

**Note by the International Maritime Organization to  
the fourteenth session of the Ad-hoc Working Group on Long-Term Cooperative  
Action under the Convention (AWG-LCA 14)**

**Agenda item X – Market-based measures**

**MARKET-BASED MEASURES FOR INTERNATIONAL SHIPPING**

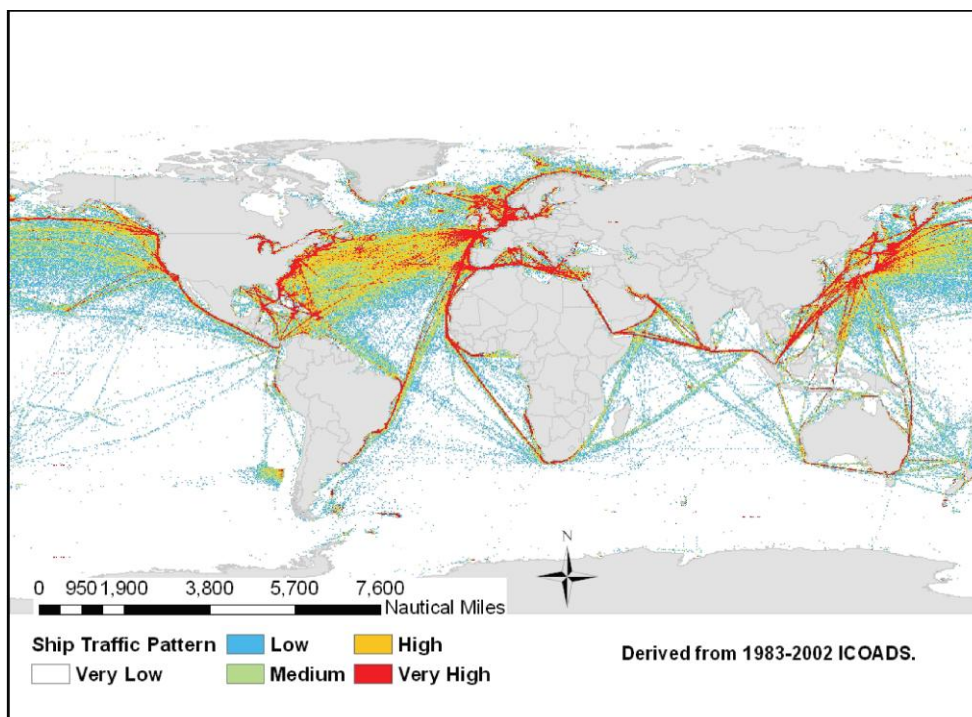
21 February 2011

**Introduction: Control of GHG emissions from ships**

1 IMO's work on greenhouse gas (GHG) emissions was triggered by the 1997 MARPOL Conference Resolution 8 on "CO<sub>2</sub> emissions from ships" requiring IMO to *inter alia* to consider feasible GHG emissions reduction strategies and to undertake a study on GHG emissions from ships. The first IMO Study on GHG Emissions from ships was presented to MEPC 45 in June 2000. In July 2009, at MEPC 59, the second IMO GHG Study was presented.

2 IMO's GHG work has been further guided by Assembly resolution A.963(23) on IMO Policies and Practices Related to the Reduction of GHG Emissions from Ships, which was adopted in December 2003. The resolution urges the Marine Environment Protection Committee of the IMO (MEPC) to develop a GHG work plan with timetable to direct the identification and development of the needed mechanisms.

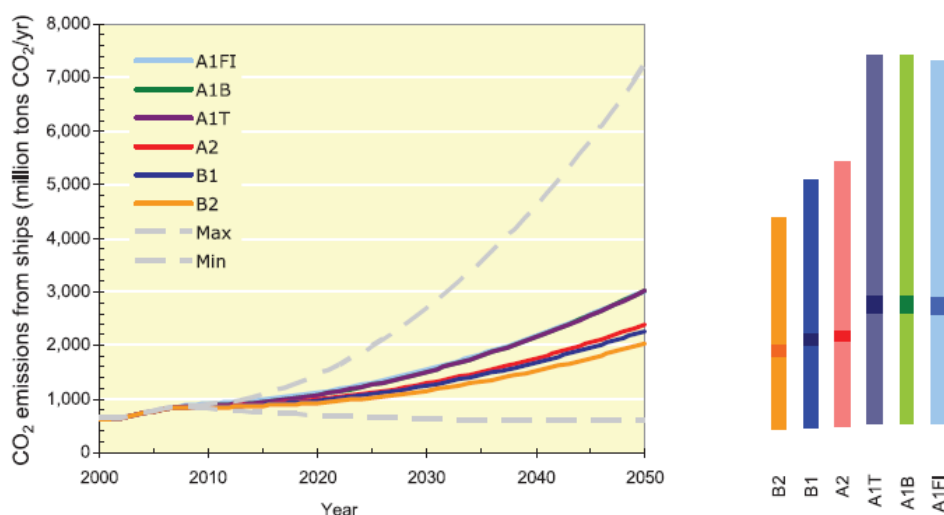
**Approximation of ship traffic distribution, based on ICOADS data**



## Work Plans with Timetable for the Consideration of Market Based Measures

3 The work plan with timetable requested by Assembly resolution A.963(23) was approved at the MEPC's fifty-fifth session (MEPC 55) in October 2006. The work plan went from MEPC 55 to MEPC 59 and called for the consideration of technical, operational and market-based methods (MBM) to deal with GHG emissions from ships in international trade. At MEPC 59, the Committee agreed upon a new work plan for the further consideration of market-based measures.

### International shipping CO<sub>2</sub> emission scenarios (Second IMO GHG Study 2009)



Scenarios are modelled from 2007 to 2050. The main scenarios are named A1FI, A1B, A1T, A2, B1 and B2, according to terminology from the IPCC Special Report on Emission Scenarios (SRES). These scenarios are characterized by global differences in population, economy, land-use and agriculture which are evaluated against two major tendencies: (1) globalization versus regionalization and (2) environmental values versus economic values. The background for these scenarios is discussed in chapter 7 of the IMO GHG Study 2009.

