Work undertaken by the MBM-EG
Structure

- Aim of the Study
- Introduction of the MBM-EG
- Environmental Overview
- Shipping Overview
- Trade and Development and Developing Countries
- Administrative and Legal
- Conclusions
- Open floor for questions and discussion
Aim of the Study

- Evaluate the ten MBM proposals submitted to MEPC 60.

- Assess to what extent they could assist in reducing GHG emissions from International shipping.
Introduction to the MBM-EG

It is known from the Second IMO GHG Study 2009, that:

- International shipping contributed 2.7% of the global emissions of CO$_2$.
- This contribution is expected to increase in the future due to projected growth in world trade and the demand for seaborne transport.
- Even though International shipping has been recognized to be the most efficient method of transporting goods there is a need to address GHG emissions from the maritime sector.
Introduction to the MBM-EG

- With the increasing importance of achieving sustainable measures to address GHG emissions, MEPC 60 decided to undertake a Feasibility Study and Impact Assessment of Market-based Measures (MBM).

- An Expert Group on MBM (MBM-EG) was then established by the Secretary-General with the aim of evaluating the ten submitted proposals and assessing the extent to which they could assist in reducing GHG emissions from International shipping.
Introduction to the MBM-EG

- The Experts’ analysis of the proposed MBM should address the following nine criteria:
  1. Environmental effectiveness
  2. Cost-effectiveness and potential impact on trade and sustainable development
  3. The potential to provide incentives to technological change and innovation
  4. Practical feasibility of implementing 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)
Introduction to the MBM-EG

6. The relation with other relevant conventions (UNFCCC, Kyoto Protocol and WTO) and the compatibility with customary international law

7. The potential additional administrative burden and the legal aspects for National Administrations to implement and enforce 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 MBM

9. The compatibility with the existing enforcement and control provisions under the IMO legal framework.
Ten MBM proposals were analyzed by the Experts. These were:

- 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)
- Leveraged Incentive Scheme (LIS) to improve the energy efficiency of ships based on the International GHG Fund proposed by Japan (MEPC 60/4/37)
- Achieving reduction in greenhouse gas emissions from ships through port-State arrangements utilizing the ship traffic, energy and environment model, STEEM (PSL) proposed by Jamaica (MEPC 60/4/40)
Introduction to the MBM-EG

- The United States proposal to reduce greenhouse gas emissions from international shipping, the Ship Efficiency and Trading (SECT) (MEPC 60/4/12)
- Vessel Efficiency System (VES) proposed by World Shipping Council (MEPC 60/4/39)
- The Global Emission Trading System (ETS) for international shipping proposed by Norway (MEPC 60/4/22)
- Global Emissions Trading System (ETS) for international shipping proposed by the United Kingdom (MEPC 60/4/26)
- Further elements for the development of an Emissions Trading System (ETS) for international shipping proposed by France (MEPC 60/4/41)
Introduction to the MBM-EG

- Market-based Instruments: a penalty on trade and development proposed by Bahamas (MEPC 60/4/10)
- A Rebate Mechanism (RM) for a market-based instrument for international shipping proposed by IUCN (MEPC 60/4/55)

All proposals describe programmes that would target GHG reductions through:

- In-sector emissions reductions from shipping; or
- Out-of-sector reductions through the collection of funds to be used for mitigation activities in other sectors that would contribute towards global reduction of GHG emissions
Introduction to the MBM-EG

- For a better management and development of the work, the Expert Group established four task-groups:
  - Environment
  - Shipping and Maritime
  - Administrative and Legal
  - Trade and Development and Developing Countries
The work of the Expert Group was carried out by various means:

- Three meetings at IMO headquarters, in London
- Other face to face meetings of the established task-groups
- Electronic correspondence
- Telephone conferencing
- Two external consultants were commissioned to undertake the detailed analytical work
Introduction to the MBM-EG

The report is organised in five main parts:

- Terms of reference and proposals evaluated (Chapters 2 and 6)
- Assumptions made (Chapter 7)
- Evaluation of proposals against the nine criteria (Chapters 9 to 18);
- General impacts on trade, competition and consumer prices (Chapter 19 and Consultant’s report)
- Conclusions (Chapter 20)
Environmental Overview

