



NEWS BRIEF
SDC 10





NEWS BRIEF: SDC 10

The IMO Sub-Committee on Ship Design and Construction (SDC) convened its 10th session between January 22-26, 2024. This brief provides an overview of a few significant issues progressed at this session.

KEY DEVELOPMENTS

- Review of the Guidelines for the Reduction of Underwater Noise
- Emergency Towing Equipment for Ships Other Than Tankers
- Alternative Design and Arrangements for SOLAS Chapter II-1 – Safety Objectives and Functional Requirements

ABS RESOURCES

- ABS Regulatory News ([link](#))
- ABS Class Notations Underwater Noise and External Airborne Noise ([link](#))
- ABS Sustainability Services: Ship Radiated Noise ([link](#))
- ABS Global Marine Services ([link](#))
- ABS My Digital Fleet™ ([link](#))
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- Amendments to the 2011 ESP Code – Remote Inspection Techniques
- Guidelines for Use of Fibre-Reinforced Plastics (FRP) Within Ship Structures
- Experience Gained in The Application of the Second-Generation Intact Stability Criteria



REDUCTION OF UNDERWATER NOISE FROM SHIPS

Review of the 2014 Guidelines for The Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life (MEPC.1/Circ.833) and Identification of Next Steps

In July 2023, MEPC 80 approved the *Revised Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life* (MEPC.1/Circ.906), as well as the *Guidelines for Underwater Radiated Noise Reduction in Inuit Nunaat and the Arctic* (MEPC.1/Circ.907). Member States and international organizations were encouraged to submit lessons learned and best practices in the implementation of the revised Guidelines by MEPC 85.

During MEPC 80, the updated plan for the continued work on underwater radiated noise (URN) was endorsed, extending the target completion year to 2024. It was also agreed to hold an expert workshop in September 2023 at the IMO headquarters to examine the connection between energy efficiency and URN. The findings and key takeaways from this workshop were subsequently submitted to the Sub-Committee for further consideration in the development of the URN draft action plan.

The Sub-Committee agreed to draft amendments to the Revised Guidelines (MEPC.1/Circ.906) adding the URN planning reference chart as a new appendix 4 in section 5. This chart is part of the URN Management Planning and aims to raise awareness and to visualize the URN management planning process. The goal is to have the amendments approved by MEPC 82 (October 2024) and circulated as MEPC.1/Circ.906/Rev.1.

Additionally, the Sub-Committee reviewed and finalized the draft action plan, which aims to further prevent and reduce URN from ships and provides a mechanism to identify specific outcomes and indicative actions. The Sub-Committee also recognized the importance of an experience-building phase (EBP) in identifying appropriate URN measurement methods. During the meeting, they also discussed the duration of it. Recognizing the possibility of needing a longer term EBP, the sub-committee decided to invite MEPC 81 to note that the three-year EBP stated in the draft action plan may need to be extended by up to two years. Until the EBP is completed, it was agreed that the Guidelines should not be further revised in order to allow sufficient time to gather valuable experience.

The Sub-Committee, noting the need for guiding the EBP, also prepared a draft guidance document that identifies key areas where Member States and other stakeholders should gather and submit experiences and data during the EBP. The key areas are as follows:

- URN Management Planning, including URN baselining, management plan development and target setting;
- Design and technical noise reduction approaches;
- Maintenance and operational approaches;
- Energy efficiency and URN reduction;
- Evaluation and monitoring;
- Incentivization; and
- Training and raising awareness.

The Sub-Committee determined that MEPC 81 would need to:

- Note the draft guidance document on the EBP and invite interested Member States and international organizations to follow the guidance document when gathering, preparing and sharing experiences, data and research during the EBP, and
- Endorse the draft action plan as an urgent matter and include it in the agenda for MEPC 82 to address the various action items, as appropriate.

Next Steps: The subject will advance at the subsequent sessions of MEPC with a view to approving the revised guidelines MEPC.1/Circ.906 by MEPC 82 (December 2024).