## Technical and Operational Measures

4 A significant amount of work on technical and operational measures has been carried out in accordance with the MEPC 55 work plan. At MEPC 59 (July 2009) the Committee agreed to a package of technical and operational measures aimed at improving the energy efficiency for new ships through better design and propulsion technologies and for all ships in operation, primarily through enhanced operational practices. The package includes the following four measures:

- .1 interim guidelines on the method of calculation of the energy efficiency design index for new ships (EEDI),
- .2 interim guidelines for voluntary verification of energy efficiency design index,
- .3 guidance for the development of a ship energy efficiency management plan (SEEMP), and
- .4 guidelines for voluntary use of the energy efficiency operational indicator (EEOI).

5 The measures included in the package were initially intended for trial purposes on a voluntary basis. The Committee will consider mandatory application of the EEDI and SEEMP at its next session, MEPC 62 in July 2011.

## Market Based Measures

### *Need and Purpose of Market Based Measures*

6 A market-based mechanism (MBM) would place a price on GHG emissions from international maritime transport. A MBM could thereby serve two main purposes: off-setting (in other sectors) of growing ship emissions and being an incentive for the industry to invest in more fuel efficient ships and to operate them more energy efficiently. In addition, MBMs could generate considerable funds that could be used for mitigation and adaptation actions in developing countries.

7 MEPC agreed with the findings of the Second IMO GHG Study 2009 that technical and operational measures 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 the growth projections of world trade. 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. It was therefore agreed by majority at MEPC 59 that a MBM is needed as part of a comprehensive package of measure for the effective regulation of GHG emissions from international shipping.

### **Summary assessment of policy options (Second IMO GHG Study 2009)**

Evaluation criteria	Technical policy options	Operational policy options			Market-based instruments	
	Mandatory EEDI limit for new ships	Mandatory SEMP	Voluntary SEMP	Mandatory EEOI limit	METS	International GHG Fund
Environmental effectiveness	Long-term: moderate	Low	Low	High	Very high	Very high
Cost-effectiveness	Moderate	Unclear	Unclear	Good	Very good	Very good
Incentive to technological change	High, but limited to technical measures	Low	Low	High	High	High
Practical feasibility of implementation	High	High	High	Low	Moderate	Moderate

### **Work Plan and Timetable for Market Based Measures**

8 In line with the work plan adopted at MEPC 55, potential MBMs have been considered in-depth by every MEPC session since MEPC 56. The MEPC 55 work plan culminated at MEPC 59, where the Committee agreed a new work plan for the further consideration of market-based measures. The new work plan guides the future discussions on MBMs as follows:

- "1. Member States, Associate Members and observer organizations should endeavour to submit further detailed outlines of possible market-based measures to MEPC 60;
2. MEPC 60 would further consider the methodology and criteria for feasibility studies and impact assessments in relation to international shipping, giving priority to the overall impact on the maritime sectors of developing countries.
3. Taking into account the outcomes and conclusions of the studies mentioned in paragraph 2 above and any other contribution made, the Committee would be able, preferably by MEPC 61, to clearly indicate which market-based measure it wishes to evaluate further and identify the elements that could be included in such a measure; and
4. Based on the outcome mentioned in paragraph 3, MEPC 62 could be in a position to report progress on the issue to the twenty-seventh regular session of the Assembly, to identify possible future steps."

## ***Proposed Market Based Measures***

9 In recent sessions, the Committee has been considering MBMs proposals from governments and observer organizations. The ten MBM proposals currently under review range from proposals for contribution schemes for all CO<sub>2</sub> 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.

10 At MEPC 59, the Committee noted that a large number of delegations had spoken in favor of an international GHG fund.

### ***Expert Group – feasibility study and impact assessment***

11 In line with the MEPC 59 work plan, MEPC 60 called for an Expert Group (EG) to undertake a feasibility study and impact assessment of the proposed measures. The EG was made up of experts nominated by Member Governments and organizations, but each expert served in their personal capacity. The EG was tasked to evaluate the various proposals with the aim to assess the extent to which each proposed measure could assist in reducing GHG emissions from international shipping. In its assessment the EG was asked to consider nine criteria, including environmental effectiveness and cost-effectiveness, set out in the EG's Terms of Reference and set out in Annex 2.

12 The results of the EG were presented in a report to MEPC 61, in which the EG noted that the evaluations of the measures had been complicated by the different levels of maturity of the proposals and that all proposals required further elaboration and development to enable a full assessment of all possible impacts in a comparable analysis. Furthermore, the EG concluded that all proposals addressed reduction of GHG emissions from shipping, although the proposed means of doing so differed with some proposals focusing on in-sector reductions and others also utilizing reductions in other sectors. Some of the proposals went beyond mitigation and proposed a mechanism that would provide substantial financial contribution to address the adverse effects of climate change. Moreover, the EG found that all proposals could be implemented notwithstanding the challenges associated with the introduction of new measures and possible negative impacts such as increases in bunker fuel prices and freight costs. Some countries would be affected more than others by these impacts. Some proposals tried to mitigate such negative impacts. An Executive Summary of the Report can be found in Annex 3. The full report is available at: <http://www.imo.org/OurWork/Environment/PollutionPrevention/AirPollution/Documents/INF-2.pdf>

### ***Potential to generate funds***

13 As is apparent from the table below that was prepared by the EG and included in its report to MEPC, the majority of the proposed MBMs have the potential to generate proceeds. These funds could be used to co-finance mitigation and adaptation actions. Amongst others,

these funds could be a potential source for the fund established by the Cancun Agreement<sup>1</sup> to address the needs for climate change actions in developing countries.

14 At MEPC 59, the Committee noted that a general preference prevailed within the Committee that a greater part of the revenues generated by a market-based measure under the auspices of IMO should be used for climate change purposes in developing countries through existing or new funding mechanisms under the UNFCCC or other international organization.

#### Potential of each MBM Proposal to generate funds

	GHG Fund	Leveraged Incentive Scheme (LIS)	Port State Levy (PSL)	Ship Efficiency and Credit Trading (SECT)	Vessels Efficiency System (VES)	Emission Trading Scheme (ETS) (Norway, France)	Emission Trading Scheme (ETS) (UK)	Bahamas	Rebate Mechanism (RM)
Remaining proceeds (\$billion)	\$4-14	\$10-87	\$40-118	\$0	\$5-18	\$28-87	\$0 <sup>5</sup>	0	\$17-23 <sup>6</sup>

#### Next steps

15 The EG Report was intended to enable the Committee to indicate, preferably at MEPC 61, which MBM should be further evaluated. However, despite the EG Report no majority view prevailed. The Committee therefore agreed that an intersessional meeting of the Working Group on GHG Emissions from Ships (GHG WG 3) should be held in March 2011.

