

**Submission by the International Maritime Organization
to the third ICAO Colloquium on Aviation and Climate Change - May 2010**

**Session 5 Market-based Measures
Other Approaches – Market-based measures for international shipping**

**OUTCOME OF THE SIXTIETH SESSION OF THE
MARINE ENVIRONMENT PROTECTION COMMITTEE**

Further progress made on technical, operational and market-based measures

SUMMARY

IMO's Marine Environment Protection Committee met for its sixtieth session (MEPC 60) in March 2010 with control of greenhouse gas emissions from ships as the paramount issue on its agenda. More than 800 delegates from 94 Member States, five United Nations bodies, six intergovernmental organizations and 43 non-governmental organizations with consultative status with IMO participated at the session.

The Committee held extensive discussions on making mandatory, the technical and operational measures that were agreed as voluntary at its last session, and established the basic concepts and developed draft regulatory text as possible amendments to MARPOL Annex VI. The Committee concluded that more work was needed and agreed to establish an intersessional meeting of its Working Group on Energy Efficiency Measures for Ships, which will report back to the Committee's next session (MEPC 61).

With regard to market-based mechanisms (MBM) for international maritime transport, the Committee had before it ten different proposals and agreed to establish an Expert Group to undertake a feasibility study and impact assessment of the different proposals in line with the work plan agreed at its last session – the Expert Group will also report to MEPC 61. The scope of the study/assessment is to identify for each proposed MBM, the reduction potential on GHG emissions from international shipping, its impact on world trade and the shipping industry, and the maritime sector in general, giving priority to the maritime sectors in developing countries.

Prepared by the IMO Secretariat May 2010

2010 – Another crucial year in the GHG debate

1 IMO's Marine Environment Protection Committee met for its sixtieth session (MEPC 60) in London from 22 to 26 March 2010 where, yet again, control of greenhouse gas (GHG) emissions and improvement in energy efficiency for ships engaged in international trade was the dominant issue on its agenda.

2 In his opening speech the Secretary-General, commenting on the outcome of the United Nations Conference on Climate Change held in Copenhagen, Denmark in December 2009 stated: "like many others, I had viewed it with mixed feelings: with concern that the objective pursued, following the 2007 Bali Conference, of a legally binding instrument, had not been achieved; with measured satisfaction that, through the Accord tabled at the end of the deliberations, a step in the right direction had been taken enabling progress to be made towards a legally binding instrument; and with hope that, following new rounds of consultations the required consensus on action needed to be taken to save planet Earth would be reached at the next COP Conference." He went on to say that, the Organization and the international maritime community stood ready to build on the momentum created in the lead up to and in Copenhagen by contributing further to the attainment of the objectives set through IMO's 2006 GHG Work Plan, namely the putting in place of a comprehensive regulatory regime aimed at limiting or reducing greenhouse gas emissions from international maritime transport.

3 While the outcome of COP 15 had given the Organization more time to make real progress in its work, the Secretary-General reasoned, it had also created an increased obligation on IMO to intensify its efforts not only to do its duty *vis-à-vis* the environment but also to be able to present to COP 16, concrete results as evidence of its determination to play its part in the world efforts to stem climate change and global warming. Such action on the part of the Organization would also demonstrate its capability to satisfactorily address shipping-related environmental issues, as it had successfully done over the years through the diversity of measures it had taken to prevent and control pollution of the seas from oil and other vessel-generated sources and, most recently, decisive and efficient actions to prevent air pollution from ships.

4 The Committee recalled that it had made significant progress at its last session in July 2009 on all three building blocks in the Organization's GHG work; on technical and operational reduction measures, and on possible market-based mechanisms. Following thorough considerations and meticulous work, the Committee had produced a set of robust and efficient measures to improve fuel efficiency in ships and four MEPC Circulars on technical and operational measures were agreed for circulation. Having held an in-depth debate where all aspects were carefully deliberated, a work plan for further consideration of the market-based measures, culminating in 2011, had also been agreed.