SOLAS DEVELOPMENTS

Draft Guidelines for Emergency Towing Arrangements for Ships Other Than Tankers

During MSC 107, draft amendments to SOLAS regulation II-1/3-4 were approved. These amendments introduce new requirements for all new ships other than tankers of not less than 20,000 GT to be fitted with emergency towing arrangements (ETA). The adoption of these amendments is expected to take place at MSC 108 in May 2024, with an anticipated entry into force on January 1, 2028. To support these amendments, the International Maritime Organization (IMO) has agreed to develop comprehensive guidelines and tasked the Sub-Committee with creating a completely new set of guidelines for ETAs on new ships other than tankers. Consequently, the *Revised Guidance on Shipboard Towing and Mooring Equipment* (MSC.1/Circ.1175/Rev.1) will also need to be amended. The focus of this development for ETAs will be time required for deployment, accommodating flexibility in design and strength requirements.

Considering the strength criteria, it was agreed that comprehensive data would be required to develop an experience-based strength parameter that is also suitable for modern large ships other than tankers. Consequently, further identification of amendments at this session were suspended, pending the finalization of the strength requirements for ETAs on ships other than tankers.

The Sub-Committee recognized the progress made in developing the draft guidelines for emergency towing arrangements on ships other than tankers and noted that the *Guidelines for Owners/Operators on Preparing Emergency Towing Procedures* (MSC.1/Circ.1255) might also need to be reviewed regarding the procedural aspect because of the new requirement. Also, it agreed on the establishment of an intersessional correspondence group and invited interested Member States and international organizations to submit more information including data that might contribute to the determination of the strength requirements in the next session.

Next Steps: An intersessional correspondence group will progress the work and more information, including data that might contribute to the determination of the strength requirements, is expected to be submitted to SDC 11 (January 2025).

Guidelines on Alternative Design and Arrangements for SOLAS Chapter II-1

The Sub-Committee made progress on the revision and finalization of the *Safety Objectives and Functional Requirements for SOLAS Chapter II-1*, which pertains to machinery installations (part C), electrical installations (part D) and additional requirements for periodically unattended machinery spaces (part E). The progress made includes the endorsement of draft amendments to the *Revised Guidelines on Alternative Design and Arrangements for SOLAS Chapters II-1 and III* (MSC.1/Circ.1212/Rev.1) which will be circulated as MSC.1/Circ.1212/Rev.2.

The revised guidelines on alternative design and arrangements will apply to all SOLAS passenger ships and cargo ships that require agreement for an alternative design arrangement under SOLAS II-1, Part F, Regulation 55. These Guidelines are focused on the technical aspects of alternative design and arrangements and do not cover the type of approval of individual materials, components, or portable equipment.

Next Steps: The draft amendments will be presented to MSC 108 (May 2024) for further consideration and approval and dissemination as per MSC.1/Circ.1212/Rev.2.

Revision of SOLAS Chapters II-1 (part C) and V, and Related Instruments Regarding Steering and Propulsion Requirements, to Address Both Traditional and Non-Traditional Propulsion and Steering Systems

The current SOLAS regulations adequately address steering gear arrangements that have a traditional propulsion system and a rudder-type steering system. However, the Convention does not adequately provide for modern combined propulsion/steering systems such as azimuth thrusters, podded propulsors, waterjets and cycloidal propellers. Therefore, a comprehensive review of the regulatory framework is necessary to ensure it accurately addresses modern propulsion and steering systems. As part of this effort, the Sub-Committee made progress in the preparation of draft amendments to SOLAS Regulation II-1/28 regarding requirements on capability of ships to go astern and stop.



Future developments in this area may include potential amendments to various sections of SOLAS, as well as resolutions and circulars. These include:

- Draft amendments to SOLAS Regulations II-1/3 and 28 to 30, and V/25 and 26
- Possible revocation of Resolutions A.415(XI), A.416(XI), MSC.1/Circ.1398 and MSC.1/Circ.1416/Rev.1
- Guidelines for acceptance on non-duplicated rudder actuators for tankers, chemical tankers and gas carriers of 10,000 GT and above but less than 100,000 tonnes deadweight (Resolution A.467(XII))
- Recommendation on the provision and the display of maneuvering information on board ships (Resolution A.601(15))
- Standards for ship maneuverability (Resolution MSC.137(76))
- Unified interpretations of SOLAS Regulations II-1/29.3 and II-1/29.4 (MSC.1/Circ.1536)
- Explanatory Notes to the standards for ship maneuverability (MSC/Circ.1053)

Next Steps: The work will continue to progress with the aim of being finalized at SDC 11 (January 2025).

