration of the impact of the use of MASS but which have not been identified as high-priority; and

.3 Low-priority: the group of instruments that require no significant action for the use of MASS.

High-priority instruments

6.7.1 The RSE concluded that the following IMO instruments under the purview of MSC were classified as 'High-priority':

SOLAS chapters II-1, II-2, III, IV, V, VI, VII, IX, XI-1and XI-2;
COLREG;
STCW Convention and Code;
STCW-F Convention;
1966 LL Convention and 1988 Protocol thereto;

1979 SAR Convention;
FSS Code;
IMSBC Code;
IMDG Code;
TONNAGE 1969;
IBC Code; and
IGC Code.

6.7.2 The most appropriate way(s) of addressing MASS operations in the instruments classified as high-priority is set out in the table 3, with the following four options:

I equivalences as provided for by the instruments or developing interpretations; and/or
II amending existing instruments; and/or
III developing a new instrument; or
IV none of the above as a result of the analysis.

IMO Instruments	**The most appropriate way(s) of addressing MASS operations**			
Degree of Autonomy	**One**	**Two**	**Three**	**Four**
SOLAS II-1	IV	II	II - III	II - III
SOLAS II-2	IV	II - III	II - III	II - III
SOLAS III	IV	II - III	III	III
SOLAS IV	II	II - III	III	III
SOLAS V	II	II - III	III	III
SOLAS VI	IV	II - III	II - III	II - III
SOLAS VII	IV	II - III	II - III	II - III
SOLAS IX	IV	III	III	III
SOLAS XI-1	IV	III	I - III	I - III
SOLAS XI-2	I - II	II - III	II - III	II - III
COLREG	I	I - II	I - II	II
STCW	I - II	I - II - III	I - II - III	IV
STCW-F	I - II	I - II - III	I - II - III	IV
LL 1966 + 1988 Protocol	IV	II	II	II
SAR 1979	IV	II	II	II
TONNAGE 1969	IV	I	I	I
IMDG Code	IV	II- III	II - III	II - III
IMSBC Code	IV	II- III	II - III	II - III
FSS Code	IV	II- III	II - III	II - III
IBC Code	IV	II- III	II - III	II - III
IGC Code	IV	II- III	II - III	II - III

Table 3: List of high-priority instruments

Instruments to be addressed at the same time

6.7.3 Among the high-priority instruments, some may need to be addressed in parallel with others in order to address the common potential gaps and/or themes.

Medium-priority instruments

6.8.1 The RSE concluded that the following IMO instruments under the purview of MSC were classified as "Medium-priority":

SOLAS chapter XII;
CSS Code;
Casualty Investigation Code;
III Code;
Grain Code;
INF Code;
2008 Intact Stability Code; and
Standards for owners' inspection and maintenance of bulk carrier hatch covers.

6.8.2 The most appropriate way(s) of addressing MASS operations of the medium-priority instruments is set out in table 4 below.

IMO Instruments	**The most appropriate way(s) of addressing MASS operations**			
Degree of Autonomy	One	Two	Three	Four
SOLAS XII	IV	II - III	II - III	II - III
CSS Code	IV	II - III	II - III	II - III
Casualty Investigation Code	IV	II	II	II
III Code	IV	II	II	II
Grain Code	IV	II - III	II - III	II - III
INF Code	IV	II - III	II - III	II - III
IS Code	IV	II	II	II
Standards for owners' inspection and maintenance of bulk carrier hatch covers	IV	IV	II - III	II - III

Table 4: List of medium-priority instruments

6.8.3 Almost all of the medium-priority instruments were concluded to be addressed by amending the instruments individually (i.e. the most appropriate way of addressing MASS operations was option II (paragraph 6.8.2)).

Instruments to be addressed at the same time

6.8.4 Among the medium-priority instruments, some might need to be addressed in parallel with others in order to address the common potential gaps and/or themes.

Low-priority instruments

6.9.1 The RSE concluded that the following remaining instruments under the purview of MSC were classified as 'low-priority' and required no significant action for the use of MASS.

6.9.2 The most appropriate way(s) of addressing MASS operations of the low-priority instruments are set out in the table 5 below, showing that no action is required for the use of MASS.

6.9.3 It was, however, recognized that some of the low-priority instruments might need to be considered in future in relation to the introduction of new technologies.

IMO Instruments	**The most appropriate way(s) of addressing MASS operations**			
Degree of Autonomy	One	Two	Three	Four
SOLAS chapter XIII	IV	IV	IV	IV
SOLAS chapter XIV	IV	IV	IV	IV
CSC Code	IV	IV	IV	IV
ESP Code	IV	IV	IV	IV
RO Code	IV	IV	IV	IV
FTP Code	IV	IV	IV	IV
Polar Code	IV	IV	IV	IV
LSA Code	IV	IV	IV	IV
ISM Code	IV	IV	IV	IV
ISPS Code	IV	IV	IV	IV
Standards for the evaluation of scantlings of the transverse watertight vertically corrugated bulkhead between the two foremost cargo holds and for the evaluation of allowable hold loading of the foremost cargo hold	IV	IV	IV	IV
Standards and criteria for side structure of bulk carriers of single-side skin construction	IV	IV	IV	IV

Table 5: List of low-priority instruments

Proposals for new outputs

6.10 The need for justification in relation to any future proposals for changes in the regulatory framework was agreed and, consequently, it was recognized that any future work on MASS need to be approved following a proposal for a new output. Therefore, all activities described below requires new outputs to be agreed by MSC.

Addressing MASS operations in IMO instruments under the remit of the Maritime Safety Committee

6.11.1 When addressing the high-priority issues identified above, coordination and delegation of work between committees and sub-committees should be considered.

High-priority issues for addressing MASS operations in IMO instruments
6.11.2 Commencement of developing and establishing rules and regulations to address MASS operations may require certain issues of high priority, as set out in paragraphs 6.2 to 6.6, to be considered in order to determine what, how and when to address MASS operations and to provide a foundation for future work. This effort would benefit from the sharing of experience gained by early MASS operations.

6.11.3 A possible way forward in addressing MASS operations in IMO instruments under the remit of the Maritime Safety Committee is set out in table 6.

Issue		Planned activities and result
1	**Consideration of a holistic approach to MASS operations in IMO instruments**	
	Development of a goal-based MASS instrument	Consideration on how to develop a new MASS instrument and draft amendments to the applicable instruments through which it can be made mandatory
	Definition of MASS	Consideration on need to revise definition and/or degrees and if revision is deemed necessary, agreeing on the definition and/or degrees
	Terminology for MASS operations in the IMO regulatory framework	Consideration on need of supplementing terminology, and if deemed necessary, agreeing on such terminology
	High-priority common gaps and themes in relation to MASS operations and IMOs regulatory framework: - Meaning of Master, crew or responsible person - Remote control station/centre - Remote operator designated as seafarer	Consideration of the high-priority common gaps and themes
	Non-mandatory instrument	Consideration of the development of guidelines for MASS operations such as guidelines for installation and guidelines for system application

Table 6: Addressing MASS operations in IMO instruments under the remit of the Maritime Safety Committee

7 REFERENCES TO THE MATERIAL PRODUCED BEFORE AND DURING THE RSE

IMO documents

7.1 A list containing a reference to IMO documents published before and during the RSE is provided in appendix 3.

The MASS module of GISIS

7.2 All detailed information, including analysis by the volunteering Member States and comments made by IMO Members have been recorded in the MASS module of GISIS. This web platform is connected to the IMO web accounts, providing access to registered IMO Members only.

APPENDIX 1

LIST OF INSTRUMENTS AND VOLUNTEERING MEMBERS UNDERTAKING OR SUPPORTING THE REVIEW OF INSTRUMENTS

Instrument	Volunteering Member State(s)	Supporting Member(s)
International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS 1974)		
Chapter II-1 (Construction – structure, subdivision and stability, machinery and electrical installations)	France	China, Iran (Islamic Republic of) and Sweden
Chapter II-2 (Construction – fire protection, fire detection and fire extinction), including: - International Code for Fire Safety Systems (FSS Code); and - International Code for Application of Fire Test Procedures, 2010 (2010 FTP Code)	Japan	China and IACS
Chapter III (Life-saving appliances and arrangements), including: - International Life-Saving Appliance Code (LSA Code)	Netherlands	Belgium and China
Chapter IV (Radiocommunications)	Turkey	China and Japan
Chapter V (Safety of navigation)	China	Denmark, Japan and Singapore
Chapter VI (Carriage of cargoes and oil fuels), including: - International Maritime Solid Bulk Cargoes Code (IMSBC Code); - Code of Safe Practice for Cargo Stowage and Securing (CSS Code); - International Code for the Safe Carriage of Grain in Bulk (Grain Code) - Part A "Specific requirements"; and - Part B "Calculation of assumed heeling moments and general assumptions".	Japan	China

Instrument	Volunteering Member State(s)	Supporting Member(s)
Chapter VII (Carriage of dangerous goods), including: - International Maritime Dangerous Goods Code (IMDG Code); - International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code); - International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code); and - International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships (INF Code).	Japan	China
Chapter IX (Management for the safe operation of ships), including: - International Safety Management (ISM) Code.	Norway	China, Nigeria, Republic of Korea and Russian Federation
Chapter XI-1 (Special measures to enhance maritime safety), including: - Code for Recognized Organizations (RO Code); - International Code on the Enhanced Programme of Inspections during Surveys of Bulk and Oil Tankers, 2001 (2011 ESP Code); and - Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code).	Finland	China
Chapter XI-2 (Special measures to enhance maritime security), including: - International Ship and Port Facility Security Code (ISPS Code)	Finland	China
Chapter XII (Bulk Carrier), including: - Bulk carrier bulkhead and double bottom strength standards; - Standards for owners' inspection and maintenance of bulk carrier hatch covers; and - Standards and criteria for side structures of bulk carriers of single-side skin construction.	Japan	
Chapter XIII (Verification of Compliance)	Japan	

Instrument	Volunteering Member State(s)	Supporting Member(s)
Chapter XIV (Safety measures for ships operating in polar waters), including: - International Code for Ships Operating in Polar Waters (Polar Code)	Finland	
International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW 1978) and Seafarers' Training, Certification and Watchkeeping Code (STCW Code)	United States	China, Cyprus, Japan, New Zealand, Republic of Korea, Russian Federation and Spain
International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995 (STCW-F 1995)	Japan	New Zealand and Spain
Convention on the International Regulations for Preventing Collisions at Sea, 1972, as amended (COLREG 1972)	Marshall Islands	China, Japan, Singapore, Spain, Sweden and United States
International Convention for Safe Containers (CSC), 1972	Japan	Finland
International Convention on Load Lines, 1966 (LL 1966), including: - IMO Instruments Implementation Code (III Code); and - International Code on Intact Stability, 2008 (2008 IS Code) – Part A.	India	China and Liberia
Protocol of 1988 relating to LL 1966 (LL PROT 1988)	India	Liberia
International Convention on Maritime Search and Rescue, 1979 (SAR 1979)	Spain and France	Turkey
International Convention on Tonnage Measurement of Ships, 1969 (TONNAGE 1969)	Liberia	

APPENDIX 2

RESULTS OF THE REGULATORY SCOPING EXERCISE AT INSTRUMENT LEVEL

The application of IMO instruments, as currently drafted, is divided in the following categories:

A applied to MASS and prevented MASS operations; or
B applied to MASS and did not prevent MASS operations and required no actions; or
C applied to MASS and did not prevent MASS operations but might need to be amended or clarified, and/or might contain gaps; or
D had no application to MASS operations.

The most appropriate way(s) of addressing MASS operations are categorized with the following four options:

I equivalences as provided for by the instruments or developing interpretations; and/or
II amending existing instruments; and/or
III developing a new instrument; or
IV none of the above as a result of the analysis.

Instrument: SOLAS Chapter II-1

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General	II	Specific definitions could be added in Reg. 2 and 3 for MASS operations (e.g. master, operator, Remote Control Centre, unmanned, etc.)	Reg. 2 and 3 mention no specific definitions for MASS operations
	III	Specific requirements on remote monitoring and remote control may be developed (e.g. requirements on Remote control centre, including facility and manning, communication network and system, human machine interface, etc.)	No specific requirements on remote monitoring and remote control in the existing instruments

Degree One	**IV**	MASS application (initial review) = B or D	None
Degree Two	**II**	Specific definitions could be added in Reg. 2 and 3 to clarify that the Remote Control Centre could be a substitute to the bridge	Reg. 13, 13-1, 14, 15-1, 17-1, 22-1, 25, 29, 30, 31, 37, 49, 50, 51, 53 mention indications, alarms, controls in the bridge or communication means with the bridge
		Reg. 22 **c**ould be amended considering that the control could be performed remotely	Reg. 22 mentions control of doors and other devices
		Reg. 5, 5-1, 8-1, 20, 23, 24 and 28 could be amended considering that the master and/or the officer of the watch could be on board or not on board	Reg. 5, 5-1, 8-1, 28 mention information to be available on board for the use of the master or information to be supplied to the master
			Reg. 20, 23, 24 mention actions to be done by the master and/or the officer of the watch
Degrees Three and Four	**II or III**	Could be amended considering no crew and no master (or officer of the watch) on board or Considering the number of gaps identified involving a lot of regulations, developing a separate and dedicated instrument could be the solution with less complexity and easier to conduct	Reg. 3-3 mentions means to enable the crew to gain safe access to the bow
			Reg. 3-4, 3-6, 3-8, 12, 13, 13-1, 15, 17, 17-1, 19-1, 21, 22, 26, 29, 31, 33, 35-1, 41, 44, 48, 49 mention manual operation done on board
			Reg. 3-6, 3-7, 3-10, 5, 5-1, 8-1, 19, 28 mention information available on board or information supplied to the master
			Reg. 6 and 7.3 take into account the presence of the crew in the stability calculation (index R and permeability)
			Reg. 13, 13-1, 14, 15-1, 17-1, 22-1, 25, 29, 30, 31, 37, 49, 50, 51, 53 mention indications, alarms, controls or communication means in the bridge, engine room or centralized control position
			Reg. 20, 22, 23, 24 mention actions done by the master (or officer of the watch)
			Reg. 32 mentions a direct reading gauge glass
			Reg. 38 mentions an alarm in the engineers' accommodation
			Reg. 40, 41 mention habitable conditions
			Reg. 42, 42-1, 43 mention emergency consumers, lighting, muster and embarkation station related to crew evacuation
			Reg. 54 mentions periodically unattended machinery spaces

Instrument: SOLAS chapter II-2

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. On the other hand, it could also be considered to amend the regulations or develop new instruments to ensure fire safety based on another concept. In such a case, one of the future issues to be addressed is how to evaluate the reduction of fire risks owing to absence of persons on board and to what extent we could relax the regulations. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	

Degree One	**IV**	"MASS application" of all regulations were identified as ".B" or ".D" and no action is required. However, some considerations might be needed depending on the conditions or premises of this degree of autonomy.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in a consistent manner. Regarding the other potential gaps and/or themes, the provisions regarding definitions and the provisions regarding facilities such as alarms, indications and operational booklets should be amended to safely introduce remote operations with seafarers on board. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	• Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified. • Provisions regarding definitions (control stations and safety centre) should be amended. • Provisions regarding facilities such as alarms, indications and operational booklets should be amended so that remote operators can also be notified.

Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to apply regulation 17 "Alternative design and arrangements" to the provisions for systems and appliances which need manual operations or provisions requiring actions by personnel on board in regulations 4 to 23 other than 17 of SOLAS chapter II-2. On the other hand, regarding the provisions for systems and appliances which need manual operations and provisions requiring actions by personnel on board, especially for fire fighting, it may be more appropriate to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) rather than amending them one by one since there are a lot of provisions in the same themes or potential gaps in this chapter. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	• The meanings of "master", etc. • Functional requirements of remote/ automated system to detect and control fire. • Definitions of manned spaces, control stations and safety centre. • Facilities such as alarms, indications, notification and means of escape, and operational booklets. • Systems and appliances which need manual operations. • Actions by personnel on board, such as fire fighting. • Accommodations and accessibility. • Safe return to port and its casualty threshold.

Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to apply regulation 17 "Alternative design and arrangements" to the provisions for systems and appliances which need manual operations or provisions requiring actions by personnel on board in regulations 4 to 23 other than 17 of SOLAS chapter II-2. On the other hand, regarding the provisions for systems and appliances which need manual operations and provisions requiring actions by personnel on board, especially for fire fighting, it may be more appropriate to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) rather than amending them one by one since there are a lot of provisions in the same themes or potential gaps in this chapter. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Ditto.

Instrument: FSS Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the themes/potential gaps identified in the first step. On the other hand, it could also be considered to amend the regulations or develop new instruments to ensure fire safety based on another concept. In such a case, one of the future issues to be addressed is how to evaluate the reduction of fire risks owing to absence of persons on board and to what extent we could relax the regulations. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	

Degree One	**IV**	"MASS application" of all regulations were identified as ".B" or ".D" and no action is required. However, some considerations might be needed depending on the conditions or premises of this degree of autonomy.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in a consistent manner. Regarding the potential gaps and/or themes, the provisions should be amended to safely introduce remote operations with seafarers on board. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	• Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified. • The meanings of control stations and safety centre should be clarified. • Provisions regarding facilities such as alarms and indications should be amended so that remote operators can also be notified.

Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to apply regulation 17 "Alternative design and arrangements" to the provisions for systems and appliances which need manual operations or provisions requiring actions by personnel on board in regulations 4 to 23 other than 17 of SOLAS chapter II-2. On the other hand, regarding the provisions for systems and appliances which need manual operations, especially for fire fighting, it may be more appropriate to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) rather than amending them one by one since there are a lot of provisions in the same themes or potential gaps in this code. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	• Since "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified. • The meanings of manned spaces, control stations and safety centre should be clarified. • Provisions regarding facilities such as alarms, indications, notification and means of escape should be amended. • Provisions regarding systems and appliances which need manual operations should be amended. • Provisions regarding accommodations and accessibility should be amended.

Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to apply regulation 17 "Alternative design and arrangements" to the provisions for systems and appliances which need manual operations or provisions requiring actions by personnel on board in regulations 4 to 23 other than 17 of SOLAS chapter II-2. On the other hand, regarding the provisions for systems and appliances which need manual operations, especially for fire fighting, it may be more appropriate to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) rather than amending them one by one since there are a lot of provisions in the same themes or potential gaps in this code. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Ditto.

Instrument: FTP Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Two	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Three	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Four	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.

Instrument: SOLAS Chapter III

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	Scored MASS application B for all regulations in the first step.	None

Degree Two	**I, II or III**	More than one way possible in order to capture the concept of remote control, the altered status of the navigation bridge therein, and the definition/role of the master in such a concept, related to the (emergency) process of evacuating persons on board and rescuing persons from the water.	Communications between remote operator and crew on board, definition and status of the navigation bridge, definition and role of the master (either on board or at the remote operator station).
Degree Three	**III**	The concept of unmanned MASS requires principle assumptions and new concept thinking related to the process of evacuating persons on board a ship carrying passengers and rescuing persons from the water that cannot just be accommodated by amending existing instruments or applying equivalents.	Availability of sufficient and qualified persons. Manning of survival craft and supervision of evacuation. Definition and role of the master. Definition and status of the navigation bridge. How to render assistance to other ships in distress, or recover persons from the water without crew on board. Goal and function of rescue boat and line-throwing appliance.
Degree Four	**III**	The concept of unmanned MASS requires principle assumptions and new concept thinking related to the process of evacuating persons on board a ship carrying passengers and rescuing persons from the water that cannot just be accommodated by amending existing instruments or applying equivalents.	Availability of sufficient and qualified persons. Manning of survival craft and supervision of evacuation. Definition and role of the master. Definition and status of the navigation bridge. How to render assistance to other ships in distress, or recover persons from the water without crew on board. Goal and function of rescue boat and line-throwing appliance.

Instrument: SOLAS chapter IV – Radiocommunications

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**II**	Potential gaps may be addressed by amending existing instrument, possibly as they are introduced.	• New terms and definitions • New requirements for automated processes and decision support system
Degree Two	**II, III**	Since remotely controlled operations have not been a part of this instrument, *developing a new instrument* would be the most appropriate way to address the requirements for remote control centres. In addition, necessity for new requirements and frequencies could be addressed by developing new instrument as well.	• New terms and definitions • Requirements for remote control stations' technical issues • Functional and maintenance requirements
Degree Three	**III**	Since remotely controlled operations have not been a part of this instrument, *developing a new instrument* would be the most appropriate way to address the requirements for remote control centres. In addition, necessity for new requirements and frequencies could be addressed by developing a new instrument as well.	• New terms and definitions • Requirements for remote control stations' technical issues • Functional and maintenance requirements • Radio watch requirements and radio personnel • Distress, safety and urgency calls and related requirements
Degree Four	**III**	Since fully autonomous ships with most probably having main control centre ashore have not been foreseen in this instrument, *developing new instrument* would be the most appropriate way to	• New terms and definitions Requirements for main control stations' technical issues • Functional and maintenance requirements • Radio watch requirements and radio personnel

		address the requirements for potential main control centres. In addition, necessity for new requirements and frequencies could be addressed by developing new instrument as well.	• Distress, safety and urgency calls and related requirements

Instrument: SOLAS chapter V

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**II**	For MASS of degree One, crew on board will still be responsible for ship operation including decision-making. For general application of decision-making functions and automated processes, a basic principle for adopting them are required to be developed and included in SOLAS (e.g. in Ch. I). If there are any specific decision-making functions or automated processes, such as "periodically unmanned bridge", then new regulations and performance standards are to be developed and included in SOLAS chapter V. Also, amendments/additions to definitions will be needed to accommodate the concept of MASS. In light of the above, modification to current instruments (option II) are considered as the most appropriate way for addressing the operation of degree One MASS.	1. Definitions 2. General provisions for decision-making functions and automated processes 3. Provisions and performance standards for defined specific decision-making functions and automated processes 4. Relationship between manning level and specific automated processes

Degree Two	**II, III**	For degree Two MASS, there are quite a few potential gaps identified involving many regulations. Some require amendments to current provisions (items 1, 3, 4, 6, 7), while others require the reconstruction of regulations (for item 5). Moreover, new regulation/provisions will also need to be developed (requirements for remote control). In terms of this, two paralleled tracks are suggested: 1. Modify existing regulations for gaps require amendments; 2. Accommodate functions of remote control and those require reconstruction in a new and dedicated instrument. Additional performance standards for some navigational equipment of remotely controlled MASS most likely also need to be developed. Separate guidelines (mandatory or non-mandatory) for these performance standards are suggested.	1. Definitions 2. Requirements for remote control (location) 3. Definition, roles, responsibilities and qualification of Ship Master 4. Roles, responsibilities and qualification of crew or responsible personnel 5. Manning requirements (on board and at remote control location.) 6. Carriage of equipment and the related performance standards. 7. Ship-shore communications
Degree Three	**III**	For degree Three MASS, there are quite a few potential gaps identified involving many regulations. Some require amendments to current provisions (items 1, 3, 4, 5, 6, 7, 9, 13), while others require the reconstruction of regulations (for items 8, 10, 11, 12). Moreover, new regulation/provisions will also need to be developed (requirements for remote control). In terms of this, conducting large scale amendments to existing provision will not be an optimized way to address the issue. Remotely controlled MASS certainly will appear in the future. However, for a very long period, the large majority of the world's fleet will still be conventional ship. Therefore, large scale amendments of current regulations only to accommodate MASS operation seem to be unwise, which will also cause confusion and potential barriers for the application of existing provisions to conventional ships. On the other hand,	1. Definitions 2. Requirements for remote control (location) 3. Definition, roles, responsibilities and qualification of Ship Master 4. Roles, responsibilities and qualification of crew or responsible personnel 5. Implication of MASS in SAR 6. Certificates and manuals on board 7. Carriage of equipment and the related performance standards. 8. Manning requirements 9. Ship reporting and reporting method 10. Bridge design and visibility 11. Training and drilling 12. Onboard manual operation

		developing a separate and dedicated mandatory instrument for MASS of this level to encompass all the provisions to mitigate gaps identified will be the solution with less complexity and easier to realize. Additional performance standards for some navigational equipment of remotely controlled MASS will also need to be developed. Separate guidelines (mandatory or non-mandatory) for these performance standards are suggested.	
Degree Four	**III**	For degree Four MASS, there are quite a few potential gaps identified involving many regulations. Some require amendments to current provisions (items 1, 2, 3, 4, 5, 7, 10), while others require the reconstruction of regulations (items 6, 8, 9). New regulation/provisions might also need to be developed. In terms of this, conducting large scale amendments to existing provision will not be an optimized way to address the issue. Autonomously operated MASS certainly will appear in the future. However, for a very long period, the large majority of world's fleet will still be conventional ship. Therefore, large scale amendments of current regulations only to accommodate MASS operation seem to be unwise, which will also cause confusion and potential barriers for the application of existing provisions to conventional ships. On the other hand, developing a separate and dedicated mandatory instrument for MASS of this level to encompass all the provisions to mitigate gaps identified will be the solution with less complexity and easier to realize. Additional performance standards for some navigational equipment of autonomously operated MASS will also need to be developed. Separate guidelines (mandatory or non-mandatory) for these performance standards are suggested.	1. Definitions 2. Definition, roles, responsibilities and qualification of Ship Master 3. Implication of MASS in SAR 4. Certificates and manuals on board 5. Carriage of equipment and the related performance standards 6. Bridge design and visibility 7. Ship reporting and reporting method 8. Training and drilling 9. Onboard manual operation (steering) and action (maintenance, pilot transfer) 10. Information transfer/ship-shore communication

Instrument: SOLAS chapter VI

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. On the other hand, another way could also be considered to amend the regulations or develop new instruments to introduce absolutely different emergency procedures in the case that there are no persons on board and the cargo does not include any harmful substances for the marine environment. In such a way, one of the future issues to be addressed is how to evaluate the reduction of risks owing to absence of persons on board and to what extent we could relax the regulations. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	

Degree One	**IV**	"MASS application" of all regulations were ".B" or ".D" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have a huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in a consistent manner. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified.
Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) not amending them one by one, especially for the procedures to ensure safety of cargoes in normal and emergency conditions, since	• The meanings of "master", etc. • Systems and appliances which need manual operations. • Actions by personnel on board, such as emergency response and onboard inspection. Taking them into account, for the carriage of cargoes by ships without persons on board during sailing, one of the important issues is how to establish the emergency procedures to deal with conditions of leakage, spillage or fire involving cargoes, as well as the procedures for ensuring safety in normal conditions.

		there are a lot of provisions in the same themes or potential gaps in this chapter. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) not amending them one by one, especially for the procedures to ensure safety of cargoes in normal and emergency conditions, since there are a lot of provisions in the same themes or potential gaps in this chapter. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction.	Ditto.

		Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	

Instrument: IMSBC Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. On the other hand, another way could also be considered to amend the regulations or develop new instruments to introduce absolutely different emergency procedures in the case that there are no persons on board and the cargo does not include any harmful substances for the marine environment. In such a way, one of the future issues to be addressed is how to evaluate the reduction of risks owing to absence of persons on board and to what extent we could relax the regulations. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it	

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
		seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in consistent manner. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction.	Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified.

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
		Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) with the similar issues in SOLAS chapter VI, not amending them one by one, especially for the procedures to ensure safety of cargoes in normal and emergency conditions. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction.	• The meanings of "master", etc. • Actions by personnel on board, such as emergency response, onboard inspection and security responsibilities. • Instructions for onboard procedures. Taking them into account, for the carriage of cargoes by ships without persons on board during sailing, one of the important issues is how to establish the emergency procedures to deal with conditions of leakage, spillage or fire involving cargoes, as well as the procedures for ensuring safety in normal conditions.

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
		Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) with the similar issues in SOLAS chapter VI, not amending them one by one, especially for the procedures to ensure safety of cargoes in normal and emergency conditions. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction.	Ditto.

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
		Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	

Instrument: CSS Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	

Degree One	**IV**	"MASS application" of all regulations were identified as "B" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in consistent manner. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified.
Degree Three	**II and/or III**	Ditto.	Since "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified.
Degree Four	**II and/or III**	Ditto.	Ditto.

Instrument: Grain Code Part A and B

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of	Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified.

		these terms should be done carefully in consistent manner. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the onboard inspection with the similar issues in SOLAS chapter VI and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction.	• The meanings of "master", etc. • Actions by personnel on board, such as inspection of the lashing or strapping during voyages. Taking into account the above potential gaps and/or themes identified, for the carriage of cargoes by ships without persons on board during sailing, one of the important issues to be considered is how to establish the procedures for ensuring safety of cargoes in normal conditions.

		Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the onboard inspection with the similar issues in SOLAS chapter VI and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Ditto.

Instrument: SOLAS chapter VII

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of	Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified.

		these terms should be done carefully in consistent manner. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the onboard inspection with the similar issues in SOLAS chapter VI and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction.	• The meanings of "master", etc. • Actions by personnel on board, such as inspection of the lashing during voyages. • Instructions for onboard procedures. Taking into account the above potential gaps and/or themes identified, for the carriage of cargoes by ships without persons on board during sailing, one of the important issues to be considered is how to establish the procedures for ensuring safety of cargoes in normal conditions.

		Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other themes/ potential gaps, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the onboard inspection with the similar issues in SOLAS chapter VI and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, the Volunteering Members determined "II and/or III" as the most appropriate way(s) of addressing MASS operations.	Ditto.

Instrument: IMDG Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the themes/ potential gaps identified in the first step. On the other hand, another way could also be considered to amend the regulations or develop new instruments to introduce absolutely different emergency procedures in the case that there are no persons on board and the cargo does not include any harmful substances for the marine environment. In such a way, one of the future issues to be addressed is how to evaluate the reduction of risks owing to absence of persons on board and to what extent we could relax the regulations. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	

Degree One	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in consistent manner. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified.
Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the procedures to ensure safety of cargoes in normal and emergency conditions, with the similar issues in	• The meanings of "master", etc. • Actions by personnel on board, such as supervision or inspection of ro-ro cargo space and judgement by the master in the event of incidents. Taking them into account, for the carriage of cargoes by ships without persons on board during sailing, one of the important issues is how to establish the emergency procedures to deal with conditions of leakage, spillage or fire involving cargoes, as well as the procedures for ensuring safety in normal conditions.

		SOLAS chapter VI and VII and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other themes/ potential gaps, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the procedures to ensure safety of cargoes in normal and emergency conditions, with the similar issues in SOLAS chapter VI and VII and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction.	Ditto.

		Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	

Instrument: IBC Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. On the other hand, another way could also be considered to amend the regulations or develop new instruments to introduce absolutely different emergency procedures in the case that there are no persons on board and the cargo does not include any harmful substances for the marine environment. In such a way, one of the future issues to be addressed is how to evaluate the reduction of risks owing to absence of persons on board and to what extent we could relax the regulations. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the	

		discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in consistent manner. Regarding the other themes/potential gaps, the provisions regarding facilities such as alarms should be amended to safely introduce remote operations with seafarers on board. On the other hand, as mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	• Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified. • Provisions regarding facilities such as alarms should be amended so that remote operators can also be notified.

Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the procedures to ensure safety of cargoes in normal and emergency conditions, with the similar issues in SOLAS chapter VI and VII and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	• The meanings of "master", etc. • Systems and appliances which need manual operations. • Actions by personnel on board, such as training in emergency procedures and fire fighting. • Accommodations, spaces normally entered during cargo-handling operations and accessibility. • Facilities such as alarms. Taking into account the above potential gaps and/or themes identified, for the carriage of cargoes by ships without persons on board during sailing, one of the important issues to be considered is how to establish the emergency procedures to deal with conditions of leakage, spillage or fire involving cargoes, as well as the procedures for ensuring safety in normal conditions.
Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the procedures to ensure safety of cargoes in normal	Ditto.

		and emergency conditions, with the similar issues in SOLAS chapter VI and VII and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	

Instrument: IGC Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		"Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. On the other hand, another way could also be considered to amend the regulations or develop new instruments to introduce absolutely different	

		emergency procedures in the case that there are no persons on board and the cargo does not include any harmful substances for the marine environment. In such a way, one of the future issues to be addressed is how to evaluate the reduction of risks owing to absence of persons on board and to what extent we could relax the regulations. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in consistent manner. Regarding the potential gaps and/or themes, the provisions regarding facilities such as alarms should be amended to safely introduce remote operations with seafarers on board.	• Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified. • Provisions regarding facilities such as alarms should be amended so that remote operators can also be notified.

		As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the onboard supervision with the similar issues in SOLAS chapter VI and VII and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction.	• The meanings of "master", etc. • Definitions of normally entered spaces, cargo control room and cargo control station. • Systems and appliances which need manual operations. • Actions by personnel on board, such as supervision and fire fighting. • Facilities such as alarms. • Accommodations. Taking into account the above potential gaps and/or themes identified, for the carriage of cargoes by ships without persons on board during sailing, one of the important issues to be considered is how to establish the emergency procedures to deal with conditions of leakage, spillage or fire involving cargoes, as well as the procedures for ensuring safety in normal conditions.

		Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for the onboard supervision with the similar issues in SOLAS chapter VI and VII and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Ditto.

Instrument: INF Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the themes/potential gaps identified in the first step. On the other hand, it could also be considered to amend the regulations or develop new instruments to ensure fire safety based on another concept. In such a case, one of the future issues to be addressed is how to evaluate the reduction of fire risks owing to absence of persons on board and to what extent we could relax the regulations. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.

Degree Two	**II and/or III**	Regarding the clarification of the term "master" and its similar words, consistent measures (e.g. amending or developing definition) should be taken considering its importance. All IMO instruments are provided subject to the existence of the master on board even if there is no explicit reference. Changing this precondition would have huge impact on the instruments. Therefore, amendment or clarification of these terms should be done carefully in consistent manner. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Since there is the possibility that "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified.
Degree Three	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce remote operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for fire fighting with the similar issues in SOLAS chapter II-2 and the associated codes, not amending them one by one.	• Since "master", "crew", "responsible person", etc. are not on board, the meanings of such personnel of the ship should be clarified. • Provisions regarding systems and appliances which need manual operations (fixed fire-extinguishing arrangements) should be amended. • Provisions regarding facilities such as notification and shipboard emergency plan should be amended.

		As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Four	**II and/or III**	Regarding clarifications of "master", etc., see the comments in degree Two. Regarding the other potential gaps and/or themes, one way is to amend the provisions to safely introduce autonomous operations without seafarers on board. Another way is to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) for fire fighting with the similar issues in SOLAS chapter II-2 and the associated codes, not amending them one by one. As mentioned in the general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. However, easy measures such as developing unified interpretation (UI) should be avoided to prevent creating confusion and contradiction. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Ditto.

Instrument: SOLAS chapter IX

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	For MASS operation at degree One: - still personnel with certified competencies on board; - master still on board; and - no changes to the continued technological development of ships. No changes to instrument needed.	
Degree Two	**IV**	For MASS operation at degree Two: - process control remote (off the ship); - still personnel with certified competencies on board; - still available personnel with certified competencies with the possibility to take over; and - themes and potential gaps are with other instruments. No changes to instrument needed as long as the relevant potential gaps and/or themes are addressed in a new separate instrument addressing the particulars of MASS operation (MASS Code).	1. role and placement of master and crew 2. remote control station 3. remote operator 4. connectivity 5. cybersecurity
Degree Three	**III**	For MASS operation at degree Three:	1. role and placement of master and crew 2. remote control station 3. remote operator

		- process control remote (off the ship) or automated on board with intervention possibility from a remote location; and - themes and potential gaps are common with other instruments. If potential gaps are addressed in a new separate instrument, in order of consistency the most appropriate way is III.	4. connectivity 5. cybersecurity 6. fundamental issue regarding reduction of risks owing to the absence of persons on board 7. implication of MASS on search and rescue
Degree Four	**III**	For MASS operation at degree Four: - themes and potential gaps are common with other instruments. If potential gaps are addressed in a new separate instrument, in order of consistency the most appropriate way is III.	1. role and placement of master and crew 2. cybersecurity 3. fundamental issue regarding reduction of risks owing to the absence of persons on board 4. implication of MASS on search and rescue

Instrument: ISM Code

Degree of autonomy	**The most appropriate way(s) of addressing MASS operations (I, II, III, IV)**	**Reason for selecting the most appropriate way(s) of addressing MASS operations**	**Potential gaps/themes that require addressing**
Degree One	**IV**	For MASS operation at degree One: - still personnel with certified competencies on board; - master still on board; and - no changes to the continued technological development of ships. No changes to instrument needed.	

Degree Two	**IV**	For MASS operation at degree Two: - process control remote (off the ship); - still personnel with certified competencies on board; - still available personnel with certified competencies with the possibility to take over; and - themes and potential gaps are common with other instruments. No changes to instrument needed as long as the relevant themes and potential gaps are addressed in a new separate instrument addressing the particulars of MASS operation (MASS Code).	1. role and placement of master and crew 2. remote control station 3. remote operator 4. connectivity 5. cybersecurity
Degree Three	**III**	For MASS operation at degree Three: - process control remote (off the ship) or automated on board with intervention possibility from a remote location; and - themes and potential gaps are common with other instruments. If potential gaps are addressed in a new separate instrument, in order of consistency the most appropriate way is III.	1. role and placement of master and crew 2. remote control station 3. remote operator 4. connectivity 5. cybersecurity 6. fundamental issue regarding reduction of risks owing to the absence of persons on board 7. implication of MASS on search and rescue
Degree Four	**III**	For MASS operation at degree Four: - themes and potential gaps are common with other instruments. If potential gaps are addressed in a new separate instrument, in order of consistency the most appropriate way is III.	1. role and placement of master and crew 2. cybersecurity 3. fundamental issue regarding reduction of risks owing to the absence of persons on board 4. implication of MASS on search and rescue

Instrument: SOLAS chapter XI-1

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	This chapter does not require any amendments for degree One.	
Degree Two	**III**	The circumstances when the master of the vessel is performing his or her duties from a location not on board the vessel needs to be clarified.	
Degree Three	**I, III**	No actions are needed to address the issue of onboard certificates at this moment. The FAL Committee approved FAL.5/Circ.39/Rev.2 on the Guidelines for the use of electronic certificates. The Committee further endorsed that, for the time being, it would be better to keep the guidelines as a FAL circular, and not to convert it to an Assembly resolution or incorporate it into the IMO Compendium, and to continue gathering experience with respect to the implementation of electronic certificates. The distinctive objectives of the CSR document in case of a MASS needs to be taken into account. The circumstances when the master of the vessel is performing his or her duties from a location not on board the vessel needs to be clarified.	

		For unmanned vessels the possibility for having atmosphere testing instruments provided at the port instead of a carriage requirement would be recommended.	
Degree Four	**I, III**	No actions are needed to address the issue of onboard certificates at this moment. The FAL Committee approved FAL.5/Circ.39/Rev.2 on the Guidelines for the use of electronic certificates. The Committee further endorsed that, for the time being, it would be better to keep the guidelines as a FAL circular, and not to convert it to an Assembly resolution or incorporate it into the IMO Compendium, and to continue gathering experience with respect to the implementation of electronic certificates. The distinctive objectives of the CSR document in case of a MASS needs to be taken into account. The circumstances when the master of the vessel is performing his or her duties from a location not on board the vessel needs to be clarified. For unmanned vessels the possibility for having atmosphere testing instruments provided at the port instead of a carriage requirement would be recommended.	

Instrument: ESP Code 2011

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	ESP Code concerns mainly surveys of ships and therefore requires no actions.	
Degree Two	**IV**	ESP Code concerns mainly surveys of ships and therefore requires no actions.	
Degree Three	**IV**	ESP Code concerns mainly surveys of ships and therefore requires no actions. However, the practical solution of having survey report file with all supporting documents on board might need to be considered.	
Degree Four	**IV**	ESP Code concerns mainly surveys of ships and therefore requires no actions. However, the practical solution of having survey report file with all supporting documents on board might need to be considered.	

Instrument: RO Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	RO Code concerns monitoring, auditing and management, cooperations and functions of the Recognized Organizations including flag State obligations and therefore has no application to MASS.	
Degree Two	**IV**	RO Code concerns monitoring, auditing and management, cooperations and functions of the Recognized Organizations including flag State obligations and therefore has no application to MASS.	
Degree Three	**IV**	RO Code concerns monitoring, auditing and management, cooperations and functions of the Recognized Organizations including flag State obligations and therefore has no application to MASS.	
Degree Four	**IV**	RO Code concerns monitoring, auditing and management, cooperations and functions of the Recognized Organizations including flag State obligations and therefore has no application to MASS.	

Instrument: Casualty Investigation Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		If a vessel of technical abilities to be of degree Three or Four would be manned with certified seafarers, this would have the consequence that the vessel concerned would cease to be of degree Three or Four, and would become degree Two (Remotely controlled ship with seafarers on board: The ship is controlled and operated from another location. Seafarers are available on board to take control and to operate the shipboard systems and functions). Seafarers are assumed to be able to take control of a fully autonomous system if seafarers are on board. This philosophy was applied to degrees Three and Four throughout the assessment.	
Degree One	**IV**	No provisions preventing MASS, in need to be amended or clarified were identified.	
Degree Two	**II**	The definition of a seafarer needs to be amended to include personnel engaged in remote operation of the vessel. It needs to be clarified if the location of a remote control centre causes the State in which it is located to be a substantially interested State to an accident, which is not located within its waters, territories and jurisdiction or does not involve any legal entities or citizens of that State.	

Degree Three	**II**	The definition of a seafarer needs to be amended to include personnel engaged in remote operation of the vessel. It needs to be clarified if the location of a remote control centre causes the State in which it is located to be a substantially interested State to an accident, which is not located within its waters, territories and jurisdiction or does not involve any legal entities or citizens of that State.	
Degree Four	**II**	It needs to be clarified if the location of a remote control centre causes the State in which it is located to be a substantially interested State to an accident, which is not located within its waters, territories and jurisdiction or does not involve any legal entities or citizens of that State.	

Instrument: SOLAS chapter XI-2

Degree of autonomy	**The most appropriate way(s) of addressing MASS operations (I, II, III, IV)**	**Reason for selecting the most appropriate way(s) of addressing MASS operations**	**Potential gaps/themes that require addressing**
Degree One	**I, II**	There is a need to add a definition concerning MASS to the definitions.	
Degree Two	**II, III**	There is a need to add a definition concerning MASS to the definitions. The circumstances when the master of the vessel is performing his or her duties from a location not on board the vessel needs to be clarified.	

		The issue of remote control operational centres needs to be regulated at the instrument level where onboard command or manual operation is considered as a mandatory requirement. As the remote control operational centres will affect all instruments, it is deemed that the most appropriate way of addressing the issue is by a new instrument dedicated to the distinct features of MASS operations.	
Degree Three	**II, III**	There is a need to add a definition concerning MASS to the definitions. The exemption allowed under SOLAS XI-2/11 will require broadening of scope from short international voyage to all voyages. This would limit the need to amend the Code. The circumstances when the master of the vessel is performing his or her duties from a location not on board the vessel needs to be clarified. The ship security alert systems activating point required to be placed on the bridge needs to be considered holistically in conjunction with remote control requirements to be developed. The issue of remote control operational centres needs to be regulated at the instrument level where onboard command or manual operation is considered as a mandatory requirement. As the remote control operational centres will affect all instruments, it is deemed that the most appropriate way of addressing the issue is by a new instrument dedicated to the distinct features of MASS operations.	

Degree Four	**II, III**	There is a need to add a definition concerning MASS to the definitions. The circumstances when the master of the vessel is performing his or her duties from a location not on board the vessel needs to be clarified. The ship security alert systems activating point required to be placed on the bridge needs to be considered holistically in conjunction with remote control requirements to be developed. The issue of remote control operational centres needs to be regulated at the instrument level where onboard command or manual operation is considered as a mandatory requirement. As the remote control operational centres will affect all instruments, it is deemed that the most appropriate way of addressing the issue is by a new instrument dedicated to the distinct features of MASS operations.	

Instrument: ISPS Code

Degree of autonomy	**The most appropriate way(s) of addressing MASS operations (I, II, III, IV)**	**Reason for selecting the most appropriate way(s) of addressing MASS operations**	**Potential gaps/themes that require addressing**
Degree One	**IV**	No amendments required to ISPS Code pending necessary amendments done to SOLAS chapter XI-2.	

Degree Two	**IV**	No amendments required to ISPS Code pending necessary amendments done to SOLAS chapter XI-2.	
Degree Three	**IV**	No amendments required to ISPS Code pending necessary amendments done to SOLAS chapter XI-2.	
Degree Four	**IV**	No amendments required to ISPS Code pending necessary amendments done to SOLAS chapter XI-2.	

Instrument: SOLAS chapter XII

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step. The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis	

		shows options to be considered as the most appropriate way(s).	
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.
Degree Two	**II and/or III**	Regarding the potential gap and/or themes in the right column, the provisions should be amended to safely introduce remote operations with seafarers on board. On the other hand, it can also be considered to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) with the similar issues in the other chapters in SOLAS. As mentioned in general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Provisions regarding facilities such as alarms should be amended so that remote operators can also be notified.
Degree Three	**II and/or III**	Regarding the potential gaps and/or themes in the right column, the provisions should be amended to safely introduce remote operations without seafarers on board. On the other hand, it can also be considered to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) with the similar issues in the other chapters in SOLAS.	• Provisions regarding facilities such as alarms should be amended. • Provisions requiring actions by personnel on board, such as onboard maintenance, should be amended. • Provisions regarding accessibility should be amended.

		As mentioned in general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	
Degree Four	**II and/or III**	Regarding the potential gaps and/or themes in the right column, the provisions should be amended to safely introduce autonomous operations without seafarers on board. On the other hand, it can also be considered to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) with the similar issues in the other chapters in SOLAS. As mentioned in general comments, it seems difficult to determine the most appropriate way at this stage because it might only be found during the discussion on the actual amendments. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Ditto.

Instrument: Bulk carrier bulkhead and double bottom strength standards

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Two	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Three	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Four	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.

Instrument: Standards for owners' inspection and maintenance of bulk carrier hatch covers

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Appropriate alternative safety measures should be adopted to achieve the equivalent functionalities intended by the existing regulations and resolve the potential gaps and/or themes identified in the first step.	

		The choice of the most appropriate way(s) of doing so would be affected by several issues, such as the scale of amendments and time it takes to be agreed. Some of them would be identified during the discussion on the actual amendments, and thus it seems difficult to determine the most appropriate way at this stage. Therefore, the following analysis shows options to be considered as the most appropriate way(s).	
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Two	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Three	**II and/or III**	Regarding the potential gap/theme, the provisions should be amended to safely introduce remote operations without seafarers on board. On the other hand, it can also be considered to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make the code mandatory) with the similar issues in the SOLAS Convention. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	Provisions requiring actions by personnel on board, such as onboard maintenance, should be amended.
Degree Four	**II and/or III**	Regarding the potential gap/theme, the provisions should be amended to safely introduce autonomous operations without seafarers on board. On the other hand, it can also be considered to develop new instruments (new code for SOLAS-related issues and new chapter in SOLAS to make	Ditto.

		the code mandatory) with the similar issues in the SOLAS Convention. Therefore, "II and/or III" were determined as the most appropriate way(s) of addressing MASS operations.	

Instrument: Standards and criteria for side structures of bulk carriers of single-side skin construction

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Two	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Three	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.
Degree Four	**IV**	"MASS application" of all regulations were identified as ".B" and no action is required.	None.

Instrument: SOLAS chapter XIII

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.
Degree Two	**IV**	MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.
Degree Three	**IV**	MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.
Degree Four	**IV**	MASS application" of all regulations were identified as ".B" or ".D" and no action is required.	None.

Instrument: SOLAS chapter XIV

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	This chapter does not require any amendments.	
Degree Two	**IV**	This chapter does not require any amendments.	
Degree Three	**IV**	This chapter does not require any amendments.	
Degree Four	**IV**	This chapter does not require any amendments.	

Instrument: Polar Code

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	The Polar Code applies to MASS and requires no actions for degree One.	
Degree Two	**III**	The Polar Code is an add-on to the requirements of the SOLAS Convention, and the issue of remote operation of vessels from a remote control operational centre cannot be regulated by a sub-regulation to the Convention. The issue of remote control operational centres needs to be regulated at the instrument level where onboard command or manual operation is considered as a mandatory requirement. As the remote control operational centres will affect all instruments, it is deemed that the most appropriate way of addressing the issue is by a new instrument dedicated to the distinct features of MASS operations.	
Degree Three	**I, III**	*Electronic Certificates* No actions are needed to address the issue of onboard certificates at this moment. The FAL Committee approved FAL.5/Circ.39/Rev.2 on the Guidelines for the use of electronic certificates. The Committee further endorsed that, for the time being, it would be better to keep the guidelines as a FAL circular, and not to convert it to an Assembly	

		resolution or incorporate it into the IMO Compendium, and to continue gathering experience with respect to the implementation of electronic certificates. *Remote Control Centres* The Polar Code is an add-on to the requirements of the SOLAS Convention, and the issue of remote operation of vessels from a remote control operational centre cannot be regulated by a sub-regulation to the Convention. The issue of remote control operational centres needs to be regulated at the instrument level where onboard command or manual operation is considered as a mandatory requirement. As the remote control operational centres will affect all instruments, it is deemed that the most appropriate way of addressing the issue is by a new instrument dedicated to the distinct features of MASS operations. *Life-saving appliances* The requirement for life-saving appliances on degree Three might be in need of further consideration. However, this possible requirement needs to be addressed at a convention level. The requirements in the Polar Code regarding life-saving appliances are add-ons to the requirements specified in the SOLAS Convention, and therefore these requirements apply only if the equipment is fitted, and no amendments are required.	
Degree Four	**I, III**	*Electronic Certificates* No actions are needed to address the issue of onboard certificates at this moment. The FAL	

		Committee approved FAL.5/Circ.39/Rev.2 on the Guidelines for the use of electronic certificates. The Committee further endorsed that, for the time being, it would be better to keep the guidelines as a FAL circular, and not to convert it to an Assembly resolution or incorporate it into the IMO Compendium, and to continue gathering experience with respect to the implementation of electronic certificates. *Remote Control Centres* The Polar Code is an add-on to the requirements of the SOLAS Convention, and the issue of remote operation of vessels from a remote control operational centre cannot be regulated by a sub-regulation to the Convention. The issue of remote control operational centres needs to be regulated at the instrument level where onboard command or manual operation is considered as a mandatory requirement. As the remote control operational centres will affect all instruments, it is deemed that the most appropriate way of addressing the issue is by a new instrument dedicated to the distinct features of MASS operations. *Life-saving appliances* The requirement for life-saving appliances on degree Three might be in need of further consideration. However, this possible requirement needs to be addressed at a convention level. The requirements in the Polar Code regarding life-saving appliances are add-ons to the requirements specified in the SOLAS Convention, and therefore these	

		requirements apply only if the equipment is fitted, and no amendments are required.	

