INTERNATIONAL MARITIME ORGANIZATION

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111th session
Agenda item 10

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**FORMAL SAFETY ASSESSMENT**

**Proposals for increasing the visibility of Formal Safety Assessment at IMO**

**Submitted by IACS**


**SUMMARY**

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| *Executive summary:* | The document summarizes the various applications of Formal Safety Assessment (FSA) for rule-making at IMO over the past three decades. It also enumerates FSA reports submitted to IMO to date and makes proposals to further increase its visibility. |
| *Strategic direction, if applicable:* | 2 |
| *Output:* | 2.21 |
| *Action to be taken:* | Paragraph 8 |
| *Related documents:* | MSC 62/24/3 (and its Corr.1); MSC 95/6/2; MSC 96/INF.6; MSC 101/17; MSC 110/INF.15 and SLF 55/INF.9 |


## Introduction

1 Formal Safety Assessment (FSA) has proven to be a rational, systematic and useful tool for rule-making at IMO. IACS recalls that the FSA journey at IMO initiated in 1993, when the United Kingdom submitted document MSC 62/24/3 (and its Corr.1) highlighting the concept of Formal Safety Assessment and its utility for possible application to addressing safety in the maritime industry. In 2002, the Committee and MEPC approved *Guidelines for Formal Safety Assessment (FSA) for use in the IMO rule-making process* (MSC/Circ.1023 - MEPC/Circ.392). Subsequently, these FSA Guidelines have been revised on several occasions drawing from the experience gained during their application; the latest revision was approved by MSC 109 and MEPC 83 concurrently (MSC-MEPC.2/Circ.12/Rev.3).

2 Since then, FSA has proven to be a useful tool at IMO for developing regulations which target complex safety issues. IACS recalls that relevant recommendations from FSA studies (from several submitters) in the 2000s have been instrumental in improving the safety of bulk carriers. Documents MSC 96/INF.6 (France and Germany) and MSC 110/INF.15 (France et al.) demonstrate how the recommendations from those FSA studies resulted in reduction of the risk, as had been envisaged thereby. More recent examples of how FSA supported IMO in a transparent and economically justified calibration of measures addressing shipping safety are FSA studies on the damage stability of passenger ships (MSC 95/6/2 (Austria et al.)) and document SLF 55/INF.9 (Denmark and United Kingdom) and on fire safety of ro-ro passenger ships (MSC 101/17 (Austria et al.)).

3 Recently, recommendations from the FIRESAFE and CARGOSAFE FSA studies were considered for amendments to SOLAS and related instruments with a view to improving fire safety onboard ro-ro passenger ships and containerships, respectively. A list of FSA studies submitted to IMO's various committee and sub-committee meetings is provided in the annex.

**Need to collate FSA studies submitted to IMO centrally for easy accessibility**

4 IACS observes that ,to date, more than 15 FSA studies have been submitted to IMO. The studies are available to users on the respective webpages of meetings of the committee or sub-committee to which they were submitted. According to IACS's understanding , there is only one known location on the IMODOCS portal where FSA is referenced (*IMODOCS >> Meeting Documents >> MSC >>* FSA-EG *or FSA EG Reports*). However, not all FSA studies submitted to IMO are available on webpages of the Committee; they are distributed across different sessions of the committee or sub-committees. The above locations on the IMODOCS portal only contain the reports of FSA Experts Groups established by the Committee to review the submitted FSA studies.

5 IACS is of the opinion that it would be useful to collect all documents containing the actual FSA studies which were submitted to IMO at a single location so that they can be readily accessed by users. In this way, IMO can encourage all interested parties to become more aware of the FSA process for the development of regulations, learn how to conduct such studies and benefit from their review. This may also aid the conduct of future FSA studies by increasing awareness regarding past studies already performed on a topic. Further, this may also help to reduce the effort by making use of available risk models, as presented in such studies and which have also been reviewed by the IMO FSA Experts Group.

6 IACS understands that some of the reports of FSA studies are accessible through a hyperlink provided in the respective submissions. However, such hyperlinks may expire after several years as a result of external website updates where such documents are hosted/published.

**Proposal**

7 IACS proposes that all FSA studies submitted to IMO to date, as well as those that may be submitted to future sessions of the Committee or MEPC, be archived at a central location on IMODOCS for easy reference. This also includes reports/documents mentioned in paragraph 6. A list of FSA studies which may be archived is provided in the annex. It is recognized that discussions with the IMO Secretariat on ways to achieve the objective would be necessary, and IACS confirms its support to engage with the Secretariat in this regard.

**Action requested of the Committee**

8 The Committee is invited to note the information and consider the proposal in paragraph 7, and to take action as appropriate.