Draft Amendments to the Guidelines for Construction, Installation, Maintenance, and Inspection/Survey of Means of Embarkation and Disembarkation (MSC.1/Circ.1331) Concerning the Rigging of Safety Netting on Accommodation Ladders and Gangways

The Sub-Committee endorsed amendments to the *Guidelines for Construction, Installation, Maintenance and Inspection/Survey of Means of Embarkation and Disembarkation* (MSC.1/Circ.1331), addressing safety netting on accommodation ladders and gangways.

Manufacturers will need to review the design of accommodation ladders to meet recognized standards. The application of this requirement will depend on either the ship's construction date or the installation date of the accommodation ladder or gangway. If approved by MSC 108 (May 2024), these amendments will apply for:

- a. Ships, for which the building contract is placed on or after 1 July 2026, or in the absence of the contract, the keels which are laid or are at a similar stage of construction on or after 1 July 2026, any installation date on the ship; or
- b. Ships, other than those prescribed in (a) above, a contractual delivery date for the equipment or, in the absence of a contractual delivery date, the actual delivery date of the equipment to the ship on or after 1 July 2026.

Accommodation ladders and gangways:
for means of embarkation and disembarkation which are installed on or after 1 July 2026 should meet applicable international standards such as *Shipbuilding-Accommodation Ladders* (ISO 5488:2015), *Shipbuilding-Aluminium Shore Gangways for Seagoing Vessels* (ISO 7061:2015) and/or national standards and/or other requirements recognized by the Administration.

Accommodation ladder winches:
their construction and testing should be in accordance with applicable international standards such as *Shipbuilding and Marine Structures – Deck Machinery – Accommodation Ladder Winches* (ISO 7364:2016).

Several amendments were also agreed to enhance crew safety. These include:

- Defining "safety net" as a net rigged between the ship's side and the means of embarkation or disembarkation to prevent falls into the water or onto the quayside.
- When rigging the accommodation ladder, gangway and safety net, the crew should have sufficient personal safety protection, wearing life jackets and safety harnesses.
- The safety net and/or side net should be properly stored, checked and maintained regularly, and replaced if necessary.
- Adequate mitigation of the hazard of falling through the sides of the means of embarkation or disembarkation is achieved by having a rigid top railing and a rigged side net between the railing and the base of the accommodation ladder or gangway.

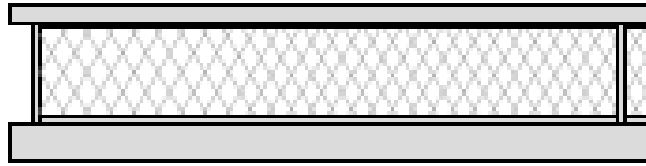


Figure 1 Side net between rigid top railing and base of ladder.

Next Steps: The draft amendments will be presented to MSC 108 (May 2024) for further consideration and approval.

PASSENGER SHIP SYSTEMS' CAPABILITIES AFTER A FIRE OR FLOODING CASUALTY

Revision of the Interim Explanatory Notes for the Assessment of Passenger Ship Systems' Capabilities After a Fire or Flooding Casualty (MSC.1/Circ.1369) and Related Circulars

MSC 102 considered a proposal to revise the *Interim Explanatory Notes for the Assessment of Passenger Ship Systems' Capabilities After a Fire or Flooding Casualty* (MSC.1/Circ.1369) and the related circulars to reflect the technology developments, alternative fuels and industry experience since the initial adoption of MSC.1/Circ.1369. To this scope, the Sub-Committee continued discussions on the review of MSC.1/Circ.1369 (EN) in light of the experience gained since the entry into force of SOLAS Regulations II-2/21 and II-2/22 on safe return to port, the application of the Explanatory Notes and the available industry standards.

The structure and draft amendments of MSC.1/Circ.1369 and its appendix 1 were considered. The proposed changes include:

- Amending the title of MSC.1/Circ.1369 to include safe return to port and orderly evacuation.
- Expanding the scope to include design and operational aspects.
- Restructuring the document to follow a goal-based standard approach.