Mandatory technical and operational measures

5 MEPC 60 considered a proposal by the governments of Japan, Norway and the United States to make mandatory the technical and operational measures that were agreed for voluntary use and trial application by MEPC 59. The Committee agreed by majority that the measures should be mandatory and that Annex VI of IMO's MARPOL Convention (International Convention for the Prevention of Pollution from Ships) was the proper legal instrument as it applies to all ships and is ratified by all the large flag and port States.

6 The most important technical measure is the Energy Efficiency Design Index for new ships (EEDI) that would require a minimum energy efficiency level per capacity mile for different ship segments (type and size), with the level being tightened incrementally every five years apace with technological development. The EEDI is developed for the larger

segments of the world merchant fleet representing about 87% of the emission potential. On the operational side, a mandatory management tool for energy efficient ship operation (SEEMP) has been developed to assist the shipping industry in achieving cost-effective efficiency improvements in their operations.

7 Taking into account the need for further improvement of the draft legal text for mandatory application of the technical and operational measures, and for development of relevant associated documents (e.g. on verification), MEPC 60 agreed to hold an intersessional working group meeting (28 June to 2 July) on further development of the regulatory text with a view to their approval as amendments to MARPOL Annex VI at MEPC 61 (September/October 2010) and adoption at MEPC 62 (July 2011).

8 The circulars referred to above containing specific technical descriptions of the technical and operational reduction measures were issued (17 August 2009) following MEPC 59 and may be found on the IMO website: www.imo.org

Market-based mechanisms

9 Recognizing that technical and operational measures alone would not be sufficient to satisfactorily reduce the amount of GHG emissions from international shipping needed to meet the overall objectives indicated by science (IPCC FAR), and in view of projections that world trade would continue growing; market-based mechanisms (MBM) have been considered by the Committee in line with the work plan agreed at MEPC 55 (October 2006). In addition to identifying a considerable reduction potential, the Second IMO GHG Study 2009 concluded that MBMs were cost-effective policy instruments with high environmental effectiveness.

10 The Committee recalled that MEPC 59 conducted an in-depth discussion and agreed that a MBM was needed as part of a comprehensive framework for regulation of GHG emissions from international shipping, and also agreed on a work plan for further consideration of such measures culminating in 2011.

11 MEPC 60 noted that it had received a large number of documents from which ten distinguishable MBM proposals, or variants of some of the proposals, could be identified. The Committee also noted that the work plan assumed that the outcomes of feasibility studies and impact assessments of the MBM proposals under review would be available to MEPC 61 in the autumn of 2010, thus enabling it to make further progress.

Feasibility study and impact assessment of proposed market-based mechanisms

12 Based on a proposal by its Chairman, the Committee agreed that an expert group should be established to undertake the feasibility study and impact assessment of the proposed mechanisms called for by the work plan. The Committee agreed on Terms of Reference for the group including the methodology and criteria to be applied and the Secretary-General was requested to establish the group in close consultation with the Chairman. The Committee also agreed that it was imperative to adhere to the work plan and noted that it stated that, "taking into account the outcome of the feasibility studies and impact assessments, the Committee, preferably at MEPC 61 would be in a position to clearly indicate which market-based instrument it should evaluate further", and agreed to take the necessary steps to comply with that requirement.

13 The MBM proposals under review range from proposals for contribution schemes for all CO₂ emissions from international shipping (to be collected by fuel oil suppliers and transferred to a global fund), or only emissions from ships not meeting the EEDI

requirement, via emission trading systems, to schemes based on the actual ship's efficiency both by design and operation. Among the measures are also proposals for rebate mechanisms and other ways to accommodate the difference in the socioeconomic capability between developing and developed states, as well as other suggestions on how the special needs and circumstances of developing countries can be accommodated. Some of the proposed schemes would reward efficient ships and ship operators by recycling parts of the financial contribution to the most efficient ones based on benchmarking. Other schemes would drive investments in more energy efficient technologies and improvements in operations by setting compulsory efficiency standards for all vessels (new and existing) and the trading of efficiency credits. Several of the proposed mechanisms, the contributions schemes (levy) inherently and the trading schemes through auctioning; would generate funds the greater part of which would be used for climate change purposes in developing countries. For a further description of the proposed measures, refer to a summary of the ten proposals set out in annex 1.

