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WORKING PAPER

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HIGH-LEVEL MEETING ON INTERNATIONAL AVIATION AND CLIMATE CHANGE

Montréal, 7 to 9 October 2009

Agenda Item 2: Proposals for strategies and measures to achieve emissions reductions

PROGRESS WITHIN IMO ON CONTROL OF GREENHOUSE GAS EMISSIONS FROM SHIPS ENGAGED IN INTERNATIONAL TRADE

Completion of IMO's GHG work plan – finalization of efficient and robust measures to enhance energy efficiency in shipping and to reduce emissions from ships

(Presented by the International Maritime Organization)

INFORMATION PAPER

1. INTRODUCTION

1.1 Work on the prevention of air pollution and control of greenhouse gas emissions from ships started within the International Maritime Organization (IMO) in the late 1980s. The first steps were outphasing of ozone depleting substances both as refrigerant gases and in fire fighting systems and later, prevention of air pollution in the form of cargo vapours and exhaust gases were targeted by, inter alia, the adoption of stricter limits for nitrogen oxides and sulphur oxides in ship exhaust gases. In recent years the focus has been on the control of greenhouse gas (GHG) emissions from ships.

1.2 Due to its close connection to global commerce, international shipping plays a vital role in the facilitation of world trade as the most cost and efficient mode of transport. Shipping is probably also the most international of all the world's industries and the global character of shipping requires global regulation that applies universally to all ships. IMO, as the United Nation's Specialized Agency responsible for the global regulation of all facets pertaining to international shipping, has a key role in ensuring that lives at sea are not put at risk and that the environment is not polluted by ships' operations — as summed up in IMO's mission statement: **Safe, Secure and Efficient Shipping on Clean Oceans.**

2. IMO'S WORK ON CONTROL OF GREENHOUSE GAS EMISSIONS FROM SHIPS

2.1 IMO's Assembly resolution A.963(23) on IMO Policies and Practices Related to the Reduction of Greenhouse Gas Emissions from Ships, urges the Marine Environment Protection Committee (MEPC) to identify and develop the mechanisms needed to achieve limitation or reduction of Greenhouse Gas (GHG) emissions from international shipping.

2.2 The Assembly resolution also calls for MEPC to develop a GHG work plan with timetable to guide the development of the needed mechanisms and the Committee adopted it in October 2006. A significant amount of work has been carried out in accordance with the plan and IMO has developed a set of robust and efficient technical and operational measures that will, when fully implemented, result in significant reductions of GHG emissions from ships.

3. OUTCOME OF MEPC 59

3.1 More than 900 delegates from all over the world attended the fifty-ninth session of IMO's Marine Environment Protection Committee (MEPC 59), which was held in London from 13 to 17 July 2009. The control of greenhouse gases from international shipping was the paramount item on its agenda.

3.2 Leading up to MEPC 59, two intersessional meetings were held in addition to the three ordinary sessions, where hundreds of submissions by Member States and observer organizations, four reports by intersessional correspondence groups and a large number of scientific studies facilitated the work and made the expeditious progress possible. This progress would not have been possible without the active and unreserved involvement of the world's maritime nations and a strong environmental commitment by a united maritime industry.

3.3 The Committee noted that 2009 would be a crucial year in the climate change negotiations, culminating at the UN Climate Change Conference in December. It is expected that the Conference will adopt a new and ambitious post-2012 treaty to combat climate change, a treaty that will be agreed by the 192 Parties to the UNFCCC of which 169 are IMO Members.

