INTERNATIONAL MARITIME ORGANIZATION
ORGANISATION MARITIME INTERNATIONALE
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IMO

المنظمة البحرية الدولية
国际海事组织
МЕЖДУНАРОДНАЯ МОРСКАЯ ОРГАНИЗАЦИЯ

CLIMATE CHANGE:

Main events in IMO's work on limitation and reduction of greenhouse gas emissions from international shipping

21 September 2009

Introduction

1 Work on the prevention of air pollution and control of greenhouse gas emissions from ships engaged in international trade 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, later prevention of air pollution in form of cargo vapours and exhaust gas were targeted by, *inter alia*, adoption of limits for nitrogen oxides and sulphur oxides in ship exhaust gas. In recent years the focus has been on control of greenhouse gas (GHG) emissions from ships.

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 energy effective mode of transport. Shipping is probably also the most international of all industries and the global character of shipping requires global regulation. IMO, as the UN'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**.

IMO's work on control of greenhouse gas emissions from ships

3 IMO's work on the issue is guided by Assembly resolution A.963(23) on IMO Policies and Practices Related to the Reduction of Greenhouse Gas Emissions from Ships, which was adopted in December 2003. The resolution 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. It calls for MEPC to develop a GHG work plan with timetable to direct the identification and development of the needed mechanisms, and this plan was adopted by the Committee in October 2006. A significant amount of work has been carried out in accordance with the work 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.

CLIMATE CHANGE:

4 The fifty-ninth session of MEPC 59 in July 2009 agreed to 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. 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.

5 The agreed 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 and taking into account the outcome of the Copenhagen Conference.

Prevention of air pollution

6 In the late 1980s, IMO started work on prevention of air pollution from ships. These efforts were based on scientific information on adverse effects of emissions to air from a multitude of sources, ships being one of them, on vulnerable ecosystems. This was something of a departure, as IMO's focus, along with that of national regulators and of the society as a whole, had previously been on more visible sources of ship-sourced pollution – for example, on oil spills resulting from major ship accidents. The harmful long-term effects of exhaust gases on human health and ecosystems were not so immediately visible and had not earlier been fully recognized.

7 The seventeenth session of the IMO Assembly, in November 1991, recognizing the urgent necessity of establishing an international policy on prevention of air pollution from ships, considered and decided, in resolution A.719(17), to develop a new annex to the International Convention for the Prevention of Pollution from Ships (MARPOL Convention). Following development of the regulatory text by MEPC, an International Conference of Parties to the MARPOL Convention was held in London in September 1997. The Conference adopted the protocol of 1997 to the MARPOL Convention, which added a new Annex VI, Regulations for the Prevention of Air Pollution from Ships, to the MARPOL Convention (MARPOL Annex VI).

The 1997 MARPOL Conference

8 The 1997 Air Pollution Conference convened by IMO adopted was a historic response to the need to minimize emissions from ships and their contribution to global air pollution and environmental problems.

9 With a view to addressing the issue of GHG emissions from international shipping, the 1997 MARPOL Conference **Resolution 8 on "CO_2 emissions from ships",** inviting:

.1 the IMO Secretary-General to co-operate with the Executive Secretary of UNFCCC in the exchange of information on the issue of GHG emissions;

.2 IMO to undertake a study of GHG emissions from ships for the purpose of establishing the amount and relative percentage of GHG emissions from ships as part of the global inventory of GHG emissions; and

.3 the Marine Environment Protection Committee (MEPC) of IMO to consider feasible GHG emissions reduction strategies.

10 Following the entry into force of MARPOL Annex VI on 19 May 2005, MEPC 53 (July 2005) agreed to the revision of MARPOL Annex VI with the aim of significantly strengthening the emission limits in light of technological improvements and implementation experience. As a result, MEPC 58 (October 2008) considered and adopted the revised MARPOL Annex VI and the NO_x Technical Code 2008, which are expected to enter into force on 1 July 2010 upon their deemed acceptance on 1 January 2010.

11 The main changes to Annex VI will see a progressive reduction in sulphur oxide emissions from ships, with the global sulphur cap finally reduced from the current 4.50% to 0.50 % effective from 1 January 2020. The limits applicable in Sulphur Emission Control Areas will be stepwise reduced to 0.10 %, effective from 1 January 2015, from the current 1.50 %.

12 The revised Annex VI will allow for an Emission Control Area to be designated for sulphur oxides and particulate matter, or nitrogen oxides, or all three types of emissions from ships, subject to a proposal from a Party or Parties to the Annex which would be considered for adoption by the Organization, if supported by a demonstrated need to prevent, reduce and control one or all three of those emissions from ships. Progressive reductions in nitrogen oxide emissions from marine diesel engines were also agreed, with the most stringent controls on engines installed on ships constructed on or after 1 January 2016 operating in Emission Control Areas, with an 80% reduction compared with the current limit.

