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WORKING GROUP ON REDUCTION OF
GHG EMISSIONS FROM SHIPS
7th session
Agenda item 2

ISWG-GHG 7/2/16
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**FURTHER CONSIDERATION OF CONCRETE PROPOSALS TO IMPROVE THE
OPERATIONAL ENERGY EFFICIENCY OF EXISTING SHIPS, WITH A VIEW TO
DEVELOPING DRAFT AMENDMENTS TO CHAPTER 4 OF MARPOL ANNEX VI AND
ASSOCIATED GUIDELINES, AS APPROPRIATE**

Proposal for a goal-based operational measure

Submitted by India, Liberia, Panama, Singapore, United Arab Emirates, ICS and RINA

SUMMARY

Executive summary: This document contains a concrete proposal for a short-term measure for immediate consideration by ISWG-GHG 7, based on goal-based operational and technical measures to reduce GHG emissions from ships. The measure is based on proposals already considered at ISWG-GHG 6 and would complement the Energy Efficiency Existing Ship Index (EEXI) and Carbon Intensity Indicators (CII) approaches. As such, it provides a positive and ambitious way forward which could be finalized and agreed quickly, with implementation by 2023.

*Strategic direction,
if applicable:* 3

Output: 3.2

Action to be taken: Paragraph 37

Related documents: ISWG-GHG 6/2/1, ISWG-GHG 6/2/6, ISWG-GHG 6/2/7,
ISWG-GHG 6/2/9; MEPC 75/7/2; MEPC 72/INF.5 and
ISWG-GHG 2/2/7

Introduction

1 It will be recalled that the *Initial IMO strategy on reduction of GHG emissions from ships* (MEPC.304(72)) (the initial strategy) was adopted at MEPC 72 and a draft programme of follow-up actions was agreed at MEPC 73. In order for the Organization to demonstrate progress towards the level of ambition for 2030, the co-sponsors consider it necessary that amendments to MARPOL Annex VI and appropriate short-term measures be agreed at MEPC 75, for adoption at MEPC 76, which will begin to deliver further GHG reductions by 2023.

2 ISWG-GHG 6 agreed that short-term measures should be goal-based and that goal-based operational and technical measures should be further developed. No decision was made on whether an operational or technical measure, or a combination of, would be agreed. The co-sponsors support further development of both operational and technical measures, and that it is important to fully develop both streams. Short-term measures should achieve the initial 2030 levels of ambition of the Initial Strategy, including at least a 40% reduction in transport work emissions relative to 2008, and be compatible with longer term measures to achieve the 2050 levels of ambition.

3 Following the suggestion of the Chair, Japan offered to informally coordinate intersessional work on the goal-based technical approach while China, Denmark and France offered to coordinate intersessional work on the goal-based operational approach. However, notwithstanding the suggestion that they work together intersessionally, Member States and international organizations were invited to submit their own proposals to ISWG-GHG 7 if they wish to do so.

4 To facilitate further progress at ISWG-GHG 7, the Chair informed the Group that he would submit a concept document to the next meeting which would include a possible regulatory framework for the two approaches (technical and operational). The concept document would include the possibility to combine the two approaches (MEPC 75/7/2, paragraph 34).

5 The intersessional work coordinated by Japan on EEXI has made excellent progress and has developed a mature proposal that the co-sponsors can support as the basis of a goal-based technical measure. The intersessional work to develop a goal-based operational measure has made progress however the resulting proposals are less mature. The co-sponsors consider that there are a number of concerns about which carbon intensity indicators (CIIs) might be used, their audit or survey, risks of unintended consequences (particularly with respect to vulnerable member States) and the potential effect on trades which are more exposed to variables outside of the control of the ship (e.g. adverse weather conditions) which require further work. It is also necessary to consider the matter of charterers' orders and ensuring that these do not undermine application of the SEEMP.

6 As a general concept, the co-sponsors support the development of a goal-based operational measure based on the use of CIIs alongside finalization of the EEXI. However, if CII objectives are to be subject to rigorous enforcement measures which could result in possible suspension or withdrawal of a ship's statutory certification, it is critical that such CIIs and their effects are fully understood. Otherwise, there is an unacceptable risk of severe market distortion, Member States being penalized and facing trade disruption, and ships losing certification because of failings in the system of CIIs rather than because of inefficient operation.