Instrument: STCW Convention

Degree of Autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reasons for selecting the most appropriate way(s) of addressing MASS operations
Degree One	**I and/or II**	With seafarers serving on board, the Convention and Code in its entirety remains applicable to MASS. Some requirements may need to be amended based on the introduction of new technologies and/or automated processes. Changes can be made through the existing Convention processes and flexibilities – through authorized equivalencies or amendments to the codes or regulations.
Degree Two	**I and/or II**	**<u>Option 1</u>** – Determination that "remote operator is a seafarer" .1 Changes to the Convention and Code to establish definitions and provisions to include the "remote operator" can be made through the existing Convention processes and other flexibilities – through authorized equivalencies or amendments to the codes or regulations. .2 Some requirements applicable to seafarers may need to be amended to: 1) introduce new technologies and/or automated processes; and 2) address the relationship of the "remote operator" with other seafarers serving on board. These changes can be made through the existing Convention processes and other flexibilities – through authorized equivalencies or amendments to the codes or regulations.
	I and/or II and or III	**<u>Option 2</u>** – Determination that "remote operator is not a seafarer" .1 Provisions necessary to address the "remote operator" could be established through either: 1) existing instrument(s) other than the STCW Convention and Code, or 2) a new instrument. .2 Some requirements applicable to seafarers may need to be amended to: 1) introduce new technologies and/or automated processes, and

		2) address the relationship between the "remote operator" and other seafarers serving on board. These changes can be made through the existing Convention processes and other flexibilities – through authorized equivalencies or amendments to the codes or regulations.
Degree Three	**I and/or II**	**Option 1** – Determination that "remote operator is a seafarer" .1 Changes to establish definitions and provisions to include the "remote operator" can be made through the existing Convention processes and other flexibilities – through authorized equivalencies or amendments to the codes or regulations. .2 There are no trained and qualified seafarers serving on board to perform the operational functions on board the vessel.
	III	**Option 2** – Determination that "remote operator is not a seafarer" .1 Consistent with the first step assumptions, new provisions necessary to address the "remote operator" will need to be established through either: 1) existing instrument(s) other than the STCW Convention and Code, or 2) a new instrument. The provisions will need to include the relationship between seafarers on board and the "remote operator". However, this relationship will also need to be established in the STCW Convention through the existing processes and other flexibilities – through authorized equivalencies or amendments to the codes or regulations. .2 There are no trained and qualified seafarers serving on board to perform the operational functions on board the vessel. Article 3 (Application) of the STCW Convention stipulates that the Convention applies only to "seafarers serving on board seagoing ships entitled to fly the flag of a Party …".
Degree Four	**IV**	There are no trained and qualified seafarers serving on board to perform the operational functions on board the vessel.

Instrument: STCW-F Convention

Degree of Autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reasons for selecting the most appropriate way(s) of addressing MASS operations
Degree One	**I and/or II**	With personnel serving on board fishing vessels, the Convention in its entirety remains applicable to MASS. Some requirements may need to be amended based on the introduction of new technologies and/or automated processes. Changes can be made through the existing Convention processes and flexibilities - through authorized equivalencies or amendments to the regulations.
Degree Two	**I and/or II**	**Option 1** – Determination that "remote operator is a personnel serving onboard seagoing fishing vessel" 1 Changes to the Convention and Code to establish definitions and provisions to include the "remote operator" can be made through the existing Convention processes and other flexibilities - through authorized equivalencies or amendments to the regulations. 2 Some requirements applicable to personnel serving onboard seagoing fishing vessels may need to be amended to: .1 introduce new technologies and/or automated processes; and .2 address the relationship of the "remote operator" with other personnel serving on board. These changes can be made through the existing Convention processes and other flexibilities – through authorized equivalencies or amendments to the regulations.

	I and/or II and/or III	**<u>Option 2</u>** – Determination that "remote operator is not a personnel serving onboard seagoing fishing vessel" 1 Consistent with the step 1 assumptions, provisions necessary to address the "remote operator" could be established through either: .1 existing instrument(s) other than the STCW-F Convention; or .2 a new instrument. 2 Some requirements applicable to seafarers may need to be amended to: .1 introduce new technologies and/or automated processes; and .2 address the relationship between the "remote operator" and other personnel serving on board fishing vessel. These changes can be made through the existing Convention processes and other flexibilities – through authorized equivalencies or amendments to the regulations.
Degree Three	**I and/or II**	**<u>Option 1</u>** – Determination that "remote operator is a personnel serving onboard seagoing fishing vessel" 1 Changes to establish definitions and provisions to include the "remote operator" can be made through the existing Convention processes and other flexibilities – through authorized equivalencies or amendments to the regulations. 2 There are no trained and qualified personnel serving onboard fishing vessel to perform the operational functions on board the vessel.
	III	**<u>Option 2</u>** – Determination that "remote operator is not a personnel serving onboard seagoing fishing vessel" 1 Consistent with the step 1 assumptions, provisions necessary to address, new provisions necessary to address the "remote operator" will need to be established through either: .1 existing instrument(s) other than the STCW-F Convention; or .2 a new instrument.

		The provisions will need to include the relationship between personnel on board and the "remote operator". However; this relationship will also need to be established in the STCW-F Convention through the existing processes and other flexibilities – through authorized equivalencies or amendments to the regulations. 2 There are no trained and qualified seafarers serving on board to perform the operational functions on board the vessel. Article 3 (Application) of the STCW-F Convention stipulates that the Convention applies only to "personnel serving onboard seagoing fishing vessels entitled to fly the flag of a Party".
Degree Four	**IV**	There are no trained and qualified personnel serving on board seagoing fishing vessels to perform the operational functions on board the vessel.

Instrument: COLREG 1972

Degree of Autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**I**	Some of the ways in which bridge watchkeeping and other operations on board will be carried out on MASS will result in distortion or a lack of clarity within COLREG. Degree One is expected to be the least disruptive and as a result the group feels equivalences as provided for by the instrument or developing interpretations will act as the best means to address this degree.	Terminology, lights, shapes and sound signals, role of master
Degree Two	**I and/or II**	Some of the ways in which bridge watchkeeping and other operations on board will be carried out on MASS will result in distortion or a lack of clarity within COLREG. Degree Two will serve as the intermediary point between degree One and degree Three and will result in control potentially being shifted to a remote location, as a result it is felt that either equivalences or interpretations as well as the amending of existing instruments will allow for the necessary distortion caused by this new approach to be addressed.	Terminology, lights, shapes and sound signals, role of master, responsibility of the remote operator

Degree Three	**I and/or II**	Degree Three represents the biggest shift in shipping and will require necessary amendments to COLREG in order to align itself with future autonomous shipping without seafarers on board and bringing about a significant reduction in the level of human interaction. It is agreed that COLREG in its current form is still the reference point and should retain as much of its current content as possible.	Terminology, lights, shapes and sound signals, role of master, responsibility of the remote operator, distress signals
Degree Four	**II**	Degree Four represents the most future concept in shipping and will require necessary amendments to COLREG in order to align itself with future autonomous shipping as a direct result of the lack of seafarers on board in any capacity. It is agreed that COLREG in its current form is still the reference point and should retain as much of its current content as possible.	Terminology, lights, shapes and sound signals, role of master, responsibility of the remote operator, distress signals

Instrument: CSC

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Themes/potential gaps that require addressing
Degree One	**IV**	"MASS application" of all articles of the Convention was ".B" or ".D" and no action is required.	None.
Degree Two	**IV**	"MASS application" of all articles of the Convention was ".B" or ".D" and no action is required.	None.
Degree Three	**IV**	"MASS application" of all articles of the Convention was ".B" or ".D" and no action is required. At the commenting stage, one member chose "II and/or III" with a comment that "Communication between ship and port should be considered involving remote control centre." However, CSC 1972 does not include any provision regarding communication between ship and port.	None.
Degree Four	**IV**	Ditto.	None.

Instrument: IMO Instruments Implementation Code (III Code)

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	All provisions of the code are applicable to degree One MASS.	None.
Degree Two	**II**	Some parts of the Code, such as obligations of flag, coastal and port States, may need revision to account for additional/alternate/equivalent responsibilities in relation to MASS operating in degree Two.	Additional/alternate/equivalent responsibilities arising out of amendments to instruments referred to, within the III Code.
Degree Three	**II**	Some parts of the Code, such as obligations of flag, coastal and port States, may need revision to account for additional/alternate/equivalent responsibilities in relation to MASS operating in degree Three.	Additional/alternate/equivalent responsibilities arising out of amendments to instruments referred to, within the III Code.
Degree Four	**II**	Some parts of the Code, such as obligations of flag, coastal and port States, may need revision to account for additional/alternate/equivalent responsibilities in relation to MASS operating in degree Four.	Additional/alternate/equivalent responsibilities arising out of amendments to instruments referred to, within the III Code.
General		The provisions of the III Code, are relevant to all degrees of MASS. Some parts of the Code, such as obligations of the flag, coastal and port States may need revision to account for additional/alternate/ equivalent responsibilities in relation to MASS operating in degrees Two, Three and Four. As the III Code deals with the implementation of IMO instruments in general, additional requirements arising out of amendments to IMO instruments may need to be accounted for.	

Instrument: International Code on Intact Stability, 2008 (2008 IS Code) – Part A

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	Part A of the IS Code remains relevant, as written to this category of MASS.	None.
Degree Two	**II**	With regard to regulations referring to 'master', amendment may be required in order to clarify the equivalent responsible authority, in the remote operation mode.	Since, degree Two MASS operates in the remote operation mode, the term 'master' needs to be clarified, whether it would include the "person in command" during remote operation mode.
Degree Three	**II**	With regard to regulations referring to 'master', amendments may be required in order to clarify the equivalent responsible authority, in degree Three.	As a degree Three MASS is remotely operated, the term 'master' needs to be clarified, whether it would include the "person in command" during remote operation mode.
Degree Four	**II**	With regard to regulations referring to 'master', amendments may be required in order to clarify the equivalent responsible authority, in degree Four.	As a degree Four MASS is fully autonomous, the term 'master' needs to be clarified to identify an equivalent responsible Authority.
General		In general, Part A of the IS code is considered relevant to all degrees of MASS. For MASS of degree Two, Three and Four, with regard to references to 'master' used in sections of Part A, amendments may be required as identified for the respective categories of MASS.	

Instrument: Protocol of 1988 relating to LL 1966 (LL PROT 1988)

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	"MASS application" of all regulations were identified as ".B" in step 1 and no action is required.	None.
Degree Two	**IV**	"MASS application" of all regulations were identified as ".B" in step 1 and no action is required.	None.
Degree Three	**IV**	"MASS application" of all regulations were identified as ".B" in step 1 and no action is required.	None.
Degree Four	**IV**	"MASS application" of all regulations were identified as ".B" in step 1 and no action is required.	None.
General		LL PROT 1988 is considered to generally apply to all degrees of MASS with the understanding that they will be considered as New Ships, under the Convention.	

Instrument: International Convention on Load Lines, 1966 (LL 1966)

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**II**	"MASS application" of most regulations were identified as ".B" in Step 1. Minor amendments may be required to generic sections such as application,	Minor amendments may be required to generic sections such as application, definitions etc. to address the

		definitions etc. to address the inclusion of this new category of Vessel (degree One MASS).	inclusion of this new category of Vessel (degree One MASS).
Degree Two	**II**	With regard to regulations referring to 'master', amendment may be required in order to clarify the equivalent responsible authority, in the remote operation mode.	Since the vessel operates in the remote operation mode, the term 'master' needs to be clarified, whether it would include the "person in command" during remote operation mode.
Degree Three	**II**	With regard to regulations referring to 'master', amendments may be required in order to clarify the equivalent responsible authority, in degree Three. Additionally, provisions which presume/require manual intervention for their application may need amendment due to no seafarers being present on board. The LL 1966 contains several provisions for protection of the crew (i.e. guard rails elevated walkways etc.). For ships without seafarers on board (i.e. autonomy degrees Three and Four) these features are not necessary. However, whether protection arrangements should still be required, needs to be addressed.	As a degree Three vessel is remotely operated, the term 'master' needs to be clarified, regarding whether it would include the "person in command" during remote operation mode. Provisions which presume/require manual intervention for their application may need amendments due to the absence of seafarers on board.
Degree Four	**II**	With regard to regulations referring to 'master', amendments may be required in order to clarify the equivalent responsible authority, in degree Four. Additionally, provisions which presume/ require manual intervention for their application may need adjustment due to no seafarers being present on board. The LL 1966 contains several provisions for protection of the crew (i.e. guard rails elevated walkways, etc.). For ships without seafarers on board (i.e. autonomy degrees Three and Four) these features are not necessary. However, whether protection arrangements should still be required, needs to be addressed.	As a degree Four vessel is fully autonomous, the term 'master' needs to be clarified to identify an equivalent responsible Authority. Provisions which presume/require manual intervention is a gap for this category of vessel, due to absence of seafarers on board.

General		Articles of LL 1966, as amended by LL PROT 88: While most articles can be retained as they are, amendments may be required to address the following issues to cater for MASS. Potential gaps and/or themes that require addressing for specific gaps that have been identified for Articles: Article 2 – Definitions: Where new definitions may need to be added based on the amendments to other articles and annexes. Article 14 – Initial, Renewal and Annual Surveys: Where it may be clarified that the surveying of all listed items in para. 1(c) may not be applicable to MASS without seafarers on board. Article 21 – Control: Where it should be clarified as to how to implement control measures for MASS without seafarers on board. General: The concept of assigning freeboards and Load Line Marks remain relevant in the context of safety of all degrees of MASS, and hence most regulations remain applicable to all categories of MASS, with amendments being required for categories of MASS without crew on board (degrees Three and Four), in relation to activities requiring manual intervention/presence of crew on board. Further, there are explicit/implicit assumptions in the LL 1966 'General notes' that certain pre-departure functions will be accomplished by master and crew (safe loading, ballasting, stability, stowage, etc.). For MASS without seafarers on board, responsibility for these pre-departure functions needs to be addressed. With respect to the LL 1966 certificate and Record of Conditions of Assignment, consideration should be given to whether or not these need to include a notation regarding the vessel's autonomous status.	

Instrument: International Convention on Maritime Search and Rescue, 1979 (SAR Convention). France, Spain and Turkey

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree One	**IV**	Since no potential gaps have been identified none of the first three ways of addressing such MASS operation have been selected. Therefore, this degree would meet the provisions of the SAR Convention as it is.	None
Degree Two	**II**	Tacit acceptance procedure for amendments is not applicable to paragraphs 2.1.4, 2.1.5, 2.1.7, 2.1.10, 3.1.2, and 3.1.13. No gap has been identified in those paragraphs; therefore, any amendment to the Convention is likely to be feasible using tacit acceptance procedure. The SAR system, as it stands, is globally able to cope with the emergence of autonomous vessels. Mostly potential gaps need clarification which may be addressed most appropriately by amendments. The way the SAR Convention should be adapted taking into account the adaptation of the COLREG and SOLAS chapters IV and V.	Ability of MASS to perform as SAR facility, on-scene coordinator or alerting post. (2.1.1, 2.1.9, 2.2, 2.3, 2.5, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4, 4.5 and 4.7) Reference to the master (3.1.9)
Degree Three	**II**	Tacit acceptance procedure for amendments is not applicable to paragraphs 2.1.4, 2.1.5, 2.1.7, 2.1.10, 3.1.2, and 3.1.13. No gap has been identified in those paragraphs; therefore, any amendment to the	Inconsistency between the concept of "rescue" and "distress" with regard to unmanned MASS being considered as "vessel and other craft".1.3.11, 1.3.12, 1.3.13, and potentially 1.3.7 and 1.3.9

		Convention is likely to be feasible using tacit acceptance procedure. The SAR system, as it stands, is globally able to cope with the emergence of autonomous vessels. Mostly potential gaps need clarification which may be addressed most appropriately by amendments. The way the SAR Convention should be adapted taking into account the adaptation of the COLREG and SOLAS chapters IV and V.	Ability of MASS to perform as SAR facility, on-scene coordinator or alerting post. (2.1.1, 2.1.9, 2.2, 2.3, 2.5, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4, 4.5 and 4.7) Reference to the master (3.1.9)
Degree Four	**II**	Tacit acceptance procedure for amendments is not applicable to paragraphs 2.1.4, 2.1.5, 2.1.7, 2.1.10, 3.1.2, and 3.1.13. No gap has been identified in those paragraphs; therefore, any amendment to the Convention is likely to be feasible using tacit acceptance procedure. The SAR system, as it stands, is globally able to cope with the emergence of autonomous vessels. Mostly potential gaps need clarification, which may be addressed most appropriately by amendments. The way the SAR Convention should be adapted taking into account the adaptation of the COLREG and SOLAS chapters IV and V.	Inconsistency between the concept of "rescue" and "distress" with regard to unmanned MASS being considered as "vessel and other craft".1.3.11, 1.3.12, 1.3.13, and potentially 1.3.7 and 1.3.9 Ability of MASS to perform as SAR facility, on-scene coordinator or alerting post. (2.1.1, 2.1.9, 2.2, 2.3, 2.5, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4, 4.5 and 4.7) Reference to the master (3.1.9)

Instrument: International Tonnage Convention on Tonnage Measurement of Ships, 1969

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
General		Generally, the TONNAGE 1969 Convention is equally applicable to MASS and non-MASS operations. However, for degrees of autonomy Two, Three and Four, article 2, regulation 2 and possibly also regulation 6 may require appropriate interpretations to provide clarifications and avoid ambiguities.	
Degree One	**IV**	At the RSE for the first step all articles and regulations were decided to be MASS application ".B", i.e. apply to MASS and do not prevent MASS operations and require no actions.	None.
Degree Two	**I**	At the RSE for the first step there was general consensus[1] that all articles and regulations were decided to be MASS application ".B" except for article 2 and regulation 2. Since both article 2 (Definitions) and regulation 2 (Definitions of terms used in the annexes) relates definitions it is expected these definition issues can be addressed through appropriate interpretation(s). Note 1: at the commenting stage at the first step United Kingdom disagreed with MASS application ".B" for regulation 6.	Definition of master, crew and passenger needs to be clarified in the context of MASS operation. This clarification could be addressed through developing interpretations. The calculation of volumes (Reg. 6) that are included in the calculation of gross and net tonnages may need to be further considered. Therefore, the reason for UK's disagreement with MASS application ".B" for Reg. 6 (Calculation of Volumes) needs to be identified to see if it can be addressed through interpretation(s).

Degree of autonomy	The most appropriate way(s) of addressing MASS operations (I, II, III, IV)	Reason for selecting the most appropriate way(s) of addressing MASS operations	Potential gaps/themes that require addressing
Degree Three	**I**	At the RSE for the first step there were general consensus[1] that all articles and regulations were decided to be MASS application ".B" except for article 2 and regulation 2. Since both article 2 (Definitions) and regulation 2 (Definitions of Terms used in the annexes) relates definitions it is expected these definition issues can be addressed through appropriate interpretation(s). Note 1: at the commenting stage at the first step United Kingdom disagreed with MASS application ".B" for regulation 6.	Definition of master, crew and passenger needs to be clarified in the context of MASS operation. This clarification could be addressed through developing interpretations. The calculation of volumes (Reg. 6) that are included in the calculation of gross and net tonnages may need to be further considered. Therefore, the reason for United Kingdom's disagreement with MASS application ".B" for Reg. 6 (Calculation of volumes) needs to be identified to see if it can be addressed through interpretation(s).
Degree Four	**I**	At the RSE for the first step there were general consensus[1] that all articles and regulations were decided to be MASS application ".B" except for article 2 and regulation 2. Since both article 2 (Definitions) and regulation 2 (Definitions of terms used in the annexes) relates definitions it is expected these definition issues can be addressed through appropriate interpretation(s). Note 1: at the commenting stage at the first step United Kingdom disagreed with MASS application ".B" for regulation 6.	Definition of master, crew and passenger needs to be clarified in the context of MASS operation. This clarification could be addressed through developing interpretations. The calculation of volumes (Reg. 6) that are included in the calculation of gross and net tonnages may need to be further considered. Therefore, the reason for United Kingdom's disagreement with MASS application ".B" for Reg. 6 (Calculation of volumes) needs to be identified to see if it can be addressed through interpretation(s).

