CONSIDERATION OF LIABILITY ISSUES BASED ON THE DRAFT NON-MANDATORY CODE

Kengo Minami
Keio University, Faculty of Law

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Introduction

- Liability issues regarding the MASS
  - ➢a fault-based liability rule?
  - ➢rebuttable presumed fault-based liability?
  - ➢strict liability of the shipowner of the MASS?
    - ✓Too difficult to find the crew's fault in the MASS navigation
    - ✓Background of the limited liability
    - ✓But, there could be a big wall to change the liability rule entirely
- CMI MASS IWG have submitted the document regarding the liability rule to the LEG of the IMO. (LEG 111/10/2)
- At this moment, it cannot be decided if MASS liability should be changed from a fault-based to a strict liability scheme.

Introduction

- This presentation does not examine whether shipowners should be subject to strict liability but rather considers the shipowner's liability **based on the current principle of fault-based liability.**
- The purposes of this presentation are
  - to consider how the draft non-mandatory MASS Code affects the MASS liability,
  - to illustrate the fault of the shipowner of the MASS based on the draft MASS Code, given the fault-based liability scheme under the current rule, and
  - to clarify the circumstances when the shipowner of the MASS may be held liable based on the provisions of the MASS Code.

About the Draft Non-mandatory MASS Code

- What is the draft non-mandatory MASS Code?
  - Non-mandatory technical requirements and guidelines necessary for the safe operation of the MASS
  - Under discussion by the IMO (during 2025)
- This Code provides technical requirements and guidelines, and the Code does not directly provide rules regarding the liability of the shipowner of the MASS.
- However, courts in some jurisdictions may refer to this Code or national regulations in accordance with the Code as the criteria or tips for liability of the shipowner of the MASS.

ANNEX*

NOTE: The proposals in the submissions made to MSC/ISWG/MASS 3 that have not been discussed, are kept in this version for ease of future reference and discussion.

CONSOLIDATED VERSION OF THE DRAFT INTERNATIONAL CODE OF SAFETY FOR MARITIME AUTONOMOUS SURFACE SHIPS (MASS CODE)

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* This annex is provided in the English language only. Colour shading has been used for indicating particular reminders and additional modification proposals to the draft text, emanating from the submissions made to this session and the proposals by the Secretariat.

About the Draft Non-mandatory MASS Code

- Caution!
  - This presentation deals with the draft MASS Code, but this draft may be changed under the discussion in the IMO. Therefore, this is an interim report could change in the future.
- The Draft MASS Code is cited from MSC/109/5. ANNEX as of December of 2024 in this presentation.

Principles of MASS Code

- MASS Code 1.2 Principles
  - “The Code is based on the following principles:

    .1 there should be ***a human master responsible for a MASS, regardless of mode of operation***;

    .2 a master of a MASS may not need to be on board, depending on the technology used on the MASS and human presence on board, if any; and

    .3 regardless of mode of operation, the master of a MASS should have ***the means to intervene when necessary.***

    .4 several masters may be responsible for a MASS on a single voyage, under certain conditions, and that only one master should be responsible at any given time (further consideration of what those conditions are is required).”

Principles of MASS Code

- The MASS assumed by this Code
  - MASS should have a human master to be responsible, regardless of the mode of operation (for example, even in fully autonomous ships).
  - This Code prohibits the lack of a responsible party.

- Regardless of the mode of operation, the master of a MASS should have the means to intervene when necessary.
  - The master of a MASS needs to intervene in an autonomous navigation system when necessary, even if the system is highly automated.

Intervention “when necessary”

- According to the principles of this Code
  - MASS has a human master to be responsible.
  - The human master should intervene in an autonomous navigation system when necessary.
  - This Code does not assume any situation in which nobody intervenes in the navigation system.
- When should the human master override the autonomous navigation system? – When is ***“when necessary”*** in MASS Code 1.2.3?
- What is the case that the master of a MASS should intervene?