Taking into account that some of the new elements being considered for inclusion, particularly those related to operational aspects, may be applicable to both new and existing ships, the amended circular will specify which sections would apply to new and/or existing ships.

As more information on the use of alternative fuels and technologies is needed, the Sub-Committee re-established the Correspondence Group on Revision of the Interim Explanatory Notes (MSC.1/Circ.1369). The work of the group should at least consider LNG as fuel, for which a regulatory framework is available. Also, it was noted that the safe return to port as a concept does not depend on which fuel is used and should not depend on the technology used.

Next Steps: Discussions on this subject will continue in an intersessional correspondence group and at SDC 11 (January 2025).

AMENDMENT TO THE 1988 LOAD LINE PROTOCOL

Amendment to the Regulation 25 of the 1988 Load Line Protocol Regarding the Requirement for Setting of Guard Rails on the Deck Structure

With regard to the requirement for setting of guard rails on the deck structure, the Sub-Committee endorsed draft amendments to regulation 25 of the 1988 Load Line Protocol with respect to the arrangements of guardrails, chains and bulwarks on exposed decks which are accessible to the crew during navigation. The proposed amendments require that all guardrails or bulwarks on exposed decks, which crew members can access while navigating, adhere to the standards applicable to those on exposed superstructure or freeboard decks. These standards specify the following requirements:

- A minimum of three courses for the guardrails or bulwarks.
- The opening below the lowest course should not exceed 230 mm.
- The other courses should not exceed 380 mm.

The draft amendments are intended to be applicable solely to new ships.



Figure 2 Guardrails with two courses on the open part of deck structure (SDC 10/11).

Next Steps: The draft amendments will be presented to MSC 108 (May 2024) with a view for approval and subsequent adoption by MSC 109 (December 2024).

UNIFIED INTERPRETATIONS TO PROVISIONS OF IMO SAFETY, SECURITY AND ENVIRONMENT-RELATED CONVENTIONS

Draft Amendments to the Unified Interpretations of the Code on Noise Levels on Board Ships (Resolution MSC.337(91))

The Sub-Committee agreed to draft amendments to the unified interpretation of section 2 of the *Code on Noise Levels on Board Ships* (Resolution MSC.337(91)), with a view to providing more specific guidance on calibration for sound level meters and calibrators.

Next Steps: The draft amendments will be presented to MSC 108 (May 2024) with a view for approval.

Draft Revised Unified Interpretation of the Performance Standards for Water Level Detectors on Bulk Carriers and Single Hold Cargo Ships Other Than Bulk Carriers

The Sub-Committee agreed to the revised draft of the *Unified Interpretation 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.1/Circ.1572/Rev.1). The revisions state that water level detectors in cargo areas should be suitable for installation in hazardous areas as defined by IEC 60092-506. They should also be designed to handle explosive gas atmospheres and/or combustible dust that may be present. If the specific gases and dust are unknown, the detectors should adhere to temperature class T6, gas group IIC and/or dust group IIIC, as applicable. Additionally, water level detectors in cargo areas should be manufactured, tested, marked and installed in compliance with the IEC 60079 series or an equivalent international standard.

Next Steps: The revised draft unified interpretation will be presented to MSC 108 (May 2024) for approval as MSC.1/Circ.1572/Rev.2.



Revised Interpretation of SOLAS Regulation II-1/3-6 to Ensure Safe Means of Access to Cargo and Other Spaces

The Sub-Committee agreed to the draft Unified Interpretation of SOLAS regulation II-1/3-6 to ensure safe means of access to cargo and other spaces, aiming to improve the uniform implementation regarding the interval of inspections of means of access (to be carried out by the crew or competent inspectors), after a near miss incident and subsequent research into the matter

Next Steps: The draft revised unified interpretation will be presented to MSC 108 (May 2024) for approval as MSC.1/Circ.1572/Rev.2.

Draft Unified Interpretation on the Harmonization of The Industrial Personnel Safety Certificate with SOLAS Safety Certificates

At MSC 106 (November 2022), a new SOLAS *Chapter XV* (Resolution MSC.521(106)) and a new *International Code of Safety for Ships Carrying Industrial Personnel (the IP Code)* (Resolution MSC.527(106)) were adopted. These measures establish safety requirements for the transportation of more than 12 industrial personnel on cargo ships and high-speed cargo craft with a gross tonnage of 500 and above. The amendments to SOLAS and the IP Code will come into effect on 1 July 2024.