APPENDIX 3

REFERENCES TO IMO DOCUMENTS PUBLISHED BEFORE AND DURING THE RSE

MSC documents

MSC 98/20/2	Denmark, Estonia, Finland, Japan, Netherlands, Norway, Republic of Korea, United Kingdom and United States	Maritime Autonomous Surface Ships Proposal for a regulatory scoping exercise
MSC 98/20/13	ITF	Comments on MSC 98/20/2
MSC 98/23	Secretariat	Report of the Maritime Safety Committee on its ninety-eighth session
MSC 99/5	Secretariat	Comments on the regulatory scoping exercise
MSC 99/5/1	IFSMA and ITF	Comments and proposals on the way forward for the regulatory scoping exercise
MSC 99/5/2	ICS	Proposals for the development of a work plan
MSC 99/5/3	Finland, Liberia, Singapore, South Africa, Sweden	Recommendations on identification of potential amendments to existing IMO instruments
MSC 99/5/4	France	Considerations on and proposals for the methodology to use within the framework of the regulatory scoping exercise
MSC 99/5/5	Australia, Canada, Denmark, Estonia, Finland, Japan, Netherlands, Norway, Singapore, Sweden, United Kingdom, United States, IMarEST and IMCA	Plan of approach for the scoping exercise
MSC 99/5/6	Finland	Considerations on definitions for levels and concepts of autonomy
MSC 99/5/7	China and Finland	Proposal on the work plan of the regulatory scoping exercise for the use of MASS
MSC 99/5/8	China and Liberia	Recommendations on categorization and regulatory scoping exercise of MASS
MSC 99/5/9	Japan	Japan's perspective on regulatory scoping exercise for the use of MASS
MSC 99/5/10	ITF	General comments on a way forward
MSC 99/5/11	Turkey	Comments on documents MSC 99/5, MSC 99/5/2, MSC 99/5/5, MSC 99/5/8 and MSC 99/5/9
MSC 99/5/12	United States	Comments on document MSC 99/5/5
MSC 99/INF.3	Denmark	Final Report: Analysis of Regulatory Barriers to the use of Autonomous Ships
MSC 99/INF.5	IFSMA and ITF	Regulatory Scoping Exercise for the use of Maritime Autonomous Surface Ships (MASS)
MSC 99/INF.8	CMI	Work conducted by the CMI International Working Group on Unmanned ships

MSC 99/INF.13	Finland	Establishing international test area "Jaakonmeri" for autonomous vessels
MSC 99/INF.14	Japan	Studies conducted in Japan on mandatory regulations relating to Maritime Autonomous Surface Ships – SOLAS, STCW and COLREGs
MSC 99/INF.16	Norway	Presentation by Norway on 21 May 2018 on the "YARA Birkeland" development
MSC 99/WP.9	Secretariat	Report of the Working Group on Maritime Autonomous Surface Ships (MASS)
MSC 99/22	Secretariat	Report of the Maritime Safety Committee on its ninety-ninth session
MSC 100/5	Finland	Report of the Correspondence Group on MASS
MSC 100/5/1	ISO	Proposal for a classification scheme for degrees of autonomy
MSC 100/5/2	Norway and BIMCO	Interim guidelines for MASS trials
MSC 100/5/3	Republic of Korea	Proposals for the development of interim guidelines for Maritime Autonomous Surface Ships (MASS) trials
MSC 100/5/4	Secretariat	Comments on document MSC 100/5
MSC 100/5/5	Japan	Comments on document MSC 100/5
MSC 100/5/6	Australia, Denmark, Finland, France and Turkey	Comments on document MSC 100/5
MSC 100/5/7	China	Comments on document MSC 100/5
MSC 100/5/8	United States	Comments on document MSC 100/5
MSC 100/INF.3	Secretariat	Initial review of IMO instruments under the purview of MSC
MSC 100/INF.6	China	Preliminary analysis of the International Regulations for Preventing Collisions at Sea, 1972
MSC 100/INF.10	Republic of Korea	Results of technology assessment on Maritime Autonomous Surface Ships (MASS)
MSC 100/WP.8	Secretariat	Report of the Working Group on Maritime Autonomous Surface Ships (MASS)
MSC 100/20	Secretariat	Report of the Maritime Safety Committee on its 100th session
MSC 101/5	Secretariat	Status report – Progress of the regulatory scoping exercise
MSC 101/5/1	ITF	Comments and proposals for interim guidelines for MASS trials
MSC 101/5/2	China	The initial review of the mandatory IMO instruments related to maritime safety and security
MSC 101/5/3	China	Proposals on key aspects of the interim guidelines for MASS trials
MSC 101/5/4	Finland and France	Proposal for terms to be avoided, recommended terms and draft of glossary

MSC 101/5/5	Finland, Japan, Norway, Republic of Korea, Singapore, United Arab Emirates and BIMCO	Interim guidelines for MASS trials
MSC 101/5/6	Republic of Korea	Comments on documents MSC 101/5/5 and MSC 101/INF.17
MSC 101/INF.17	Finland, Japan, Norway and Republic of Korea	Draft interim guidelines for MASS trials
MSC 101/WP.8	Secretariat	Report of the Working Group on Maritime Autonomous Surface Ships (MASS)
MSC 101/24	Secretariat	Report of the Maritime Safety Committee on its 101st session
MSC 102/5	Secretariat	Status report – progress of the regulatory scoping exercise
MSC 102/5/1	Secretariat	Report of the Intersessional Working Group on Maritime Autonomous Surface Ships
MSC 102/5/2*	IFSMA	Comment on MSC 102/5/1 – potential gaps and themes regarding the role of the shipmaster
MSC 102/5/3	Marshall Islands	Summary of results of the second step and conclusion of the RSE for the International Regulations for Preventing Collisions at Sea 1972 (COLREG)
MSC 102/5/4	Belgium, China, Netherlands	Summary of results of the second step of the RSE for SOLAS chapter III and the LSA Code
MSC 102/5/5	India	Summary of results of the second step of the RSE for LL 1966, LL PROT 1988, IS Code Part A and III Code
MSC 102/5/6	France	Summary of results of the second step of the RSE for SOLAS chapter II-1
MSC 102/5/7	Germany	List of common potential gaps/themes identified during the first step of RSE for STCW Convention and Code, STCW-F, SOLAS, ISM Code, TONNAGE 1969, LL 1966, LL PROT 1988, IS Code, III Code, COLREG and SAR 1979
MSC 102/5/8	Liberia	Summary of results of the RSE for the International Convention on Tonnage Measurement of Ships, 1969 (TONNAGE 1969)
MSC 102/5/9	China	Summary of results of the second step of the RSE for SOLAS chapter V
MSC 102/5/10	Finland	Summary of results of the second step of the RSE for SOLAS chapter XI-1 and related codes
MSC 102/5/11	Finland	Summary of results of the second step of the RSE for SOLAS chapter XI-2 and the ISPS Code
MSC 102/5/12	Finland	Summary of results of the second step of the RSE for SOLAS chapter XIV and the Polar Code
MSC 102/5/13	France, Spain	Summary of results of the second step of the RSE for SAR 1979 Convention
MSC 102/5/14*	Russian Federation	Development of interim regulatory measures for operation of MASS in the Russian Federation

MSC 102/5/15	Turkey	Summary of the results of the second step of the RSE for SOLAS chapter IV
MSC 102/5/16*	CMI	Summary of results of analysis of IMO instruments under the purview of the Maritime Safety Committee
MSC 102/5/17	United States	Summary of results of the second step of the RSE for STCW Convention and Code
MSC 102/5/18	ISO	Proposed terminology for MASS
MSC 102/5/19	Japan	Summary of results of the second step of the RSE for SOLAS chapter II-2 and associated codes
MSC 102/5/20	Japan	Summary of results of the second step of the RSE for SOLAS chapter VI and associated codes
MSC 102/5/21	Japan	Summary of results of the second step of the RSE for SOLAS chapter VII and associated codes
MSC 102/5/22	Japan	Summary of the results of the second step of the RSE for SOLAS chapter XII and associated standards
MSC 102/5/23	Japan	Summary of the results of the second step of the RSE for SOLAS chapter XIII
MSC 102/5/24	Japan	Summary of the results of the second step of the RSE for CSC 1972
MSC 102/5/25	Norway	Summary of results of the second step of the RSE for SOLAS chapter IX and the ISM Code
MSC 102/5/26	Japan	Summary of the results of the second step of the RSE for the STCW-F Convention
MSC 102/5/27	Japan	Japan's perspective on further work after the completion of the RSE
MSC 102/5/28*	IMSO	Comments on document MSC 102/5/1 – potential gaps and themes regarding connectivity, cybersecurity and the implication of MASS on search and rescue
MSC 102/5/29	Russian Federation	Ongoing MASS trials in the Russian Federation
MSC 102/5/30	Republic of Korea	Comments on documents MSC 102/5/1, MSC 102/5/2 and MSC 102/5/7
MSC 102/5/31	Republic of Korea	Comments on document MSC 102/5/18
MSC 102/5/32	China	Comments on MSC 102/5/1
MSC 102/INF.8	Japan	Report on MASS trials conducted in accordance with the Interim Guidelines for MASS trials
MSC 102/INF.17	Finland	Strategic themes in MASS perspective
MSC 103/5	IACS	Comments on documents MSC 102/5/1, MSC 102/5/7, MSC 102/5/27, MSC 102/5/32 and MSC 102/5/18
MSC 103/5/1	Republic of Korea	Comments on the potential gaps and themes identified by the results of the RSE
MSC 103/5/2	Islamic Republic of Iran	Comments on documents MSC 102/5/18, MSC 102/5/7 and MSC 103/5 and "common and goal-based understanding on these main issues, common potential gaps and themes identified during the RSE
MSC 103/5/3	ISO	Comments on document MSC 102/5/18
MSC 103/5/4	Japan	Comment on documents MSC 102/5/9, MSC 102/5/11, MSC 102/5/15 and MSC 102/5/27
MSC 103/5/5	China	Comments on document MSC 102/5/3
MSC 103/5/6	China	Comments on document MSC 102/5/7
MSC 103/5/7*	Russian Federation	Comments on document MSC 102/5/14

MSC 103/5/8*	Russian Federation	Comments on document MSC 102/5/14
MSC 103/5/9	Russian Federation	Comments on document MSC 102/5/29
MSC 103/5/10*	Russian Federation	Comments on documents MSC 102/5/1, MSC 102/5/3 and MSC102/5/4
MSC 103/5/11	Russian Federation	Comments on documents MSC102/5/4, MSC 102/5/9, MSC 102/5/10, MSC 102/5/11, MSC 102/5/12, MSC102/5/16 and MSC 102/INF.17
MSC 103/5/12	Russian Federation	Comments on documents MSC102/5/4, MSC 102/5/9, MSC 102/5/10, MSC 102/5/11, MSC 102/5/12 and MSC 102/INF.17
MSC 103/WP.8	Secretariat	Report of the Working Group on Maritime Autonomous Surface Ships (MASS)
MSC 103/21	Secretariat	Report of the Maritime Safety Committee on its 103rd session

* *Following the decision of MSC 103, this document has been kept in abeyance for future consideration, as appropriate.*

ISWG documents

ISWG/MASS 1/1/Rev.1	Secretariat	Provisional agenda
ISWG/MASS 1/2	Norway	Results of the first step of the regulatory scoping exercise analysing possible gaps in SOLAS chapter IX and the ISM Code in relation to the safe operation of Maritime Autonomous Surface Ships (MASS)
ISWG/MASS 1/2/1	France	Summary of results of the first step of the RSE for SOLAS chapter II-1
ISWG/MASS 1/2/2	France and Spain	Summary of results of the first step of the RSE for International Convention on Maritime Search and Rescue, 1979
ISWG/MASS 1/2/3	Japan	Summary of results of the first step of the RSE for SOLAS chapter II-2 and associated codes
ISWG/MASS 1/2/4	Japan	Summary of results of the first step of the RSE for SOLAS chapter VI and associated codes
ISWG/MASS 1/2/5	Japan	Summary of results of the first step of the RSE for SOLAS chapter VII and associated codes
ISWG/MASS 1/2/6	Japan	Findings and common issues identified in the initial review of chapters II-2, VI and VII of the annex to SOLAS 1974 and the associated codes
ISWG/MASS 1/2/7	Japan	Summary of results of the first step of the RSE for SOLAS chapter XII and associated standards
ISWG/MASS 1/2/8	Japan	Summary of results of the first step of the RSE for SOLAS chapter XIII
ISWG/MASS 1/2/8	Japan	Summary of results of the first step of the RSE for SOLAS chapter XIII
ISWG/MASS 1/2/9	Japan	Summary of results of the first step of the RSE for CSC 1972
ISWG/MASS 1/2/10	Japan	Summary of results of the first step of the RSE for STCW-F 1995

ISWG/MASS 1/2/11	Belgium and Netherlands	Summary of results of the first step of the RSE for SOLAS chapter III and the LSA Code
ISWG/MASS 1/2/12	Finland	Summary of results of the first step of the RSE for SOLAS chapter XI-1 and related codes
ISWG/MASS 1/2/13	Finland	Summary of results of the first step of the RSE for SOLAS chapter XI-2 and the related ISPS Code
ISWG/MASS 1/2/14	Finland	Summary of results of the first step of the RSE for SOLAS chapter XIV and the related Polar Code
ISWG/MASS 1/2/15	Turkey	Summary of results of the first step of the RSE for SOLAS chapter IV
ISWG/MASS 1/2/16	China	Summary of results of the first step of the RSE for SOLAS chapter V
ISWG/MASS 1/2/16	China	Summary of results of the first step of the RSE for SOLAS chapter V
ISWG/MASS 1/2/17	Liberia	Summary of results of the first step of the RSE for International Convention on Tonnage Measurement of Ships, 1969 (TONNAGE 1969)
ISWG/MASS 1/2/18	India	Summary of results of the first step of the RSE for LL 66, PROT 88, IS Code Part A and III Code
ISWG/MASS 1/2/19	Marshall Islands	Summary of results of the first step of the RSE for the International Regulations for Preventing Collisions at Sea 1972 (COLREGs)
ISWG/MASS 1/2/20	United States	Summary of results of the first step of the RSE for the STCW Convention and Code
ISWG/MASS 1/3	China	Proposals on the guidance for use in the second step
ISWG/MASS 1/3/1	China	Proposal on the second step of the regulatory scoping exercise of the International Regulations for Preventing Collisions at Sea, 1972
ISWG/MASS 1/3/2	Secretariat	Regulatory Scoping Exercise
ISWG/MASS 1/3/3	Japan	Comments on document ISWG/MASS 1/3/1
ISWG/MASS 1/6	Secretariat	Report of the Intersessional Working Group on Maritime Autonomous Surface Ships

MSC circulars

MSC.1/Circ.1604	Interim Guidelines for MASS trials
MSC.1/Circ.1638	Outcome of the regulatory Scoping Exercise for the use of Maritime Autonomous Surface Ships (MASS)

IMO circular letters

Circular Letter No.3945	Intersessional Working Group on Maritime Autonomous Surface Ships (MASS) (2 to 6 September 2019)

Circular Letter No.3945/Add.1	Additional information on the Intersessional Working Group on Maritime Autonomous Surface Ships (MASS) (2 to 6 September 2019)
Circular Letter No.3956	New GISIS module for the regulatory scoping exercise on Maritime Autonomous Surface Ships (MASS)

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ANNEX 9

RESOLUTION MSC.489(103)
(adopted on 14 May 2021)

RECOMMENDED ACTION TO ADDRESS PIRACY AND ARMED ROBBERY IN THE GULF OF GUINEA

THE MARITIME SAFETY COMMITTEE,

RECALLING the role of the International Maritime Organization (the Organization) in ensuring the safety and security of international shipping,

RECALLING ALSO Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING FURTHER Assembly resolution A.1069(28) on *Prevention and suppression of piracy, armed robbery against ships and illicit maritime activity in the Gulf of Guinea* urging Governments to cooperate with and assist States in the Gulf of Guinea region to enhance their national and regional capabilities to improve maritime governance in waters under their jurisdiction, while reiterating full respect for the sovereignty, sovereign rights, jurisdiction and territorial integrity of all States and the relevant provisions of international law, in particular the United Nations Convention on the Law of the Sea (UNCLOS),

RECOGNIZING the ongoing work of the United Nations and other relevant organizations and stakeholders in support of the countries of the region in their efforts to prevent and combat piracy and armed robbery against vessels,

BEING DEEPLY CONCERNED about the escalation in the number and severity of attacks in the Gulf of Guinea region which threaten the lives and well-being of seafarers and the safety of shipping in the region,

NOTING WITH APPRECIATION the continuous efforts made by the region to curb piracy and armed robbery against ships in the Gulf of Guinea, including drafting anti-piracy laws, the Deep Blue Project, and the establishment of the GoG Maritime Collaboration Forum (GoG-MCF/SHADE GoG) working with law enforcement and the Interregional Coordination Centre (ICC Yaoundé) and the ongoing establishment of the Yaoundé Architecture Regional Integration System (YARIS), and utilizing useful platforms working in the region, such as the G7++ Friends of the Gulf of Guinea (FOGG) in support of the framework,

NOTING ALSO that IMO and industry are taking actions to address threats posed by piracy and armed robbery attacks against vessels and the kidnapping of seafarers and/or passengers in the Gulf of Guinea, including providing technical assistance to Member States in the region regarding the implementation of maritime security measures, supporting regional initiatives such as the Interregional Coordination Centre (ICC) to assist with the implementation of the Yaoundé Code of Conduct (YCC), and providing Best Management Practices (BMP) West Africa (WA) to assist companies and seafarers to assess the risks associated with voyages through the Gulf of Guinea and mitigate any potential threats to their safety and security,

BEARING IN MIND that greater collaboration with all critical stakeholders on activities is needed, due to a number of challenges encountered by regional countries, including information-sharing on maritime criminality and illegality, maritime domain awareness such as MDAT-GoG (Maritime Domain Awareness for Trade for the Gulf of Guinea) and surface and/or

air patrol capabilities, functional legal frameworks in line with international best practice, capacity-building such as skill development of maritime law enforcement agents, integration of national inter-agency efforts and youth empowerment programmes,

REITERATING the Organization's determination to continue to address piracy and armed robbery against vessels and to promote safe and secure navigation in the waters of the Gulf of Guinea,

1 CALLS ON Member States, national authorities, the United Nations and other relevant organizations to:

.1 consider strengthening law enforcement, and harmonization of criminal penalties across coastal States to arrest and prosecute pirates in relevant jurisdictions in accordance with international law and national legal frameworks;

.2 consider options and international best practices for improved governance of available protection solutions such as security escort vessels for assisting other vessels, in accordance with international law, and with due respect for the sovereignty, sovereign rights and territorial integrity of coastal States; and

.3 support and encourage wider participation in the international framework GoG-MCF/SHADE GoG as well as other platforms, such as G7++FOGG, with a view to improving maritime security and safety in the region and facilitating the strengthening of cooperation mechanisms for regional maritime patrol and protection;

2 REQUESTS the Secretary-General to:

.1 make full use of its funds to sustain technical cooperation on addressing piracy and armed robbery for the regional countries, such as providing training workshops/webinars and developing courses in relationship with existing initiatives and programmes;

.2 encourage the creation, subject to available resources, of a common platform to better facilitate the timely and reliable communication of standardized information on piracy or armed robbery between existing mechanisms such as MDAT-GoG, the NIMASA C4i-Centre, Regional Reporting Centres, the ICC IMB Piracy Reporting Centre and relevant responding law enforcement, as well as the subsequent analysis of the reported information; and

.3 sustain its efforts in addressing piracy and armed robbery in the Gulf of Guinea in coordination with Member States, the United Nations and the industry.

3 CALLS UPON Member States, international organizations and relevant stakeholders to consider making financial contributions to the IMO West and Central Africa Maritime Security Trust Fund, which remains open to support the Organization's maritime security capacity-building programme to assist Gulf of Guinea coastal States as well as regional centres under the YCC architecture; and

4 INVITES the Secretary-General, Member States, international organizations and relevant stakeholders to bring this resolution to the attention of all parties concerned.

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ANNEX 10

BIENNIAL STATUS REPORT OF THE SDC AND SSE SUB-COMMITTEES

Sub-Committee on Ship Design and Construction (SDC)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
1. Improve implementation	1.3	Validated model training courses	Continuous	MSC / MEPC	III / PPR / CCC / SDC / SSE / NCSR	HTW	No work requested	No work requested	MSC 100/20, paragraphs 10.3 to 10.6
1. Improve implementation	1.13	Review of mandatory requirements in the SOLAS, MARPOL and Load Line Conventions and the IBC and IGC Codes regarding watertight doors on cargo ships	2021	MSC / MEPC	CCC	SDC	Completed		MSC 101/24, paragraph 21.25; MSC 102/24, paragraph 17.28; MSC 103/21, paragraphs 3.19 and 3.33; SDC 7/16, paragraph 12.11
Notes:	MSC 103 deferred adoption to MSC 104 to clarify application provisions of the approved amendments								
2. Integrate new and advancing technologies in the regulatory framework	2.3	Amendments to the IGF Code and development of guidelines for low-flashpoint fuels	Continuous	MSC	HTW / PPR / SDC / SSE	CCC	No work requested	No work requested	MSC 94/21, paragraphs 18.5 and 18.6; MSC 96/25, paragraphs 10.1 to 10.3; MSC 97/22, paragraph 19.2; PPR 6/20, para. 3.39; MSC 102/24, para 21.4
Notes:	MSC 102 approved changing the target completion year to "continuous".								

2. Integrate new and advancing technologies in the regulatory framework	2.4	Mandatory instrument and/or provisions addressing safety standards for the carriage of more than 12 industrial personnel on board vessels engaged on international voyages	2022	MSC	SDC			Postponed	MSC 95/22, par. 19.25; MSC 96/25, par's 7.10 and 7.12; MSC 97/22, par's 6.22 and 6.23; MSC 99/22, par's 10.17 and 10.18; MSC 101/24, par's 12.17 to 12.19; MSC 102/24, par's 17.10 to 17.20; MSC 103/21, par's 15.5 and 15.6 SDC 5/15, section 7; SDC 6/13, section 6; SDC 7/16, section 6
Notes:	Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								
2. Integrate new and advancing technologies in the regulatory framework	2.5	Safety objectives and functional requirements of the Guidelines on alternative design and arrangements for SOLAS chapters II-1 and III	2022	MSC	SSE	SDC	No work requested	Postponed	MSC 82/24, paragraph 3.92; MSC 98/23, annex 38; MSC 102/24, paragraph 19.16
Notes:	MSC 101 agreed that the remaining work be limited to SOLAS chapter II-1. Transfer of output from SSE to SDC, as requested by SSE 7 (SSE 7/21, paragraph 10.8) and agreed to by MSC 102 (MSC 102/24, paragraph 19.14); Due to the postponement of SDC 8 to 2022, following the COVID-19 pandemic, the target completion year has been extended to 2022								
2. Integrate new and advancing technologies in the regulatory framework	2.6	Development of Explanatory Notes to the Interim guidelines on second generation intact stability criteria	2022	MSC	SDC			Postponed	MSC 85/26, paragraphs 12.7 and 23.42; MSC 102/24, paragraph 21.20 and annex 26; SDC 5/15, section 6; SDC 6/13, section 5; SDC 7/16, section 5
Notes:	With the finalization of the second generation intact stability criteria (MSC.1/Circ.1628), MSC 102 agreed to develop associated Explanatory Notes and to change the output title from "Finalization of second generation intact stability criteria" to "Development of Explanatory Notes to the Interim guidelines on second generation intact stability criteria"; Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								

2. Integrate new and advancing technologies in the regulatory framework	2.8	Development of guidelines for cold ironing of ships and consideration of amendments to SOLAS chapters II-1 and II-2	2020	MSC	III / SDC / HTW	SSE	No work requested	No work requested	MSC 98/23, paragraph 20.36; SSE 7/21, section 11; MSC 103/21, paragraphs 13.5 and 16.2 to 16.4
Notes:	The work item has been concluded, pending the input from HTW 8 and SSE 8.								
6. Ensure regulatory effectiveness	6.1	Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions	Continuous	MSC / MEPC / FAL/ LEG	III / PPR / CCC / SDC / SSE / NCSR			Ongoing	MSC 76/23, paragraph 20.3; MSC 78/26, paragraph 22.12; SDC 5/15, section 9; SDC 6/13, section 9
Notes:	A 28 expanded the output to include all proposed unified interpretations to provisions of IMO safety, security and environment-related Conventions.								
6. Ensure regulatory effectiveness	6.15	Role of the human element	Continuous	MSC / MEPC	III / PPR / CCC / SDC / SSE / NCSR	HTW	No work requested	No work requested	MSC 89/25, paragraphs 10.10, 10.16 and 22.39 and annex 21
6. Ensure regulatory effectiveness	6.22	Amendments to the 2011 ESP Code	Continuous	MSC	SDC			Ongoing	MSC 92/26, paragraph 13.31; SDC 6/13, section 7; SDC 7/16, section 10
Notes:	Regular updates to the 2011 ESP Code agreed by MSC 92 (MSC 92/26, paragraph 13.31)								
6. Ensure regulatory effectiveness	6.32 (New)	Mandatory application of the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers	2022	MSC	SDC			Postponed	MSC 76/23, paragraphs 20.41.2 and 20.48; DE 50/27, section 4 SDC 7/16, section 8
Notes:	Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022.								