Task Leader:
Dr. Andrew Pankowski
Department of Climate Change and Energy Efficiency, Australia

Presented by: Dr. Anne-Marie Warris
Lloyd’s Register, United Kingdom
Work of the Group

- Qualitative assessment of the various MBM
- Identify key factors expected to influence:
  - emission reductions; and
  - certainty of reductions
- Modelling of emission reductions and “remaining proceeds” under defined scenarios
  - grateful for Dr Andre Stochniol’s assistance in developing the model
Challenges

- Time constraints
  - simplified assumptions had to be made when modelling the MBM

- Different levels of maturity of proposals
  - environmental effectiveness is more easily assessed for proposals with clearly defined policy objectives
  - environmental effectiveness of some proposals is contingent on further policy development
Mechanisms

- Eight mechanisms to deliver “in-sector” and “out-of-sector” emission reductions:
  - **In-sector mechanisms:**
    1. mandatory EEDI (SECT, VES, Bahamas*)
    2. efficiency trading (SECT)
    3. existing ship standard with fuel based charge (VES)
    4. broad-based price incentive on fuel use (GHG Fund, LIS, PSL, ETS all, Rebate Mechanism)
    5. refund incentive (LIS)

* Included if the mandatory EEDI is adopted by the committee
Mechanisms

- Out-of-sector mechanisms

  6. purchase of out-of-sector project offset credits by shipping sector (ETS all)

  7. prescribed purchase of out-of-sector project offset credits by a fund (GHG Fund, Rebate Mechanism)

  8. potential for supplementary reductions from use of “remaining proceeds” (GHG Fund, LIS, PSL, VES, ETS Norway, ETS France, Rebate Mechanism)
Scenarios

- Modelling scenarios (agreed by EG):
  - two growth rates (1.65% and 2.8%)
  - three targets lines /caps for GHG Fund and ETS (0%, 10% and 20% below 2007 level)
  - 28% revenue used for mitigation for Rebate Mechanism and 25%, 50%, and 75% revenue refunded for LIS
  - low, medium and high stringency standards for VES and SECT
  - two carbon price scenarios (medium and high) and two fuel price scenarios (reference and high)
Emission reductions in 2030
Modelled emission reductions across various scenarios

<table>
<thead>
<tr>
<th></th>
<th>SECT (Mt)</th>
<th>VES (Mt)</th>
<th>Bahamas (Mt)</th>
<th>GHG Fund</th>
<th>LIS (Mt)</th>
<th>PSL (Mt)</th>
<th>ETS (Norway France) (Mt)</th>
<th>ETS (UK) (Mt)</th>
<th>RM (Mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory EEDI</td>
<td>123 - 299</td>
<td>123 - 299</td>
<td>123 - 299*</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>MBM In sector</td>
<td>106 - 142</td>
<td>14 - 45</td>
<td>1 - 31</td>
<td>32 - 153</td>
<td>29 - 119</td>
<td>27 - 114</td>
<td>27 - 114</td>
<td>29 - 68</td>
<td></td>
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<tr>
<td>MBM Out of Sector</td>
<td></td>
<td></td>
<td>152 - 584</td>
<td></td>
<td></td>
<td>190 - 539</td>
<td>190 - 539</td>
<td>124 - 345</td>
<td></td>
</tr>
<tr>
<td>Total reductions (%)</td>
<td>19 - 31%</td>
<td>13 - 23%</td>
<td>10 - 20%</td>
<td>13 - 40%</td>
<td>3 - 10%</td>
<td>2 - 8%</td>
<td>13 - 40%</td>
<td>13 - 40%</td>
<td>13 - 28%</td>
</tr>
<tr>
<td>Potential supplementary</td>
<td>45 - 454</td>
<td></td>
<td>104 - 143</td>
<td>232 - 919</td>
<td>917 - 1232</td>
<td>696 - 870</td>
<td>187 - 517</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Included if the mandatory EEDI is adopted by the committee
# Potential climate change financing*