2000 IMO GHG Study

13 As a follow-up to the above resolution, the first **IMO Study on Greenhouse Gas Emissions from Ships** was completed and presented to the forty-fifth session of the MEPC (MEPC 45) in June 2000 as document MEPC 45/8. This Study using data from 1996 estimated that ships emitted about 420 million tonnes of CO_2 and thereby contributed about 1.8% of the world's total anthropogenic CO_2 emissions that year.

14 The 2000 IMO GHG Study was undertaken by a consortium of internationally renowned research institutes and stated that there was no other mode of transport with a better energy-efficiency record than sea-transport on a tonne-mile basis. Nevertheless, the Study identified a number of areas with potential for reduction of CO_2 emissions that if combined could lead to a 40% reduction on a tonne mile basis. However, the Study stated that technical and operational measures have a limited potential for contributing to reduced emissions from ships. If the increase in demand for shipping services and market requirement for increased speed and availability continues, technical measures alone would not be able to prevent a total growth in emissions from ships.

Assembly resolution on GHG policy and practices

15 In an effort to further address the issue of GHG emissions from ships, the IMO Assembly adopted (December 2003) **Resolution A.963(23) on "IMO Policies and Practices related to the Reduction of Greenhouse Gas Emissions from Ships"**, which:

.1 URGES the MEPC to identify and develop the mechanism or mechanisms needed to achieve the limitation or reduction of GHG emissions from international shipping and, in doing so, to give priority to:

(a) the establishment of a GHG emission baseline;

(b) the development of a methodology to describe the GHG efficiency of a ship in terms of a GHG emission index for that ship. In developing the methodology for the GHG emission indexing scheme, the MEPC should recognize that CO_2 is the main greenhouse gas emitted by ships;

(c) the development of Guidelines by which the GHG emission indexing scheme may be applied in practice. The Guidelines are to address issues such as verification;

(d) the evaluation of technical, operational and market-based solutions;

.2 REQUESTS the MEPC:

(a) to consider the methodological aspects related to the reporting of GHG emissions from ships engaged in international transport;

(b) to develop a work plan with a timetable;

(c) to keep this matter under review and to prepare consolidated statements on the continuing IMO policies and practices related to the limitation or reduction of GHG emissions from international shipping; and

.3 REQUESTS the IMO Secretariat to continue co-operating with the Secretariat of UNFCCC and the Secretariat of the International Civil Aviation Organization.

GHG work plan with timetable

16 As follow-up to resolution A.963(23), MEPC 55 (October 2006) approved the Committee's **"Work plan to identify and develop the mechanisms needed to achieve the limitation or reduction of CO_2 emissions from international shipping",** inviting Member Governments to participate actively in the work.

17 The work plan contained a time table and, inter alia, requirements for the Committee to consider improvement of the CO_2 indexing method, establishment of CO_2 emission baseline(s), and consideration of technical, operational and market-based methods for dealing with GHG emissions from ships in international trade.

18 The work plan culminated at MEPC 59 (July 2009) with the Committee agreeing to 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.

Co-operation between the Secretariats of IMO and UNFCCC

19 Following an invitation by UNFCCC, and as requested by the MEPC, there has been ongoing co-operation between the Secretariats of IMO and UNFCCC on the work of GHG emissions from international shipping concerning the use of bunker fuel oils since UNFCCC entered into force in 1994.

20 The issue of GHG emission has been considered by each session of the MEPC since 1997 and the outcome brought to the attention of the subsequent SBSTA session. Information regarding the deliberations within UNFCCC relevant to the work of IMO, and in particular within SBSTA, has been reported to the MEPC by the IMO Secretariat on a regular basis.

Voluntary Ship CO_2 Emission Indexing

21 MEPC 53 (July 2005) approved **IMO's "Interim Guidelines for Voluntary Ship CO_2 Emission Indexing for Use in Trials"** (MEPC/Circ.471). The objective of the Interim Guidelines was to establish a common approach for trials on voluntary CO_2 emission indexing, enabling shipowners and operators to evaluate the performance of their fleet with regard to CO_2 emissions. As the amount of CO_2 emitted from a ship is directly related to the consumption of bunker fuel oil, the CO_2 indexing also provides useful information on a ship's performance with regard to fuel efficiency.

22 Maritime administrations and the shipping industry were invited to promote the use of the Interim Guidelines in trials and report the outcome to the MEPC for consideration, taking into account operational experiences from trials of the index for different ship types, progress in ISO regarding ship's CO_2 performance, and any other relevant developments, as appropriate.