Intervention “when necessary”

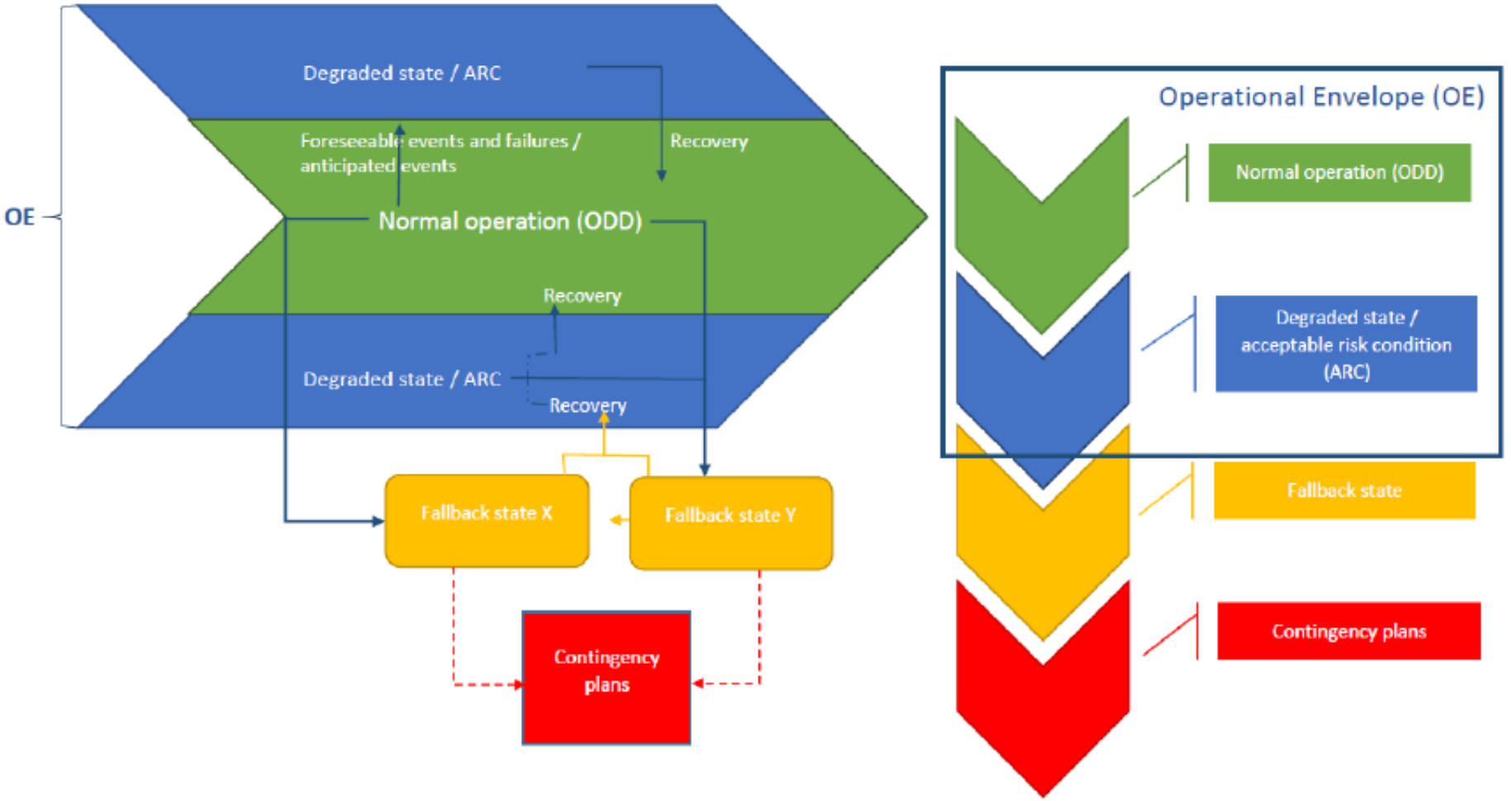

Figure 1: Illustration OE – ODD – degraded state – fallback

Intervention “when necessary”

- Notification of a fallback state
  - “The ship should notify its crew and the operator when transitioning to, and operating in, a fallback system.” (MASS Code 8.4, 5th paragraph)
  - When a ship enters a fallback state, the crew or the master of a MASS should intervene in the systems to ensure the safety of operation of the MASS.
  - Although a ship is in a fallback state, unless the crew, the remote operator on shore or the master of the MASS takes the predefined actions, the inaction could be recognized as the fault.