16 GHG WG 3 is tasked to report to MEPC 62 in July 2011, advising the Committee on which MBMs to bring forward as a possible mandatory IMO instrument, so that the Committee can, in line with the MEPC 59 work plan, report progress to the twenty-seventh session of the Assembly. The Terms of Reference for the intersessional working group are included in Annex 4.

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<sup>1</sup> The Cancun Agreement recognises that developed country Parties commit, in the context of meaningful mitigation actions and transparency on implementation, to a goal of mobilizing jointly US\$ 100 per year by 2020 to address the needs of developing countries. The funding sources are not identified in the Agreement but it indicates that they will come from a wide variety of sources, including alternative sources which are generally understood to also include international maritime transport.

## ANNEX I

### Overview of the Market Based Measures Proposals

The following provides a brief overview of the ten proposals analyzed. The order of analysis was agreed by the Expert Group and this order follows the structure of the full report.

**.1 An International Fund for Greenhouse Gas emissions from ships (GHG Fund) proposed by Cyprus, Denmark, the Marshall Islands, Nigeria and IPTA (MEPC 60/4/8)** – would establish a global reduction target for international shipping, set by either UNFCCC or IMO. Emissions above the target line would be offset largely by purchasing approved emission reduction credits. The offsetting activities would be financed by a contribution paid by ships on every tonne of bunker fuel purchased. It is envisaged that contributions would be collected through bunker fuel suppliers or via direct payment from shipowners. The contribution rate would be adjusted at regular intervals to ensure that sufficient funds are available to purchase project credits to achieve the agreed target line. Any additional funds remaining would be available for adaptation and mitigation activities via the UNFCCC and R&D and technical co-operation within the IMO framework.

**.2 Leveraged Incentive Scheme (LIS) to improve the energy efficiency of ships based on the International GHG Fund proposed by Japan (MEPC 60/4/37)** – is designed to target "direct" reduction of CO<sub>2</sub> emission primarily from the shipping sector. The concept of the Leveraged Incentive Scheme is that a part of the GHG Fund contributions, which are collected on marine bunker is refunded to ships meeting or exceeding agreed efficiency benchmarks and labeled as "good performance ships".

**.3 Achieving reduction in greenhouse gas emissions from ships through Port State arrangements utilizing the ship traffic, energy and environment model, STEEM (PSL) proposal by Jamaica (MEPC 60/4/40)** – an IMO global agreement, Member States participate in levying a uniform emissions charge on all vessels calling at their respective ports based on the amount of fuel consumed by the respective vessel on its voyage to that port (not bunker suppliers). The proposal is directly aimed at reducing maritime emissions of CO<sub>2</sub> without regard to design, operations, or energy source. The Port State Levy would be structured to achieve the global reduction targets for GHG and could be leveraged in a manner as proposed by Japan to reward vessels exceeding efficiency targets.

**.4 The United States proposal to reduce greenhouse gas emissions from international shipping, the Ship Efficiency and Credit Trading (SECT) (MEPC 60/4/12)** – is designed to focus emission reduction activities just in the shipping sector. Under SECT, all ships, including those in the existing fleet, would be subject to mandatory energy efficiency standards, rather than a cap on emissions or a surcharge on fuel. As one means of complying with the standard, SECT would establish an efficiency-credit trading programme. The stringency level of these efficiency standards would be based on energy efficiency technology and methods available to ships in the fleet. These standards would become more stringent over time, as new technology and methods are introduced. Similar to the EEDI, these efficiency standards would be based on a reduction from an established baseline and would establish efficiency standards for both new and existing ships. The SECT is designed to achieve relative GHG reductions, i.e. reductions in emissions per tonne mile and not to set an overall target for the sector.

**.5 Vessel Efficiency System (VES) proposal by World Shipping Council (MEPC 60/4/39)** – would establish mandatory efficiency standards for both new and existing ships. Each vessel would be judged against a requirement to improve its efficiency by X% below the average efficiency (the baseline) for the specific vessel class and size. Standards would be tiered over time with increasing stringency. Both new build and existing ships would be covered. New builds must meet the specified standards or they may not operate. New builds, once completed, are not defined as existing ships. The system applicable to existing ships sunsets when today's fleet turns over. Existing ships may comply by improving their efficiency scores through technical modifications that have been inspected and certified



by the Administration or recognized organizations. Existing ships failing to meet the required standard through technical modifications would be subject to a fee applied to each tonne of fuel consumed. The total fee applied (non-compliant ships only) would vary depending upon how far the vessel's efficiency (as measured by the EEDI) falls short of the applicable standard. A more efficient ship would pay a smaller penalty than a less efficient ship that falls short of the standard by a wide margin.

.6 **The Global Emission Trading System (ETS) for international shipping proposal by Norway (MEPC 61/4/22)** – would set a sector-wide cap on net emissions from international shipping and establish a trading mechanism to facilitate the necessary emission reductions, be they in-sector or out-of-sector. The use of out-of-sector credits allows for further growth of the shipping sector beyond the cap. In addition the auction revenue would be used to provide for adaptation and mitigation (additional emission reductions) through UNFCCC processes and R&D of clean technologies within the maritime sector. A number of allowances (Ship Emission Units) corresponding to the cap would be released into the market each year. It is proposed that the units would be released via a global auctioning process. Ships would be required to surrender one Ship Emission Unit, or one recognized out-of-sector allowance or one recognized out-of-sector project credit, for each tonne of CO<sub>2</sub> they emit. The Norwegian ETS would apply to all CO<sub>2</sub> emissions from the use of fossil fuels by ships engaged in international trade above a certain size threshold. The proposal also indicates that limited exemptions could be provided for specific voyages to Small Island Developing States.