7 The co-sponsors are confident that appropriate CIIs can be developed for particular ship types which would be sufficiently robust to be implemented with a rigorous enforcement mechanism. However, this requires an evidenced-based decision-making process supported by data. The nature of CIIs and complexities of shipping as well as the complex interactions between ships and the maritime environment and trade patterns mean that the only way to truly understand CIIs and develop the necessary confidence in their efficacy is to apply them in practice and to evaluate their effectiveness. This would also allow risk mitigation measures to avoid unintended consequences to be identified and agreed.

8 The co-sponsors consider it is essential both to make quick progress on short-term measures. It is also essential to avoid the potential unintended consequences of implementing measures before their effects and impacts are fully understood. A proposal has, therefore,

been developed which avoids the Organization being faced with the unacceptable choices of either delaying decision making pending further investigation and analysis, or of proceeding with measures without properly understanding their potential effects and consequences. In order to expedite agreement and progress a phased introduction of a CII-based operational measure is proposed, applicable to all ships, in three parts as follows:

9 Part 1 – Development of guidelines for establishing and auditing CIIs. This would include agreement on how CII data would be collected, noting that this data would obviously be a function of which CII or CIIs are proposed. The Organization would then introduce a mandatory measure as part of the SEEMP which would require that the ship includes CII objectives agreed by the Organization within the SEEMP which would be audited by the ships flag Administration or one of its duly authorized recognized organizations. This audit would be part of the SMC audit as required by the ISM Code. To address the difference in application between the SEEMP and ISM Code it is proposed that the strengthened SEEMP should apply to ships of 500 GT and above. This would align the revised SEEMP requirements with the ISM Code. The co-sponsors recognize that this would mean that ships of 400 GT and above but less than 500 GT would be outside of the strengthened SEEMP, however the contribution of these ships to shipping sector emissions is negligible. During Part 1, failure to achieve a CII objective would be noted as an observation and the company would provide a summary of why the objective had not been achieved. In cases where this was not the result of external factors (for example, weather) the company would amend the SEEMP to include measures to improve operational efficiency. It is again emphasized that this will facilitate the rapid implementation of a CII based operational measure and the necessary work to evaluate CIIs.

10 Part 2 – Three years after the implementing mandatory CII objectives within the SEEMP, the Organization would undertake an analysis of the resulting three-year data set. CII data would be submitted to a database to established by the Organization, it is possible that this could be integrated with the DCS database and reporting system to minimize administrative burden and cost. This analysis would:

- .1 identify the most appropriate CIIs and, if possible, agree the final form of CIIs to be applied to each ship type;
- .2 identify appropriate measures to address the influence of external factors such as weather and also to mitigate risks for vulnerable member States, such as SIDS; and
- .3 agree whether CIIs were sufficiently robust to consider a system of enforcement and potential penalties in the case that a ship does not achieve a CII objective (subject to appropriate measures to prevent ships being penalized because of adverse weather conditions or because they serve vulnerable member States in trades which are inherently inefficient).

11 Part 3 – Based on the outcome of Part 2, and also having reviewed the progress of the industry towards achieving the 2030 level of ambition of the Initial Strategy, the Organization would make a decision whether to:

- .1 amend the operational measure to incorporate mandatory enforcement measures in the event that a ship fails to achieve CII objectives; or
- .2 retain the existing Part 1 arrangement, in conjunction with the EEXI, if this was delivering the necessary GHG reductions; or

- .3 develop a hybrid operational or technical approach to further and ongoing measures such as that proposed in document ISWG GHG 6/2/6 (Bahamas et al.).

12 The co-sponsors would emphasize that phased implementation does not mean delayed implementation. The operational measure would be fully implemented in Part 1, the difference would be in how the measure was audited and enforced. During this period, ships would be assigned mandatory CII objectives, which would be audited in line with the long-term objectives of the measure. The alternative, as stated in paragraph 8, is that the Organization either delays a decision on the operational component of short-term measures until work to analyse CIIs and identify appropriate risk mitigation measures for vulnerable Member States and SIDS and to account for external factors such as weather, or proceeds with a measure which is not fully understood and which could result in market distortion and penalizing of vulnerable member States and efficient ships. The co-sponsors suggest that neither of these alternatives is an appropriate way forward and consider that phased implementation is the only way forward if the Organization seeks to make rapid progress whilst avoiding the risk of negative consequences.

