

SUB-COMMITTEE ON NAVIGATION,  
COMMUNICATIONS AND SEARCH AND  
RESCUE  
3rd session  
Agenda item 10

NCSR 3/10  
21 December 2015  
Original: ENGLISH

**REVISED GUIDELINES AND CRITERIA FOR SHIP REPORTING SYSTEMS  
(RESOLUTION MSC.43(64))**

**Use of a testbed to prove technology for the Revised guidelines and  
criteria for ship reporting systems (resolution MSC.43(64))**

**Submitted by Brazil, Norway, Singapore, CLIA and Intermanager**

**SUMMARY**

<i>Executive summary:</i>	This document describes a proposal for using a testbed to support the revision of the Guidelines and criteria for ship reporting systems (resolution MSC.43(64))
<i>Strategic direction:</i>	5.2
<i>High-level action:</i>	5.2.6
<i>Output:</i>	5.2.6.3
<i>Action to be taken:</i>	Paragraph 34
<i>Related documents:</i>	SOLAS regulation V/11; resolutions MSC.43(64), MSC.111(73) and MSC.189(79); MSC 95/22

**Background**

1 MSC 95 approved five of the six proposed outputs related to the implementation of e-navigation. In particular, it agreed to solution 2, the revision of the Guidelines and criteria for ship reporting systems (resolution MSC.43(64), as amended).

2 MSC 95 considered document MSC 95/19/8, annex 3, proposing to revise the *Guidelines and criteria for ship reporting systems* (resolution MSC.43(64), as amended by resolution MSC.111(73)), relating to standardized and harmonized electronic ship reporting and automated collection of onboard data for reporting. The Committee agreed to include, in the 2016-2017 biennial agenda of the NCSR Sub-Committee and the provisional agenda for NCSR 3, an output on "Revised Guidelines and criteria for ship reporting systems (resolution MSC.43(64))", with a target completion year of 2017.

**Discussion**

3 Resolution MSC.43(64) is based on SOLAS regulation V/11.

4 Although the regulation refers to safety of life at sea, safety and efficiency of navigation and/or protection of the marine environment, the resolution states that other supplementary information may also be requested in the initial report if justified to ensure the effective operation of the ship.

5 This information may include the intended movement of the ship through the area covered by the reporting system and any defects or, otherwise, as well as the general categories of any hazardous cargoes on board (resolution MSC.43(64), annex, paragraph 2.2.1.4).

6 In order to reduce paperwork and to harmonize existing reporting schemes, a new electronic system of reporting is envisaged, using data communication via existing and new systems, which delivers the ship information in a secure manner to the national competent authority at the port of arrival. The e-navigation strategy (MSC 85/26/Add.1, annex 20, paragraph 61.4.2) states that automated and standardized reporting procedures will lead to reduced administrative overheads.

7 This electronic system should use existing pre-agreed protocols to transmit digital pre-arrival information (such as information outlined in the FAL forms) and other regional/national requirements as defined in SOLAS regulation V/11.6 for ship reporting systems. This will ensure harmonized message types for all ship reporting systems.

8 Using such a reporting system will support just-in-time operations for the port as well as enabling once-only pre-arrival information to the national competent authority, the so-called "single window" solution.

9 As the update of the guidelines was agreed as a prioritized output, it is being further developed by Norway as proposed in document MSC 94/18/10, paragraph 9.

**Current situation**

10 There is an administrative burden on ship's masters to participate in different Ship Reporting Systems (SRSs) and to transmit pre-arrival information. Different procedures, data formats, documentary requirements and formalities exist, depending on the country, ship reporting system or port of destination. One of the main concerns is that the ship has to communicate in different manners through different systems, with often similar information, based on requirements of individual organizations.

11 Information required to be transmitted as part of a mandatory SRS is generally transmitted to the VTS centre, or to the national competent authority, via VHF voice communication. Some SRSs accept also reports via AIS, internet-based reporting systems, email, fax, satellite, mobile phone, or a combination of these communication means. The ship reporting information usually consists of: name of the ship, call sign, IMO identification number and MMSI number; date and time of the transmission; position of the ship, course and speed; destination and ETA; maximum draught; hazardous cargo, class and quantity; brief details of defects or restrictions in manoeuvrability; contact information (shipowner and representative); number of persons on board; miscellaneous information, etc.