.7 **Global Emissions Trading System (ETS) for international shipping proposal by the United Kingdom (MEPC 60/4/26)** – is very similar in most respects to the global ETS proposal by Norway. Two aspects of the UK proposal that differ from the Norwegian ETS proposal are the method of allocating emissions allowances and the approach for setting the emissions cap. The UK proposal suggests that allowances could be allocated to national governments for auctioning. It also suggests the net emission cap would be set with a long term declining trajectory with discrete phases (for example, five to eight years) with an initial introductory or transitional phase of one to two years.

.8 **Further elements for the development of an Emissions Trading System (ETS) for International Shipping proposal by France (MEPC 60/4/41)** – sets out additional detail on auction design under a shipping ETS. In all other aspect the proposal is similar to the Norwegian proposal for an international ETS.

.9 **Market-Based Instruments: a penalty on trade and development proposal by the Bahamas (MEPC 60/4/10)** – does not set explicit standards or reductions to be achieved in the shipping sector or out-of-sector for GHG reductions. The proposal clearly sets forth that the imposition of any costs should be proportionate to the contribution by international shipping to global CO<sub>2</sub> emissions. Bahamas' Focal Point has indicated that it is assuming that mandatory technical and operational measures would be implemented such as the EEDI. The proposal would apply to all ships engaged in both domestic and international maritime transport as fuel prices impact all market segments and trades.

.10 **A Rebate Mechanism (RM) for a market-based instrument for international shipping proposal by IUCN (MEPC 60/4/55)** – focuses on a Rebate Mechanism to compensate developing countries for the financial impact of a MBM. A developing country's rebate would be calculated on the basis of their share of global costs of the MBM, using readily available data on a developing country's share of global imports by value as a proxy for that share (or another metric such as value-distance if data becomes available). The proposal indicates that, in principle, the Rebate Mechanism could be applied to any maritime MBM which generates revenue such as a levy or an ETS. In order to evaluate the proposal, the Rebate Mechanism has been assessed integrated with a MBM (see MEPC 60/4/55).

## ANNEX II

### Terms of Reference for Expert Group to Conduct Feasibility Study and Impact Assessment

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

##### 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 fulfill 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 island developing States (SIDS).

3 The Committee agreed that the MBM proposals to be assessed are those listed in the 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 an 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.

## Annex III

### **Executive Summary of report of the work undertaken by the Expert Group on Feasibility Study and Impact Assessment of possible Market-based Measures**

#### **BACKGROUND**

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

In order to undertake this study, the Secretary-General established an Expert Group on Feasibility Study and Impact Assessment of Possible Market-Based Measures (the Expert Group). The Expert Group was made up of experts nominated by Member Governments and organizations, but each expert served in their own personal capacity. Consistent with the terms of reference given by the Committee, the experts were to evaluate the various proposals with the aim of assessing the extent to which they could assist in reducing GHG emissions from international shipping. To guide its analysis, the Expert Group was given the following nine criteria:

- .1 the environmental effectiveness, e.g., the extent to which the proposed MBM is effective in contributing to the reduction of greenhouse gas (GHG) 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 development 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 the UNFCCC, Kyoto Protocol, and WTO, as well 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.

This Expert Group study comes at a critical time in IMO's deliberations on how to address greenhouse gas (GHG) from the maritime sector. As noted in the Second IMO GHG Study 2009, international shipping contributed to 2.7% of the global emissions of CO<sub>2</sub> in 2007. This contribution is expected to increase in the future due to projected growth in world trade and the demand for seaborne transport. International shipping is, by far, the most energy efficient method of transporting goods; however, the resulting emissions will

contribute to climate change due to the long lasting effects of CO<sub>2</sub> in the atmosphere.

The ten proposals analyzed describe programmes that would target GHG reductions through in-sector emission reductions from shipping or out-of-sector emissions reductions through the collection of funds to be used for mitigation activities in other sectors that would contribute towards the overall goal of reducing global GHG emissions. The submission by Germany was not evaluated since this was an impact assessment and could not be reviewed against the nine criteria. It was thus treated as an information resource to assist in the assessment of the proposals under review.

To manage the work in a tight time scale, the Expert Group established four task-groups: Environment, Shipping and Maritime, Administrative and Legal, and Trade and Development and Developing Countries. In addition to the three meetings of the Expert Group, at the IMO headquarters, in London, the task-groups worked by various means including electronic correspondence, face to face meetings, and telephone conferencing. Two external consultants were commissioned to undertake detailed analytical work.

All of the proposals directed at establishing a MBM to reduce GHG emissions bring forward concepts that have merit for achieving cost-effective reductions in GHG emissions. However, many of the issues considered by the Group were complicated by the fact that none of the proposals have final legal text from which to evaluate the administrative and legal criteria given by the MEPC.

The MBM proposals seek to achieve similar objectives to a greater or lesser extent through differing methodologies. Some mechanisms clearly state all objectives and/or they are reflected in the design of the MBM. In other cases the policy objectives would need to be developed further and these could influence the environmental effectiveness and other benefits delivered by the MBM.

The Report is organized in five main parts related to the evaluation of the various mechanisms as follows:

- Proposals evaluated (Chapter 6)
- Assumptions (Chapter 7)
- Evaluation of the ten proposals against the nine criteria (Chapters 9 to 18)
- General impacts of market-based measures on trade, competition and consumer prices (Chapter 19)
- Conclusions (Chapter 20)

## **OVERVIEW OF THE VARIOUS PROPOSALS**

[see Annex 1]

### **ENVIRONMENTAL OVERVIEW**

The Environment task-group evaluated the various proposals against criteria numbers 1 and 2 (in part).

### **Reduction mechanism employed by the proposals**

The proposed MBMs deliver reductions in GHG emissions through eight mechanisms. One or more of these mechanisms are used in combination by each MBM. These mechanisms work to deliver reductions in GHG emissions either within the sector or from outside the sector. The mechanisms are described below.

## ***In-sector mechanisms***

**Mandatory EEDI:** Mandatory EEDI design standards that apply to all new builds prior to entering the fleet. Reductions from the standards would be determined by the stringency of the standards over time and the penetration of new builds into the fleet.

**SECT with efficiency trading:** An efficiency standard which applies to all ships operating in the international fleet combined with an efficiency trading scheme. Ships which are more efficient than the standard could generate efficiency credits while ships below the standard could purchase credits as a second option for complying with the standard. Emission reductions would be determined by the stringency of the standards over time.