14 The scope of the feasibility study and the impact assessment is to identify for each proposed MBM the reduction potential on GHG emissions from international shipping, as well as its impact on world trade and sustainable development, on the shipping industry and on the maritime sector in general, giving priority to the maritime sectors in developing countries. The study/assessment will also review the practicability of implementing the various options and provide information on how the difference in capability in developing and developed states, as well as the special needs and circumstances of developing countries, can be addressed by the different proposals.

15 The Expert Group will for each of the MBM proposals under review assess the cost-effectiveness and their potential to provide incentives to technological change and innovation – and the accommodation of current emission reduction and energy efficiency technologies. The need for technology transfer and capacity building in relation to implementation and enforcement of the MBMs, including the potential to mobilize climate change finance for mitigation and adaptation actions, are also included in the terms of reference for the Expert Group which is set out in annex 2.

16 The Expert Group will submit its report to MEPC 61 September/October 2010) and the Committee considered it imperative that the final report should contain clear, precise and robust conclusions based on factual information. The report should be transparent and objective, and aim at assisting the MEPC to make well-informed decisions and will not make specific recommendations on policy issues, leaving them to the Committee when weighing up the outcome of the study/assessment.

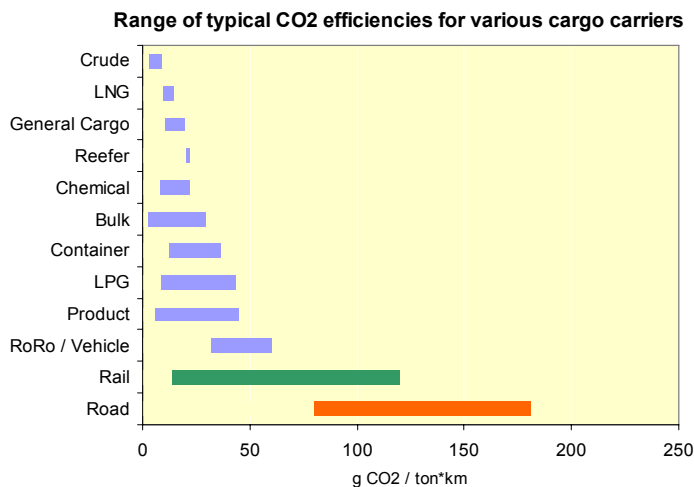


Figure 1: Typical ranges of CO₂ efficiencies of surface cargo carriers (Second IMO GHG Study 2009)

Conclusions

17 Although international maritime transport is the most energy efficient mode of mass transport and only a modest contributor to worldwide CO₂ emissions (2,7% in 2007), a global approach for further improvements in energy efficiency and emission reduction is needed as sea transport is predicted to continue growing significantly in pace with world trade.