Message from Mr. Yvo de Boer

3.4 The Committee noted with appreciation a statement by the Executive Secretary of the UNFCCC Secretariat, Mr. Yvo de Boer, providing information on the ongoing UNFCCC negotiations and a clear indication on what was expected of IMO in its reporting to COP 15. He stated that — "Copenhagen is the moment when humanity has the opportunity to rise to the challenge and decisively deal with climate change." Mr. de Boer noted that progress within IMO had been made on technical and operational measures but that the overall emissions were still growing. He went on to say:

"One political difficulty is that the Convention is based on the principle of common but differentiated responsibilities. Industrialised countries must lead in reducing emissions, while developing countries need support to engage in mitigation actions. The IMO, on the other hand, is based on equal treatment for all ships. Innovative thinking is needed to reconcile these principles and it can be done. For example, raising funds for adaptation and mitigation in developed and developing countries through a global cap on bunker fuels and deploying revenues from auctioning emission rights mainly in developing countries have both been mentioned as ways to reconcile the principles of the UNFCCC and the IMO. A global cap on bunker fuels would be in line with the "equal treatment" principle of the IMO. Using the obtained revenues to assist developing countries in addressing climate change would be in line with the provisions of the climate change Convention. The amounts that could be generated by maritime transport in reducing its carbon footprint are substantial with estimates over four billion US dollars per year.

I hope that this MEPC meeting can succeed in recommending a package of measures for international shipping that fits in with the proposals of governments in the negotiations. I

hope that at the end of your meeting, you can agree a package of technical and operational measures to adopt that will result in a significant reduction of emissions with an implementation deadline. I hope you can also finalize work on developing a market-based mechanism for international shipping. Informing COP 15 on practical actions for regulating international bunker fuels would thus make a significant contribution to an effective agreed outcome in Copenhagen. Parties to the UNFCCC are looking forward to receiving input from the work of IMO. This week, there is no question that you can make a major step towards that.”

Agreed package of reduction measures

3.5 MEPC 59 agreed to circulate a package of technical and operational measures to reduce GHG emissions from international shipping and also agreed on a work plan for further consideration and development of suitable and efficient market-based instruments to complement the technical and operational reduction measures and to provide economic incentives for the shipping industry.

3.6 MEPC 59 further agreed that any regulatory scheme to control GHG emissions from international shipping should be developed and enacted by IMO as the most competent international body.

3.7 The measures are intended for voluntary application until the Committee's sixtieth session in March 2010, with a view to facilitating decisions on their scope of application and enactment once the outcome of the Copenhagen Conference is known.

Message by the IMO Secretary-General

3.8 Speaking at the close of MEPC 59, IMO Secretary-General Efthimios E. Mitropoulos congratulated delegates for driving forward the Committee's agreed action plan on greenhouse gas emissions from ships, which “deserves to be recognized as compelling proof that IMO can, indeed, be entrusted with the regulation of international shipping on the issue of climatic change – an unequivocal message that needs to be heard, and fully understood, all over the globe.” He went on to urge delegates to promote the successful outcome of the session, by briefing their colleagues and, through them, the competent Ministers in their home countries (e.g. of Transport, Mercantile Marine, Environment and Foreign Affairs), in particular those who will participate in COP 15, and by publicizing it widely among all concerned so that “the complexities of this most international of all industries are duly taken into account when shaping official policies and positions on the issue at hand – both at Copenhagen and at the post-Copenhagen rounds of consultations at IMO.”

3.9 Mr. Mitropoulos reiterated his belief that “the time for apportioning blame as to who is responsible for the state of the planet has passed. Now it was time for action. Developed and developing countries, industrialized and emerging economies alike were left with no option other than to get together and, together, work out solutions that would serve well the good cause of reversing the route to planet destruction.”

4. GREENHOUSE GAS STUDY 2009

4.1 MEPC 59 was notably assisted in its work by the Second IMO GHG Study 2009, which is the most comprehensive and authoritative assessment of the level of greenhouse gas emitted by ships, as well as the potential for reduction. The Study also evaluates the different policy options for control of

GHG emissions from ships currently under consideration within IMO and other organizations. The Second IMO GHG Study 2009 will be submitted to appropriate bodies of the UNFCCC and may be found at: http://www.imo.org/home.asp?topic_id=1823.