6. Ensure regulatory effectiveness	6.33 (New)	Performance standard for protective coatings for void spaces on all types of ships	2022	MSC	SDC			Postponed	MSC 76/23, paragraphs 20.41.2 and 20.48 SDC 7/16, section 9
Notes:	Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								
6. Ensure regulatory effectiveness	6.36	Review of SOLAS chapter II-2 and associated codes to minimize the incidence and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passenger ships	2021	MSC	HTW / SDC	SSE	No work requested	No work requested	MSC 97/22, paragraph 19.19; MSC 98/23, paragraph 12.42
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022.								
6. Ensure regulatory effectiveness	6.38	Safety measures for non-SOLAS ships operating in polar waters	2022	MSC	NCSR	SDC		Postponed	MSC 98/23, paras. 10.29, 20.31.1 and 20.31.2, and annex 38; MSC 99/22, paras. 7.16 and 20.13.1; MSC 101/24, paras. 7.6 and 7.9; MSC 102/24, paragraphs 17.5 to 17.8; MSC 103/21, paras. 15.2 to15.4; SDC 6/13, section 8; SDC 7/16, section 4
Notes:	Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								

6. Ensure regulatory effectiveness	6.40	Consequential work related to the new International Code for Ships Operating in Polar Waters	2022	MSC	NCSR / SSE	SDC			MSC 93/22, paragraphs 10.44, 10.50 and 20.12; MSC 96/25, para 3.77; MSC 97/22, paras. 8.32 and 19.25; MSC 101/24, paras. 7.9 and 11.18 and annex 31; MSC.1/Circ.1612; MSC 102/24, para 19.3
Notes:	Due to the postponement of SSE 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								
6. Ensure regulatory effectiveness	6.43	Development of amendments to SOLAS chapter II-1 to include requirements for water level detectors on non-bulk carrier cargo ships with multiple cargo holds	2021	MSC	SSE	SDC	Completed		MSC 102/24, paragraph 17.23; MSC 103/21, paragraph 3.11.1; SDC 7/16, paragraph 7.10
Notes:	MSC 103, after adoption of new SOLAS regulation II-1/25-1 on "Water level detectors on multiple hold cargo ships other than bulk carriers and tankers", agreed to extend the scope of the output and to revise the associated performance standards and change its title to "Revision of the Performance standards for water level detectors on bulk carriers and single hold cargo ships other than bulk carriers (resolution MSC.188(79))" (MSC 103/21, paragraph 3.11.1)								
6. Ensure regulatory effectiveness	6.44	Amendments to the Explanatory Notes to SOLAS chapter II-1 subdivision and damage stability regulations (resolution MSC.429(98))	2020	MSC	SDC		Completed		MSC 101/24/Add.1, annex 31, page 23; MSC 102/24, paragraph 17.2 SDC 7/16, section 3

Sub-Committee on Ship Systems and Equipment (SSE)									
Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
1. Improve implementation	1.3	Validated model training courses	Cont.	MSC / MEPC	III / PPR /CCC/ SDC / SSE / NCSR	HTW	No work requested		MSC 100/20, paragraphs 10.3 to 10.6
1. Improve implementation	1.27	Revision of the Standardized Life-Saving Appliance Evaluation and Test Report Forms (MSC/Circ.980 and addenda)	2020	MSC	SSE		Completed		MSC 99/22, paragraphs 20.29 and 20.32; SSE 7/21, section 13 SSE 7/21, section 13
2. Integrate new and advancing technologies in the regulatory framework	2.3	Amendments to the IGF Code and development of guidelines for low-flashpoint fuels	Cont.	MSC	HTW / PPR / SDC / SSE	CCC	No work requested		MSC 94/21, paras. 18.5 and 18.6; MSC 96/25, paragraphs 10.1 to 10.3; MSC 97/22, para. 19.2; PPR 6/20, para. 3.39; MSC 102/24, para 21.4
Notes:	MSC 102 approved changing the target completion year to "continuous".								
2. Integrate new and advancing technologies in the regulatory framework	2.5	Safety objectives and functional requirements of the Guidelines on alternative design and arrangements for SOLAS chapters II-1 and III	2022	MSC	SSE	SDC	In progress	Completed	MSC 82/24, para. 3.92; MSC 98/23, annex 38; MSC 102/24, para 19.16. SSE 6/18, section 3; SSE 7, section 10
Notes:	MSC 101 agreed that the remaining work be limited to SOLAS chapter II-1. Transfer of output from SSE to SDC, as requested by SSE 7 (SSE 7/21, paragraph 10.8) and agreed to by MSC 102 (MSC 102/24, paragraph 19.14); Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								

2. Integrate new and advancing technologies in the regulatory framework	2.8	Development of guidelines for cold ironing of ships and consideration of amendments to SOLAS chapters II-1 and II-2	2020	MSC	III / SDC / HTW	SSE	Completed		MSC 98/23, paragraph 20.36; SSE 7/21, section 11; MSC 103/21, paragraphs 13.5 and 16.2 to 16.4 SSE 7/21, section 11
Notes:	The work item has been concluded, pending the input from HTW 8 and SSE 8.								
2. Integrate new and advancing technologies in the regulatory framework	2.10	Revision of SOLAS chapters III and IV for Modernization of the GMDSS, including related and consequential amendments to other existing instruments	2021	MSC	HTW / SSE	NCSR	No work requested		MSC 98/23, paragraph 20.27; SSE 6/18, paragraph 17.8
Notes:	Recognizing that the work on the revision of certain existing instruments had not been completed and that further work was required, NCSR 8 invited the Committee to rename this output as "Development of revisions and amendments to existing instruments relating to the amendments to the 1974 SOLAS Convention for Modernization of the GMDSS", with a target completion year of 2022.								
2. Integrate new and advancing technologies in the regulatory framework	2.16	Revision of SOLAS chapter III and the LSA Code	2024	MSC	SSE		In progress	Postponed	SSE 7/21, section 5
Notes:	To remove gaps, inconsistencies and ambiguities based on the safety objectives, functional requirements and expected performance for SOLAS chapter III								
6. Ensure regulatory effectiveness	6.1	Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions	Cont.	MSC /MEPC/ FAL / LEG	III / PPR /CCC/ SDC / SSE / NCSR		Ongoing		MSC 76/23, paragraph 20.3; MSC 78/26, paragraph 22.12; SSE 7/21, section 16
Notes:	A 28 expanded the output to include all proposed unified interpretations to provisions of IMO safety, security and environment-related conventions.								

6. Ensure regulatory effectiveness	6.14	Amendments to paragraph 4.4.7.6.17 of the LSA Code concerning single fall and hook systems with on-load release capability	2021	MSC	SSE		Completed		SSE 7/21, section 12
6. Ensure regulatory effectiveness	6.15	Role of the human element	Cont.	MSC / MEPC	III / PPR /CCC/ SDC / SSE / NCSR	HTW	No work requested		MSC 89/25, paragraphs 10.10, 10.16 and 22.39 and annex 21; MSC 100/20, para 17.28
6. Ensure regulatory effectiveness	6.17	Revision of the Guidelines for the maintenance and inspections of fixed carbon dioxide fire-extinguishing systems (MSC.1/Circ.1318)	2020	MSC	SSE		Completed		SSE 7/21, section 17
6. Ensure regulatory effectiveness	6.19 (New)	Revision of the Code of safety for diving systems (resolution A.831(19)) and the Guidelines and specifications for hyperbaric evacuation systems (resolution A.692(17))	2022	MSC	SSE		In progress	Postponed	MSC 99/22, paragraph 20.26; SSE 7/21, section 14
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022.								
6. Ensure regulatory effectiveness	6.35	Requirements for onboard lifting appliances and anchor handling winches	2022	MSC	HTW	SSE	Extended	Postponed	MSC 89/25, paragraph 22.26; MSC 98/23, annex 38; SSE 7/21, section 9
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022.								

6. Ensure regulatory effectiveness	6.36	Review of SOLAS chapter II-2 and associated codes to minimize the incidence and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passenger ships	2021	MSC	HTW / SDC	SSE	In progress	Postponed	MSC 97/22, paragraph 19.19; MSC 98/23, paragraph 12.42; SSE 7/21, section 6
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022.								
6. Ensure regulatory effectiveness	6.37	Amendments to Guidelines for the approval of fixed dry chemical powder fire-extinguishing systems for the protection of ship carrying liquefied gases in bulk (MSC.1/Circ.1315)	2022	MSC	SSE		In progress	Postponed	MSC 98/23, paragraph 20.37; SSE 7/21, section 7
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022.								
6. Ensure regulatory effectiveness	6.39 (New)	New requirements for ventilation of survival craft	2022	MSC	SSE		In progress	Postponed	MSC 97/22, paragraph 19.22; SSE 7/21, section 3
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022.								
6. Ensure regulatory effectiveness	6.40	Consequential work related to the new International Code for Ships Operating in Polar Waters	2022	MSC	NCSR / SSE	SDC	In progress	Postponed	MSC 93/22, paragraphs 10.44, 10.50 and 20.12; MSC 96/25, para. 3.77; MSC 97/22, paras. 8.32 and 19.25; MSC 101/24, paras. 7.9 and 11.18, and annex 31; MSC.1/Circ.1612; MSC 102/24, para. 19.3 SSE 7/21, section 4
Notes:	Due to the postponement of SSE 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								

6. Ensure regulatory effectiveness	6.41 (New)	Amendments to SOLAS chapter III, LSA Code and resolution MSC.81(70) to remove the applicability of the requirements to launch free-fall lifeboats with the ship making headway at speeds up to 5 knots in calm water	2020	MSC	SSE		Completed		SSE 7/21, section 15
6. Ensure regulatory effectiveness	6.42	Amendments to chapter 9 of the FSS Code for fault isolation requirements for cargo ships and passenger ship cabin balconies fitted with individually identifiable fire detector systems	2020	MSC	SSE		Completed		MSC 98/23, paragraph 20.34; SSE 7/21, section 8; SSE 7/21, section 8
6. Ensure regulatory effectiveness	6.43 (New)	Development of amendments to SOLAS chapter II-1 to include requirements for water level detectors on non-bulk carrier cargo ships with multiple cargo holds	2021	MSC	SSE	SDC	No work requested		MSC 102/24, paragraph 17.23; MSC 103/21, paragraph 3.11.1
Notes:	MSC 103, after adoption of new SOLAS regulation II-1/25-1 on "Water level detectors on multiple hold cargo ships other than bulk carriers and tankers", agreed to extend the scope of the output and to revise the associated performance standards and change its title to "Revision of the Performance standards for water level detectors on bulk carriers and single hold cargo ships other than bulk carriers (resolution MSC.188(79))" (MSC 103/21, paragraph 3.11.1)								
6. Ensure regulatory effectiveness	6.45 (New)	Development of amendments to the LSA Code and resolution MSC.81(70) to address the in-water performance of SOLAS lifejackets	2023	MSC	SSE		Postponed	Postponed	MSC 101/24, paragraph 21.6; MSC 102/24, paragraph 21.19; SSE 7/21, paragraph 20.20
Notes:	MSC 102 approved the inclusion of this item in the provisional agenda of SSE 8.								

6. Ensure regulatory effectiveness	6.46 (New)	Development of amendments to SOLAS chapter II-2 and MSC.1/Circ.1456 addressing fire protection of control stations on cargo ships	2023	MSC	SSE		Postponed	Postponed	MSC 101/24, paragraph 21.3; MSC 102/24, paragraph 21.19; SSE 7/21, paragraphs 20.39 and 20.40
Notes:	MSC 102 approved the inclusion of this item in the provisional agenda of SSE 8.								
6. Ensure regulatory effectiveness	6.47 (New)	Development of provisions to prohibit the use of fire-fighting foams containing perfluorooctane sulfonic acid (PFOS) for fire fighting on board ships	2022	MSC	SSE		Postponed	Postponed	MSC 101/24, paragraph 21.27; MSC 102/24, paras. 19.31 and 21.19
Notes:	MSC 102 included in the provisional agenda of SSE 8 and agreed that other regulations would need to be amended or a new regulation could be necessary instead; and there could be a need for consequential amendments to other instruments e.g. the HSC Code.								

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ANNEX 11

PROVISIONAL AGENDAS OF THE SDC AND SSE SUB-COMMITTEES

PROVISIONAL AGENDA FOR SDC 8

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 Safety measures for non-SOLAS ships operating in polar waters (6.38)

4 Mandatory instrument and/or provisions addressing safety standards for the carriage of more than 12 industrial personnel on board vessels engaged on international voyages (2.4)

5 Development of Explanatory Notes to the *Interim guidelines on second generation intact stability criteria* (2.6)

6 Amendments to the 2011 ESP Code (6.22)

7 Mandatory application of the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers (6.32)

8 Performance standard for protective coatings for void spaces on all types of ships (6.33)

9 Safety objectives and functional requirements of the Guidelines on alternative design and arrangements for SOLAS chapters II-1 and III (2.5)

10 Unified interpretation to provisions of IMO safety, security and environment-related conventions (6.1)

11 Revision of the 1979, 1989 and 2009 MODU Codes and associated MSC circulars to prohibit the use of materials containing asbestos, including control of the storage of such materials on board*

12 Development of amendments to SOLAS regulation II-1/3-4 to apply requirements for emergency towing equipment for tankers to other types of ships*

13 Revision of the Performance standards for water level detectors on bulk carriers and single hold cargo ships other than bulk carriers (resolution MSC.188(79))*

14 Biennial status report and provisional agenda for SDC 9

15 Election of Chair and Vice-Chair for 2023

16 Any other business

17 Report to the Maritime Safety Committee

* Output number to be confirmed by C 125

PROVISIONAL AGENDA FOR SSE 8

Opening of the session

1 Adoption of the agenda

2 Decisions of other IMO bodies

3 New requirements for ventilation of survival craft (6.39)

4 Consequential work related to the new International Code for Ships Operating in Polar Waters (6.40)

5 Revision of SOLAS chapter III and the LSA Code (2.16)

6 Review of SOLAS chapter II-2 and associated codes to minimize the incidence and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passenger ships (6.36)

7 Amendments to Guidelines for the approval of fixed dry chemical powder fire-extinguishing systems for the protection of ships carrying liquefied gases in bulk (MSC.1/Circ.1315) (6.37)

8 Development of amendments to the LSA Code and resolution MSC.81(70) to address the in-water performance of SOLAS lifejackets (6.45)

9 Requirements for onboard lifting appliances and anchor handling winches (6.35)

10 Development of amendments to SOLAS chapter II- 2 and the FSS Code concerning detection and control of fires in cargo holds and on the cargo deck of containerships*

11 Development of amendments to SOLAS chapter II-2 and MSC.1/Circ.1456 addressing fire protection of control stations on cargo ships (6.46)

12 Development of provisions to prohibit the use of fire-fighting foams containing perfluorooctane sulfonic acid (PFOS) for fire fighting on board ships (6.47)

13 Validated model training courses (1.3)

14 Revision of the Code of Safety for Diving Systems (resolution A.831(19)) and the Guidelines and specifications for hyperbaric evacuation systems (resolution A.692(17)) (6.19)

15 Unified interpretation of provisions of IMO safety, security and environment-related conventions (6.1)

16 Biennial status report and provisional agenda for SSE 9

17 Election of Chair and Vice-Chair for 2023

18 Any other business

19 Report to the Maritime Safety Committee

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* Output number to be confirmed by C 125

ANNEX 12

BIENNIAL STATUS REPORT OF THE MARITIME SAFETY COMMITTEE

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
1. Improve implementation	1.3	Validated model training courses	Continuous	MSC/ MEPC	III / PPR / CCC /SDC/ SSE/NCSR	HTW	Ongoing	Ongoing	MSC 100/20, paragraphs 10.3 to 10.6
1. Improve implementation	1.5	Non-exhaustive list of obligations under instruments relevant to the IMO Instruments Implementation Code (III Code)	Annual	MSC/ MEPC	III				MEPC 64/23, para.11.49; MSC 91/22, para.10.30; MEPC 52/24, para.10.15. MEPC 72/17, para. 2.7.5; MEPC 74/18, para.11.3
1. Improve implementation	1.7	Identify thematic priorities within the area of maritime safety and security, marine environmental protection, facilitation of maritime traffic and maritime legislation	Annual	TCC	MSC / MEPC / FAL / LEG		No work requested		
1. Improve implementation	1.11	Measures to harmonize port State control (PSC) activities and procedures worldwide	Continuous	MSC/ MEPC	HTW /PPR/ NCSR	III	Ongoing	Ongoing	
1. Improve implementation	1.13	Review of mandatory requirements in the SOLAS, MARPOL and Load Line Conventions and the IBC and IGC Codes regarding watertight doors on cargo ships	2021	MSC/ MEPC	CCC	SDC	In progress		MSC 101/24, paragraph 21.25; MSC 102/24, paragraph 17.28; MSC 103/21, paragraphs 3.19 and 3.33
Notes:	MSC 103 deferred adoption to MSC 104 to clarify application provisions of the approved amendments.								
1. Improve implementation	1.16	Development of measures to facilitate mandatory seagoing service required under the STCW Convention	2023	MSC	III	HTW		Extended	MSC 101/24, paragraphs 21.29 and 21.30

Notes:	HTW 7 postponed due to the COVID-19 pandemic.								
1. Improve implementation	1.20	Revision of the Guidelines on places of refuge for ships in need of assistance (resolution A.949(23))	2021	MSC	NCSR		In progress		MSC 100/20, paragraph 17.1
Notes:	Recognizing that further work on the revision of the Guidelines on places of refuge for ships in need of assistance (resolution A.949(23)) was required, NCSR 8 invited MSC 104 to extend the target completion year of this output to 2022.								
1. Improve implementation	1.22	Comprehensive review of the 1995 STCW-F Convention	2022	MSC	HTW			Extended	MSC 95/22, paras. 19.3 and 19.4; MSC 96/25, paragraph 12.3
Notes:	Extended to 2022								
1. Improve implementation	1.27	Revision of the Standardized Life-Saving Appliance Evaluation and Test Report Forms (MSC/Circ.980 and addenda)	2020	MSC	SSE		Completed		MSC 99/22, paragraphs 20.29 and 20.32; SSE 7/21, section 13
1. Improve implementation	1.28	Development of amendments to the Revised guidelines for the development, review and validation of model courses (MSC-MEPC.2/Circ.15/Rev.1)	2022	MSC	HTW		Extended	Postponed	MSC 100/20, paragraphs 17.7 and 17.8;
Notes:	Target completion year extended to 2022 as a consequence of the postponement of HTW 7 and its planned arrangements.								
1. Improve implementation	1.29	Development of further measures to enhance the safety of ships relating to the use of fuel oil	2023	MSC			In progress	Extended	MSC 100/20, paragraphs 8.13 and 8.14; MSC 103/21, paragraph 6.26
Notes:	MSC 103 extended the target completion year to 2023 (MSC 103/21, paragraph 6.26).								
1. Improve implementation	1.30	Revision of the Inspection programmes for cargo transport units carrying dangerous goods (MSC.1/Circ.1442, as amended by MSC.1/Circ.1521)	2021	MSC	CCC		Extended		MSC 100/20, paragraph 17.16
Notes:	Due to the postponement of CCC 7 to 2021, following the COVID19 pandemic, the target completion year has been extended to 2021.								

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
1. Improve implementation	1.32	Implementation of the STCW Convention	Continuous	MSC	HTW	HTW	Ongoing	Ongoing	MSC 101/24, paragraph 15.7
1. Improve implementation	1.34	Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures	2021	MSC	NCSR		In progress		
Notes:	MSC 102 agreed with the request of NCSR 7 to combine outputs OW 28 "Further development of the provision of global maritime SAR services" and OW 29 "Guidelines on harmonized aeronautical and maritime search and rescue procedures, including SAR training matters" under a new output called "Development of global maritime SAR services, including harmonization of maritime and aeronautical procedures". MSC 102 also agreed to relocate this output under SD 1. Recognizing the importance of the continuous consideration of developments on maritime search and rescue, NCSR 8 invited the Committee to modify the target completion year of this output as "continuous", until it is decided otherwise.								
1. Improve implementation	1.35	Review the Model Agreement for the authorization of recognized organizations acting on behalf of the Administration	2021	MEPC / MSC	III		In progress	Extended	MSC 97/22, paragraph 19.7 (output 2.0.1.6); MSC 102/24, para 14.8 (new output relocated)
2. Integrate new and advancing technologies in the regulatory framework	2.1	Response to matters related to the ITU-R Study Groups and ITU World Radiocommunication Conference	Annual	MSC	NCSR		Completed		
Notes:	Recognizing the importance of the continuous consideration of matters related to the ITU-R Study Groups and ITU World Radiocommunication Conferences, NCSR 8 invited the Committee to modify the target completion year of this output as "continuous", until it is decided otherwise								
2. Integrate new and advancing technologies in the regulatory framework	2.3	Amendments to the IGF Code and development of guidelines for low-flashpoint fuels	Continuous	MSC	HTW / PPR / SDC / SSE	CCC	Ongoing	Ongoing	MSC 94/21, paragraphs 18.5 and 18.6; MSC 96/25, paragraphs 10.1 to 10.3; MSC 97/22, paragraph 19.2; PPR 6/20, para. 3.39; MSC 102/24, para 21.4

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Notes:	MSC 102 approved changing the target completion year to "continuous".								
2. Integrate new and advancing technologies in the regulatory framework	2.4	Mandatory instrument and/or provisions addressing safety standards for the carriage of more than 12 industrial personnel on board vessels engaged on international voyages	2022	MSC	SDC		Extended	Postponed	MSC 95/22, para. 19.25; MSC 96/25, paras. 7.10 and 7.12; MSC 97/22, paras. 6.22 and 6.23; MSC 99/22, paras. 10.17 and 10.18; MSC 101/24, paragraphs 12.17 to 12.19; MSC 102/24, paras. 17.10 to 17.20; MSC 103/21, paragraphs 15.5 and 15.6
Notes:	Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								
2. Integrate new and advancing technologies in the regulatory framework	2.5	Safety objectives and functional requirements of the Guidelines on alternative design and arrangements for SOLAS chapters II-1 and III	2022	MSC	SSE	SDC	In progress	Postponed	MSC 82/24, paragraph 3.92; MSC 98/23, annex 38; MSC 102/24, para 19.16
Notes:	MSC 101 agreed that the remaining work be limited to SOLAS chapter II-1. Transfer of output from SSE to SDC, as requested by SSE 7 (SSE 7/21, paragraph 10.8) and agreed to by MSC 102 (MSC 102/24, paragraph 19.14). Due to the postponement of SDC 8 to 2022, following the COVID-19 pandemic, the target completion year has been extended to 2022.								
2. Integrate new and advancing technologies in the regulatory framework	2.6	Development of Explanatory Notes to the Interim guidelines on second generation intact stability criteria	2022	MSC	SDC		Extended	Postponed	MSC 85/26, paragraphs 12.7 and 23.42; MSC 102/24, paragraph 21.20 and annex 26

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Notes:	With the finalization of the second generation intact stability criteria (MSC.1/Circ.1628), MSC 102 agreed to develop associated Explanatory Notes and to change the output title from "Finalization of second generation intact stability criteria" to "Development of Explanatory Notes to the Interim guidelines on second generation intact stability criteria". Due to the postponement of SDC 8 to 2022, following the COVID-19 pandemic, the target completion year has been extended to 2022								
2. Integrate new and advancing technologies in the regulatory framework	2.7	Regulatory scoping exercise for the use of maritime autonomous surface ships (MASS)	2021	MSC	FAL		In progress	Completed	MSC 98/23, paragraph 20.2.11; FAL 43/20, paragraph 17.1; MSC 103/21, paragraphs 5.45 to 5.49.
Notes:	Due to COVID-19, MSC 102 postponed the consideration to MSC 103 in 2021, thus postponed the target completion year to 2021. FAL 44 postponed the consideration to FAL 45 in 2021								
2. Integrate new and advancing technologies in the regulatory framework	2.8	Development of guidelines for cold ironing of ships and consideration of amendments to SOLAS chapters II-1 and II-2	2022	MSC	III / SDC / HTW	SSE	Extended	Extended	MSC 98/23, paragraph 20.36; SSE 7/21, section 11; MSC 103/21, paragraphs 13.5 and 16.2 to 16.4
Notes:	The work item has been concluded, pending the input from HTW 8 and SSE 8.								
2. Integrate new and advancing technologies in the regulatory framework	2.9	Application of the Indian Regional Navigation Satellite System (IRNSS) in the maritime field and development of performance standards for shipborne IRNSS receiver equipment	2020	MSC	NCSR		Completed		MSC 98/23, paragraphs 11.8 and 11.9; MSC 99/22, paragraph 12.7; resolution MSC.449(99)

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
2. Integrate new and advancing technologies in the regulatory framework	2.10	Revision of SOLAS chapters III and IV for modernization of the GMDSS, including related and consequential amendments to other existing instruments	2021	MSC	HTW / SSE	NCSR	In progress		MSC 98/23, paragraph 20.27
Notes:	Recognizing that the work on the revision of certain existing instruments had not been completed and that further work was required, NCSR 8 invited the Committee to rename this output as "Development of revisions and amendments to existing instruments relating to the amendments to the 1974 SOLAS Convention for modernization of the GMDSS", with a target completion year of 2022.								
2. Integrate new and advancing technologies in the regulatory framework	2.11	Consideration of descriptions of Maritime Services in the context of e-navigation	2021	MSC	FAL / NCSR		In progress		FAL 43/20, paragraph 7.21; MSC 101/24, paragraphs 11.10 and 11.11; resolution MSC.467(101); MSC.1/Circ.1610
Notes:	Having completed the work on the development of guidance on definition and harmonization of the format and structure of Maritime Services within the context of e-navigation and recognizing the need for a continuous review process of maritime service descriptions and the harmonization of related services, MSC 101 agreed with the request of NCSR 6 to rename the output "Develop guidance on definition and harmonization of the format and structure of Maritime Service Portfolios (MSPs)" as "Consideration of descriptions of Maritime Services in the context of e-navigation" with a target completion year of 2021. MSC 101 also noted the decision of FAL 43 to include the FAL Committee as an associated organ for this output (FAL 43/20, paragraphs 7.21 to 7.23). Due to the decisions taken in view of the pandemic, NCSR 8 invited the Committee to extend the target completion year of this output to 2022.								
2. Integrate new and advancing technologies in the regulatory framework	2.12	Recognition of the Japanese regional navigation satellite system Quasi-Zenith Satellite System (QZSS) and development of performance standards for shipborne satellite navigation system receiver equipment	2021	MSC	NCSR		In progress		MSC 102/24, paragraph 16.6 and resolution MSC.480(102)

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Notes:	Recognizing that the work on the recognition of the Japanese regional navigation satellite system Quasi-Zenith Satellite System (QZSS) had been completed and that further work on the development of generic performance standards for shipborne satellite navigation system receiver equipment was required, NCSR 8 invited the Committee to rename this output as "Development of generic performance standards for shipborne satellite navigation system receiver equipment", with a target completion year of 2022.								
2. Integrate new and advancing technologies in the regulatory framework	2.16	Revision of SOLAS chapter III and the LSA Code	2024	MSC	SSE		In progress	Postponed	
Notes:	To remove gaps, inconsistencies and ambiguities based on the safety objectives, functional requirements and expected performance for SOLAS chapter III								
2. Integrate new and advancing technologies in the regulatory framework	2.17	Consideration of development of goal-based ship construction standards for all ship types	2021	MSC / MEPC			In progress		MSC 101/24, section 6; MSC 102/24, section 7
Notes:	As the Committee reviews GBS audit reports on a regular basis, this item is quasi-continuous output								
2. Integrate new and advancing technologies in the regulatory framework	2.21	Review of FSA studies by the FSA Experts' Group	Continuous	MSC			Postponed		

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
2. Integrate new and advancing technologies in the regulatory framework	2.22	Amendments to the IGC and IGF Codes to include high manganese austenitic steel and related guidance for approving alternative metallic material for cryogenic service	2021	MSC	CCC		Extended		MSC 96/25 paragraph 23.4; MSC 98/23, annex 38; MSC 100/20 paragraph 17.21; MSC 102/24, paragraph 21.6.
Notes:	MSC 102 agreed the new target completion year 2021								
4. Engage in ocean governance	4.2	Input to the ITCP on emerging issues relating to sustainable development and achievement of the SDGs	Continuous	TCC	MSC / MEPC / FAL / LEG		No work requested		MEPC 72/17, section 12; MEPC 73/19, section 13; MEPC 74/18, section 12
5. Enhance global facilitation and security of international trade	5.2	Guidelines and guidance on the implementation and interpretation of SOLAS chapter XI-2 and the ISPS Code	Annual	MSC			Postponed		
5. Enhance global facilitation and security of international trade	5.3	Consideration and analysis of reports on piracy and armed robbery against ships	Annual	MSC			Postponed		
5. Enhance global facilitation and security of international trade	5.4	Revised guidance relating to the prevention of piracy and armed robbery to reflect emerging trends and behaviour patterns	Annual	MSC	LEG		Postponed		

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
5. Enhance global facilitation and security of international trade	5.6	Development of amendments to the STCW Convention and Code for the use of electronic certificates and documents of seafarers	2022	MSC	III	HTW		Extended	HTW 7/16, section 9
Notes:	Target completion year extended to 2021 as a consequence of the postponement of HTW 7 and its planned arrangements; HTW 7 reporting to MSC 104 with the request for extension.								
5. Enhance global facilitation and security of international trade	5.13	IMO's contribution to addressing unsafe mixed migration by sea	2021	MSC / FAL/ LEG			In progress		FAL 41/17, paragraph 7.15; MSC 98/23, paragraph 16.14; FAL 43, paragraph 10.7; MSC 101/24, paragraph 19.8
6. Ensure regulatory effectiveness	6.1	Unified interpretation of provisions of IMO safety, security, environment, facilitation, liability and compensation-related conventions	Continuous	MSC / MEPC / FAL / LEG	III / PPR / CCC /SDC/ SSE / NCSR		Ongoing		MSC 76/23, paragraph 20.3; MSC 78/26, paragraph 22.12;
Notes:	A 28 expanded the output to include all proposed unified interpretations of provisions of IMO safety, security and environment-related Conventions.								
6. Ensure regulatory effectiveness	6.2	Developments in GMDSS services, including guidelines on maritime safety information (MSI)	Continuous	MSC	NCSR		Ongoing		MSC 102/24, paragraphs 16.8 to 16.14; MSC.1/Circ.1364/Rev.2 MSC.1/Circ.1635
Notes:	MSC 102 agreed with the request of NCSR 7 to combine outputs 6.2 "Developments in GMDSS satellite services" and OW 6 "Updating of the GMDSS Master Plan and guidelines on maritime safety information (MSI)", renaming output 6.2 as "Developments in GMDSS services, including guidelines on maritime safety information (MSI)".								