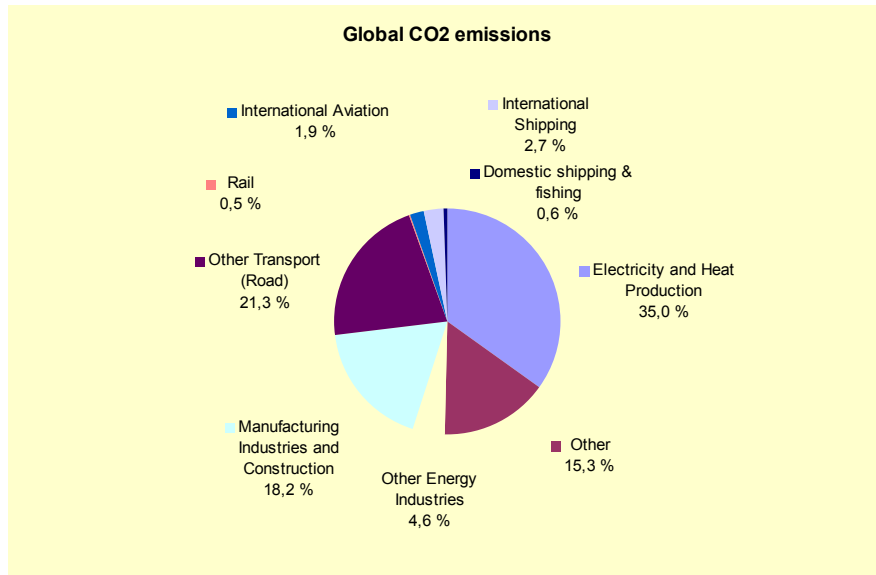


Figure 2: Global emissions of CO₂ in 2007 (Second IMO GHG Study 2009)

18 IMO has developed a set of robust and efficient technical and operational measures that will serve as performance standards for increased energy efficiency in international shipping and a comprehensive regulatory framework based on the Organization's extensive experience and well established policies and practices is nearing completion. The framework builds on IMO's reputable and well tested enforcement and control provisions (Flag and Port State Controls) and includes also aspects such as monitoring, verification and reporting as well as modalities for effective implementation. The Organization's work on these matters represent a practical approach that may very well serve as an example of how to establish global performance standards on energy efficiency.

19 With regard to the market-based measures, where IMO is currently working in accordance with a work plan culminating in 2011, IMO and its Member Governments, recognising that the technical and operational measures alone would not be sufficient to satisfactorily reduce the amount of GHG emissions from international shipping in view of projections for world trade and the overall reductions needed to meet the two degrees target, are determined to develop a mechanism that will enable the shipping industry to achieve the eventually agreed reduction target.

20 IMO will continue its endeavours to reduce any environmental impacts from international shipping, a transport industry that is vital to world trade and sustainable development, and keep relevant United Nations bodies informed of its achievements.

ANNEX 1
BRIEF SUMMARIES OF PROPOSALS UNDER REVIEW BY IMO'S
EXPERT GROUP ON FEASIBILITY STUDY AND IMPACT ASSESSMENT OF POSSIBLE
MARKET-BASED MEASURES

Documents	Author	Summary
MEPC 60/4/8	Cyprus, Denmark, Marshall Islands, Nigeria and the International Parcel Tankers Association (IPTA)	<p>International Fund for Greenhouse Gas emissions from ships.</p> <p>Contribution to Fund per unit fuel purchased. Level of contribution established by the Parties.</p> <p>GHG contributions collected by bunker suppliers and transferred to Fund.</p> <p>Fund used to offset GHG emissions from international shipping which exceed global reduction targets. Could also be used to finance adaptation in developing countries, R&D, technical cooperation & administrative expenses of GHG Fund.</p> <p>GHG Fund established as separate legal entity under new IMO Convention. Administration of Fund possibly structured as IOPC Funds. Fund administered by new division within IMO or new organisation.</p>
MEPC 60/4/10	Bahamas	<p>MBIs for international shipping: a penalty on trade and development.</p> <p>Both ETS and levy schemes disadvantageous for developing countries and a penalty on trade and development.</p> <p>ETS – could operate successfully in developed countries, but likely to disadvantage trade of poorest countries if operated globally. New ships (likely to be from developed countries) will tend to be more efficient and have competitive advantage; older ships tend to carry low value cargoes & be from developing States.</p> <p>Levy or contribution – who would collect levy? High potential for fraud. Requires extensive monitoring. How would funds be distributed equitably? New body would better ensure that funds used to achieve reduction in emissions from ships. However most R&D takes place in developed countries and technological innovations fitted mainly to new ships. Will not benefit most needy countries.</p> <p>MBIs contrary to best interests of developing States which need expanded trade to continue to develop to raise living standards. Measures must be proportional to shipping's global contribution to CO₂ emissions. Funds should not benefit other industries. Additional cost on low value cargoes (which tend to be associated with developing countries) will be greater.</p>