Reduction mechanisms

23 IMO's GHG work contains three distinct components: the technical measures that will mainly be applied to new ships, the operational measures for all ships (new and existing), and the market-based reduction measures providing incentives to the shipping industry by setting a price on the emissions.

24 Recognizing that technical and operational measures may not be sufficient to reduce the total amount of GHG emissions from international shipping, as global trade is projected to continue growing, market-based mechanism have been considered by MEPC as called for by resolution A.963(23). A market-based mechanism would 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 efficiently. In addition, the market-based mechanisms under consideration could generate funds that could be used in developing countries for different climate change purposes such as adaptation and transfer of technology.

GHG module in GISIS

25 The outcome of CO_2 indexing trials from hundreds of ships has been submitted to IMO for information and MEPC 56 (July 2007) decided to establish a central database for the results of the voluntary Ship CO_2 Emission Indexing to make the data accessible for comparison and further studies. The Committee had observed that identical ships in seemingly similar trades produced different results and that the difference may result from different weather conditions or from operational differences concerning the specific utilization of individual ships involved in the trials. Issues such as the length of time spent waiting in port areas, the length of ballast voyages, whether the ship was fully laden during the trials or not, could all make a difference.

26 The central data base is established as a GHG module in IMO's Global Integrated Ship Information System (GISIS) and the IMO Secretariat is in co-operation with the member States having undertaken trials consecutively entering the received data. Member States were able to enter new data from early 2008 and the module is opened for public at www.imo.org/GISIS.

Fundamental principles for regulation of GHG emissions from ships

27 MEPC 57 (April 2008) acknowledged the importance of developing fundamental principles as a basis for future regulations and decided, by overwhelming majority, to take the below listed principles as its reference for further debate on GHG emissions from international shipping. A coherent and comprehensive future IMO framework should be:

.1 effective in contributing to the reduction of total global greenhouse gas emissions;

.2 binding and equally applicable to all flag States in order to avoid evasion;

.3 cost-effective;

.4 able to limit, or at least, effectively minimize competitive distortion;

.5 based on sustainable environmental development without penalizing global trade and growth;

.6 based on a goal-based approach and not prescribe specific methods;

.7 supportive of promoting and facilitating technical innovation and R&D in the entire shipping sector;

.8 accommodating to leading technologies in the field of energy efficiency; and

.9 practical, transparent, fraud free and easy to administer.

28 A number of delegations expressed reservations on the principle of a binding regime applicable to all ships or all flag States. The Committee agreed to further reflect on the issue of the principles at future sessions with the intention to reach consensus, and encouraged Member States to submit their views to facilitate further discussions. Several Members have responded to the invitation and have submitted documents stating their views, highlighting certain elements and or proposing solutions. However, due to time constraint, the Committee has at its latter sessions been unable to fully consider this matter or to reach a final agreement on the contested principle, and the consideration will continue at MEPC 60 (March 2010.

Application of GHG measures

29 A recurring debate within IMO is how the wording of Article 2.2 of the Kyoto Protocol should be interpreted and if the principle agreed under UNFCCC of 'common but differentiated responsibility' should apply by flag to a GHG regime for international shipping rather than IMO's basic principle of non-discriminatory regulation of all ships in international trade irrespective of flag and the principle of 'no more favourable treatment' of ships flying the flag of a non-party to any mandatory IMO treaty instrument.

30 Article 2.2 of the Kyoto Protocol reads:

> "The Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels, working trough the International Civil Aviation Organization and the International Maritime Organization, respectively."

31 A number of delegations have maintained the view that any GHG reduction measures to be adopted by IMO should only be applicable to ships flying the flag of Annex I parties to the UNFCCC in accordance with the principle of 'common but differentiated responsibility'. This principle was adopted by the UNFCCC and should be upheld in all international negotiations regarding climate change. In view of the different contributions to global environmental degradation, States should have common but differentiated responsibilities based on the Rio Declaration from 1992. These delegations have been unable to agree to mandatory emission reductions measures applicable to all ships and reasoned that developing countries (non-Annex I countries) cannot take on emission reduction commitments related to international shipping and that such measures on the part of developing countries should only be on a voluntary basis.

32 Other delegations have expressed the opinion that, given the global mandate of IMO, as regards safety of ships and the protection of the marine and atmospheric environment from all sources of ship pollution, the IMO regulatory framework on GHG emissions should be applicable to all ships, irrespective of the flags they fly. It has been stressed that, as three-quarters of the world's merchant fleet fly the flag of developing countries not listed in Annex I to the UNFCCC, any regulatory regime on the reduction of GHG from shipping would become ineffective for the purpose of combating climate change, if applicable only to ships flagged in Annex I countries. IMO has its global mandate from the IMO Convention itself as well as from UNCLOS, and not from Article 2.2 of the Kyoto Protocol and that there is no precedence in any of the more than fifty IMO treaty instruments currently in existence where measures are applied selectively to ships according to their flag. On the other hand, there are several international environmental agreements which have a differentiated approach, such as The Montreal Protocol (on substances that deplete the ozone layer), yet when IMO has dealt with the same issues, the principle of differentiated approach (according to flag) has not been taken on board.