12 Pre-arrival information is usually kept on board the ship and is transmitted to the ship Agent and/or to different port authorities (e.g. immigration, police, harbour master, etc.) at specific times (e.g. 24h, 48h, 72h, 96h before arrival) using specific formats required by the port of destination and available communication systems (e.g. email over Inmarsat). The pre-arrival information may consist of ship particulars, arrival notice, crew and passenger lists, crew and passenger effects declarations, stores list, IMDG information, waste declaration, different ship's certificates, ports of call list, dangerous cargo declarations and manifests, vaccination list, narcotic list, ship's money declaration, etc.

13 Some countries have already implemented, or are in the process of implementing, maritime single window solutions for pre-arrival ship reporting, individually or on a regional basis. Others still require the information to be transmitted separately to different shore-based stakeholders. It is expected that in the near future electronic documentation and certificates will become broadly accepted.

### **The testbed**

14 Currently, voice communication, such as over VHF radio, is the most common method of ship reporting. This is prone to errors in communicating information which is inefficient. In order to make the transmission of ship reporting information more effective, a testbed will be developed. This testbed should investigate the benefits of communications systems for e-navigation (MSC 94/21, paragraph 9.15, which refers to NCSR 1/28, annex 7, paragraphs 29 to 39, identification of communications systems for e-navigation).

15 As part of the work of the IMO Ad Hoc Steering Group on Reducing Administrative Requirements in mandatory instruments (MSC 95/22, paragraphs 21.19 and 21.20), particularly on SOLAS regulation V/11.7 (Ship reporting systems), the Group recommended that periodical reviews are needed for adopted mandatory ship reporting systems in view of developments such as AIS and LRIT. Stakeholders have also commented that reporting systems should be automatic and recommend that a single uniform reporting format is used for all ship reporting to authorities.

16 The e-navigation gap analysis indicated that automating ship reporting would free up a considerable amount of time for the bridge team, allowing them to focus on their most important task, namely navigating the ship. The intention is to develop solutions to send specific reports. At this time, the number and types of reports have yet to be agreed, but the plan is to perform this automated reporting through a single window solution.

17 The proposed testbed project will demonstrate the transfer of data between the shore systems of national competent authorities and between a ship reporting system and a shore system. The outcome of this testbed is to prove that the proposed operation concept and technologies could be used as the basis for revising the guidelines and criteria for ship reporting systems.

### **Testbed objectives**

18 The proposed testbed will be carried out in 2016. The main goal of the testbed is to facilitate automated and standardized ship reporting. The testbed will focus specifically on the transmission of ship reporting information and pre-arrival information to the relevant national competent authorities representing the port State. The purpose should be to demonstrate a way forward to:

- .1 simplify the technical ship reporting means so that the ship will only have to relate to a common interface and one standard format or protocol in order to archive a standard point of communication for the ship;

- .2 reduce the administrative burden on board the ship and ashore in respect to ship reporting requirements and achieve harmonization with focus on safety;
- .3 reduce the cost of communications related to ship reporting and transmission of pre-arrival information;
- .4 provide timely access to information to relevant stakeholders in a secure manner;
- .5 promote data harmonization at international level; and
- .6 ensure security, accuracy and authentication of the information, including which stakeholders have access to the data.

19 The e-navigation testbed project should respect the "reporting once" and single point for reporting or "single window" principle, meet the international and national reporting obligations, comply with the international formats, protocols and exchange, maintain security, and pursue minimal impacts on legacy system(s) and solution(s) including those of developing countries, and be consistent with already existing regulations, including the respect to freedom of navigation.

20 The testbed should include considerations of how to protect data. Means should be available to ensure that ships data can only be accessed by the correct authority. It should also ensure that the data is protected from cyberattacks and stored in a safe way, and that it cannot be changed during transmission.

21 The setting up of a testbed will be planned to demonstrate the exchange of the information reported by a ship departing from Norway and heading for three destinations: a port in EU, a port in Brazil and a port in Singapore.

22 The testbed should also focus on how regional/national reporting systems can exchange information between each other and, as a second step, to explore interoperable solutions, preferably using the IHO-S100 data standard framework or an XML based solution, taking into account EDIFACT-based systems.