4.2 The Committee noted that the Second IMO GHG Study 2009 came to the following main conclusions, as outlined in its executive summary:

- International shipping was estimated to have emitted 870 million tonnes, or about 2.7% of the global emissions of CO₂ in 2007.
- Exhaust gases were the primary source of emissions from ships. Carbon dioxide was the most important GHG emitted by ships. Both in terms of quantity and of global warming potential, other GHG emissions from ships were less important.
- Mid-range emissions scenarios showed that, by the year 2050, in the absence of regulations, ship emissions could grow by 200% to 300% (compared to the emissions in 2007) as a result of the expected growth in world trade.
- A significant potential for reduction of GHG emissions through technical and operational measures had been identified. Together, if implemented, these measures could increase efficiency and reduce the emissions rate by 25% to 75% below the current levels. Many of these measures appeared to be cost-effective, although non-financial barriers may discourage their implementation.
- A number of policies to reduce GHG emissions from ships were possible. The report analysed options relevant to the current IMO debate. The report found that market-based measures were cost-effective policy instruments with a high environmental effectiveness. Such instruments captured the largest amount of emissions under the scope, allowed both technical and operational measures in the shipping sector to be used, and could offset emissions in other sectors. A mandatory limit on the Energy Efficiency Design Index for new ships was a cost-effective solution that could provide an incentive to improve the design efficiency of new ships. However, its environmental effect was limited because it only applied to new ships and because it only incentivized design improvements and not improvements in operations.
- Shipping had been shown, in general, to be an energy-efficient means of transportation as compared to other modes.
- The emissions of CO₂ from shipping would lead to positive “radiative forcing” (a metric of climate change) and to long-lasting global warming. In the shorter term, the global mean radiative forcing from shipping was negative and implied cooling; however, regional temperature responses and other manifestations of climate change may nevertheless occur. In the longer term, emissions from shipping would result in a warming response as the long-lasting effect of CO₂ would overwhelm any shorter-term cooling effects.
- If the climate was to be stabilized at no more than 2°C warming over pre-industrial levels by 2100 and emissions from shipping continue as projected in the scenarios that were given in the report, then they would constitute between 12% and 18% of

the global total CO₂ emissions in 2050 that would be required to achieve stabilization (by 2100) with a 50% probability of success.

5. TECHNICAL AND OPERATIONAL REDUCTION MEASURES

5.1 MEPC 59 finalized a package of technical and operational measures to reduce GHG emissions from international shipping, aimed at improving the energy efficiency for new ships through improved design and propulsion technologies and for all ships, new and existing, primarily through improved operational practices.

5.2 The measures are intended to be used for trial purposes on a voluntary basis until MEPC 60 in March 2010, when they will be refined, as necessary, with a view to facilitating decisions on their scope of application and enactment, taking into account the outcome of the Copenhagen Conference. The measures include:

- a) interim guidelines on the method of calculation and voluntary verification of the **Energy Efficiency Design Index** (EEDI) for new ships, which is intended to stimulate innovation and technical development of all elements influencing the energy efficiency of a ship from its design phase. The index would cover 87% of emissions from new ships – the reduction level is not yet agreed upon and will be considered in detail by MEPC 60, but a relative reduction of 15 to 30% is possible depending on ship type and size; and
- b) guidance on the development of a **Ship Energy Efficiency Management Plan** (SEEMP) for new and existing ships, which incorporates best practices for fuel-efficient ship operation, as well as guidelines for voluntary use of the **Energy Efficiency Operational Indicator** for new and existing ships. The indicator enables operators to measure the fuel efficiency of a ship in operation and to gauge the effect of any changes in operation, e.g. improved voyage planning or more frequent propeller cleaning, or introduction of technical measures such as waste heat recovery systems or a new propeller. The Study indicates that a 20% reduction on a tonne-mile basis by mainly operational measures is possible and would be cost-effective even with the current fuel prices. The SEEMP will assist the shipping industry in achieving this potential.