33 The IMO Secretary-General has emphasized that the Committee should debate the issues thoroughly so that, in the end, balanced decisions would be made – an approach that only IMO, with its global membership and global mandate, could make on a global issue of global dimensions. He is of the view that the Committee should address the issue from IMO's global mandate and competence. He has queried what service would be rendered to the environment if the application of measures to eliminate or reduce greenhouse gas emissions was required of a developed country with a limited number of ships under its flag when developing countries with a large number of ships under their flag were not obliged to comply with the same measures.

Second IMO GHG Study 2009

34 MEPC 55 (October 2006) agreed to update the first "IMO Study on Greenhouse Gas Emissions from Ships" that was issued in 2000 to provide a better foundation for future decisions and to assist in the follow-up to resolution A.963(23). MEPC 56 (July 2007) adopted the Terms of Reference for the updating. The work has been undertaken by an international consortium of renowned research institutes with particular expertise within their respective fields. The Study has been titled: **Second IMO GHG Study 2009** and was presented to MEPC 59 in July 2009.

35 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 its 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

36 The Committee agreed that the "Second IMO GHG Study 2009" would constitute a significant document and become the paramount reference to the Committee for information in developing IMO's strategy to limit and reduce GHG emissions from international shipping, in the same manner as the 2000 IMO GHG Study had been an authoritative assessment on the issue in the past.

37 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 CO_2 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 year 2050, in the absence of policies, ship emissions could grow by 200% to 300% (compared to the emissions in 2007) as a result of the 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 conceivable. 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 compared to other modes.

- The emissions of CO_2 from shipping 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 CO_2 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 CO_2 emissions in 2050 that would be required to achieve stabilization (by 2100) with a 50% probability of success.

Latest GHG considerations within IMO - Outcome of MEPC 59

38 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. 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 involvement of the world's maritime nations and a strong environmental commitment by a united maritime industry.

39 The Committee noted that 2009 is a crucial year in the climate change negotiations, culminating at the UN Climate Change Conference in December. It is expected that the Conference in Copenhagen will adopt a new, comprehensive 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.

40 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 reduction measures but that the overall ship 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

41 MEPC 59 agreed to 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. The Committee 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.

42 The agreed 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 and taking into account the outcome of the Copenhagen Conference.

Technical and operational reduction measures

43 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.

44 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:

.1 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

.2 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.

45 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.

Market-based mechanisms

46 The agreed package of technical and operational measures is a very important step in ensuring that the shipping industry has the necessary mechanisms to reduce its GHG emissions. However, the Committee recognized that these measures would not be sufficient to satisfactorily reduce the amount of GHG emissions from international shipping in view of the growth projections of world trade. Therefore, market-based mechanisms have been considered by the Committee in line with its GHG work plan. A market-based mechanism would serve two main purposes: off-setting in other sectors 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.

47 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.

48 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.

49 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.

50 To facilitate further progress at MEPC 60, the IMO Secretariat will undertake further work and assess the possible effects of a market-based instrument. 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. This information will also be submitted to COP 15 and will form a useful basis for future decisions in both fora.

Message by the IMO Secretary-General

51 Speaking at the close of the 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."

52 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."

Shipping and sustainable development

53 There is no doubt that shipping **is a clean, green, environmentally-friendly and very energy-efficient mode of transport**. Overall, it is only a small contributor to the total volume of atmospheric emissions while moving a considerable part of world trade (75 - 90%). Nevertheless, significant reductions in harmful emissions from ships and increases in fuel efficiency have been achieved over the past decades through enhancements in the efficiency of engine and propulsion systems and improved hull design. Larger ships and a more rational utilization of individual vessels have also contributed significantly to reducing the amount of energy needed to transport a given unit of cargo.

54 Shipping is a very positive force in sustainable development, making a massive contribution to global prosperity with only a marginal negative impact on the global environment. Both the poor and the rich benefit from seaborne trade. Moreover, due to the nature of shipping, developing countries can and do become major participants in the industry itself and, by so doing generate income and create national wealth.

The way ahead post-COP 15

55 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 engaged in international trade, irrespective of flag or ownership, has been the main obstacle for further progress. The Committee agreed therefore 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.

56 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 treaties regulating shipping, may be agreed to the benefit of the global environment and future generations.

57 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.

58 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.