**VES existing ship standard combined with fuel based charge:** An EEDI standard which would apply to ships built prior to the scheme entering into force, with the option of paying a fee for ships failing to meet the standard. In general, existing ships for which it is technically feasible to meet the standard would comply with the standard or pay the charge depending on which option would be judged to be most cost-effective. The extent, to which in-sector emission reductions are stimulated in existing ships would therefore, largely be a function of the fee. The base fee would be a significant fraction of the fuel price.

**Price incentive applied to fuel:** A broad based price signal applying to all fuel consumed by ships engaged in international trade (above an agreed threshold). This price signal could arise from paying a contribution or levy on fuel, or through being required to purchase and surrender emission allowances or credits for emission from fuel use. The price would primarily influence the amount of in-sector reductions achieved through this element, and the MBMs under review differ on how this price is established.

**Leverage refund incentive:** Ships that meet certain 'good performance' criteria would be eligible to receive a full or partial refund on a levy (price signal) they are required to pay on fuel. This increases the incentive for in-sector reductions over a standard price signal by directing revenues back into the sector.

## ***Out-of-sector mechanisms***

**Purchase of out-of-sector credits by the shipping sector:** Ships would be required to surrender one Ship Emission Unit (an allowance) or credit/allowance from outside the sector for each tonne of GHG they emit. By only releasing a limited number of Ship Emission Units into the market each year, any emissions that exceed that limit would be offset by the sector's purchase of project credit/allowance from outside the sector.

**Prescribed purchase of out-of-sector reductions by a fund:** Revenue collected in the operation of an MBM would be used by a central (global) fund in accordance with agreed rules to purchase emissions reductions outside the sector. This mechanism is prescribed by two proposals: the GHG Fund, where the rules prescribe that sufficient offsets must be purchased to deliver a net emission target; and the Rebate Mechanism, where the rules prescribe that a fixed portion of the revenues must be used to purchase offsets.

**Remaining proceeds:** Revenue collected in the operation of a MBM which is not explicitly allocated to mitigation. This revenue could be used for a range of purposes including climate change adaptation and mitigation, R&D and technological cooperation, or as compensation. These are largely policy considerations, but to the extent that revenues would be used for mitigation it would increase the environmental effectiveness of the proposal, although there is an obvious trade-off between delivering environmental benefits and delivering other benefits. Rebates and other proceeds designated under the direct control of national governments are not included in Remaining Proceeds.

## Emission reduction and other benefits

A model was developed to examine in-sector and out-of-sector emission reductions and costs of the MBM proposals under a range of scenarios. The "remaining proceeds" and the potential supplementary out-of-sector reductions that could be delivered should 100 per cent of proceeds be used for mitigation (calculated for comparative purposes) was also estimated in the modelling:

- .1 two growth rates; B2 (1.65 per cent growth) and A1B (2.8 per cent growth);
- .2 three targets 0%, 10% and 20% below 2007 GHG emission levels (as per Second IMO GHG study 2009) for the GHG Fund, and ETS proposals, with an additional 10 per cent contribution assumed under the GHG Fund for adaptation and R&D purposes (shown as remaining proceeds);
- .3 28 per cent of revenues are used for mitigation under the Rebate Mechanism proposal and 25, 50 or 75 per cent of revenues refunded to "good performing ships" under the LIS proposal<sup>5</sup>;
- .4 three stringencies for efficiency index standards for the SECT and VES proposals; low, medium and high; and
- .5 two carbon price scenarios; medium and high; and two fuel price scenarios; reference and high.

	GHG Fund <sup>2</sup>	Leveraged Incentive Scheme (LIS)	Port State Levy (PSL)	Ship Efficiency and Credit Trading (SECT)	Vessels Efficiency System (VES)	Emission Trading Scheme (ETS) (Norway, France)	Emission Trading Scheme (ETS) (UK)	Bahamas	Rebate Mechanism (RM) <sup>3</sup>
Mandatory EEDI (Mt)				123-299	123-299			4	
SECT standard with efficiency trading (Mt)				106-142					
VES existing ship standard combined with fuel based charge (Mt)					14-45				
Price incentive applied to fuel (Mt)	1-31	32-153 <sup>5</sup>	29-119			27-114	27-114		29-68
Leverage refund incentive (Mt)									
Purchase of out-of-sector project credits by shipping sector (Mt)						90-539	90-539		

<sup>2</sup> Includes an illustrative additional contribution of 10% for the purposes of adaptation, R&D and technical cooperation.

<sup>3</sup> The Rebate Mechanism has been integrated with an MBM system following the IUCN submissions to MEPC 60/4/55 and further details provided in the IUCN Technical Report submitted to the MBM-EG under paragraph 4.7 of the Terms of Reference of MBM-EG (MEPC 60/J/9). This option of the proposal is referred to in this document as "RM integrated" and illustrates how the mechanism can be operationalized; and allows the proposal to be comprehensively assessed.

<sup>4</sup> Should the EEDI be accepted by the Committee, EEDI reductions would be taken into account in the BAU scenario, and thus accounted for in the evaluation of the Bahamas proposal.

<sup>5</sup> Includes in sector reductions from the price incentive applied to fuel and the leverage refund incentive.

	GHG Fund <sup>2</sup>	Leveraged Incentive Scheme (LIS)	Port State Levy (PSL)	Ship Efficiency and Credit Trading (SECT)	Vessels Efficiency System (VES)	Emission Trading Scheme (ETS) (Norway, France)	Emission Trading Scheme (ETS) (UK)	Bahamas	Rebate Mechanism (RM) <sup>3</sup>
Prescribed purchase of out-of-sector reductions by fund (Mt)	152-584								124-345
Total reductions (% of BAU)	13-40%	3-10%	2-8%	19-31%	13-23%	13-40%	13-40%	<sup>2</sup>	13-28%

	GHG Fund	Leveraged Incentive Scheme (LIS)	Port State Levy (PSL)	Ship Efficiency and Credit Trading (SECT)	Vessels Efficiency System (VES)	Emission Trading Scheme (ETS) (Norway, France)	Emission Trading Scheme (ETS) (UK)	Bahamas	Rebate Mechanism (RM)
Remaining proceeds (\$billion)	\$4-14	\$10-87	\$40-118	\$0	\$5-18	\$28-87	\$0 <sup>6</sup>	0	\$17-23 <sup>7</sup>
Potential for purchase of supplementary out-of-sector reductions using remaining proceeds(Mt)	104-143	232-919	917-1232	0	45-454	696-870	0 <sup>4</sup>	0	187-517 <sup>5</sup>

### Certainty of emission reductions

Different MBMs provide different levels of certainty over an absolute or relative target (or in some cases no certainty over a target). The GHG Fund, SECT and shipping ETS are designed to deliver certainty over a particular outcome. For the GHG Fund and shipping ETS this outcome is to constrain the sector's net emissions to an agreed level. On the other hand, SECT is designed to deliver certainty over a relative target of emissions per tonne mile.