Concerns have been raised regarding the harmonization of the Industrial Personnel Safety Certificate with various SOLAS safety certificates when there are differences in validity or endorsement. Consequently, the Sub-Committee has agreed on a drafting a new unified interpretation. This interpretation aims to provide clarity on how to harmonize the Industrial Personnel Safety Certificate with various SOLAS safety certificates in cases where their validity or endorsement differs.

1. SHIPS UNDER HARMONIZED SYSTEM OF SURVEY AND CERTIFICATION (HSSC) SCHEME

Type of ship	Initial survey for issuance of the Industrial Personnel Safety Certificate	Surveys for the maintenance of the Industrial Personnel Safety Certificate
Cargo ship	First Safety Construction intermediate survey or renewal survey, as required by SOLAS regulation I/10 for whichever occurs first after 1 July 2024.	a) Aligned with maintenance survey (annual or intermediate) related to the Cargo Ship Safety Certificate. The Industrial Personnel Safety Certificate should be endorsed upon satisfactory results of the maintenance survey related to the IP Code and Cargo Ship Safety; or b) Aligned with maintenance survey (annual or intermediate) related to the Cargo Ship Safety Construction Certificate. The Industrial Personnel Safety Certificate should be endorsed upon satisfactory results of the maintenance survey (annual or intermediate) related to the IP Code and Safety Construction, provided that valid Cargo Ship Safety Equipment Certificate is held by a ship.
High-speed cargo craft	The third periodical or first renewal survey, as required by the 2000 HSC Code, paragraph 1.5 for whichever occurs first after 1 July 2024.	Aligned with periodical survey related to the High-Speed Craft Safety Certificate. The Industrial Personnel Safety Certificate should be endorsed upon satisfactory results of the periodical survey related to the IP Code and High-Speed Craft Safety.



2. SHIPS NOT UNDER THE HSSC SCHEME

Type of ship	Initial survey for issuance of the Industrial Personnel Safety Certificate	Surveys for the maintenance of the Industrial Personnel Safety Certificate
Cargo ship	First Safety Construction renewal survey as required by SOLAS regulation I/10, which occurs after 1 July 2024 but, in any case, not later than 30 September 2027.	Aligned with maintenance survey (annual or intermediate) related to the Cargo Ship Safety Construction Certificate. The Industrial Personnel Safety Certificate should be endorsed upon satisfactory results of maintenance survey (annual or intermediate) related to the IP Code and Safety Construction, provided that valid Cargo Ship Safety Equipment Certificate is held by a ship.
High-speed cargo craft	The third periodical or first renewal survey, as required by the 2000 HSC Code, paragraph 1.5, whichever occurs first after 1 July 2024.	Aligned with periodical survey related to the High-Speed Craft Safety Certificate. The Industrial Personnel Safety Certificate should be endorsed upon satisfactory results of the periodical survey related to the IP Code and High-Speed Craft Safety.

Next Steps: The Sub-Committee will present the draft unified interpretation to MSC 108 (May 2024) for approval.

Steering Gear Spaces to Be Regarded As "Safe Position" Under the Means of Escape from Machinery Spaces (SOLAS Regulations II-2/9 and 13)

The Sub-Committee considered revisions to MSC.1/Circ.1511, which provides *Unified Interpretations of SOLAS Regulations II-2/9 and II-2/13*. The revisions' objective is to provide clarity on the term "safe position" in relation to escape routes from machinery spaces. The updated draft UIs of SOLAS Regulations II-2/9 and II-2/13 aim to clarify the definition of "safe position" to include the steering gear room, where hydraulic oils for steering gear equipment are typically stored, as well as special category areas.

Next Steps: The Sub-Committee will present the draft unified interpretation to MSC 108 (May 2024) for approval.

OTHER DEVELOPMENTS

Further Development of the IP Code and Associated Guidance

The Sub-Committee has decided to continue its work on the development of the International Code of Safety for Ships Carrying Industrial Personnel (IP Code). This includes addressing unresolved issues such as the interaction between the IP Code and the Special Purpose Ships (SPS) Codes, incorporating provisions for passenger ships and establishing provisions for high-speed craft carrying industrial personnel. The Sub-Committee has not received any new proposals or amendments for the IP Code during this session, so it has agreed to request submissions on the matter for the next session, SDC 11, which will take place in January 2025.