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**ANNEX**

**LIST OF FSA STUDIES SUBMITTED TO IMO TO DATE**

| Sr.No | FSA Study | Document Reference | Submitter | Topic addressed by the Study |
|---|---|---|---|---|
| 1 | CARGOSAFE[1] | MSC 107/10 | Austria et al. | Fires on Containerships Cargo Area |
| 2 | FIRESAFE[1] | MSC 101/17 | European Commission | Fires in Ro-Ro spaces of Passenger Ships |
| 3 | Low Flashpoint Fuels | CCC 6/INF.6 | Germany | Safety of use of low flashpoint fuels |
| 4 | Electric Mobility on RoRo/RoPax vessels | MSC 96/16/1<br>MSC 96/INF.3 | Austria et al., Germany | Electric Mobility on Ro-Ro and RoPAX Ships |
| 5 | EMSA III[1,2] | SDC 3/INF.3 | European Commission | Survivability of passenger ships |
| 6 | GOALDS[1] | MSC 92/6/6, SLF 55/INF.6,<br>SLF 55/INF.7,<br>SLF 55/INF.8 and<br>SLF 55/INF.9 | Austria et al. | Goal-based damage stability for passenger ships<br>Note: These were no formal FSA reports, nevertheless a limited evaluation of these studies was performed by the IMO FSA Experts Group |
| 7 | Dangerous Goods | DSC 16/6<br>DSC 16/INF.2 | Germany | Safe Sea Transport of Dangerous Goods which react dangerously with Water and/or Carbon Dioxide |
| 8 | Container Ships | FP 54/15, FP 54/INF.2 | Germany | Fire within a Container on Deck |
| 9 | Open Top Containerships | MSC 87/18/1<br>MSC 87/INF.2 | Denmark | Transport of Dangerous Goods |
| 9 | General Cargo Ship | MSC 85/19/1<br>MSC 86/INF.4<br>MSC 87/INF.3<br>MSC 87/INF.3/Corr.1<br>MSC 87/20/1<br>MSC 87/INF.4<br>MSC 88/19/2<br>MSC 88/INF.6<br>MSC 88/INF.8 | IACS | Safety of General Cargo Ships |
| 10 | Crude Oil Tankers | MEPC 58/17/2<br>MEPC 58/INF.2 | Denmark | FSA study for crude oil tankers conducted under the SAFEDOR project |
| 11 | Cruise Ships | MSC 85/17/1<br>MSC 85/INF.2 | Denmark | FSA study for Cruise ships conducted under the SAFEDOR project |
| 12 | RoPax Ships | MSC 85/17/2 | Denmark | FSA study for RoPax ships conducted under the SAFEDOR project |

| Sr.No | FSA Study | Document Reference | Submitter | Topic addressed by the Study |
|---|---|---|---|---|
| | | MSC 85/INF.3 | | |
| 13 | LNG Carriers | MSC 83/21/1<br>MSC 83/INF.3 | Denmark | FSA study for LNG Carriers conducted under the SAFEDOR project |
| 14 | Container Ships | MSC 83/21/2<br>MSC 83/INF.8 | Denmark | FSA study for Container ships conducted under the SAFEDOR project |
| 15 | ECDIS/ENC | MSC 81/24/5<br>MSC 81/INF.9 | Denmark and Norway | Application of ECDIS/ENCs |
| 16 | Passenger Ships | MSC 78/4/2<br>MSC 78/INF.6<br>NAV 51/10<br>NAV 50/11/1<br>NAV 49/INF.2 | Norway | Navigational Safety of Passenger Ships |
| 17 | Bulk Carriers | MSC 78/5/1 | Greece | Comparative FSA study pertinent to single and double skin bulk carriers |
| 18 | Bulk Carriers | MSC 76/5/5<br>MSC 70/4/Add.1,<br>MSC 71/23,<br>MSC 71/WP.3,<br>MSC 72/INF.18,<br>MSC 74/5/4, MSC 74/5/5,<br>MSC 74/INF.5,<br>MSC 74/INF.5/Add.1,<br>MSC 75/5/1, MSC 75/5/5,<br>MSC 75/INF.22,<br>MSC 76/INF.5,<br>MSC 76/INF.6,<br>MSC 76/INF.7 and<br>MSC 76/INF.8 | United Kingdom et al. | International Collaborative FSA Study for safety of bulk carriers |
| 19 | Bulk Carriers | MSC 75/5/2<br>MSC 74/5/3<br>MSC 74/INF.9<br>MSC 74/INF.10<br>MSC 74/INF.11<br>MSC 74/INF.12 | Japan | FSA Study of Bulk Carriers |
| 20 | Bulk Carriers | MSC 74/5/4 | IACS | Fore-end Watertight Integrity for Bulk Carriers |

| Sr.No | FSA Study | Document Reference | Submitter | Topic addressed by the Study |
|---|---|---|---|---|
| 21 | Bulk Carriers | MSC 74/5/5 | Norway & ICFTU | Life-Saving Appliances for Bulk Carriers |
| 22 | Bulk Carriers | MSC 74/INF.14 | Republic of Korea | Trial Application of FSA to no. 1 cargo hold flooding of bulk carriers |
| 23 | Bulk Carriers | MSC 74/INF.15 | Republic of Korea | Trial Application of FSA to hatchway watertight integrity of bulk carriers |
| 24 | Helicopter Landing Areas on Passenger Ships | MSC 69/14/6, COMSAR 3/9/13, DE 41/INF.2, MSC 69/14/7 and MSC 69/INF.31 | ICCL<br><br>Italy | Helicopter Landing Areas on Passenger Ships |
| 1 The detailed FSA studies are hosted on websites external to IMO and can be downloaded using the hyperlinks provided in the mentioned documents.<br><br>2 This was not a formal FSA report, nevertheless a limited evaluation of these studies was performed by the IMO FSA Experts Group. | | | | |