The other proposals are not designed with the goal of strict certainty of outcome in mind with regards to emissions reductions. Nevertheless this does not mean that the reductions achieved by these mechanisms could not be predictable, to a greater or lesser extent. Moreover, some of these proposals would generate remaining proceeds, which could be used for a range of purposes, and policies that guide the use of this revenue could have a significant bearing on the certainty of outcome.

The reductions shown in the table above for the different mechanisms indicate:

- .1 There is a high degree of certainty that reductions achieved by mandatory technical standards would be delivered, as ships that do not meet the standard would not operate.

<sup>6</sup> While this proposal would raise revenue from auctioning allowances it appears that auction revenues will remain with national Governments. This revenue has not been considered available for supplementary reductions. Such revenues could however be made available subject to decisions and implementation of mechanisms at the national level.

<sup>7</sup> While this proposal would raise revenue from a levy it appears that 30 per cent of revenue which is rebated will remain with national Governments. This revenue has not been considered available for supplementary reductions. Such revenues could however be made available subject to decisions and implementation of mechanisms at the national level.



- .2 The extent to which reductions would be achieved in response to a price signal (charge on fuel) are generally uncertain, due to the influence of non-price barriers. However, where a price signal is used in the context of the GHG Fund or ETS, more or less reductions in-sector would be compensated for by more or less reductions out-of-sector.
- .3 Reductions achieved in response to a leverage refund incentive are also somewhat uncertain as shipowners would make decisions on whether or not to respond to this incentive on the basis of its likely costs and benefits.

Certainty can also be viewed from the perspective of whether the reductions are verifiable. For all MBMs the integrity of the scheme depends on robust monitoring, reporting and verification requirements for the shipping industry and well designed compliance and enforcement systems. Similar, monitoring, reporting and verification systems as well as robust processes for managing the additionality would be required for any out-of-sector reductions accessed through the MBM. This element needs to be further developed for most of the proposals. In relation to other out-of-sector reductions accessed through the MBM, comparable system for monitoring, reporting and verifications is also required.

## **SHIPPING OVERVIEW**

The Shipping task-group evaluated the various proposals against criteria numbers 2 (in part), 3 and 8. In its analysis, the task-group commissioned a marginal abatement cost study. Cost effective operational and technical emission reduction measures are available to the shipping sector. However barriers exist in the uptake of many of these measures.

### **Cost Effectiveness**

All of the proposals were modelled to enable an assessment of their environmental effect together with the indicative cost. The cost of reductions was determined by relating the delivered in-sector and out-of-sector emission reductions to the cost to the industry.

The potential cost-effectiveness was determined by considering the combined effect of assessed in-sector emission reductions, together with the out-of-sector mitigation possible by utilization of all available remaining funds related to the cost to the industry.

### **Potential to Provide Incentives to Technological Change**

The potential of each proposal to drive investments in additional energy efficiency measures was evaluated together with the benefit to be gained from early implementation of energy efficiency improvements.

### **Potential Additional Workload**

The cost relating to the additional burden to crew associated with operation and maintenance was evaluated. This was then calculated as a percentage of the gross cost to the industry of each measure for comparative purposes. The table below highlights the Group's evaluations of each of the above considerations for the MBMs under evaluation.

MBM	Cost of MBM, based on A1B 2030 Scenario	Investment certainty comments	Early action benefit	Potential additional on board workload
<b>GHG Fund (Denmark et al.)</b>	<p>The cost of reductions is estimated to be 50 \$/tonne CO<sub>2</sub> abated.</p> <p>The maximum cost-effectiveness potential of the proposal is 39 \$/tonne CO<sub>2</sub> abated assuming all funds are allocated to mitigation (including the additional 10% contribution rate)</p>	<p>Cost predictability involves two aspects:</p> <ul style="list-style-type: none"> <li>.1 inherent stability of fixing the price for a given time period; and</li> <li>.2 need to adjust the price between periods to compensate for any over/under collection in the period compared to the CDM market fluctuations within the same period.</li> </ul> <p>The level of contribution has to be set on the basis of the global carbon price. Averaging over several periods this proposal will not be more or less costly than other proposals hinging on the Model Carbon Price.</p>	Neutral	\$0.1 billion or less than 0.5% of the gross cost of the proposal
<b>LIS (Japan)</b>	<p>The cost of reductions is estimated to be 319 \$/tonne CO<sub>2</sub> abated.</p> <p>The amount of funds collected for other purposes is \$24 billion.</p> <p>The maximum cost-effectiveness potential of the proposal is 36 \$/tonne CO<sub>2</sub> abated assuming all funds are allocated to mitigation</p>	<p>Cost predictability involves aspects related to the inherent stability of fixing the price for a given time period.</p>	Relatively high.	\$0.9 billion or about 2% of the gross cost of the proposal. It shall be emphasized that this value is a gross estimation.
<b>PSL (Jamaica)</b>	<p>The cost of reductions is estimated to be 770 \$/tonne CO<sub>2</sub> abated.</p> <p>The amount of funds collected for other purposes is \$49 billion.</p> <p>The maximum cost-effectiveness potential of the proposal is 38 \$/tonne CO<sub>2</sub> abated assuming all funds are allocated to mitigation</p>	<p>Cost predictability involves two aspects:</p> <ul style="list-style-type: none"> <li>.1 inherent stability of basing the price on the carbon price; and</li> <li>.2 volatility of the carbon price.</li> </ul>	Neutral	\$0.8 billion or about 1.5% of the gross cost of the proposal
<b>SECT (USA)</b>	Not possible due to the modelling approach selected	<p>The cost-effectiveness could not be calculated as the gross cost for the scheme could not be determined.</p> <p>However new ships will be built to achieve the</p>	High	not priced

