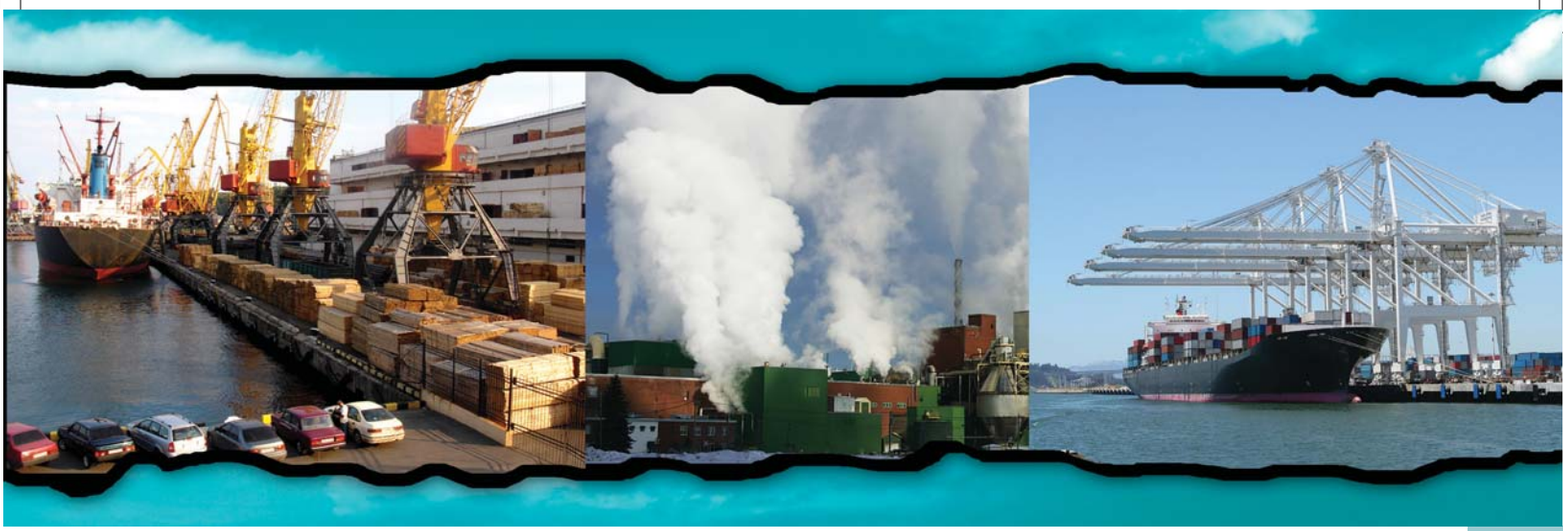

GHG emissions from international marine bunkers: issues and concerns

Introduction

The transport sector contributes to the global climate change by way of GHG (greenhouse gas) emissions. According to the *IPCC (Intergovernmental Panel on Climate Change) Fourth Assessment Report*, global transport is responsible for 13% of all GHG emissions (for 2004) (Figure 1).

International marine bunkers accounted for 2.7% of the world's total CO_2 emissions in 2007.

According to the IMO (International Maritime Organization) Study on Greenhouse Gas Emissions from Ships, published in June 2000 (IMO 2000), international marine bunkers accounted for 1.8% of the world's total CO_2 (carbon dioxide) emissions (for 1996).

However, the updated version of this study (IMO 2007) gives the consensus estimate on the contribution of international marine bunkers for 2007 to be 2.7% of the world's total CO_2 emissions.

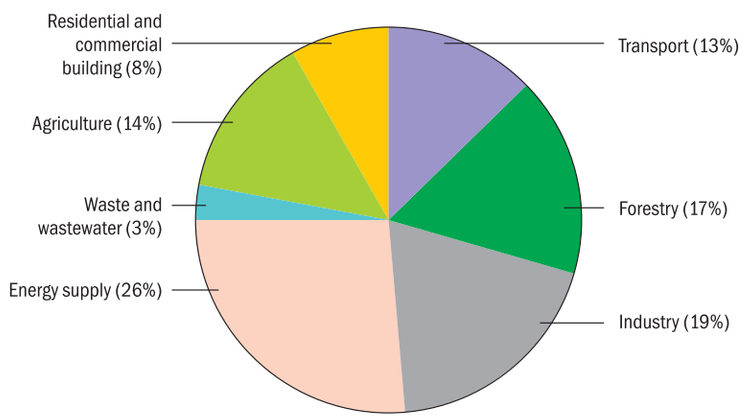

Figure 1 Greenhouse gas emissions by various sectors for 2004

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Table 1 shows the contribution of international marine bunkers of some of the prominent nations towards CO_2 emissions (for 2003).