Documents	Author	Summary
MEPC 60/4/12	United States	<p>Further details on the United States proposal to reduce GHG emissions from international shipping (MEPC 59/4/48; a new approach to address international maritime GHG emissions by establishing efficiency index standards for existing ships and the trading of efficiency credits as an additional means for achieving compliance). Efficiency index standards for existing & new ships. Efficiency standards (<i>EIR</i>) for existing ships to be based on feasible technical and operational improvements. Calculated as per EEDI or direct determination from fuel consumed & cargo carried. Compliance periodically verified & certified. Standards for existing ships less stringent than for new ships.</p> <p>Ships exceeding standard will generate efficiency credit & can sell these credits to ships not meeting standard. Ship Efficiency Credit Trading Scheme (SECTS) proposed for trade of credits. IMO would develop regulations and oversight but not operate. Applicable to ships 400 gross tonnes and above engaged in international transport. Total activity or emissions not capped.</p>
MEPC 60/4/22	Norway	<p>A further outline of a Global ETS for International Shipping: the most suitable MBI for shipping in a global response to climate change.</p> <p>An emissions trading scheme (ETS) operates through the allocation and trade of greenhouse gas emissions allowances – one allowance unit representing one tonne CO₂ emissions. Emission allowances are required to be surrendered to cover emissions from individual ships. Allowances can be allocated to ships or sold dependent upon design of the scheme. An overall limit or cap is set on the total emissions from the shipping sector. The number of allowances available correspond to the level of the cap; however if an open scheme compatible with ETS in other sectors is adopted, emission allowances from outside the shipping sector could be purchased. Compliance of the sector with the emission cap could thus be achieved either by increased energy efficiency and use of alternative fuels to reduce emissions or by purchasing emission allowances from other sectors, whichever is most cost effective. A substantial Fund can be associated with the scheme.</p>

Documents	Author	Summary
MEPC 60/4/26	United Kingdom	<p>A global ETS for GHG emissions from international shipping; building on the submissions of Germany, France and Norway to MEPC 59 (MEPC 59/4/25 and MEPC 59/4/26).</p> <p>Outlines how an emissions trading scheme might work in practice. Builds on and is generally consistent with previous ETS submissions from Germany, France and Norway to MEPC 59 (MEPC 59/4/25 and MEPC 59/4/26). Advantages of an ETS for shipping are summarised. Allocation of allowances; monitoring, reporting and verification; compliance and enforcement and links to the global carbon market are considered.</p>
MEPC 60/4/37	Japan	<p>Consideration of an MBI: Leveraged Incentive Scheme to improve the energy efficiency of ships based on the International GHG Fund.</p> <p>Leveraged Incentive Scheme – based on payment of Contribution - fixed amount per tonne of fuel purchased. Direct payment to International GHG Fund through electronic accounts for individual ships. Small ships may be excluded.</p> <p>Possible part refund to “good performance ships” – demonstrated by EEDI in excess of required value and/or good or improved EEOI (but not mandatory to monitor & record EEOI if performance not sufficiently good and do not intend to apply for part refund of contribution).</p> <p>Revenue generated available for purposes e.g. mitigation and adaption projects in developing countries.</p>
MEPC 60/4/39	The World Shipping Council (WSC)	<p>Proposal to establish Vessel Efficiency System (VES). Efficiency design standards to be developed for new and existing ships; new ship standards may be tightened over time.</p> <p>No charge for vessels meeting standard.</p> <p>Sliding scale of charges for existing vessels not meeting standard. Charges based on fuel consumed. (Assumes new vessels would be constructed to comply).</p> <p>More stringent standards for new ships.</p> <p>IMO administered fund populated by charges collected. Charges collected directly from ship or through registered fuel suppliers (as per MEPC 60/4/7 (Denmark & Japan)).</p> <p>Use of funds determined by Parties, but should include R&D to improve energy efficiency of world fleet.</p>