<b>MBM</b>	<b>Cost of MBM, based on A1B 2030 Scenario</b>	<b>Investment certainty comments</b>	<b>Early action benefit</b>	<b>Potential additional on board workload</b>
		mandatory EEDI standards and therefore both comply with the less stringent existing ship efficiency index standards, and be eligible to earn project credits.		
<b>VES (WSC)</b>	<p>The cost-of reductions is estimated to be 247 \$/tonne CO<sub>2</sub> abated.</p> <p>The amount of funds generated for other purposes is \$7.4 billion.</p> <p>The maximum cost-effectiveness potential of the proposal is 34 \$/tonne CO<sub>2</sub></p>	<p>The Vessel Efficiency System is based on the EEDI.</p> <p>Investment in any improvement of the EEDI for an existing ship towards meeting the standard will thus generate a well-defined return in limiting the costs applied to fuel consumption.</p>	High	The cost of additional workload onboard is \$0.4 billion or 5% of the gross cost.
<b>ETS (Norway)</b>	<p>The cost of reductions is estimated to be 96 \$/tonne CO<sub>2</sub> abated</p> <p>The amount of funds collected for other purposes is \$31 billion.</p> <p>The maximum cost-effectiveness potential of the proposal is 38 \$/tonne CO<sub>2</sub> abated assuming all funds are allocated to mitigation</p>	The existing carbon market shows that volatility of the carbon price is similar to the volatility of the bunker price. However, the absolute variance (the amplitude) in terms of the difference between the maximum and the minimum level of the carbon price is much lower than the absolute variance of the bunker fuel price. It should be noted that shipowners are experienced in coping with fluctuating bunker prices.	Neutral	\$0.7 billion or about 1.5% of the gross cost of the proposal
<b>Bahamas</b>	There are no additional costs of the Bahamas proposal to those that would arise under business as usual, which include the normal costs of fuel.	The volatile price of fuel has historically been an inhibitor for investment stability in shipping.	Neutral	Introduction of a mandatory EEDI for new ships may add to the onboard workload due to addition of technology to reduce emissions.
<b>RM (IUCN)*</b>	<p>The cost-of reductions is estimated to be 121 \$/tonne CO<sub>2</sub> abated.</p> <p>The amount of funds generated for other purposes is \$21 billion,</p> <p>The maximum cost-effectiveness potential of the proposal is 53 \$/tonne CO<sub>2</sub> assuming all funds are allocated to mitigation</p>	The adjustment of the levy is relatively frequent (every 3 months) which potentially makes the price fluctuate more than the GHG Fund proposal where the re-setting of the contribution is anticipated to take place at years intervals	Neutral	\$0.8 billion or about 1.5% of the gross cost of the proposal

\*

Assessment refers to Rebate Mechanism (RM) integrated with MBM as referenced in MEPC 60/4/55

## **ADMINISTRATIVE AND LEGAL**

The Administrative and Legal task-group evaluated the various proposals against criteria numbers 2 (in part), 4, 6, 7, and 8.

### **Relation with Other Conventions**

The administrative and legal task-group was successful in highlighting some of the policy sensitivities inherent when discussing compatibility with the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol. The experts recognized that the principle of common but differentiated responsibilities and respective capabilities apply in the context of the UNFCCC and its Kyoto Protocol and the IMO Convention specifies non-discrimination in IMO instruments. However there are different views on application of these principles among the experts. One view is that the UNFCCC provides the central policy infrastructure for global climate change action and the proposed market-based measures must take into account the principle of common but differentiated responsibilities and respective capabilities. Another view is that the principles of the UNFCCC do not apply in the IMO and that all of the market-based measures that aim to reduce emissions are therefore consistent with the UNFCCC.

### **Practical Feasibility**

The experts agreed that all of the proposals could be implemented in a practical and feasible manner notwithstanding the challenges associated with the introduction of new measures. For all the proposals, the time necessary for the development of a legal instrument would be impacted by broader policy considerations.

The experts noted that all the proposals need further development so as to minimize concerns over possible carbon leakage, potential for fraud, and global implementation.

### **Administrative Burden and Compatibility with the Existing IMO Enforcement and Control Provisions**

The administrative requirements of the proposals vary, but all of the MBM proposals require some additional administrative burden from flag States, port States, and shipowners/operators. Some proposals clearly identify the additional administrative issues, in other cases these issues will need to be developed further, which could impact the administrative burden.

The majority of administrative issues associated with the GHG Fund are related to the central administrative body collecting and distributing the revenue generated. There will also be port and flag State requirements.

The Emission Trading Scheme(s) would also require administration of a fund to collect and distribute revenue associated with the proposals. There will also be flag State requirements and port State rights.

The Rebate Mechanism would have the administrative characteristics of whatever proposals it is connected to. However, the Rebate Mechanism itself would require additional administrative responsibilities.

The Port State Levy does not specify what body will collect and distribute the revenues raised, but that body would have administrative requirements. Administrative requirements for the port State, flag State, and owner/operator will also exist under the Port State Levy programme and could be more than for some other proposals.

The Leveraged Incentive Scheme has many of the Administrative features in common with the GHG Fund, but as some of the revenues will be distributed to enhance in-sector reductions, it will likely have higher administrative burden than the GHG Fund itself for the administrative body as well as for shipowners/operators.

The Vessel Efficiency System would require an Administrative body to collect and distribute the revenues collected. Administrative requirements for the port State, flag State, and owner/operator will also exist under this programme.

The Ship Efficiency and Credit Trading proposal is solely designed to deliver reductions within the shipping sector and as such, does not require any administrative functions from a fund. Administrative requirements for the port State, flag State and owner/operator will also be necessary to ensure efficiency standards are met or an efficiency credit has been purchased.

The Bahamas proposal focuses on the need to deliver reductions within the sector through technical efficiency and operational measures and will only necessitate any administrative requirements associated with other regulations developed and agreed by IMO (e.g., EEDI).