Table 1 Emissions from international shipping (for 2003)

Country	*Emissions* (in million tonnes)	*Percentage contribution in global international marine emissions*
Canada	2.74	0.60
United States	60.8	13.25
Australia	2.28	0.50
Japan	15.96	3.48
France	8.92	1.94
Germany	8.23	1.79
United Kingdom	5.52	1.20
Former USSR	1.29	0.28
Brazil	10.08	2.20
India	0.19	0.04
Pakistan	0.05	0.01
China (including Hong kong)	33.99	7.40
Mexico	2.55	0.56
South Africa	8.44	1.84
World	459.03	100.00

Source IEA (2005)

Table 2 gives the averaged annual growth rates for the countries listed in Table 1, calculated by averaging the growth rate for the CO_2 emissions from maritime bunkers between 1999 and 2003. It also gives the growth registered for the international marine CO_2 emissions between 1990 and 2003 (IEA 2005).

Table 2 Annual growth rate and percentage growth between 1990 and 2003 for the emissions from international marine bunkers

Country	*Annual growth rate** **(%)**	*Percentage growth between 1990 and 2003*
Canada	–3.73	–4.86
United States	–5.27	–33.22
Australia	–2.02	11.76
Japan	–0.49	–6.34
France	–0.46	11.36
Germany	5.87	4.84
United Kingdom	–6.40	–30.30
Former USSR	19.85	–90.89
Brazil	6.33	486.05
India	4.44	–59.57
Pakistan	43.37	–54.55
China (including Hong kong)	10.89	273.11
Mexico	–7.34	25.62
South Africa	–4.26	41.85
World	0.06	26.17

* The averaged annual growth rates for the countries listed have been calculated by averaging the growth rate for international marine transport emissions between 1999 and 2003.

Source IEA (2005)

Identification of the ships

Identification of the ships is primarily done on the basis of the flag they carry. Flag State refers to the authority under which a country exercises regulatory control over the commercial vessel, which is registered under its flag. This involves inspection, certification, and issuance of safety and pollution prevention documents. It is not essential that the nationality of the owner of the vessel and the country of registration of the vessel must be the same. In an FOC (flag of convenience) vessel, or ship, the nationality of the owner is different from the country of registration.

Coverage of emissions from marine bunkers

On the issue of coverage of emissions from international bunkers, the Kyoto Protocol in its artcle 2 paragraph 2 says:

> '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 through the International Civil Aviation Organization and the International Maritime Organization, respectively.'

The Kyoto Protocol does not cover GHG emissions from international marine bunkers.

As is evident from the statement above, the IMO (International Maritime Organization) has been assigned a role in controlling GHG emissions from international marine transport. However, the definition or the boundary of the role has not been described properly. The term that has been used is 'working through', which is a very broad term and is liable to misinterpretation. The Kyoto Protocol does not clearly state whether the IMO will be acting as an advisory body or a policy forming and implementing body for implementing the measures to contain GHG emissions from global marine transport.

However, time and again, the leading role of the IMO in limiting GHG emissions from international shipping has been acknowledged in many of its proceedings and was particularly emphasized during the 57th session of its MEPC (Marine Emission Protection Committee), when the secretary general stressed on the need to 'demonstrate to the UNFCCC (United Nations Framework Convention on Climate Change) Conference of Parties meeting in Copenhagen, in December of 2009, that a satisfactory regime to limit or reduce GHG emissions from marine bunker fuels would be in place, thanks to the IMO's strenuous efforts at the initiative of the maritime community' (MEPC 57 a). This, in his view, was required to obviate any action outside the organization at the regional or unilateral level.

Another noteworthy point in the above statement of the Kyoto Protocol (article 2.2) is that it exclusively mentions **Annex I countries** to pursue GHG emission mitigations related to marine bunkers through the IMO. Thus, the IMO, working within the mandate of the Kyoto Protocol, cannot compel any of the Non-Annex I countries to adopt any kind of mitigation measure against its will.

Summary of negotiations within the IMO

The IMO Assembly adopted resolution A.963(23) in December 2003 on 'IMO policies and practices related to the reduction of greenhouse gas emissions from ships'.

Based, on the proposal from the Air Pollution Working Group, MEPC 56 established an Intersessional Correspondence Group on GHG-related issues (called GHG CG) and instructed it to discuss and present a report to MEPC 57 on possible approaches towards technical, operational, and market-based measures to address GHG emissions from ships. Based on the discussions held within the group between July 2007 and December 2007, the group presented its report to MEPC 57. The report suggested various short- and long-term GHG emission reduction measures, listing out their advantages and disadvantages. However, consensus could not be reached on the issue of promotion of potential measures by the IMO. Some of the members were of the opinion that shipping is a global enterprise, and thus, a global approach is required, whereas others argued that any regional system should not be applied to international shipping unless agreed to by the states affected.