Intervention “when necessary”

- Additional situations in which the crew, including the master of a MASS, should override?
  - Even if autonomous navigation systems do not take avoidance actions or the ship does not enter a fallback state, and the crew or the remote operator can recognize the risk of collision, should they intervene in the autonomous navigation systems?
  - It is not acceptable to decide not to intervene and just rely on autonomous navigation systems in the situation.
  - When there is a gap between reality and the systems’ recognition, the crew that recognizes the situation may need to operate manually or override the systems to avoid peril.

Intervention “when necessary”

- Safety of Navigation (Ch.15, MASS Code 15.5)
  - “An ANS or system for remote navigation should be capable be being overridden at all times from location(s) where control of a ship’s navigation can be exercised.”
  - “Means for overriding operation of an ANS or system for remote navigation should be simple to operate, independent of the systems that they control and allow for control to be taken immediately.”
- It is critical for a MASS to establish the system to override the operation of the ANS “immediately”.
  - If the crew or the master of MASS cannot override immediately when necessary, the situation itself could lead to the crew taking the responsibility for any accidents.

Establishment of MASS operational systems

- Human element in the MASS (Ch. 15)
- MASS Code provides roles and responsibilities of humans.
  - “The allocation of tasks for personnel in relation to all MASS functions including roles and responsibilities should be defined according to the Concept of Operations (ConOps) and described in the task allocation summary defined in 1.7bis5.” (MASS Code 15.2.1)
  - “Safe operation of a MASS is the responsibility of the designated Master regardless of the mode of operation, and they hold ultimate responsibility and authority over any operational decisions within a clear chain of command.“ (MASS Code 15.2.2)
  - “To ensure the safety and security of crew or any other persons onboard, a clear contingency/emergency plan should be in place and an onboard responsible person should be designated along with clearly defined responsibilities and authority.” (MASS Code 15.2.9)

Establishment of MASS operational systems

- The MASS Code stipulates humans' roles and responsibilities to ensure the safe operation of the MASS.
- A fault/negligence could be recognized if
  - the tasks are not appropriately allocated to personnel in relation to all MASS functions based on the ConOps.
  - the MASS has no clear contingency/emergency plan in place or an onboard responsible person.

Establishment of MASS operational systems

- Two types of fault/negligence
  1. Fault/Negligence of the master of a MASS, the crew, or the remote operator who does not play appropriate roles and take responsibilities based on the ConOps under the MASS Code.
  2. Fault/Negligence of “Company” (shipowner, bareboat charter, etc.) in ensuring the safety of operation of the MASS
- MASS Code also focuses on the MASS operational systems
  - The latter type of fault/negligence could be organizational (Company’s) fault/negligence in some jurisdictions.

Establishment of MASS operational systems

- Fault/Negligence of “Company” in ensuring the safety of the MASS
  - “The Safety Management System (SMS) of the company should provide for the safety and well-being of the personnel involved in the operations by:
    - .1 identification of resources and training required; and
    - .2 establishment of procedures, plans and instructions for all foreseeable operating conditions of the ship, including those involving different physical locations, if applicable.” (MASS Code 11.2.2)
  - “The Safety Management System (SMS) of the company should provide for the safety of the ship under all expected emergency conditions by establishment of contingency procedures, plans and instructions, including emergency scenarios involving different physical locations, if applicable.” (MASS Code 11.2.3)

Establishment of MASS operational systems

- Fault/Negligence of “Company” in ensuring the safety of the MASS
  - If “company” does not establish the appropriate Safety Management System (SMS) providing procedures, plans and instructions for all foreseeable operating conditions and all expected emergency conditions in accordance with the MASS Code Ch.11, the company could have negligence in ensuring the safety of the MASS.
  - This is not the case of the shipowner’s vicarious liability for the crew’s fault but the shipowner’s own fault-based liability.
  - However, this liability may depend on the jurisdictions that can also recognize the organizational fault/negligence.

Conclusion

- This presentation concludes below:
  - the Code may provide tips for the master's or crew's fault, although the draft non-mandatory MASS code does not directly stipulate MASS's liability.
  - the master of a MASS, as a responsible person for the MASS, has to intervene in the autonomous navigation system, when necessary, based on the Code principle.
  - if the MASS collides with another ship due to the lack of or insufficient safety management system to operate the MASS, the situation can lead to the fault of the company itself in some jurisdictions.

Thank you for your attention

Kengo Minami
minami.kengo@keio.jp

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