13 The co-sponsors do not propose details of a short-term operational measure since it is considered that a number of alternative short-term measures are likely to be proposed at ISWG-GHG 7. The concept of phased implementation could be integrated into whichever option was supported by member States. However, it should be understood that the review and decision-making processes of Parts 2 and 3 might propose changes to the nature of the measure to address areas identified as requiring improvement and to ensure the CII was working effectively in practice. Parts 2 and 3 of the phased implementation would verify the efficacy of CIIs and provide surety that the system was meeting the objectives of the Organization and that vulnerable member States and efficient ships were not penalized. It would also facilitate the speedy implementation of an operational measure, would avoid the well-founded concerns at how CIIs might work delaying progress and facilitate a much greater understanding of CIIs and operational measures.

14 In order to provide an incentive during Part 1, and address concerns that the phased implementation approach might not achieve the necessary objectives in Part 1, a simplified rating system to indicate the ships CII performance relative to its objective such as that proposed by China in document ISWG-GHG 6/2/9 could be introduced. This would not be a comparator between the performance of different ships, but would only indicate whether the ship was achieving the necessary CII objectives and also indicate whether it was over or under achieving relative to defined deviation bands. However, the simplified rating mechanism should be developed in a way which is easy to administer, to facilitate effective implementation and minimize administrative burden for industry and Administrations. The simplified rating reference lines and bands would need detailed consideration to ensure they are sufficiently mature should the Organization implement this option.

15 The co-sponsors therefore provide a proposal for mandatory short-term measures for immediate consideration by ISWG-GHG 7 and finalization at MEPC 75. The measures would be based on a system of phased implementation and review as follows:

- .1 implementation of the EEXI for all ship types for which there will be an EEXI reference line;
- .2 phased implementation of a goal-based operational measure as proposed in paragraph 8, initially introducing Part 1, for a period of [3] years;

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- .3 after [3] years, the Organization would implement Part 2, and analyse data collected from application of the goal-based operational measure, with a view to taking a decision on whether CII were sufficiently mature and reliable to be used in conjunction with mandatory enforcement of CII objectives. This includes confirmation that suitable risk mitigation measures are in place to protect vulnerable Member States and trades subject to adverse environmental conditions; and
 - .4 following completion of Part 2, the Organization would implement Part 3. The Organization would agree amendments to the operational measure, whether to maintain this measure in parallel with the EEXI or whether the operational measure could be taken forward as having superseded the EEXI and whether to continue the arrangements of Part 1 in the event that they are providing the necessary GHG reductions.

Discussion

16 Short-term measures should be effective and make progress towards delivering the levels of ambition of the initial strategy, in particular that established for 2030. They should also promote innovation and adoption of GHG reducing technologies, be implementable and avoid penalizing early movers and/or efficient ships. Importantly, it is essential that short-term measures minimize negative impacts on Member States and global trade. In the event that there are disproportionate negative impacts, necessary mitigation measures will have to be developed and put in place. These requirements could be satisfied by either operational or technical measures, or by a combination of both.

17 ISWG-GHG 6 considered several short-term measures, of which the following received significant support:

Goal-based technical measure:

- .1 ISWG-GHG 6/2/3 (Japan and Norway) - Revised proposal for goal-based energy efficiency improvement measure utilizing Energy Efficiency Existing Ship Index (EEXI);

Goal-based operational measures:

- .1 ISWG-GHG 6/2/9 (China) - Proposal for a mandatory rating mechanism for operational energy efficiency performance of ships;
- .2 ISWG-GHG 6/2/7 (France and Monaco) - Goal based approach and speed optimization, received some support; and
- .3 ISWG-GHG 6/2/11 (Denmark et al.) - Proposal for a goal-based short-term reduction measure.

Proposal for both a goal-based technical and goal based operational measure:

- .1 ISWG-GHG 6/2/6 (Bahamas et al) - Proposal for approval by MEPC 75 of mandatory amendments to strengthen the Ship Energy Efficiency Management Plan (SEEMP).

18 Document ISWG-GHG 6/2/6 could be summarized as offering shipowners an option of choosing to implement an operational measure sharing much in common with that proposed in document ISWG-GHG 6/2/11 (SEEMP Scheme A) or alternatively the EEXI proposed by Japan and Norway in document ISWG-GHG 6/2/3 (SEEMP Scheme B) with equivalency being maintained between both schemes.

19 In document ISWG-GHG 6/2/9, China highlighted the volatility of CII. This finding was consistent with earlier studies which highlighted the volatility of CII, including documents MEPC 72/INF.5 (INTERTANKO) and ISWG-GHG 2/2/7 (Argentina et al.). At ISWG-GHG 6, the Danish Technical University delivered a presentation which highlighted similar uncertainties.