The IMO Assembly adopted resolution A.963(23) in December 2003 on 'IMO policies and practices related to the reduction of greenhouse gas emissions from ships'.

The committee established a working group on GHG emissions from ships under the chairmanship of Mr Bin Okamura and instructed it to further develop the recommendations made by the correspondence group, focusing first on the short-term measures. The first intersessional meeting of the Working Group on Greenhouse Gas Emissions from Ships, or GHG WG-1, took place in Oslo, Norway, from 23 to 27 June 2008, which saw participation of more than 210 representatives from members, governments, and observer organizations. The report was submitted to MEPC 58, held in October 2008.

The meeting (GHG WG-1) witnessed some significant contributions from Japan and Denmark towards developing a CO_2 design index for new ships. A small informal group was set up to develop 'Guidance on best practices for fuel-efficient operation of ships', meant as a generic list to all stakeholders in the shipping industry. The group discussed various issues such as improved voyage planning, weather routing, speed optimization, optimized ship handling, optimum trim, optimum ballast, hull maintenance, improved cargo handling, and energy management.

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The meeting also saw various papers proposing various models to apply operational CO_2 index and fuel levy to international shipping, but none of them could be finalized even after intense discussions, primarily on the issue of geographic scope (regional or global). Submissions suggesting ways to include international shipping in an ETS (Emissions Trading Scheme) were also made. But again, there were many issues, inter alia, accountable entities, trading units, interplay with existing emissions trading markets working within the framework of the Kyoto Protocol and, most importantly, the geographic scope of any such scheme.

The problem

Of late, the discussion on the issue of application of measures to minimize the contribution of international shipping in climate change, with market-based measures in particular, has entered into a deadlock, primarily because of the divergent stand adopted by different countries on the issue.

Document MEPC 57/4/2, submitted by Denmark et al., proposed some fundamental principles on which future IMO regulations in this regard may be based and were accepted in general by the committee, except item 2 of the list, which said the following:

The discussion on the issue of application of measures to minimize the contribution of international shipping in climate change, with market-based measures in particular, has entered into a deadlock

> (Future IMO framework should be) 'binding and equally applicable to all flag states in order to avoid evasion' (MEPC 57 b).

Later on, the chairman of the IMO, in an attempt to concentrate on regulations addressing the vessel itself, which is customary in the IMO's practice, changed the statement to the following:

> 'Binding and equally applicable to all ships in order to avoid evasion' (MEPC 57 c).

The proposal was strongly opposed by some of the nations on the grounds of the statement defying CBDR (Common But Differentiated Responsibility) principles. However, the committee decided, by an overwhelming majority, 'to take the aforementioned principles as its reference for further debate on GHG emissions from international shipping and also for further reflection when the nature and form of the measures to be taken were clearer' (MEPC 57 d).

In the interventions that followed, China and India registered their regret on the adoption of the principles by the committee as the point of departure for further debate and reserved their position on the principles and item 2 of the principles in particular (India). The matter remains to be resolved.

The controversy over the above statement 'binding and equally applicable to all ships in order to avoid evasion' is the key problem and needs to be resolved. Some of the countries want that GHG-related measures should be binding and equally applicable to all ships in order to avoid evasion and market distortion, based on the 'no more favourable treatment principle' (which was adopted in 1982 in the Paris memorandum of understanding on port state control and proposes 'flag neutrality'). On the other hand, other nations want the adoption of CBDR principles in any proceeding on the matter. The debate has entered into a deadlock, and there is a strong need to act promptly to develop clear and precise controls and guidelines regarding an ETS or any other measure so as to avoid unilateral actions by countries and also to ensure that the progress of maritime transport is not hindered.

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Possible solution[1]

One of the solutions could be to adopt a 'global but differential approach' towards the application of measures. To elaborate further, differentiation in an economic instrument may be applied at the point of collection or at the point of distribution. Application at the point of collection may be difficult and may cause market distortion but may be effectively applied at the point of distribution. Thus, any economic instrument, whether it is tax, levy or a charge, may be equally applied to all the ships, and revenues collected may be transferred to a common fund. The distribution of the fund to different nations should be done differentially, providing major share to developing countries such that the benefits to developing countries outweigh the costs. The fund can be utilized for various measures, including mitigation, adaptation, technology assistance, and capability building related to climate change, in developing countries.

Application of any economic instrument (such as tax, levy or charges) could be done at the point of distribution.