Documents	Author	Summary
MEPC 60/4/40	Jamaica	<p>Achieving reduction in GHG emissions from ships through Port State arrangements utilizing the ship traffic, energy and environment model, STEEM.</p> <p>Via a global agreement under IMO based on a globally uniform emissions charge on all vessels.</p> <p>The charge would be lower for cleaner fuels such as natural gas and structured in such a way to achieve the global reduction targets for greenhouse gases.</p> <p>Emissions fees proportional to CO₂ emissions generated between ports and levied by ports.</p> <p>Emissions calculated using University of Delaware STEEM (ship traffic, energy and environment model).</p> <p>Process enforced by Port State authorities.</p> <p>No discussion regarding use of funds generated.</p>
MEPC 60/4/41	France	<p>Further elements for the development of an ETS for International Shipping building documents submitted previously by France and provides further details, in particular on the auctioning procedures which could be implemented to sell shipping allowances.</p> <p>Auctioning could raise revenues in the order of \$20bn annually by 2020. The revenues could follow the principles laid out in the Danish proposal (MEPC 59/4/5), with the final allocation of the revenues to be decided by the Parties taking into account the principle of common but differentiated responsibilities and respective capabilities.</p>
MEPC 60/4/55	The International Union for Conservation of Nature (IUCN)	<p>A rebate mechanism for an MBI for international shipping could deliver on the UNFCCC principle of common but differentiated responsibilities and respective capabilities. The rebate mechanism could ensure that developing countries are not disadvantaged by a yet to be decided MBI but rather benefit from it.</p> <p>In the scheme any economic cost incurred by a developing country participating in a MBM would be rebated. Other revenue could be disbursed through the UNFCCC and also to the shipping sector through e.g. a global Maritime Technology Fund.</p> <p>Rebate mechanism could apply to any MBI providing sufficient revenue generated to cover the rebate needs and could ensure that introduction of a MBM is beneficial to developing countries.</p> <p>Threshold for MBI could be set higher than 400GT to exclude most ships transporting goods to and from Small Island Developing States (SIDS) and many coastal ships. If set at 4,000 GT, estimated 94% CO₂ emissions (as compared to 400GT threshold) would be included yet 20,000 smaller ships would not be required to participate.</p>

ANNEX 2

TERMS OF REFERENCE FOR THE EXPERT GROUP ON FEASIBILITY STUDY AND IMPACT ASSESSMENT OF POSSIBLE MARKET-BASED MEASURES (MBM-EG)

As agreed by the sixtieth session of IMO's Marine Environment Protection Committee
(22 – 26 March 2010)

Introduction

1 The Marine Environment Protection Committee (the Committee), at its sixtieth session (MEPC 60), decided to undertake a feasibility study and impact assessment of all the market-based measure proposals submitted in accordance with the work plan for further consideration of market-based measures (MBM).

2 In order to fulfil the above, the Committee requested the Secretary-General to establish an Expert Group on Feasibility Study and Impact Assessment of possible Market-based Measures (the Expert Group). The scope of the Expert Group is to evaluate the various proposals on possible MBMs with the aim to assessing the extent to which they could assist in reducing GHG emissions from international shipping, giving priority to the maritime sectors of developing countries, least developed countries (LDC) and small islands developing states (SIDS).

3 The Committee agreed that the MBM proposals to be assessed are those listed in appendix, and that the Expert Group should work in accordance with the methodology set out below, and that the study/assessment report should be transparent and objective.

Methodology

4 The Expert Group was provided with the following Terms of Reference:

- .1 The scope of the feasibility study and the impact assessment is to review the practicability of implementing the various options for a MBM that have been proposed to the Committee as referred to in paragraph 3 above.
- .2 The study and assessment referred to in paragraph 4.1 above shall also aim to identify for each proposed MBM; the reduction potential on GHG emissions from international shipping, its impact on world trade, and the shipping industry, and the maritime sector in general, giving priority to the maritime sectors in developing countries, as well as recognition of the maritime sector in the global efforts to reduce the GHG emissions.
- .3 The study/assessment carried out shall provide information on how the difference in the socioeconomic capability between developing and developed states, as well as the special needs and circumstances of developing countries, can be addressed by each different MBM proposal.
- .4 The study/assessment will be conducted by a group of selected experts, nominated by IMO Member Governments following an invitation by the Secretary-General, with appropriate expertise on matters within the scope of the study, who, in the discharge of their duties, will serve the Group in their personal capacity.