## **TRADE AND DEVELOPMENT AND DEVELOPING COUNTRIES**

The task-group evaluated the various proposals against criteria numbers 2 (in part) and 5.

Most countries, but developing countries in particular, have a strong reliance on international trade for their economic development and thus have a keen interest in proposals likely to increase the cost of shipping goods by sea thereby impacting on their GDP and general economic development.

### **Potential impact(s) on trade and sustainable development**

The task-group reviewed a number of existing studies on trade impacts and commissioned additional quantitative analysis on consumer impacts of applying the MBM proposals. In general, the results showed that impacts will vary by trade route, vessel type, cargo shipped (especially value by weight), and by the structure of the market in the importing and exporting countries in terms of both local and other land based competition.

When discussing impacts of market-based measures for the maritime sector, one outcome of the analysis was that developing countries, especially SIDS and LDCs, should not be treated as a collective bloc or blocs of countries. Since the various proposals will have differing impacts on individual LDCs, SIDS and other developing countries.

Indirect economic costs and benefits were not considered in the quantitative assessment, despite their importance.

The analysis undertaken also showed that where there is a larger market share for domestic production, the less likely it is that the exporter would be able to pass an increase in transportation costs through to the end consumer due to competition from domestic producers. Conversely, where there is little or no domestic production, the exporter is more likely to be able to pass the increased costs on to the end consumer.

Increased freight costs will also have a larger impact where goods have a low value to weight ratio, as the increase in freight cost is a larger share of the final cost than for higher value added products. The impact on producers in exporting and importing countries will vary, depending on market shares and price elasticities.

To the extent that the measures provide incentives to increase the fuel efficiency of ships,

there could also be a reduction in operating costs from fuel savings. What the effect might be of efficiency measures for any particular trade route or cargo was not modelled.

An impact assessment of the proposed MBMs was carried out by Indian National Shipowners' Association on some of their internationally trading vessels and the findings showed that implementation of technical and operational measures to reduce fuel consumption would result in substantial cost savings and reduce GHG emissions. However, ship operators would face challenges in implementing mitigation measures, including access to technology and additional finance.

### **Technology Transfer**

All the proposals provide some form of incentives for shipowners to improve their ships technically or their operational efficiencies. While a number of measures or technologies that could result in fuel saving for ships exist, there may be hurdles to adopting such measures or technologies, including long payback periods. There could be a need for technology transfer to help improve ship and operational efficiencies.

### **CONCLUSIONS**

The evaluation of the proposals was completed as requested by the Committee in accordance with the terms of reference and each evaluation provides the required assessment as described in the terms of reference specifically in its paragraph 2.5.

The evaluation was complicated by the different levels of maturity of the proposals. Proposals with a high level of maturity generated more discussion compared to those that were less developed.

The Group would like to point out that elements of the proposed measures would require further elaboration and development. Proposals at an early stage of development would be required to be developed further.

The Group reached its conclusions by consensus apart from a few instances where the evaluation of legal or administrative aspects led to different views as captured in the report.

All proposals address reduction of GHG emissions from shipping. Some of the proposals go beyond mitigation and propose a mechanism that provides for substantial contribution to address the adverse effects of Climate Change.

The proposals have different ways of reducing emissions, some focus on "in-sector" reductions and others also utilize reductions in other sectors. The extent of such reductions is detailed within the individual evaluation of each proposal in the report.

Cost effective operational and technical emission reduction measures are available to the shipping sector. However barriers exist in the uptake of many of these measures.

The Group has considered sustainable development in a holistic way so that it became an inherent part of the assessment, rather than as an isolated criterion because this was the best approach.

The Group has identified that the implications of implementing the different MBM proposals for international shipping are directly related to the stringency of the proposed measure. Irrespective of this, the Group concluded that all proposals could be implemented notwithstanding the challenges associated with the introduction of new measures.

The assessment of the impacts of an increase in bunker fuel prices and freight costs showed that implementation of the proposed measures would affect some countries and products



more than others. In some cases even small increases in costs could have relatively significant consequences. Indirect economic costs and benefits were not considered in the analysis. Some of the proposed measures include mechanisms aiming to provide means to mitigate negative impacts.

The proposals lack, to various degrees, sufficient details for the necessary evaluation of issues such as international harmonization in implementation, carbon leakage, fraud, and traffic of vessels between non-party states, among others. These issues require further policy considerations in order to be more properly addressed.

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## Annex IV

### TERMS OF REFERENCE FOR THE THIRD INTERSESSIONAL MEETING OF THE WORKING GROUP ON GHG EMISSIONS FROM SHIPS (GHG-WG 3)

Based on comments and decisions made by the Committee and building on work already undertaken, as well as new submissions, the third intersessional meeting of the Working Group on GHG Emissions from Ships (GHG-WG 3), under the Chairmanship of Mr. Andreas Chrysostomou (Cyprus), is instructed to:

- 1 examine and provide the Groups' opinion on the compelling need and purpose of Market-based Measures (MBM) as a possible mechanism to reduce greenhouse gas emissions from international shipping;
- 2 group the proposed MBMs in accordance with the reduction mechanism they use (e.g., in-sector/out-of-sector, etc.) and other relevant features; and identify and list strengths and weaknesses for each of the MBM groups;
- 3 examine the MBM proposals relation to the principles and provisions of relevant conventions such as the UNFCCC and its Kyoto Protocol, as well as their compatibility with the WTO Rules and customary international law, as depicted in UNCLOS;
- 4 having in mind the discussion in paragraph 3 and building on the work of the Expert Group on Feasibility Study and Impact Assessment of Possible Market-Based Measures (MBM-EG), further assess each of the MBM groups mentioned above against the same criteria as used by the MBM-EG (paragraph 5 of annex 8 to MEPC 60/22, reproduced at annex), using the analyses already undertaken by the MBM-EG to avoid duplication, for a more clear input to the Committee in relation to the policy issues;
- 5 continue the analysis of the MBM-EG Study (MEPC 61/INF.2), evaluate the impact of the proposed MBMs on international trade, and the maritime sector of developing countries, least developed countries (LDCs) and small island developing states (SIDS), and the corresponding environmental benefits; and
- 6 submit a written report to MEPC 62.

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