Recommendations

- The responsibility of addressing the problem imposed by GHG emissions from international marine bunkers does not directly fall within the mandate of the IMO, but it addresses the problem through the UNFCCC (through the Kyoto Protocol, article 2.2). Therefore, the framework and policies adopted by the UNFCCC in this regard (such as CBDR principles) will definitely override any of the regulations (including the 'no more favourable treatment principle') existing within the IMO.
- The role of the IMO in handling the issues related to GHG emissions from maritime transport should be defined elaborately and clearly by the UNFCCC. The current reference made in the Kyoto Protocol (article 2.2) is vague and liable to misinterpretation.
- Since the UNFCCC is the principal body in handling the issues related to global GHG emissions, it should retain this position in the context of GHG emissions from international marine bunkers. The IMO may serve as an advisory body on the issue and may play a supportive role. However, the formulation of an alternative framework to address GHG emissions by some other organization may undermine the Kyoto Protocol.
- Unilateral approach by any state or a group of states on the issue of inclusion of international marine bunkers into an ETS must be strongly discouraged, and steps should be taken to form a consensus among the member states.
- The viewpoint and interests of developing nations should get an exclusive standing in all discussions and negotiations on the issue.
- Climate change, whether induced by the maritime transport

The viewpoint and interests of the developing nations should get an exclusive standing in all the discussions and negotiations on the issue.

[1] As of now, GHG emissions from international marine bunkers do not fall under the Kyoto Protocol regime, and there are issues relating to the identification of ships, ownership of ships, accountable entity, and so on, rendering the sector unconventional, and therefore, an attempt has been made to study this sector on an exclusive basis, with no intent to lay emphasis on the adoption of the sectoral approach.

Before adopting any measure, whether it is technological, operational or market based, the approach towards implementation of these measures must be finalized, and the approach must certainly be in line with the principles laid down by the UNFCCC.

sector or by other sectors, is a global issue, and thus, mitigation measures would require participation from all nations. However, the amount and type of contribution should differ as per the divergent circumstances of different states, particularly developing countries. This forms the crux of CBDR principles adopted by the UNFCCC and has been very well integrated within the framework of the Kyoto Protocol. A similar kind of effort is needed to address GHG emission from international marine bunkers. Before adopting any measure, whether it is technological, operational or market based, the approach towards implementation of these measures must be finalized, and the approach must certainly be in line with the principles laid down by the UNFCCC.

Next steps

MEPC 59 is to be held in July 2009, when final adoption of an IMO regime to control GHG emissions from ships engaged in international trade is planned. The outcome of MEPC 59 will be presented in the form of a position paper to the UNFCCC Conference of Parties meeting in Copenhagen, to be held in December 2009.

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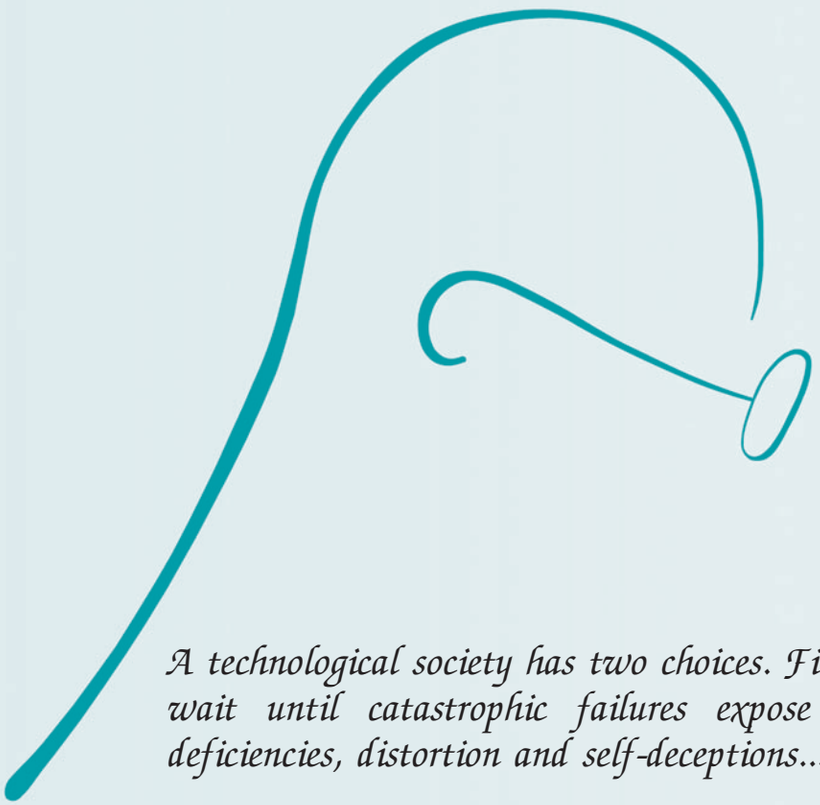

A technological society has two choices. First it can wait until catastrophic failures expose systemic deficiencies, distortion and self-deceptions...

Secondly, a culture can provide social checks and balances to correct for systemic distortion prior to catastrophic failures.

Mahatma Gandhi

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