20 Document ISWG-GHG 6/2/6 considered that an operational measure based on CII could be developed and advocated such a measure subject to developing "guidelines [which] would include provisions to address cases where an objective is not achieved because of circumstances outside the control of the shipowner, and for ships serving Member States subject to particularly challenging operational conditions, such as geographical remoteness or prevalence of adverse weather" (paragraph 9) and establishing appropriate CII.

21 Notwithstanding the concerns expressed in paragraph 15, the co-sponsors concur with document ISWG-GHG 6/2/6. CII could be developed along with supporting guidelines. This would confirm that they were sufficiently robust, and that risks for vulnerable member States and trade routes had been mitigated. Although the concerns highlighted in paragraph 11 were expressed during the intersessional work, they have not yet been addressed and no data nor analysis supporting the readiness of CII has been provided. Despite this lack of data, evidence or analysis, some are still calling on the Organization to proceed directly to an operational measure in which ships could lose their International Energy Efficiency Certificate (IEEC) for failing to achieve a CII objective. The co-sponsors assert that it would be precipitative and unwise to implement such a system before it is demonstrated that appropriate CII have been identified along with confidence in their reliability and that possible risks of unintended consequences mitigated.

22 The only way to establish the necessary data to facilitate a valid analysis, understand risks and develop the necessary confidence in CII is to conduct a real time trial utilizing a large number of ships. The co-sponsors consider that the diversity of the shipping industry means that it may be necessary to develop CII for particular ship types, noting that at the most basic level some ships carry weight, others volume and others carry passengers, while some ships provide services instead of carrying cargo.

23 Such a real time trial followed by analysis would require time. The co-sponsors are aware of the urgency of agreeing on short-term measures as quickly as possible and share this sense of urgency – it is essential to implement effective short-term measures by 2023.

24 As a compromise to expedite rapid agreement and implementation of short-term measures whilst mitigating the risk of negative unintended consequences of implementing measures which are not fully understood, the co-sponsors propose a three-part phased implementation of short-term measures. The EEXI should be agreed at MEPC 75, providing an effective technical measure which would apply to all ships subject to the proposed regulation. In parallel, all ships would be required to monitor performance using CII which would be audited as part of the SEEMP and with CII data being reported to a database to be established by the Organization. If the Organization considered that additional incentives would be useful then the simplified indicative rating system proposed by China in document ISWG-GHG 6/2/9 could be introduced, rating a ship's performance relative to a CII reference. Since most of the necessary data is already being monitored and collected by shipowners for

the purposes of efficiency optimization and for the IMO DCS, this is not expected to impose a significant additional burden on the industry, and it might be possible to integrate the two systems to minimize burden so far as is possible. The Organization would collect CII data* which would allow it to undertake an analysis of CIIs with the intention of identifying the most appropriate CII(s) and confirming their efficacy. It should be noted that depending on which CIIs were identified as being suitable for adoption in Part 1, it may be necessary to agree consequential changes to the data to be included within the DCS reporting form. It is suggested that this period of data collection lasts for a period of [3] years following finalization of the necessary regulatory amendments to introduce CIIs, and their entry into force. The analysis would also identify appropriate risk mitigation measures to protect vulnerable Member States and trades in areas subject to adverse environmental conditions. The Organization could then make an evidence-based decision to amend the operational measure to include enforcement of CII objectives.

25 The co-sponsors would again emphasize that phased implementation is not delayed implementation. The technical component would enter into force as quickly as practical with firm enforcement. The operational measure would be also be implemented quickly and take effect, with ships being assigned mandatory objectives which would be audited. However, during the three years of Part 1, ships would not face losing a statutory certificate for failing to achieve a CII objective of the operational component, however audits of the SEEMP would be undertaken and would be subject to the same audit and possible enforcement process as those for the ship's SMS under the ISM Code. Therefore, although Part 1 would see softer enforcement of CII objectives, the EEXI would be rigorously enforced and the SEEMP would be subject to the same rigorous audit and improvement process of the ship's SMS. Therefore, the proposal should not be considered soft or lacking in enforcement.

26 The review would also analyse the industry's progress towards the levels of ambition of the initial strategy and if necessary, consider further amendments to the agreed short-term measures. In order to allow sufficient time for environmental and trade pattern variability to be captured, as well as capturing experiences with application of CIIs and evolution of operational practices to optimise CII performance, it is recommended that a period of [3] years of data collection be agreed.