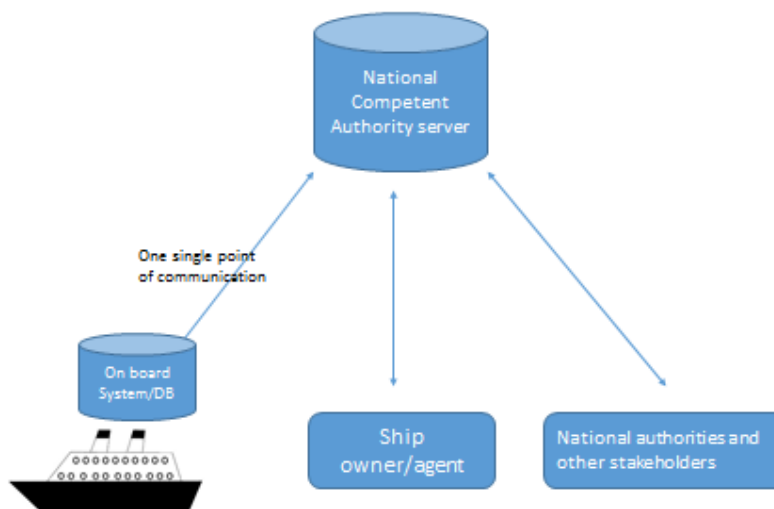
23 The outcome of the testbed should lead to an understanding of how the existing Guidelines and criteria for ship reporting systems could be revised.

### **Testbed definition**

24 The testbed is planned to be conducted in three parts, as follows:

- .1 exchange of information of regional/national reporting systems between each other shore to shore;
- .2 mandatory ship reporting system: automated ship reporting from a ship transiting through a SRS area (using the same automated system as ships presently transiting the mandatory SRS "In the Barents Area" (Barents SRS) and reporting to the Vardo VTS Centre); and
- .3 transmission of pre-arrival information: the exchange of digital pre-arrival information reported by a ship heading for three destinations: a port in EU, a port in Brazil and a port in Singapore (using existing single window solutions provided by parties to the trial).

25 For the purpose of the testbed, the transmission of pre-arrival information is limited to information required to be reported under the mandatory ship reporting system, the ISPS Code and crew/passenger information.



**Figure 1 - Exchange of information of regional/national reporting systems between each other shore to shore**

### Description of the testbed

26 As a general concept, ship's information is stored and updated on board the ship and, when necessary, transmitted to the national competent authority at the port of destination.

27 The information can be updated at any time by the shipmaster, owner, agent or any authorized person. The system/database on board the ship is, when necessary, kept synchronized with the database hosted by the national competent authority ashore.

28 Administrations can also access the information from the database ashore at any time.

29 The database held ashore by the national competent authority (single window solution) should host the following information:

- .1 ship related information (i.e. ship's particulars, crew, cargo, contact details, etc. of a ship);
- .2 information related to mandatory ship reporting systems (i.e. information required to be transmitted, where (geographic location), when, etc.); and
- .3 information related to transmission of pre-arrival information (i.e. information required to be transmitted, when (96h, 72h, 48h, 24h in advance)).

30 The onboard system/data base should be connected to relevant equipment, such as AIS, and should collect available data in an automatic manner. Other information may be updated by the shipmaster in accordance with the SRS and/or the port's pre-arrival information requirements.

31 The onboard system should continuously check requirements for transmission of information as the ship navigates, taking into account the navigation plan, and should raise an alarm when information is required to be transmitted. Upon notification, the shipmaster should:

- .1 check the requirement and update any additional necessary information; and
- .2 transmit the relevant ship report to the server hosted by the national competent authority at the port of destination. The national single window will forward the information to the relevant authority (e.g. VTS centre, port, other authorities).

32 During the use of the testbed, to facilitate the secure exchange of information between the database held by the national competent authority ashore and other relevant authorities (port/coastal), the testbed will use existing communications networks suitable for e-navigation (see paragraph 14).

33 The costs of the testbed project will be borne by the participating countries.

#### **Action requested of the Sub-Committee**

34 The Sub-Committee is invited to note the information contained in this document and provide comments and guidance, as appropriate, so as to take it into account during the development of the testbed on ship reporting.