5.3 The IMO Secretariat will undertake further work and assess in more detail the reduction potential of the technical and operational measures finalized by MEPC 59, both in relative (tonne-mile) and total terms. This information will assist the Committee at its next session in March 2010 when making a final decision on the reduction levels, and it will also be provided to COP 15 for information.

6. MARKET-BASED MECHANISMS

6.1 The Committee recognized that the technical and operational measures would not be sufficient to satisfactorily reduce the amount of GHG emissions from international shipping in view of the growth projections of human population and world trade. Therefore, market-based mechanisms have been considered in line with the GHG work plan. A market-based mechanism would serve two main purposes:

off-setting of growing ship emissions and providing a fiscal incentive for the maritime industry to invest in more fuel efficient ships and technologies and to operate ships in a more energy efficient manner.

6.2 The Committee agreed by overwhelming majority that a market-based instrument was needed as part of a comprehensive package of measures for regulation of GHG emissions from international shipping. The Committee further agreed that any regulatory GHG regime applied to international shipping should be developed and enacted by IMO as the sole competent international organization with a global mandate to regulate all aspects of international shipping. As shipping is a global industry and ships are competing in a single global market, it must be regulated at the global level to be environmentally effective and to maintain a level playing field for all ships, irrespective of flag or ownership.

6.3 An in-depth discussion on market-based measures was held and the Committee agreed on a work plan culminating in 2011 for its further consideration of the topic. It was agreed to fully take into account discussions and submissions to date, as well as relevant outcomes of the United Nations Climate Change Conference (COP 15) in December 2009.

6.4 The Committee noted that there was a general preference for the greater part of any funds generated by a market-based instrument under the auspices of IMO, to be used for climate change purposes in developing countries through existing or new funding mechanisms under the UNFCCC or other international organizations.

6.5 To facilitate further progress at MEPC 60, the IMO Secretariat will undertake further work and assess the possible effects of a market-based instrument (MBI). The work will assess in detail the potential reduction levels, directly and through off-setting, resulting from a market-based instrument for shipping and the potential generation of funds that would be used for climate change purposes in developing countries as well further exploring possible distribution of revenues raised from a shipping MBI. This information will also be submitted to COP 15 and form a useful basis for future decisions in both the COP 15 meeting and the MEPC.

7. THE WAY AHEAD POST-COP 15

7.1 A recurring debate within IMO has been how the wording of Article 2.2 of the Kyoto Protocol should be interpreted and if the UNFCCC principle of 'common but differentiated responsibility' should apply to a GHG regime for international shipping rather than IMO's basic principle of equal or non-discriminatory regulation of all ships in international trade, irrespective of flag or ownership. The Committee agreed to defer this debate until the outcome of COP 15 is known and will consider application issues, as well as the legal aspects, in March 2010.

7.2 Although no mandatory GHG regime for international shipping has been agreed, the technical and operational mechanisms needed are fully developed, well matured and ready for consideration as mandatory instruments, taking into account the outcome of COP 15. Further work is needed on market-based measures but the foundation is in place and a work plan, culminating in 2011, has been agreed. All the necessary mechanisms are thereby in place or well underway, an agreement on their application is the only aspect pending before a robust and efficient GHG regime, complementing IMO's regime of about 50 international treaties regulating shipping, may be agreed to the benefit of the global environment and future generations.

7.3 The Committee agreed that any possible impacts on the shipping sector, including but not limited to, the overall impact of any of the mechanisms on the maritime sectors of developing countries, should be duly considered prior to making further decisions on the energy efficiency measures.

7.4 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. IMO is ready to take technical and regulatory action as soon as a decision at COP 15 is taken on a post-2012 regime to combat climate change. IMO will continue to keep UNFCCC and its subsidiary bodies updated on the progress made.

7.5 The HLM-ENV/09 is therefore invited to note the information provided in this paper.

— END —