27 This would enable implementation of mandatory enforcement of CII objectives once it could be demonstrated that CIIs were sufficiently mature, based on evidence and informed analysis, avoiding the risks and uncertainties identified in paragraphs 11.

28 Notwithstanding the commitment of the co-sponsors to implement quantified emissions reduction objectives, both as EEXI values or as CII objectives, it is also important to promote a culture of continuous improvement in environmental performance. The ISM Code, introduced between 1998 and 2002, provides for external and periodic auditing by Administrations of goal-based means for improving the safe operation and environmental performance of ships. Extending this approach to the SEEMP is expected to deliver similarly successful results with regard to CO₂ and other emissions reduction. Therefore, the SEEMP should be subject to a mandatory review and improvement process.

29 Document ISWG-GHG 6/2/6 identified that short-term measures could be implemented by making the SEEMP part of the SMS required by the ISM Code, or via the IEEC survey regime. This question remains unanswered and the co-sponsors would request that the Group considers the matter and decides.

* The mechanism for the Organization to collect the CII data (comparison of attained CII by individual ship against required CII for that specific ship type and size) may be developed or based on an enhanced IMO DCS, upon approval of this proposal. Likewise, guidelines for establishing required CII and indicators for different ship types will need to be developed by the Organization if this proposal is approved.

Concrete proposals

- 30 The Group should recommend to MEPC 75 that it:
- .1 introduces the EEXI for all ships for which the EEXI is applicable; and
 - .2 introduces a CII-based operational measure, with a three-part phased implementation which would apply to all ships.

31 Part 1 of the operational measure would introduce a mandatory measure as part of the SEEMP, including mandatory CII objectives established by the Organization, for a period of [3] years. These objectives would be audited by the ships flag Administration or one of its duly authorized Recognized Organizations and CII data recorded as part of the SMC audit. During Part 1, failure to achieve a CII objective would be noted as an observation and the company would provide a summary of why the objective had not been achieved. In cases where this was not the result of external factors (for example, weather) the company would amend the SEEMP to include measures to improve operational efficiency. The simplified rating system proposed by China in document ISWG-GHG 6/2/9 could be included in the measure. The Organization would develop guidelines to for developing CIIs and for auditing these CIIs to facilitate Part 1.

32 Part 2 of the operational measure would commence [3] years after the introduction of Part 1. The Organization would analyse CII data in order to identify the most appropriate CIIs and confirm that they are sufficiently reliable to support mandatory enforcement of objectives and ensure that risks to, inter alia, vulnerable member States and trades for which there is a heightened prevalence of adverse environmental conditions are mitigated. This should also consider whether the matter of charter orders undermining SEEMP compliance has been satisfactorily addressed. The analysis would also evaluate the effectiveness of existing short-term measures in moving international shipping towards the 2030 levels of ambition.

- 33 Based on the outcomes of Part 2, the Organization would proceed to Part 3 and:
- .1 agree, if necessary, amendments to the operational measure to progress from a system of indicative rating to one with firm enforcement of CII objectives, and this would incorporate appropriate mechanisms to mitigate any risks for scenarios noted in paragraph 22; and
 - .2 decide whether the EEXI could be superseded by the operational measure, or whether the EEXI would continue as part of a hybridised scheme as proposed in document ISWG-GHG 6/2/6, or potentially even conclude that the existing measures were suitable and sufficient to achieve the required levels of ambition. This would assess the effectiveness of measures in meeting the initial 2030 levels of ambition of the initial strategy.

34 In the unlikely event that the [3] year review does not identify appropriate CIIs or it is not possible to effectively mitigate unintended consequences, and based on the analysis of the industry's trajectory toward the 2030 levels of ambition, the Committee would either:

- .1 agree a further period of data collection during which the measures agreed for Part 1 would continue along with the EEXI; or
- .2 consider alternative proposals; or

- .3 agree that the existing short-term measures were successfully delivering the necessary GHG reductions and would be agreed as being suitable and sufficient.

35 This proposal does not include an additional impact assessment as it is considered that the impact assessments submitted for the EEXI proposal and document ISWG-GHG 6/2/6 address the proposals provided.

36 The proposals provided will facilitate rapid implementation of a CII-based operational measure alongside a technical measure without risking market distortion and penalizing vulnerable member States (particularly SIDS) and efficient ships. It is essential to make rapid progress; it is also important to avoid the potential unintended negative consequences that could result from implementing measures before they are properly understood.

Action requested of the Working Group

37 The Group is invited to consider the proposals in paragraphs 30 to 36 and take action as appropriate.