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
6. Ensure regulatory effectiveness	6.4	Lessons learned and safety issues identified from the analysis of marine safety investigation reports	Annual	MSC / MEPC	III		Completed		MSC 92/26, paragraph 22.29; III 6/15, section 4
6. Ensure regulatory effectiveness	6.5	Identified issues relating to the implementation of IMO instruments from the analysis of PSC data	Annual	MSC / MEPC	III		Completed		MSC 96/25, paragraph 23.13; MEPC 69/21, paragraph 19.11
6. Ensure regulatory effectiveness	6.6	Consideration and analysis of reports and information on persons rescued at sea and stowaways	Annual	MSC /FAL			Postponed		
6. Ensure regulatory effectiveness	6.10	Amendments to the IMDG Code and supplements	Continuous	MSC	CCC		Ongoing		
6. Ensure regulatory effectiveness	6.13	Amendments to the IMSBC Code and supplements	Continuous	MSC	CCC		Ongoing		
6. Ensure regulatory effectiveness	6.14	Amendments to paragraph 4.4.7.6.17 of the LSA Code concerning single fall and hook systems with on-load release capability	2021	MSC	SSE		Completed		SSE 7/21, section 12
6. Ensure regulatory effectiveness	6.15	Role of the human element	Continuous	MSC / MEPC	III / PPR / CCC /SDC/ SSE/NCSR	HTW	Ongoing		MSC 89/25, paragraphs 10.10, 10.16 and 22.39 and annex 21;
6. Ensure regulatory effectiveness	6.16	Development of measures to ensure quality of onboard training as part of the mandatory seagoing service required by the STCW Convention	2023	MSC	HTW			Extended	HTW 7/16, section 10

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Notes:	Target completion year extended to 2021 as a consequence of the postponement of HTW 7 and its planned arrangements; MSC 104 to consider report of HTW 7 with the extension request.								
6. Ensure regulatory effectiveness	6.17	Revision of the Guidelines for the maintenance and inspections of fixed carbon dioxide fire-extinguishing systems (MSC.1/Circ.1318)	2020	MSC	SSE		Completed		SSE 7/21, section 17
6. Ensure regulatory effectiveness	6.18	Revision of the Guidelines for Vessel Traffic Services (resolution A.857(20))	2020	MSC	NCSR		Completed		MSC 102/24, paragraph 16.7 and annex 11
6. Ensure regulatory effectiveness	6.19 (New)	Revision of the Code of Safety for Diving Systems (resolution A.831(19)) and the Guidelines and specifications for hyperbaric evacuation systems (resolution A.692(17))	2022	MSC	SSE		In progress	Postponed	MSC 99/22, paragraph 20.26; SSE 7/21, section 14
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022								
6. Ensure regulatory effectiveness	6.21	Amendments to the IAMSAR Manual	Continuous	MSC	NCSR		Ongoing	Ongoing	
6. Ensure regulatory effectiveness	6.22	Amendments to the 2011 ESP Code	Continuous	MSC	SDC		Ongoing	Ongoing	MSC 92/26, paragraph 13.31
Notes:	Regular updates to the 2011 ESP Code agreed by MSC 92 (MSC 92/26, paragraph 13.31)								
6. Ensure regulatory effectiveness	6.23	Revision of the Revised recommendations for entering enclosed spaces aboard ships (resolution A.1050(27))	2021	MSC	CCC		Extended		MSC 101/24, paragraph 21.48
Notes:	Target completion year has been adjusted due to postponement of CCC 7								

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
6. Ensure regulatory effectiveness	6.24	Routeing measures and mandatory ship reporting systems	Continuous	MSC	NCSR		Ongoing		
6. Ensure regulatory effectiveness	6.25	Updates to the LRIT system	Continuous	MSC	NCSR		Ongoing		
6. Ensure regulatory effectiveness	6.26	Verified goal-based new ship construction standards for tankers and bulk carriers	Continuous	MSC			Ongoing		
6. Ensure regulatory effectiveness	6.27 (New)	Amendments to the International Code for the Safe Carriage of Grain in Bulk (resolution MSC.23(59)) to introduce a new class of loading conditions for special compartments	2021	MSC	CCC		Postponed		
Notes:	Due to the postponement of CCC 7 to 2021, following the COVID19 pandemic, the work will be initiated by CCC 7 in 2021.								
6. Ensure regulatory effectiveness	6.28	Reports on unlawful practices associated with certificates of competency	Annual	MSC	HTW		Postponed	Postponed	MSC 83/28, paragraph 12.2
6. Ensure regulatory effectiveness	6.29	Reports to the MSC on information communicated by STCW Parties	Annual	MSC					
6. Ensure regulatory effectiveness	6.30	Updated Survey Guidelines under the Harmonized System of Survey and Certification (HSSC)	Annual	MSC / MEPC	III		Completed		MEPC 68/21, paras. 14.5 and 14.6; FSI 12/22, para. 9.4; MSC 79/23, paras. 9.19 and 9.20; MEPC 72/17, paras. 7.4 and 4.24 to 4.33; III 5/15, section 8;III 6/15, section 8

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
6. Ensure regulatory effectiveness	6.31	Consideration of reports of incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas	Annual	MSC / MEPC	III	CCC	Completed		CCC 6/14, section 9
6. Ensure regulatory effectiveness	6.32 (New)	Mandatory application of the Performance standard for protective coatings for void spaces on bulk carriers and oil tankers	2022	MSC	SDC		In progress	Postponed	MSC 76/23, paragraphs 20.41.2 and 20.48; DE 50/27, section 4
Notes:	Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								
6. Ensure regulatory effectiveness	6.33 (New)	Performance standard for protective coatings for void spaces on all types of ships	2022	MSC	SDC			Postponed	MSC 76/23, paragraphs 20.41.2 and 20.48
Notes:	Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								
6. Ensure regulatory effectiveness	6.34	Finalization of a non-mandatory instrument on regulations for non-convention ships	2022	MSC	III		In progress		MSC 96/25, paragraph 9.4; MSC 101/24, paragraph 21.38
6. Ensure regulatory effectiveness	6.35	Requirements for onboard lifting appliances and anchor handling winches	2022	MSC	HTW	SSE	Extended	Postponed	MSC 89/25, paragraph 22.26; MSC 98/23, annex 38
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022								
6. Ensure regulatory effectiveness	6.36	Review of SOLAS chapter II-2 and associated codes to minimize the incidence and consequences of fires on ro-ro spaces and special category spaces of new and existing ro-ro passenger ships	2022	MSC	HTW /SDC	SSE	In progress	Postponed	MSC 97/22, paragraph 19.19; MSC 98/23, paragraph 12.42
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022								

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
6. Ensure regulatory effectiveness	6.37	Amendments to Guidelines for the approval of fixed dry chemical powder fire-extinguishing systems for the protection of ship carrying liquefied gases in bulk (MSC.1/Circ.1315)	2022	MSC	SSE		In progress	Postponed	MSC 98/23, paragraph 20.37; SSE 7/21, section 7
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022								
6. Ensure regulatory effectiveness	6.38	Safety measures for non-SOLAS ships operating in polar waters	2022	MSC	NCSR	SDC	In progress	In progress	MSC 98/23, paras. 10.29, 20.31.1 and 20.31.2 and annex 38; MSC 99/22, paras. 7.16 and 20.13.1; MSC 101/24, paras. 7.6 and 7.9; MSC 102/24, paragraphs 17.5 to 17.8; MSC 103/21, paragraphs 15.2 to 15.4
Notes:	Due to the postponement of SDC 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022								
6. Ensure regulatory effectiveness	6.39 (New)	New requirements for ventilation of survival craft	2022	MSC	SSE		In progress	Postponed	MSC 97/22, paragraph 19.22; SSE 7/21, section 3
Notes:	Target completion year has been consequentially updated to 2022 due to SSE 8's postponement to 2022								
6. Ensure regulatory effectiveness	6.40	Consequential work related to the new International Code for Ships Operating in Polar Waters	2022	MSC	NCSR / SSE	SDC	In progress	Postponed	MSC 93/22, paras. 10.44, 10.50 and 20.12; MSC 96/25, para. 3.77; MSC 97/22, paras. 8.32 and 19.25; MSC 101/24, paras. 7.9 and 11.18 and annex 31; MSC.1/Circ.1612; MSC 102/24, para. 19.3
Notes:	Due to the postponement of SSE 8 to 2022, following the COVID19 pandemic, the target completion year has been extended to 2022.								

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
6. Ensure regulatory effectiveness	6.41 (New)	Amendments to SOLAS chapter III, LSA Code and resolution MSC.81(70) to remove the applicability of the requirements to launch free-fall lifeboats with the ship making headway at speeds up to 5 knots in calm water	2020	MSC	SSE		Completed		SSE 7/21, section 15
6. Ensure regulatory effectiveness	6.42	Amendments to chapter 9 of the FSS Code for fault isolation requirements for cargo ships and passenger ship cabin balconies fitted with individually identifiable fire detector systems	2020	MSC	SSE		Completed		MSC 98/23, paragraph 20.34; SSE 7/21, section 8
6. Ensure regulatory effectiveness	6.43 (New)	Revision of the Performance standards for water level detectors on bulk carriers and single hold cargo ships other than bulk carriers (resolution MSC.188(79))	2022	MSC	SSE	SDC	In progress	Extended	MSC 102/24, paragraph 17.23; MSC 103/21, paragraph 3.11.1
Notes:	MSC 103, after adoption of new SOLAS regulation II-1/25-1 on "Water level detectors on multiple hold cargo ships other than bulk carriers and tankers", agreed to extend the scope of the output and to revise the associated performance standards and change its title/description." (MSC 103/21, paragraph 3.11.1)								
6. Ensure regulatory effectiveness	6.44 (New)	Amendments to the Explanatory Notes to SOLAS chapter II-1 subdivision and damage stability regulations (resolution MSC.429(98))	2020	MSC	SDC		Completed		MSC 101/24/Add.1, annex 31, page 23; MSC 102/24, paragraph 17.2
6. Ensure regulatory effectiveness	6.45 (New)	Development of amendments to the LSA Code and resolution MSC.81(70) to address the in-water performance of SOLAS lifejackets	2023	MSC	SSE		Postponed	Postponed	MSC 101/24, paragraph 21.6; MSC 102/24, paragraph 21.19

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
Notes:	MSC 102 approved the inclusion of this item in the provisional agenda of SSE 8.								
6. Ensure regulatory effectiveness	6.46 (New)	Development of amendments to SOLAS chapter II-2 and MSC.1/Circ.1456 addressing fire protection of control stations on cargo ships	2023	MSC	SSE		Postponed	Postponed	MSC 101/24, paragraph 21.3; MSC 102/24, paragraph 21.19
Notes:	MSC 102 approved the inclusion of this item in the provisional agenda of SSE 8								
6. Ensure regulatory effectiveness	6.47 (New)	Development of provisions to prohibit the use of fire-fighting foams containing perfluorooctane sulfonic acid (PFOS) for fire fighting on board ships	2022	MSC	SSE		Postponed	Postponed	MSC 101/24, paragraph 21.27; MSC 102/24, paras. 19.31 and 21.19
Notes:	MSC 102 included in the provisional agenda of SSE 8 and agreed that other regulations would need to be amended or a new regulation could be necessary instead; and there could be a need for consequential amendments to other instruments e.g. the HSC Code.								
7. Ensure organizational effectiveness	7.1	Endorsed proposals for the development, maintenance and enhancement of information systems and related guidance (GISIS, websites, etc.)	Continuous	Council	MSC / MEPC / FAL / LEG / TCC		Ongoing	Ongoing	
7. Ensure organizational effectiveness	7.9	Revised documents on organization and method of work, as appropriate	2021	Council	MSC / MEPC / FAL / LEG / TCC		In progress		
OW. Other work	OW 13	Endorsed proposals for new outputs for the 2020-2021 biennium as accepted by the Committees	Annual	Council	MSC / MEPC / FAL / LEG / TCC		No work requested	No work requested	
OW. Other work	OW 23	Cooperate with the United Nations on matters of mutual interest, as well as provide relevant input/guidance	2021	Assembly	MSC / MEPC / FAL / LEG / TCC	Council	In progress		C 120/D, paragraphs 17(a).1-17(a).5

Reference to SD, if applicable	Output number	Description	Target completion year	Parent organ(s)	Associated organ(s)	Coordinating organ	Status of output for Year 1	Status of output for Year 2	References
OW. Other work	OW 24	Cooperate with other international bodies on matters of mutual interest, as well as provide relevant input/guidance	2021	Assembly	MSC / MEPC / FAL / LEG / TCC	Council	In progress		C 120/D, paragraphs 17(a).1-17(a).5

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ANNEX 13

POST-BIENNIAL AGENDA OF THE MARITIME SAFETY COMMITTEE

MSC 103 agreed to include, subject to the endorsement of the Council, in the relevant sub-committee's biennial agenda of 2022-2023, the following outputs:

- "Revision of the 1979, 1989 and 2009 MODU Codes and associated MSC circulars to prohibit the use of materials containing asbestos, including control of storage of such materials on board", in the provisional agenda of SDC 8, with a target completion year of 2023;

- "Development of amendments to SOLAS chapter II- 2 and the FSS Code concerning detection and control of fires in cargo holds and on the cargo deck of containerships", in the provisional agenda of SSE 8, with a target completion year of 2025, in association with the CCC Sub-Committee as and when requested by the SSE Sub-Committee;

- "Development of amendments to SOLAS regulation II-1/3-4 to apply requirements for emergency towing equipment for tankers to other types of ships", in the provisional agenda of SDC 8, with a target completion year of 2023;

- "Development of an entrant training manual for PSC personnel", in the provisional agenda of III 8, with a target completion year of 2023, subject to concurrent decision by MEPC; and

- "Development of guidance in relation to IMSAS to assist in the implementation of the III Code by Member States", in the provisional agenda of III 8, with a target completion year of 2023, subject to concurrent decision by MEPC.

Maritime Safety Committee (MSC)								
Number	Biennium (when the output was placed on the post-biennial agenda)	Reference to SD, if applicable	Description	Parent organ(s)	Associated organs(s)	Coordinating organ(s)	Timescale (sessions)	References
172	2018-2019	1	Revision of the Criteria for the provision of mobile satellite communication services in the Global Maritime Distress and Safety System (GMDSS) (resolution A.1001(25))	MSC	NCSR		2	MSC 101/24, paragraph 21.33
178	2020-2021	1	Review of the IGC Code	MSC	CCC		2	MSC 103/21, paragraph 18.2
145	2016-2017	2	Amendments to the IMDG Code related to portable tanks with shells made of fibre reinforced plastics (FRP) for multimodal transportation of dangerous goods	MSC	CCC		2	MSC 98/23, paragraph 20.11
152	2016-2017	2	Guidelines for use of fibre reinforced plastics (FRP) within ship structures	MSC	SDC		2	MSC 98/23, paragraph10.22
170	2018-2019	2	Development of SOLAS amendments for mandatory carriage of electronic inclinometers on container ships and bulk carriers	MSC / NCSR	NCSR		1	MSC 101/24, paragraph 21.20
173	2018-2019	2	Development of amendments to VDR performance standards and carriage requirements	MSC	III	NCSR	2	MSC 101/24, paragraph 21.30

180	2020-2021	2	Development of amendments to SOLAS chapters IV and V and performance standards and guidelines to introduce VHF Data Exchange System (VDES)	MSC	NCSR		2	MSC 103/21, paragraph 18.12
181	2020-2021	2	Development of performance standards for a digital navigational data system (NAVDAT)	MSC	NCSR		2	MSC 103/21, paragraph 18.18
179	2020-2021	4	Development of measures regarding the detection and mandatory reporting of containers lost at sea that may enhance the positioning, tracking and recovery of such containers	MSC	NCSR	CCC	2	MSC 103/21, paragraph 18.34
156	2018-2019	6	Development of amendments to the LSA Code to revise the lowering speed of survival craft and rescue boats for cargo ships	MSC	SSE		2	MSC 99/22, paragraph 20.15
158	2018-2019	6	Amendments to SOLAS chapter III and chapter IV of the LSA Code to require the carriage of self-righting or canopied reversible liferafts for new ships	MSC	SSE		2	MSC 99/22, paragraphs 20.22 and 20.23
164	2018-2019	6	Revision of ECDIS Guidance for good practice (MSC.1/Circ.1503/Rev.1) and amendments to ECDIS performance standards (resolution MSC.232(82))	MSC	III	NCSR	2	MSC 100/20, paragraph 17.9; MSC 102/24, paragraph 21.14

169	2018-2019	6	Development of design and prototype test requirements for the arrangements used in the operational testing of free-fall lifeboat release systems without launching the lifeboat	MSC		SSE	2	MSC 101/24, paragraph 21.15
182	2020-2021	6	Revision of the Interim Explanatory Notes addressing the safe return to port (MSC.1/Circ.1369) and related circulars	MSC	HTW / SSE	SDC	1	MSC 103/21, paragraph 18.31
183	2020-2021	6	Revision of the 2010 FTP Code to allow for new fire protection systems and materials	MSC	SSE		3	MSC 103/21, paragraph 18.28
9	2012-2013	OW	Revision of the provisions for helicopter facilities in SOLAS and the MODU Code	MSC	SSE		1	MSC 86/26, paragraph 23.39
163	2018-2019	OW	Guidance on the training on and operation of Emergency Personal Radio Devices in multiple casualty situations	MSC	NCSR		1	MSC 100/20, paragraph 17.5
168	2018-2019	OW	Development of amendments to paragraph 8.3.5 and annex 1 of the 1994 and 2000 HSC Codes	MSC		SSE	1	MSC 101/24, paragraph 21.9
32	2012-2013	OW	Recommendations related to navigational sonar on crude oil tankers	MSC	SDC		1	MSC 91/22, para. 19.23; SDC 6 requested MSC 101 to delete this output (SDC 6/13, par. 10.5 and MSC 101/12/Rev.1, par. 3); MSC 104 to consider request
Notes:	SDC 6 requested MSC 101 to delete this output (SDC 6/13, paragraph10.5 and MSC 101/12/Rev.1, paragraph 3).							
42	2012-2013	OW	Review of the 2009 Code on Alerts and Indicators	MSC	NCSR	SSE	2	MSC 89/25, paragraph 22.25

65	2012-2013	OW	Application of amendments to SOLAS and related codes and guidelines	MSC			2	MSC 91/22, paragraphs 3.16 to 3.35
90	2014-2015	OW	Amendments to the LSA Code for thermal performance of immersion suits	MSC	SSE		2	MSC 92/26, paragraph 13.34

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ANNEX 14

SUBSTANTIVE ITEMS FOR INCLUSION IN THE AGENDAS FOR MSC 104 AND MSC 105

104th session of the Committee (4 to 8 October 2021)

Decisions of other IMO bodies

Amendments to mandatory instruments

Capacity-building for the implementation of new measures

Measures to improve domestic ferry safety

Goal-based new ship construction standards

Measures to enhance maritime security

Piracy and armed robbery against ships

Unsafe mixed migration by sea

Formal safety assessment

Human element, training and watchkeeping (report of the seventh session of the Sub-Committee)

Navigation, communications and search and rescue (report of the eighth session of the Sub-Committee)

Implementation of IMO instruments (report of the seventh session of the Sub-Committee)

Application of the Committee's method of work

Work programme

Election of Chair and Vice-Chair for 2022

Any other business

105th session of the Committee (May 2022)*

Decisions of other IMO bodies

Amendments to mandatory instruments

Measures to improve domestic ferry safety

Development of further measures to enhance the safety of ships relating to the use of fuel oil

Goal-based new ship construction standards

Measures to enhance maritime security

Piracy and armed robbery against ships

Unsafe mixed migration by sea

Formal safety assessment

Cost implications for MSI and SAR information providers concerning the recognition of multiple GMDSS mobile satellite services

Carriage of cargoes and containers (report of the seventh session of the Sub-Committee)

Ship design and construction (report of the eighth session of the Sub-Committee)

Human element, training and watchkeeping (report of the eighth session of the Sub-Committee)

Ship systems and equipment (urgent matters emanating from the eighth session of the Sub-Committee)

Application of the Committee's method of work

Work programme

Any other business

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* The list of items for inclusion in the agenda of MSC 105 is indicative only and depends on the outcome of MSC 104.