- .5 The Secretary-General will also invite a proportionate number of organizations in consultative status with IMO, and relevant United Nations entities, as well as intergovernmental or international organizations, which can contribute with data and/or with expertise to the work of the Expert Group and will participate as advisers.
- .6 The Expert Group should at its establishing meeting, agree on its method of work and meeting dates in accordance with meeting room availability at the IMO Headquarters.
- .7 The sponsors of the identified proposals under review should be invited to provide further details to the Expert Group and to comment on any assumptions made related to their proposal. Where more than one Member State or organization has co-sponsored a proposal, a single focal point should be appointed.
- .8 It is imperative that the final report contains clear, precise, and robust conclusions and factual information.
- .9 The Expert Group should, as far as possible, reach its conclusions by consensus, and if not, this should be recorded in the report.
- .10 The end result should aim at assisting the MEPC to make well-informed decisions and should not make specific recommendations on policy issues.
- .11 While taking into account relevant new information, the Expert Group should not duplicate work that have already been completed.

Criteria

5 Following the methodology outlined above, the Expert Group, giving priority to the overall impact on the maritime sectors of developing countries, is requested, for each of the submitted MBM proposals referred to in paragraph 3 above, to **assess**:

- .1 the environmental effectiveness, e.g. the extent to which the proposed MBM is effective in contributing to the reduction of greenhouse gas emissions from international shipping;
- .2 the cost-effectiveness of the proposed MBM and its potential impact(s) on trade and sustainable development;
- .3 the proposed MBM's potential to provide incentives to technological change and innovation – and the accommodation of current emission reduction and energy efficiency technologies;
- .4 the practical feasibility of implementing the proposed MBM;
- .5 the need for technology transfer to, and capacity building within, developing countries, in particular the least developed countries (LDCs) and the small island developing states (SIDS), in relation to implementation and enforcement of the proposed MBM, including the potential to mobilize climate change finance for mitigation and adaptation actions;

- .6 the MBM proposal's relation with other relevant conventions such as UNFCCC, Kyoto Protocol and WTO, as well as its compatibility with customary international law, as depicted in UNCLOS;
 - .7 the potential additional administrative burden, and the legal aspects for National Administrations by implementing and enforcing the proposed MBM;
 - .8 the potential additional workload, economic burden and operational impact for individual ships, the shipping industry and the maritime sector as a whole, of implementing the proposed MBM; and
 - .9 the MBM's compatibility with the existing enforcement and control provisions under the IMO legal framework.
- 6 **The Expert Group should submit** its conclusions in a written report to MEPC 61.

APPENDIX

MBM PROPOSALS TO BE ASSESSED AND EVALUATED¹

MEPC 60/4/8	Cyprus, Denmark, the Marshall Islands, Nigeria and IPTA	An International Fund for Greenhouse Gas emissions from ships
MEPC 60/4/10	Bahamas	Market-Based Instruments: a penalty on trade and development
MEPC 60/4/12	United States	Further details on the United States proposal to reduce greenhouse gas emissions from international shipping
MEPC 60/4/22	Norway	A further outline of a Global Emission Trading System (ETS) for International Shipping
MEPC 60/4/26	United Kingdom	A global emissions trading system for greenhouse gas emissions from international shipping
MEPC 60/4/37	Japan	Consideration of a market-based mechanism: Leveraged Incentive Scheme to improve the energy efficiency of ships based on the International GHG Fund
MEPC 60/4/39	WSC	Proposal to Establish a Vessel Efficiency System (VES)
MEPC 60/4/40	Jamaica	Achieving reduction in greenhouse gas emissions from ships through Port State arrangements utilizing the ship traffic, energy and environment model, STEEM
MEPC 60/4/41	France	Further elements for the development of an Emissions Trading System for International Shipping
MEPC 60/4/54	Germany	Impact Assessment of an Emissions Trading Scheme with a particular view on developing countries
MEPC 60/4/55	IUCN	A rebate mechanism for a market- based instrument for international shipping

¹ All previously issued IMO documents will be available to the Expert Group.