Next Steps: The Sub-Committee invited for relevant submissions to SDC 11 (January 2025).

Amendments to the 2011 ESP Code – Remote Inspection Techniques

The Sub-Committee discussed a proposal to allow the use of remote inspection techniques (RITs) for close-up surveys of ship structures under the 2011 ESP Code. After careful consideration, the Sub-Committee agreed in principle to incorporate RITs for close-up inspections. However, it was noted that the use of RITs should not be limited to specific types of vessels, such as bulk carriers and oil tankers, under the ESP Code. Moreover, considering the lack of technical requirements (i.e. efficient high-resolution camera) and oversight, further work is deemed necessary.



To address this matter, the Sub-Committee agreed to establish a Correspondence Group on Amendments to the ESP Code. This group will be responsible for preparing and finalizing draft amendments to the ESP Code, as well as draft guidelines for the use of remote inspection techniques during surveys. The group will also identify provisions that promote a holistic approach to this issue.

Next Steps: Discussions on this subject will continue in a correspondence group and at SDC 11 (January 2025).

Guidelines for Use of Fibre-Reinforced Plastics (FRP) Within Ship Structures

In 2018, MSC 99 adopted the *Interim Guidelines for Use of Fibre Reinforced Plastic (FRP) Elements Within Ship Structures: Fire Safety Issues* (MSC.1/Circ.1574). These guidelines were set to be revised to incorporate any necessary amendments based on experience. In 2023, SDC 9 acknowledged the need to address concerns related to the use of FRP, particularly regarding recycling and fire safety.

The Sub-Committee recognized that the existing limitations of the Interim Guidelines are hindering the broader adoption of lightweight structures in ship construction. The potential conflict between SOLAS Regulation II-2/11 and the updated FRP Guidelines, which allow for the use of FRP in structures, was also addressed. As a result, the Sub-Committee agreed to establish an intersessional correspondence group to conduct a thorough review of the Interim Guidelines for the use of FRP. The group will also consider whether other IMO instruments, such as SOLAS and the FTP Code, should be amended to support and enable the use of FRP.

Next Steps: The work on the review of the Interim Guidelines will continue intersessionally, and the progress made will be presented at the next SDC 11 (January 2025).

Experience Gained in The Application of the Second-Generation Intact Stability Criteria

After an investigation into the container loss of the containership *MV Maersk Essen* (DMAIB report (2022) "Marine accident report on Maersk Essen's loss of cargo on 16 January 2021") concerns have been raised regarding how the new *Interim Guidelines on The Second Generation Intact Stability Criteria* (MSC.1/Circ.1627) will affect containerships in operation today, and whether the measures will improve safety in practice.

The investigation included calculations to assess whether the *MV Maersk Essen* would have met the parametric rolling criteria outlined in section 2.5 of the Interim Guidelines at the time of the accident. Two calculations were performed: one using a 1 degree of freedom (DOF) solver and another using a 6-DOF non-linear panel method. The 6 DOF non-linear methods produced reliable results but required more computational effort and were categorized as Level 3 calculations.

The investigation of the *MV Maersk Essen* incident revealed that the vessel had high inherent stability without any deck cargo, and its stability improved as deck cargo was reduced. This finding suggests that large containerships are unlikely to be lost due to parametric roll, as described in MSC.1/Circ.1627, without first losing a significant amount of deck cargo. The loss of deck cargo would lead to a sudden improvement in the vessel's stability, preventing further losses or the loss of the entire vessel. Considering the above findings, the Sub-Committee discussed the need for a comprehensive review of MSC.1/Circ.1627 to evaluate the accuracy of parametric roll calculations, particularly for Level 2 C2. However, the Sub-Committee concluded that it was premature to revise the Interim Guidelines and that more data and practical experience in their application were required. In this context, the Sub-Committee reiterated the request for Member States and international organizations to submit reports and studies on the matter to future sessions.

Next Steps: The Sub-Committee invited Member States and international organizations to submit reports and studies on the matter to SDC 11 (January 2025).



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