Modelled “remaining proceeds” across various scenarios

<table>
<thead>
<tr>
<th>MBM</th>
<th>2020 ($ billion)</th>
<th>2030 ($ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHG Fund</td>
<td>2 - 5</td>
<td>4 - 14</td>
</tr>
<tr>
<td>LIS</td>
<td>6 - 32</td>
<td>10 - 87</td>
</tr>
<tr>
<td>PSL</td>
<td>24 - 43</td>
<td>40 - 118</td>
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<tr>
<td>SECT</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VES</td>
<td>8 - 41</td>
<td>5 - 18</td>
</tr>
<tr>
<td>ETS (Norway, France)</td>
<td>17 - 35</td>
<td>28 - 87</td>
</tr>
<tr>
<td>ETS (UK)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bahamas</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RM</td>
<td>10 - 13</td>
<td>17 - 23</td>
</tr>
</tbody>
</table>

* Excludes financing of out-of-sector emission reductions
Certainty

- GHG Fund and ETS(x3) proposals would constrain “net emissions” to a agreed level.
- SECT proposal aims for certainty over a relative efficiency target but absolute emissions would depend on sector growth.
- Other proposals do not aim to deliver strict certainty over a relative or absolute target.
  - Policies that guide revenue use could have a significant influence on the certainty of outcome.
Shipping Overview

Presented by: Mr. L. Robert Pedersen

BIMCO, Denmark
Cost is the other side of the coin

- Cost is driven by the amount of GHG that is targeted
- Cost and environmental effect is mostly related
  - Revenues designated to national treasuries
  - Pricing below a cap
- Variable cost is related to reduction efforts
- Fixed cost related to administration of scheme
Out-of-sector Carbon Market

- Interface to carbon markets locks the marginal in-sector abatement cost to the carbon price
- Non-financial barriers to in-sector uptake of technology may drive larger off-setting
- Lack of interface to carbon market prevented assessment of cost for one proposal
Target vs. Cap

- Targeted amount = how much GHG shall be paid for
- Cap amount = how much GHG shall be mitigated

- Proposals with same target and cap
  - GHG Fund

- Proposals with different target and cap
  - ETS

- Proposals with only target
  - PSL, LIS, RM
Cost-effectiveness

- Direct cost for reducing GHG
  - Large variation between proposals due to missing information on use of funds

- Collection of funds for other purposes
  - Large variation between proposals due to large differences in amount of GHG targeted

- Calculated maximum cost-effectiveness based on spending all funds on mitigation
  - Only differing when funds directed to national treasuries
Admin Cost

- Admin cost for shipping in monetary terms has not been assessed
- Onboard efforts to document compliance has been elaborate
- Proposals varies greatly when it comes to documentation requirements
Additional cost to industry

- In-sector abatement generally considered cost-effective
- Additional workload onboard to operate and maintain emission reduction technology assessed via simple model
- Assuming same workload to generate 1 ton of CO$_2$ and to reduce 1 ton of CO$_2$
- Assuming standard crew on standard ship at standard wage-level.

- Yes, there is a cost
- No, it is not significant compared to the gross cost
Conceptual differences

Relative emission vs Absolute emission

Open system vs Closed system

Bunkered amount vs Emission

Central vs Port State

Target=Cap vs Target=zero
Trade and development and Developing Countries

Presented by: Dr. Leigh Mazany

Environmental Policy, Transport Canada
Work of the Group

- Review of existing studies
- Commissioned additional quantitative analysis of cost pass-through for selected vessel types, routes, and products
- Analysis of trade-weighted distances of different countries undertaken
- Some case studies undertaken
- Also looked briefly at potential need for technology transfer and capacity building, including the potential for climate change finance
Challenges

- Amount of time allocated for Expert Group’s work meant scope of quantitative work was limited
  - Analysis looked at indicative trade routes and products, but others need to be analyzed
  - For the most part, indirect economic costs and benefits were not assessed, despite their importance
  - Lack of data on small island developing states in particular
Impacts on consumers

- The larger the market share of domestic producers, the less likely it is that an exporter can pass on an increase in transportation costs to end consumers.