ANNEX 15

RESOLUTION MSC.490(103)
(adopted 14 May 2021)

RECOMMENDED ACTION TO PRIORITIZE COVID-19 VACCINATION OF SEAFARERS

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO that the Council, at its thirty-first extraordinary session, urged flag and port States to ensure the welfare of seafarers, in particular that their rights to wages, shore leave, sick leave, access to medical care, food supplies and repatriation were preserved,

RECALLING FURTHER the statement adopted by Council, at its thirty-second extraordinary session, on recognition of the importance of the flow of trade by sea during the COVID-19 pandemic,

RECALLING that, at its second extraordinary session, it adopted resolution MSC.473(ES.2) on *Recommended action to facilitate ship crew change, access to medical care and seafarer travel during the COVID-19 pandemic,*

RECALLING ALSO that, at its 102nd session, it approved a circular containing the *Industry recommended framework of protocols for ensuring safe ship crew changes and travel during the coronavirus (COVID-19) pandemic* (MSC.1/Circ.1636), recognizing the importance of the protocols and inviting Member States and relevant stakeholders to consider them and take them into account,

NOTING resolution A/RES/75/17 on *International cooperation to address challenges faced by seafarers as a result of the COVID-19 pandemic to support global supply chains*, adopted by the UN General Assembly on 1 December 2020,

NOTING ALSO resolution GB.340/Resolution (Rev.2) – *Resolution concerning maritime labour issues and the COVID-19 pandemic*, adopted by the Governing Body of the International Labour Organization on 8 December 2020,

NOTING FURTHER the *Resolution concerning the implementation and practical application of the MLC, 2006, during the COVID-19 pandemic*, and the *Resolution concerning COVID-19 vaccination for seafarers*, adopted by the ILO Special Tripartite Committee of the Maritime Labour Convention, 2006, as amended (MLC, 2006) on 23 April 2021,[1]

REAFFIRMING the unique and essential work of seafarers for international shipping and for the world, contributing to the uninterrupted transportation of vital medical supplies, food and other basic necessities during the COVID-19 pandemic,

NOTING the Joint Statement of 25 March 2021 issued by ICAO, ILO, IMO, WHO and IOM (Circular Letter No.4204/Add.38), urging all United Nations Member States to prioritize seafarers and aircrew in their national COVID-19 vaccination programmes, to protect them through vaccination as soon as possible and to facilitate their safe movement across borders,

[1] https://www.ilo.org/global/standards/maritime-labour-convention/events/WCMS_679152/lang--en/index.htm

NOTING ALSO the *Statement on the seventh meeting of the International Health Regulations (2005) Emergency Committee regarding the coronavirus disease (COVID-19) pandemic*,[2] recommending IHR States Parties to prioritize vaccination for seafarers and aircrews in line with the aforementioned Joint Statement,

NOTING FURTHER that, given the limited period of time ships are in port, single dose COVID-19 vaccines for seafarers would be preferable,

BEING CONSCIOUS of the limited and highly uneven access to COVID-19 vaccines around the world,

BEING ALSO CONSCIOUS of the need to protect seafarers through vaccination, as soon as possible, to facilitate their safe movement across borders,

BEING CONSCIOUS of the importance of cooperation among Member States,

NOTING that the UN Crisis Management Team for COVID-19, under the leadership of WHO, recognized that all countries should consider seafarers for essential allocation of vaccines,

BEING AWARE OF the possibility that countries may introduce requirements for proof of COVID-19 vaccination for international travel of seafarers as a condition of entry, notwithstanding WHO's recommendations,[3]

1 RECOMMENDS that Member States and relevant national authorities:

.1 prioritize their seafarers, as far as practicable, in their national COVID-19 vaccination programmes, noting the advice of the WHO SAGE Roadmap[4] for prioritizing the use of COVID-19 vaccines in the context of limited supply published in November 2020. Proper consideration of extending COVID-19 vaccines to seafarers of other nationalities is also recommended, taking into account their national vaccines supply;

.2 consider exempting seafarers from any national policy requiring proof of COVID-19 vaccination as a condition for entry, taking into account that seafarers should be designated as "key workers", as they travel across borders frequently;

.3 develop appropriate plans, where feasible, to provide necessary infrastructure and facilities to support COVID-19 vaccination of seafarers;

2 INVITES Member States, international organizations, shipping companies and other stakeholders to inform seafarers about the safety and possible benefits of the COVID-19 vaccination, bearing in mind that taking the vaccination is a decision made on an individual basis;

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2 https://www.who.int/news/item/19-04-2021-statement-on-the-seventh-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-coronavirus-disease-(covid-19)-pandemic

3 Statement on the sixth meeting of the International Health Regulations (2005) Emergency Committee regarding the coronavirus disease (COVID-19) pandemic: https://www.who.int/news/item/15-01-2021-statement-on-the-sixth-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-coronavirus-disease-(covid-19)-pandemic

4 WHO SAGE Roadmap For Prioritizing Uses Of COVID-19 Vaccines In The Context Of Limited Supply: https://www.who.int/publications/m/item/who-sage-roadmap-for-prioritizing-uses-of-covid-19-vaccines-in-the-context-of-limited-supply

3 REQUESTS Member States and international organizations to bring this resolution to the attention of all parties concerned.

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ANNEX 16

STATEMENTS BY DELEGATIONS AND OBSERVERS*

AGENDA ITEM 1

Statement by the delegation of Malaysia

"We wish to inform this Committee that on the 3 May 2021, at approximately 14:45, Malaysian Time, **Velesto NAGA 7** rig (an offshore jack-up drilling rig) owned by Malaysia's Velesto Energy tilted and subsequently submerged whilst operating in offshore Sarawak while working for the oil major ConocoPhillips.

NAGA 7 is an independent-leg cantilever jack-up rig with a drilling depth capability of 30,000 feet and has a rated operating water depth of 375 feet. Total of 101 personnel was on board **NAGA 7** when the incident occurred. All personnel onboard are safe on the rescue vessels and the majority have been transferred to Miri, Sarawak. The remaining personnel are in the process of being transferred.

The date of 11 March 2021 marks one year since nations across the globe are facing an unprecedented pandemic of COVID-19 The maritime sector has continued to deliver the vital supplies and seafarers have worked tirelessly, at the heart of this trade, to keep goods flowing. Despite difficulties with port access, repatriation, crew changes, Malaysia would like to echo IMO Secretary-General in his statement on 19 March 2021 that call for seafarers to be designated as key workers and to prioritize seafarers in their national COVID-19 vaccination programs.

Let me assure, that Malaysia reiterate it stands and resolute with other countries to combat this pandemic together. I believe, we will once again overcome this and emerge stronger than ever. God-Willing."

AGENDA ITEM 5

Statement by the delegation of Panama

"Our Administration appreciates and commends the hard work of all participants during this first and second stage of the Regulatory Scoping Exercise of the MASS. However, we would like to reiterate our cooperation with the industry in the pursuit of continuing to improve safety and pollution protection and prevention standards, by supporting the development of reasonable and practical new technologies for the benefit of the entire maritime community in general.

In faithful compliance with the current *Interim guidelines for mass trials* (MSC.1/Circ.1604), the Republic of Panama, responsible for authorizing ships to carry out their trials in a safe manner in all aspects and at the same time, to continue with the progressive development of this work, we have authorized to Panamanian flagged vessels, thus complying with said Interim guidelines.

* Statements have been included in this annex in the order in which they are listed in the report, sorted by agenda items, and in the language of submission (including translation into any other language if such translation was provided).

An example of this is the ship called **IRIS LEADER** that is reflected in the report on MASS trials presented by the distinguished delegation of Japan in document MSC 102/INF.8, therefore, we express our sincere thanks to the delegation of Japan for presenting the results obtained from the trials carried out on board that vessel.

The Republic of Panama will continue to support all the owners/operators of our registry that need to advance with this issue, in order to mitigate the gaps found and thus be able to safely regulate these MASS vessels."

AGENDA ITEM 8

Statement by the observer from UNESCAP

"ESCAP is the UN regional arm for Asia and the Pacific with the mandate to promote regional integration and the implementation of Sustainable Development Goals. Promoting transport connectivity is one of our core functions and our partnership with IMO is fundamental for supporting the position of our diverse region in the global supply chains.

ESCAP is pleased to have contributed to the efforts of IMO and member States to improve domestic Ferry safety through the "Study on Enhancing Domestic Ferry Safety in Asia and the Pacific" and Expert Group Meeting conducted jointly with IMO last year. We strongly support the results of this work and, as such, "Draft Model Regulations on Domestic Ferry Safety" in Annex 1 and "Updated Plan of work" in Annex 2".

In this connection, I would like to highlight some elements of the ongoing cooperation between IMO and ESCAP. The two organizations have continued to cooperate in various forms, including consultation meetings at the level of heads of the organization, joint analytical work, notably, for the theme study of the ESCAP's 76th session in 2020 and co-organizing expert group meetings and capacity building workshops. ESCAP looks forward to further expansion of this cooperation in the future, not only through joint work for study and training programme, but also through the signing of a MOU between the two organizations.

Asia-Pacific region is home to many LDC and SIDS countries in need of special support, as they pursue sustainable development with the cooperation and support of the international community. Building on IMO's expertise as global regulator and innovator, the regional knowledge and expertise offered by ESCAP, as a regional intergovernmental body, and opportunities for engaging the private sector, we can strengthen the partnership for a sustainable and safe maritime transport in our most vulnerable member States.

As you are all aware, the Asia-Pacific region is experiencing high number of safety accidents due to a combination of extreme weather, aged fleet, human errors, inadequate facilities, and many other factors. Many countries in our regions have insufficient systems for preventing and responding to maritime accidents due to economic, technical and human constraints. In this respect, "Model Regulations on Domestic Ferry Safety" is a very timely and valuable initiative, which will bring a significant contribution to the efforts of our respective Member States to build a system that ensures safe navigation through collaboration and cooperation."

AGENDA ITEM 9

Statement by the delegation of Egypt

"First of all, I would like to express my thanks and appreciation for giving me the chance to deliver the following statement, which represents our view of the alleged claims to designate the Red Sea area as High Risk Area as presented in document MSC 103/9/3/Rev.1.

We all know that the Red Sea Area is of key importance to world trade. It is estimated that more than twenty thousand ships pass through it annually, as it is the main link between East and West. Therefore, within the framework of the Arab Republic of Egypt's keenness to enhance maritime security and emphasizing the objectives and efforts of the International Maritime Organization in this field and its role in regulating laws and rules for maritime safety and security and the marine environment, Egypt is taking all necessary measures to secure its maritime borders in the Red Sea and it is cooperating with countries overlooking it in order to preserve the safety of navigation. The Council of Arab and African Red Sea States is a good example of such endeavour. Therefore, Egypt strongly opposes the appeal of Iran to consider the Red Sea area as a high-risk area.

According to the annual statistics of the Global Integrated Shipping Information System (GISIS), the Red Sea States are fully committed to International maritime law and are working hard to achieve the provisions of the International Code for the Security of Ships and Port Facilities, the ISPS Code, as well as chapter XI-2 of the International Convention for the Safety of Life at Sea (SOLAS). The Red Sea region is free of piracy attacks and armed robbery. In addition, the narrow lanes of the Red Sea mean that ships sail near each other and near the coast of the states bordering it, making it easier for states bordering to trace ships and offer necessary security.

We would like to point out that the incidents mentioned in the document submitted by Iran are individual incidents, as there has not been a reference to a list of any other incidents similar to ships carrying another flag, and no other country crossing the Red Sea has submitted a similar complaint, and therefore the claim presented lacks the element of consensus. The designation of the Red Sea region as a high-risk region is not based on solid foundation. Such designation represents a major issue that affects the development and prosperity of the States bordering it. The said designation will not only affect all maritime transport operations in the area, but also will be of disastrous repercussions on Iran itself.

In conclusion, based on the foregoing and due to the lack of technical and legal evidence for the Iranian allegations, we urge the Committee to reject such allegations."

Statement by the delegation of Eritrea

"The Government of the State of Eritrea would like to address the draft resolution proposed in document MSC 103/9/3 Rev.1.

Located along the busiest maritime commercial route and having one of the longest coastlines on the Red-Sea, Eritrea attaches utmost importance to the safety and security of its own as well as that of international maritime route along its boundary. Eritrea strongly believes that the Red-Sea and its international maritime route's safety and security should, primarily be the legal responsibility and obligation of the littoral States.

Accordingly, the Eritrean navy has been, with limited resources, continues to play an important role in securing Eritrea's territorial waters and adjacent maritime route from unlawful activities such as terrorism, piracy, drug trafficking, human trafficking, illegal fishing etc. that might

threaten the safety of this vital maritime route. Additionally, Eritrea is an active member of the Council of Arab and African Coastal States of the Red Sea and the Gulf of Aden which was established for coordination and cooperation purposes of protecting the safety and security of the Red Sea.

Eritrea on the other hand, firmly believes, that vessels that navigate through international waters should always abide by the international maritime safety rules and regulations and should respect territorial integrity of littoral states, and therefore, condemns any sort of trespassing by vessels to a country's territorial waters without the consent and permission of those littoral States.

Allow me to walk you through the main issue of why the Eritrean Government wishes to address this session. A technically classified "General Cargo" Ship-named SAVIZ, which sails under the Iranian Flag, first appeared on the Red-Sea international territorial waters towards the end of 2016 for a mission that is unknown to the Eritrean Government. The Ship remained anchored close to the Dahlak Archipelago of Eritrea for few years, at times, violating the Eritrean territorial frontiers. Despite multiple incidents of infringement by the Ship, the Government of Eritrea did not opt for a unilateral action against it, with the belief that, doing so might endanger the safety and security of the commercial route which is of great international importance. As a solution, the Eritrean President H.E. Isaias Afewerki wrote an official letter, on the 23rd of February 2020, to the Permanent Representative of the Kingdom of Belgium (President of the UNSC at the time), voicing Eritrea's concerns regarding the intrusive presence of the vessel and calling for legal action by the UNSC. A copy of the same letter was simultaneously sent to H.E. Antonio Guterres, but unfortunately, no reply was given from either of them.

In the meantime, it is to be recalled that on the 6th of April 2021, SAVIS was attacked by unknown entities. The attack and subsequent explosion happened inside Eritrea's territorial waters. In that regard, the Government of the State of Eritrea would like to share its grave concern with this Session that such a unilateral action, inside the Eritrean maritime borders, violates the sovereignty of Eritrea. The Government of Eritrea also rejects any unilateral attack in the international maritime waters as it can compromise the safety of navigation and can create unnecessary security situation which goes contrary to the International Maritime Organization's safety rules and regulations which is based on smooth and orderly movement of vessels across the world.

Eritrea alongside the littoral states of the Red Sea remains committed to work with the International Maritime Organisation and partners in line with the International Code for the Security of Ships and Port Facilities, the ISPS Code as well as the SOLAS Convention for the Safety of Life at Sea. This is evident in the sharp decline of piracy and armed robbery in the Red Sea as reflected in GISIS website.

The declaration of the Red Sea as a high risk area would be detrimental to international maritime trade which is already under severe pressure due to the COVID-19 pandemic and would cause an insurmountable strain on the development and prosperity of the littoral states and countries which depend on the ports of those littoral states.

My delegation wishes to stress the overwhelming repercussions of considering the Red Sea as a High Risk Area and requests that member states adhere to the International Maritime Organisation's safety and security rules and regulations and that the Maritime Safety Committee dismisses the proposal of designating the Red Sea as a High Risk Area. Finally, I wish to take this opportunity to convey and reiterate my Government's commitment and readiness to work with partner countries as well as the IMO to ensure the safety and security of the Red-Sea international commercial route."

Statement by the delegation of France

"La France remercie la délégation de l'Iran pour son document MSC 103/9/3/Rev.1 relatif à la sécurité et à la sûreté en mer Rouge.

La France souhaite tout d'abord rappeler que la question des zones à haut risque revêt une importance majeure. Elle estime que les entraves à la liberté de navigation, de manière générale, doivent mobiliser toute notre attention. A cet égard, nous encourageons tous les Etats membres de l'OMI à faire état dans la base GISIS des incidents auxquels ils auraient pu être confrontés en mer Rouge.

Nous soulignons enfin notre préoccupation quant à la multiplication des incidents dans le Golfe depuis le début de l'année. Nous saluons l'intérêt porté par l'Iran à la sécurité maritime et appelons à la responsabilité de tous les Etats membres pour assurer la liberté de navigation dans la zone."

Statement by the delegation of the Islamic Republic of Iran

"Commercial shipping is a crucial channel for maintaining and promoting the livelihood of numerous nations around the world. In one way or another, not only maritime countries benefit from shipping activities, but also the countries that send or receive consignments through this effective mode of transport. The importance of this field of activity has also been reflected in the UN Sustainable Development Goal (SDG) number 14, which plans to "conserve and sustainably use the oceans, seas and marine resources for sustainable development".

The necessity for ensuring maritime security has been adequately highlighted in the International Ship and Port Facility Security (ISPS) Code, which was developed and approved in the wake of the tragic events of 11 September 2001. The objectives of the ISPS Code clearly point to the efforts under this code, in order to "establish an international framework of cooperation between Contracting Governments, government agencies, local administrations and the shipping and port industries to detect security threats and take preventative measures against security incidents affecting ships or port facilities used in international trade; and establish the respective roles and responsibilities of Contracting Governments, government agencies, local administrations and the shipping and port industries, at the national and international level, for ensuring maritime security".

One such situation currently exists in the Red Sea, where a large number of oil tankers and vessels operating under the flag of the Islamic Republic of Iran were attacked in the past two years. In paragraph 5 of paper we have listed 10 major incidents happened in the Red sea. Since the development of this document another to attacks have been committed to our flagged vessels Saviz and Shahrkord.

The Government of the Islamic Republic of Iran has conducted a comprehensive initial investigation of the facts pertaining to the incidents above and reassures the international community that all endeavours will be made to protect commercial shipping and maritime traffic. The initial investigations have depicted with certainty that all the mentioned accidents were sabotage operations, and the ongoing investigations are seeking to establish their sources, and how the vessels were penetrated.

A major concern in this respect is that the organized and directed pattern of these attacks within a short time and similar locations have rendered the Red Sea an unsafe route for ships to adopt for their voyages. It is clear that the shipping industry will suffer the adverse impacts of an insufficient level of security or safety of navigation, which will harm the efficiency and profitability of shipping as a crucial economical element. Furthermore, all the mentioned

vessels were attacked while en route during their normal voyages, which further aggravated the severity of the situation and complicated the measures required to restore safety and protect the marine environment. A negative impact of such malicious activities in the region will be compromised efficacy of ship crew when navigating in this waterway. The prospects of being attacked and damaged will engender excessive levels of anxiety and fatigue among seafarers, as well as additional levels of stress and concern among their families. Such unpleasant parameters compromise the safe working conditions for seafarers, leading to higher human error and jeopardized safety of navigation. Moreover, such uncertainty about safety of the working environment on board vessels will result in seafarers' reluctance to board tanker ships.

The mentioned attacks are defined as security incidents within the ISPS Code, and the Government of the Islamic Republic of Iran has taken the required measures, in accordance with regulations 1 and 7.3 to protect the ships operating under the Iranian flag, and prevent such incidents. However, such measures will not be sufficient, and a satisfactory level of maritime security can only be achieved and maintained through joint efforts of all maritime States in the region, which have been affected by such malicious actions. Such regional cooperation will help realize the objectives of the ISPS Code and chapter XI-2 of the SOLAS Convention towards ensuring and promoting maritime security. The Committee is thus requested to take the matter into consideration, and develop the required recommendations and guidance."

Statement by the delegation of Saudi Arabia

أود أن أعرب عن شكري وتقديري لمنح الفرصة للإدلاء بالبيان التالي الذي يمثل وجهة نظرنا في الإدعاءات المزعومة لتعيين البحر الأحمر " MSC 103/9/3/Rev.1 كمنطقة عالية الخطورة كما هو مقدم من إيران في الوثيقة .

السيد الرئيس

نعلم جميعا أن منطقة البحر الأحمر ذات أهمية كبري للتجارة العالمية , إذ تشير التقديرات إلي عبور أكثر من 20 ألف سفينة من خلاله سنويا حيث يعتبر البحر الأحمر حلقة الوصل الرئيسية بين الشرق والغرب لذا وفي إطار حرص جمهورية السودان علي تعزيز الأمن البحري وتأكيدا علي أهداف وجهود المنظمة البحرية الدولية المبذولة في هذا المجال ودورها في تنظيم قوانين وقواعد السلامة والأمن البحريين والبيئة البحرية يقوم السودان بإتخاذ كافة الإجراءات اللازمة لتأمين حدوده البحرية في البحر الأحمر كما يقوم بالتعاون مع الدول المطلة عليه للمحافظة علي سلامة الملاحة فيه وخلوه من أية حوادث أمنية ويعد المجلس العربي والإفريقي لدول البحر الأحمر خير مثال علي هذا المسعي لذلك يعترض السودان علي طلب إيران إعتبار منطقة البحر الأحمر كمنطقة عالية الخطورة .

تلتزم إلتزام كامل بالقانون الدولي البحري وتعمل جاهدة علي تحقيق GISIS إن الدول المطلة علي البحر الأحمر وفقا لما هو مسجل علي موقع وكذلك الفصل الحادي عشر/2 من الإتفاقية الدولية لسلامة الأرواح في ISPS Code ما جاء بالمدونة الدولية لأمن السفن والمرافق المينائية إلي جانب ذلك فإن منطقة البحر الأحمر تخلو تماما من عمليات القرصنة والسطو المسلح وتسمح ممراته الضيقة بإبحار السفن . SOLAS البحار بالقرب من بعضها البعض وبالقرب من سواحل الدول المجاورة لها ، مما يسهل علي الحكومات المجاورة لها تتبع السفن وتوفير الأمن اللازم لها .

سيدي الرئيس

نود الإشارة إلي أن الحوادث الواردة بوثيقة إيران هي حوادث فردية إذ لم يتم الإشارة إلي قائمة بأية حوادث أخري مماثلة لسفن تحمل علم آخر كما أنه لم تتقدم أية دولة أخري عابرة للبحر الأحمر بشكوي مماثلة وبالتالي يفقد الإدعاء المقدم لعنصر الإجماع وبناء عليه فإن المطالبة بإعتبار منطقة البحر الأحمر كمنطقة عالية الخطورة لا يستند إلي أسس راسخة .

إن مثل هذا الإعلان وعلي عكس الإدعاءات المثارة سيؤدي إلي إضافة مستويات أخري من التوتر والقلق لجميع العاملين البحريين بالمنطقة كما أنه لن يؤثر علي جميع عمليات النقل البحري في المنطقة فحسب بل سيكون له أيضا تداعيات كارثية علي إيران نفسها .

في الختام وبناء علي ما تقدم ونظرا لعدم وجود أدلة فنية وقانونية للإدعاءات الإيرانية نري ضرورة قيام اللجنة بالنظر في في رفض مثل هذه الإدعاءات المزعومة بالإضافة إلي ما ستؤدي له من تداعيات خطيرة علي سلاسل التوريد العالمية .

أرجو التفضل بإدراج هذا البيان في التقرير النهائي لهذه الدورة"

Statement by the delegation of the United Arab Emirates

"We also recognize the importance of maintaining a safe and secure environment in the waterways around the world in order to ensuring safety of navigation, maritime security, shipping efficiency and marine environment protection.

With respect to the proposal in paragraph 10, this delegation recognized that the HRA was not in the mandate of the Organization. The amendment of HRA was defined in BMP 5, which

provided guidance by the shipping industry for the shipping industry and its amendment was not an action that IMO could either undertake or require.

With respect to the proposal in paragraph 11, there is no clear proposal to be considered by the Committee. It is, therefore, suggested to invite the submitter and interested Member States to submit specific proposals based on a comprehensive analysis report emanated from these incidents in order to develop the required recommendations and guidance.

Finally, UAE Fully agree with the statement made by the distinguished delegate of Egypt."

AGENDA ITEM 10

Statement by the observer from ReCAAP-ISC

"Regarding the situation of piracy and armed robbery against ships in Asia, there were 97 incidents in 2020, which is a 17% increase compared to the previous year. However, the situation has been improving in the first quarter of this year. 17 incidents of armed robbery against ships were reported during January-March 2021. This is a 39% decrease, compared to the same period of last year.

There was no incident of abduction of crew in the Sulu-Celebes Seas of the Philippines since January 2020 up to today, and no crew is currently held in captivity. However, the threat of abduction of crew by the Abu Sayyaf Group still remains. In the Singapore Strait, sea robberies have continued to occur this year. Seven incidents were reported during January-March 2021. The ReCAAP ISC urges the littoral States to continue to enhance law enforcement.

This year marks the 15th anniversary of the ReCAAP. I take this opportunity to express my appreciation to Mr. Kitack Lim, Secretary General of IMO, for having kindly addressed an encouraging video message to our 15th Anniversary Symposium. There is a new development on the membership of the ReCAAP this year. The Governments of Germany and Greece have officially informed the depository of their intention to join the ReCAAP, and the formal process is on-going. Moreover, the Government of France is undertaking a procedure before the official application of membership.

Lastly, the ReCAAP ISC will continue its efforts to contribute to the maritime safety in Asia."

Statement by the delegation of Indonesia

"Indonesia would like to take this opportunity to comment on the document MSC 102/INF.11 on ReCAAP's Progress Report of the Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia.

Information sharing is a paramount aspect in strengthening maritime safety and security. Indonesia noted ReCAAP's effort in enhancing cooperation in suppressing piracy and armed robbery against ships across Asia. One of the important aspects in information sharing is the accuracy of the report, that is accountable and useful for the coastal states, user states, and other stakeholders.

The ReCAAP's submission stated that in 2019 Indonesia had 23 incidents at its ports and anchorages. However, after we conducted cross-checking through IMO GISIS data, we have found that only 14 incidents occurred with no actual crew wounded nor ship's cargo stolen. ReCAAP classification's system incorporates all types of crimes at sea, including petty thief, such as burglary while the ship is harbouring, to be considered as acts or attempted acts related to piracy and armed robbery at sea. Such classification may negatively affects the overall branding of Indonesia's maritime industry.

As the largest Archipelagic State, Indonesia continues to strengthen the maritime information sharing system by the establishment of *Indonesian Maritime Information Center* (IMIC) by Indonesia Maritime Enforcement Agency (BAKAMLA) and Naval Information Sharing Center. Both agencies provide integrated real-time maritime data that include any information on incidents occurring in Indonesia's water.