- If the good has a high value-to-weight ratio, less of the increase in freight costs will be passed on to end consumers.
Impact on ship operators and technology transfer needs

- All proposals provide some form of incentives – price or performance standard – to improve ships technically or operational efficiencies.

- A number of measures could result in fuel savings, but there may be hurdles to adoption, including access to technologies or finance.

- There could therefore be a need for technology transfer to help improve ship and operational efficiencies.
Impacts on developing countries

- Analysis showed impacts will vary by country, independent of level of economic development.

- As a result, developing countries, especially SIDS and LDCs, should not be treated as a collective bloc in assessing impacts.
  - Those that are closer to their trading partners or have large exporters will, in general, be less affected than countries that are further away or have many small exporters.
Example of trade-weighted distances

Countries in the SIDS group have both the largest and the smallest nautical distances weighted by trade.

Source: Dr. Andre Stochniol
Administrative and Legal

Presented by: Mr. Paul Sadler
International Association of Classification Societies Ltd.

(The task-group was also coordinated by Ambassador Gilberto Arias in Mr. Sadler’s absence)
METHOD OF WORKING

- Initially each proposal was considered against those criteria and sub-criteria referred to the Task Group (2 rounds of comments); then all proposals were reviewed ‘horizontally’ against each criteria.

- No external consultants employed.
‘CHALLENGES’

- Limited time to complete the study e.g. in which to seek clarifications from focal points.

- Differing levels of maturity of proposals (paragraph 8.3 of MEPC 61/INF.2).

- Compatibility with UNFCCC, Kyoto Protocol and WTO.
‘COMPATIBILITY WITH UNFCCC, KP AND WTO’

- UNFCCC “… particularly challenging for the Expert Group’s discussions on consensus text.”

- Kyoto Protocol and WTO “This was subject to different views among the Experts.”
OUTCOMES (MEPC 61/INF.2)

- Relation with other Conventions, Practical Feasibility, Administrative Burden and Compatibility with Existing IMO Enforcement and Control Provisions (paragraphs 1.30 to 1.42);

- Various ‘common concepts’ applicable to a number of proposals: Administrative costs; IMO implementation lead time, Model carbon leak; Compatibility with UNFCCC, Kyoto Protocol, WTO, Compatibility with national law (paragraphs 8.49 to 8.70);

- ‘Proposal specific’ assessments (sections 9 to 18).
OUTCOMES (MEPC 61/INF.2)

- All proposals could be implemented in a practical and feasible manner notwithstanding the challenges associated with the introduction of new measures.

- Policy sensitivities identified vis-à-vis compatibility with UNFCCC and KP.

- Administrative requirements vary, but all proposals will incur some additional administrative burden.
FOR FURTHER CONSIDERATION

- Establishment of a supranational administrative body (paragraphs 8.49 to 8.51)
- ‘carbon leakage’ (paragraph 8.53)
- ‘CO\textsubscript{2} as a pollutant’ (paragraph 8.67)
- Collection of ‘international’ contributions being consistent with national law (paragraph 8.68).
Conclusion

Presented by: Mr. Andreas I. Chrysostomou
MBM-EG Chairman
Cyprus
Conclusion

- The evaluation of the proposals was completed as requested by the Committee.
- Each evaluation provides the required assessment as described in the terms of reference.
- The evaluation was complicated by the different levels of maturity of the proposals - proposals with a higher level of maturity generated more discussion than those that were less developed.
Conclusion

- In order to elaborate a full comparative analysis, there is the need for further elaboration and development of some elements of the proposed measure.

- All proposals address the reduction of GHG emissions from shipping.

- Some proposals also put forward a mechanism that provides for substantial financial contribution to address the adverse effects of Climate Change.
Conclusion

- The proposals suggested different ways of reducing GHG emissions, some focus on “in-sector” reductions and others in “out-of-sector” reductions.

- 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.

- This study identified that the implications of implementing the different MBM proposals for international shipping are directly related to the stringency of the proposed measures.
Conclusion

- Nevertheless, this study concludes 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.

- Some of the proposed measures include mechanism aiming to provide means to mitigate negative impacts.
Conclusion

- 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.

- The above issues require further policy considerations in order to be properly addressed.
Floor open for Questions and Discussion