To conclude, although Indonesia is not a member state of ReCAAP, in the spirit of cooperation, we are ready to support initiatives that will benefit coastal states, user states and other stakeholders in promoting an even greater security at sea through maritime information sharing."

Statement by the observer from ReCAAP-ISC

"With reference to the intervention by the distinguished Indonesian delegation yesterday on ReCAAP ISC's report on the number of incidents in Indonesia in 2019 and that was reported by IMO/GISIS, please allow me to present the following points:

IMO/GISIS mentions Indonesia as "Coastal State" for all the 23 incidents, even though "Area" of these incidents is either South China Sea, or Malacca Strait, or Indian Ocean. The longitude and latitude of these 23 incidents mentioned in GISIS also clearly indicate that these incidents occurred in the Indonesian waters. Therefore, IMO/GISIS have the same information as ReCAAP ISC. We are aligned. Whether the crew was wounded or cargo stolen in these incidents, they are considered acts of armed robbery, in accordance with the definition of the IMO.

There is no definition of "petty theft". Unauthorised boarding is a crime even if it is deemed as "petty theft" and it is a threat to the seafarers' safety as the security integrity of the ship has been breached. The shipping industry is concerned with all kinds of crimes on board ships, whether they are the termed non-confrontational, petty thefts or otherwise.

We understand the objective of "the Code of Practice on the Investigation of Crimes of Piracy and Armed Robbery against Ships" which defines 'armed robbery against ships" is to address all illegal acts against ships and seafarers. Therefore, we will continue to report all the incidents of unauthorised boarding as armed robbery against ships. To further qualify, ReCAAP also provides the severity level of each incident (CAT 1-4) for purpose of risk assessment thus if it's petty thief in nature it is already duly addressed."

Statement by the delegation of Kenya

"The Republic of Kenya as a Coastal and Port State on the Eastern seaboard of Africa faced the full brunt of the grave danger to safety of life at sea, maritime safety, security and the protection of the marine environment arising from acts of piracy and armed robbery against ships.

This is no longer the case after the concerted joint efforts by the Government of Kenya through AMISOM, NATO, EUNAVFOR and the International Maritime Community. Document MSC 103/10/2 regards the continued listing of Kenyan waters, including its entire coastline as a HRA, which has had unintended and undesirable national and regional implications.

Eastern African Region comprises of Kenya, Uganda, Tanzania, Rwanda, South Sudan and Burundi has a population of about 177 million people (2019) and a total GDP of US$ 196.5 B. Other countries depending on the port of Mombasa such as Democratic Republic of Congo and Ethiopia are severely affected as well.

The cost of shipping has gone up due to associated maritime security costs such as high marine insurance premiums, the hiring of Privately Contracted Armed Security Personnel (PCASP's) and longer navigation routes which have been attributed to the HRA status thereby reducing the competitive advantage of the Mombasa Port.

The continued designation of Kenyan waters as a HRA has negatively impacted on the operationalization of the new deep seaport of Lamu in northern Kenya, linking the region to Ethiopia and South Sudan. The Maritime domain is an important part of Kenya's territory and key to our national and regional security, shipping, trade and the sustainable development of the blue economy. This classification, as explained therefore, undermines Kenya's sovereignty from an international law perspective; erroneously conveying the message that Kenya is not capable to defend its waters as a sovereign nation, as the HRA limitation coordinates and the charts do not correspond with the charts.

Kenya takes note that there has not been any warning alert issued by joint militaries operating in the area in the recent past. Kenya's efforts through the Kenya Navy, the Kenya Coastguard Service (KCGS) and other Security agencies, has been undertaken the broader regional context; including providing ship-owners security assurance while getting into Kenya's maritime waters. This has been sustained through joint actions such as:

.1 Frequent security patrols by the Kenya Navy and the KCGS.

.2 Establishment of direct communication arrangements with shipping companies through CODE 12 and CODE 16 through which they exchange information and get alerts on potential security threats. So far there has not been need for any alerts.

.3 Designation of a special area within Kenya's waters to guarantee seafarers safety and security which was broadcast to international shipping through the IMO meeting forum.

.4 Improvement of the national Financial Systems by enactment of robust legislation, as well as supporting SUA Convention, 1988 through prosecution of perpetrators of hijacking and hostage takers, including the use of financial intelligence in such prosecution.

The Republic of Kenya and the AMISOM forces have been active in neutralizing the threat to shipping from Somalia coastline and will continue playing its role in this regard. Of note and as presented in the paper, there has not been any piracy incidents in Kenyan waters since the last review of the High-Risk Areas."

This delegation calls for support of delegations in calling for the de-classification of Kenyan waters from being high risk area. The Committee is invited to note the information provided in paper 103-10-2 and to recommend to the appropriate bodies to consider excluding the specific adjacent area to the south of the equator from the High-Risk Area as indicated in the paper."

Statement by the delegation of Portugal

"The Portuguese delegation welcomes document MSC 103/10 (Secretariat) and notes with deep concern the deterioration of maritime security in the Gulf of Guinea, including the escalation in the number and severity of attacks as described in the IMO Circular Letter No. 4382.

Portugal concurs with IMO Secretary-General's call for action to deter piracy in the region and supports further agreed initiatives, as per documents MSC 102/10/2 and MSC 102/INF.22. We are particularly concerned about the consequences for seafarers and their families, constantly

living under the threat of such violent actions, including kidnapping for ransom, on top of all the hardships created by the current pandemic.

This delegation supports that a working group focusing on the Gulf of Guinea is convened during the current session of MSC. The discussions should take into account the work within the G7++ Friends of Gulf of Guinea. Our commitment to the G7++ FoGG is consistent with our continuous support to the current interregional framework. Portugal has also advocated, from the outset, for the centrality of the Yaoundé Architecture in addressing the threats in the Gulf.

Portugal has been supporting local capacity building through an active dialogue with African counterparts, especially among Lusophone countries. Portugal appointed a Special Representative for Maritime Security in the Gulf of Guinea in 2020. Ambassador João Corte-Real is responsible for the mobilization and coordination of efforts of our diplomatic network and for outreach to all the relevant international actors.

The Portuguese Navy has been at the forefront of our defence cooperation with countries in the region, such as the "Open Seas" initiative and regularly participates in international maritime exercises namely Grand African Nemo and Obangame Express. We also fully support the EU pilot case of Coordinated Maritime Presences in the Gulf of Guinea.

As one of the initiatives of the *Atlantic Centre*'s establishment process, from 11 until 14 May, there will take place in the Azores the first course of this Centre, dedicated to the security issues affecting the Gulf of Guinea. Portugal has, since 2017, chaired the *Working Group on the use of private military and security companies in maritime security of the Montreux Document Forum*. One of our main objectives as Chair of this group was to develop an interpretative guide of the Montreux Document, aiming at making it more readable from a maritime security perspective. The Reference Document is currently being finalised from an editorial point of view and will be published on the website of the Montreux Document Forum. Portugal is certain that the Reference Document will have a positive impact for many maritime security actors.

In our understanding, the many and complex challenges associated with the fast-changing nature of piracy in the Gulf require a holistic, integrated, and global approach, focused on reaching concerted and lasting solutions that reinforce local and regional ownership."

Statement by the delegation of Nigeria

"On behalf of the Government and People of Nigeria, I wish to first appreciate the IMO Secretary-General for commending the efforts of Nigeria in mitigating illegalities in the Gulf of Guinea.

As you may have observed, the Piracy and Armed Robbery Module of the GISIS has been awash with the rise in piracy in the Gulf of Guinea Area. Increase in the incidence of piracy and the kidnap of Seafarers in the Gulf of Guinea, and the dimension it has taken is completely unacceptable. In recognition of this development, and in our determination to address the menace, Nigeria is focussing on the three key areas of Prevention, Mitigation and Collaboration.

Under Prevention, Nigeria has:

.1 Embarked on capacity building drive for coastal communities, targeting the under-employed, unemployed and unemployable youth.

.2 We have established a Presidential Amnesty Programme to fight piracy and kidnapping of seafarers.

.3 We have also created a Maritime Security Intelligence Unit to assist in identifying early warning signs to prevent security breaches.

Under our Mitigation Strategy, Nigeria has commissioned what is today known as the Deep Blue Project (DBP) focussed on building our response capability within the Nigerian EEZ/GoG. I am pleased to inform this August Gathering that Deep Blue has been deployed and working actively. As a result, we have recorded a considerably decline in attacks in the last three months. The ceremonial launch is scheduled for 21st of May 2021 and we extend our invitation to members of this great body.

The Deep Blue project platforms comprise of LAND, AIR and SEA Assets.

.1 On land we have the technology-driven data gathering known as C4I Centre, 16 Armoured Vehicles deployed to the coastal areas; over 370 Specially-Trained Maritime Security Forces as Human Elements.

.2 In the air, we have 2 Special Mission Aircrafts; 3 Special Mission Helicopters; 4 Unmanned Aerial Vehicles.

.3 While in the sea we have 2 Special Mission Vessels and 17 Fast-Moving Interceptor boats.

Nigeria has established the Command, Control, Communication, Computer and Intelligence System (C4I Centre), which serves as the command centre for the Deep Blue Project. The C4I Centre is currently at the verge of integration with similar maritime intelligence infrastructure within Nigeria such as Nigerian Navy's Falcon Eye, NPA C3i, in order to improve information sharing.

Taking a cue from Article 105 of the UNCLOS, Nigeria has enacted the Suppression of Piracy and other Maritime Offences Act 2019 (SPOMO Act). That is fully operational with about ten (10) convictions secured so far. Nigeria has also embarked on an intensive strategic communication and collaboration with international partners. These include bilateral engagements in Nigeria with Ambassadors of Greece, Poland, Italy, Turkey, the European Union representatives, China, Japan, Peoples Republic of Korea, and the United States of America. Nigeria has also been engaging with regional maritime administrations to enhance and stimulate further collaborations.

Additionally, the initiative by Nigeria and Industry to establish the jointly-chaired NIMASA/Industry Joint Working Group on Maritime Security in the Gulf of Guinea (NIJWG) in April 2020 is paying off. The main objective of the NIJWG is to support Nigeria to succeed in the deployment of the Deep Blue Project to tackle maritime security threats by facilitating interactions between stakeholders, through mutual collaboration and enhancing transparency between government and industry in addressing the shared goals of permanent prevention of piracy and armed robbery in the region.

As a result, the NIJWG has achieved the following:

.1 Continuous provision of feedback and inputs from Industry and the refinement and enhancement of the SPOMO Act 2019 earlier mentioned.

.2 Assisted in the proper structuring of the C4i centre and the collaboration.

.3 Development of GoG Maritime Collaboration Forum (SHADE-GoG) as a framework to improve international, regional and national cooperation.

.4 Development of a National Maritime Reporting Framework, which places the C4i Centre domiciled in the RMCC as the focal point for maritime reporting and information sharing centre with MDAT-GoG.

.5 Establishment of a Sub-working group with IMB/C4i/MDAT-GoG to help improve communications and enhance information sharing.

Nigeria has collaborated with the ICC in announcing the establishment of a new Framework to tackle maritime insecurity in the Gulf of Guinea – GOG-MCF/SHADE GoG. A joint Communique signed on the 26th April 2021 has been released. This forum is to help galvanise regional and international efforts to ensure security in the GoG. Its main focus is counter piracy and armed robbery prevention by bringing together regional, international, industry and NGO partners to advance and coordinate near-term maritime activities, with a view to working towards a set of common operational objectives off the coast of West and Central Africa. This framework builds on established best practise (e.g. Indian Ocean) and I commend this joint initiative to the Organisation and welcome all members to join, work collectively in pursuit of common objectives and most importantly, keeping our seafarers safe.

This delegation thanks the IMO for its efforts toward assisting Nigeria develop a National Maritime Security Strategy. Furthermore, we thank IMB and MDAT-GoG for the series of capacity building programs they continue to make available to staff manning the C4i Centre. This delegation calls on the IMO Secretary-General to continue working tirelessly with other UN bodies, IMO member states and regional / international partners to align its efforts and support the Nigeria and ICC initiative in fighting piracy, being a pathway to restoring the safe trading lanes in the Gulf of Guinea. We also acknowledge the contribution and support of G7++FoGG.

Nigeria also welcomes the call by the Secretary General in establishing the Gulf of Guinea Maritime Security Working Group and invites the group to take cognisance of the steps taken by Nigeria; and to take onboard the initiative of the Nigeria-ICC Framework, which is aimed at ensuring proper collaboration, cooperation and coordination of efforts.

Finally, we would like to assure Member States of our commitment towards ensuring a safer Gulf of Guinea."

Statement by the observer from IMB

"I am well aware that we have little time and so I will keep this short. I would like this intervention to cover all the papers submitted on this topic as the IMB is involved in many of the activities. The IMB would, first, like to commend the actions of Nigeria and other regional authorities, including the ICC Yaoundé, for their response to the incidents onboard merchant vessels underway in the Gulf of Guinea and we remain available to extend all reasonable forms of cooperation to reduce the risk of this crime on seafarers. The improvements through February and March were notable and perhaps were a result of the active presence of the Nigerian Navy over those weeks.

Taking document MSC 103/10/3 as the basis, Greece twice mentioned the actions that the IMB undertook – for the **Vemahope** and **Errina** attacks – in getting help for the ships which had been attacked. On both occasions our interventions allowed the relevant authorities to be alerted immediately and, as a result, for the outcomes to be better than they might have been. In both these cases, the IMB/PRC had early notification of the attacks from the owners which meant that help could be summoned particularly quickly. This does raise the perennial question about transparency of communications and whether a dedicated single information exchange platform for the GoG would be helpful. The benefits, from a maritime safety and security perspective, include immediate awareness of the incident for all Regional authorities, the identification of the responding authority, reduced response times, alerting and response by

neighbouring authorities, in the case where criminals transgress into another jurisdiction. The advantages all outweigh the challenges of implementation and ownership. There have obviously been many other such attacks where the IMB's immediate and non-political response has resulted in good outcomes for ships that have been attacked. We would therefore actively encourage all maritime authorities to continue to report to the IMB Piracy Reporting Centre every time a ship is attacked.

On the separate subject of the accuracy of reports, in document MSC 102/10/4, Argentina and others from South America are concerned about the reports of attacks in their area. All the IMB statistics are compiled directly from the inputs from ships and are therefore as correct as possible. If all reports had to be analysed and approved by the relevant coastal state, the ships' reports would take on a very different colour. At the moment, the ship makes its report and the IMB responds immediately, giving out the information and initiating action as appropriate. It would be less than sensible to build in any delay to that process as the lives of mariners may well depend on the immediate action taken. In the worst case over a national holiday or weekend the delay could make the whole reporting process a waste of time. The losers would be the seafarers in the attacked ships.

In all the discussions about the Gulf of Guinea, it is being proposed that a working group be established to improve the responses and coordination in that area and the IMB would be very happy to be part of that Group."

Statement by the observer from ReCAAP-ISC

"Regarding the paragraph 9.7 of the Report of the Working Group 2, we do not support the review of the IMO's guidance of MSC Circulars 1333/Rev.1 and 1334, without having clear scope and clear objectives including terms of reference respecting current reporting frameworks.

This issue on the review of the two MSC Circulars had been discussed at length at the 101st session of the MSC in 2019, based on the document submitted by Marshall Islands and international shipping associations. And the Document was not endorsed by many delegations at the MSC. Therefore, if the Committee decides to have discussion on the review of these two Circulars, the previous document submitted to the 101st session should not be the basis of discussion.

Furthermore, the conclusions of the 101st session should be fully respected. One of the conclusions was that there was a clear need to uphold the primacy of coastal States in any related guidance and to respect differences in regional arrangements. This is to ensure the close linkage between incident reporting and response which is the responsibility of the coastal State. This role of the coastal State as stated in the current Circulars has been fully implemented and producing very positive results in reducing piracy and armed robbery incidents in Asia.

May I request this statement to be recorded."

AGENDA ITEM 15

Statement by the observer from FOEI

"Speaking on behalf of FOEI, WWF and Pacific Environment, we welcome these guidelines for fishing vessels of 24m in length and over and for pleasure yachts of 300 gross tonnage and above operating in polar waters and support their adoption. We have long believed that this work is very important, not least because of the number of non-SOLAS vessels operating in

polar regions - it is estimated that around one-third of vessels operating in the Arctic, and around half the vessels operating in the Southern Ocean are non-SOLAS vessels (based on 2015 data). Last year, the Arctic Council published a report which found a 25 percent increase in unique ships sailing in the Arctic between 2013 and 2019, with fishing vessels being the dominant category.

We note that these guidelines will only apply to fishing vessels of 24m and over. Recent analysis of the Arctic Council's Arctic Vessel Accident Data shows that between 2005 and 2017 the numbers of Arctic fishing vessels under 24m in length involved in accidents, losses, damage or oil discharges was higher than the numbers of vessels in the category over 24m in length involved in such incidents. We will therefore encourage addressing the regulation of this category of ships, and we can offer to bring to the table our further analysis of the applicable data.

It is our hope that in due course the responsible IMO bodies will give further consideration to the need for mandatory provisions to ensure both the safety of all these vessels in polar waters, as well as the protection of polar ecosystems.

We would ask that our intervention be recorded in the meeting report."

AGENDA ITEM 18

Statement by the observer from WSC

"Thank you for giving me the floor to make the following statement of behalf of WSC, ICS and BIMCO:

Over the course of three months late last year and early this year almost 3,000 containers were lost in a number of incidents in the western Pacific. This is far outside of the norm, and has understandably resulted in concerns about the possible contributing factors behind these incidents. The liner shipping industry shares these concerns. One container lost at sea is one too many. Ocean carriers will continue to explore and implement preventive and realistic measures to keep the loss of containers as close to zero as possible. And they welcome continued cooperation from governments and other stakeholders to accomplish this goal.

However, it should be recalled that liner shipping is an inherently safe mode of transport. Based on regular surveys undertaken by WSC of its member companies, we estimate that for the combined 12-year period from 2008 to 2019, there were on average a total of 1,382 containers lost each year. Containers lost overboard thus represent less than one thousandth of 1% of the roughly 226 million packed and empty containers currently shipped each year.

We are all awaiting the investigation reports into the recent incidents. However, it appears that no single factor caused the incidents but rather that several factors may have contributed. We have preliminarily identified the following:

Weather Routing

Weather appears to be the common contributing factor in all these incidents. The development of clearly defined and scalable weather/sea conditions according to ship size that can enhance ship crews' ability to make proper routing planning decisions before and during sea passage should be considered.

Ship's design

Recent investigation reports suggest that existing designs of VLCSs and ULCSs might contribute to incidences of containers lost at sea. We recommend that this issue be further analysed.

Ship's Propulsion

In some cases, ships losing propulsion in severe weather have contributed to containers lost overboard. It would seem useful to consider whether improvements could be made in terms of engineering design that might help to mitigate the probability of loss of propulsion when ships encounter severe sea condition.

Lashing

We have identified several possible areas warranting further analysis regarding lashing, including:

.1 It appears that lashing force related notations and calculations among different classification societies are not always compatible. Changes in class rules in 2013 may also have led to smaller margins for the acceleration criteria. We encourage that the safety implications of these class-related factors, including the lack of uniformly applicable standards, be considered.

.2 The Cargo Securing Manual Guidelines might be in need of revision.

.3 Software: Usage of the same approved lashing calculations for both the ship and shore-based staff could be promoted as part of the SMS.

.4 Lashing loose and fixed gear: Consider implementing clearly defined maintenance criteria, perhaps combined with mandatory periodical inspection by an authorized party, to ensure that such gear remains in good condition

Other areas of interest

Turning to other areas of interest warranting further consideration, we suggest the following:

.1 Consider including in the SMS a procedure for determining actual stowed cell position of each container on deck as compared to the planned stowage, and actions to be taken in case of deviations.

.2 Deterioration overt time of container structure strength, including corner fittings, is a concern as is the current lack of a marking requirement to identify containers with reduced stacking strength.

.3 Concerns continue to be expressed about the current levels of compliance with, and enforcement of, the VGM requirements. This may be a contributing factor in incidents involving containers lost at sea.

.4 Finally, a likely contributing factor to incidents involving containers lost at sea may be that the packing and securing of cargo in the container does not comply with the CTU Code. A related issue of concern is that fewer Member governments undertake container inspection programs.

Our respective associations respectfully recommend to the Committee that reduction of the risks of future incidents of containers lost at sea be addressed via a comprehensive approach, encompassing a range of issues and concerns like the ones I just described. These discussions will require substantial expertise, and we support and encourage that parties with the necessary skills, competence and expertise undertake such joint efforts.

In addition, and driven by the same objective, shipping companies and maritime associations have to the Dutch-based MARIN research institute confirmed participation in the joint industry research project entitled "TopTier". This joint research project aims, based on scientific analyses and studies and desktop as well as real-life measurements, to develop specific, actionable and effective recommendations, including in the areas I highlighted earlier.

Such an approach is, we believe, essential for a considered and ultimately successful regulatory initiative that is cognizant of, and reflects, of all the components of the mosaic that underpins safe transport of containers at sea."

AGENDA ITEM 20

Statement by the delegation of Indonesia

"We support the attention and development of measures to protect seafarers given the vital role of seafarers to support shipping activities, particularly during this difficult time. Indonesia, like other member states is currently giving the vaccine to their nationals, including seafarers. We are progressing to provide the vaccine despite of there are indeed challenges faced during the process.

However, Madam Chair, looking at the proposal on operative paragraph 1, we have some considerations including national vaccine supply, domestic vaccination demand especially for seafarers who are our own nationals, and the difference capacity of states to access vaccines, as highlighted by several delegations before.

In this case, we would prefer option 2, with suggestion, to add after the end of the provision, after the last sentence, "taking into account the national vaccine supply". Regarding operative paragraph 3, we would like to go with option 2 given the flexibility to allow its implementation. We would also support your proposal in the preambular paragraph.

In addition, Madam Chair, given the complex nature of seafarers lives, their mobility, the parties involved in the matter, we would like to propose to explore possibility of cooperation including with private sectors or shipping companies to assist with such vaccination plan, under the coordination by IMO as proposed by Singapore."

Statement by the delegation of the Philippines

"The Philippines appreciates the initiatives and responses made by the IMO since the early stages of the COVID-19 Pandemic, particularly the Secretary General's efforts to give importance and recognition to the critical roles of seafarers in the international supply chain. We particularly appreciate the designation of the seafarers as key workers and the establishment of the Seafarers Crisis Action Team (SCAT). Our appreciation also goes to government of Member States who have allowed and facilitated crew changes and provided medical services to seafarers when needed.

Chair, please allow us to share, briefly the current situation in the Philippines, in its efforts to ensure continuous flow of international trade and shipping operations through the facilitation of crew change and looking after the welfare of its seafarers.

As early as May 2020, the Philippine maritime administration has recognized Filipino seafarers as key workers and issued the Protocol of the Philippines on Crew Change and Repatriation. The Philippines implemented the "seafarers green lane" starting August of last year bringing together all departments of government to address the needs of seafarers during the pandemic, followed by the designation of several ports in the country as crew change hubs, facilitating a total of 235,492 Filipino seafarers from April 2020 to April 2021 and 2,965 foreign seafarers repatriated from September 2020 to April 2021. The designated crew change ports are highly accessible to global trade, has robust maritime services and fully equipped port facilities. These ports have served a total of 4,080 ships during the period September 2020 to April 2021.

The Philippines also allocated funds to assist seafarers to recover from the pandemic. A quarantine facility was established exclusively for seafarers and most importantly, the Filipino seafarers are now included in the priority list for COVID-19 Vaccination Programme, i.e. Priority A-4 or fourth in the priority list.

In view of these initiatives, the Philippines, therefore, supports the following proposals:

.1 the adoption of a resolution to set out the principles of a strategy for the vaccination of seafarers by France in document MSC 103/20/13,

.2 the proposal by Dominica for Member States to agree to a five-part commitment contained in document MSC 103/20/14; and

.3 proposals of Viet Nam in 16.1 of document MSC 103/20/16.

The other proposal of Viet Nam in 16.2 to include foreign seafarers and marine personnel calling their ports in the priority list is indeed a very good proposal and will ensure that seafarers are immediately given the vaccination even while onboard, however we have to consider this proposal with caution due to the varying Member States' situation, specifically on the level of supply and the type of vaccine available in the ports. We have to also consider the fact that almost all of the vaccines available now requires 2 doses, except for the Janssen vaccine.

We also share the views of France that vaccine passport may hinder movement of seafarers and may affect international shipping.

Finally, on document 102/WP.12, Madam Chair, we are already implementing OP1.1, Option 2 for our own seafarers and so we support Option 2. As regards OP1.3 we can support Option 2 although we can be flexible as regards both options. We also support your proposal in preambular paragraph 5."