Shipping, World Trade and the Reduction of CO_2 Emissions

United Nations Framework Convention on Climate Change
International Maritime Organization

International Chamber of Shipping

COP 18
DOHA

UNFCCC Must Support IMO

The international shipping industry is firmly on track to reduce its CO_2 emissions by 20% by 2020, with significant further reductions thereafter. However, the next United Nations Climate Change Conference (COP 18) needs to support the International Maritime Organization (IMO) as it continues its vital work to help deliver meaningful CO_2 emission reductions by international shipping, including the development of 'Market Based Measures'.

The International Chamber of Shipping (ICS) very much hopes that governments at COP 18 will continue to respond positively to the significant IMO agreement, in 2011, to adopt a package of technical measures to reduce shipping's CO_2 emissions (see green box). This is the first ever international agreement containing binding and mandatory measures to reduce CO_2 emissions that has so far been agreed for an entire industrial sector.

Most importantly - and without prejudice to what governments might agree at UNFCCC – the shipping industry believes that IMO is now very well placed to continue the real progress it is making on Market Based Measures to help deliver further emissions reductions. This includes a possible shipping industry environmental compensation fund with linkages to the UNFCCC 'Green Climate Fund' established by COP 17 in Durban. This could address the Kyoto Protocol principle of 'Common But Differentiated Responsibility' (CBDR) by directing any funds raised from international shipping towards environment related projects in developing countries.

It is vital for all governments to understand that in the absence of a global framework agreed by IMO there is a serious risk of regional or unilateral measures regulating CO_2 emissions for shipping. This would have a seriously distorting effect on international shipping markets, but most importantly would be much less effective in delivering meaningful reductions in CO_2 emissions by the global shipping sector as a whole.

International Shipping - Servant of World Trade

The international shipping industry is responsible for the carriage of about 90% of world trade and is vital to the functioning of the global economy.

Intercontinental trade, the bulk transport of raw materials and the import/export of affordable food and goods would simply not be possible without shipping.

It is the availability, low cost and efficiency of maritime transport that has made possible the major shift towards industrial production in Asia and other emerging economies, which has in large part been responsible, in recent years, for dramatic improvements in global living standards.

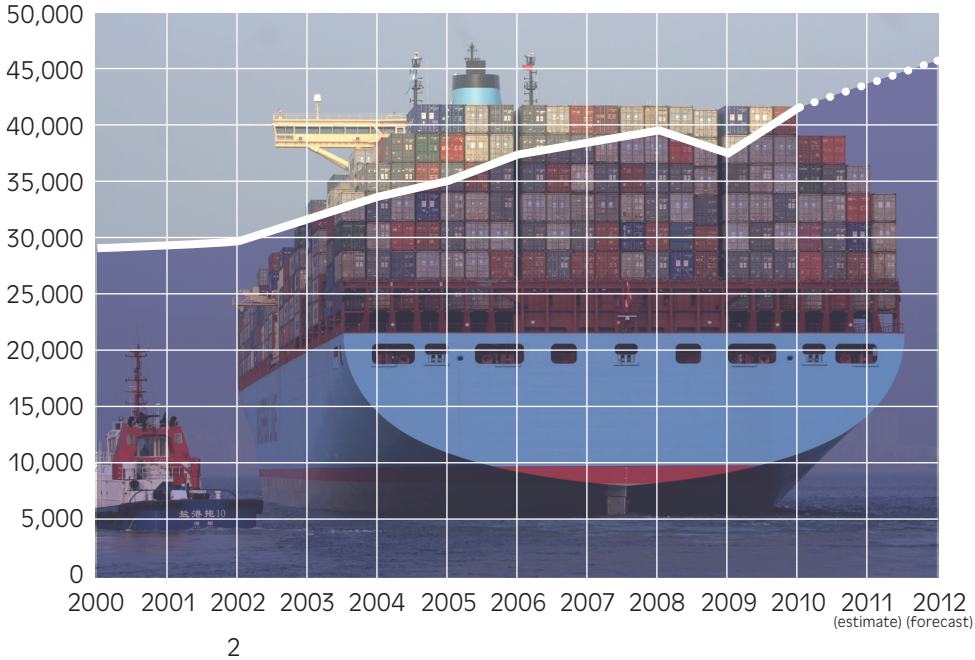
Notwithstanding the recent contraction in trade resulting from the present economic downturn, the world economy is expected to continue to grow and shipping will need to respond to the demand for its services (unless existing patterns of global trade were to be fundamentally transformed).

Shipping is an inherently international industry which depends on a global regulatory framework to operate efficiently. If a ship trades from Doha to Dalian, the same rules need to apply (for example: concerning construction, navigation or atmospheric emissions) at both ends of the voyage. Otherwise there would be chaos and serious inefficiency.

For over 50 years this global regulatory framework has been very successfully provided by the United Nations International Maritime Organization (IMO).

Growth in world seaborne trade (billion tonne-miles)

Source: Clarksons



Reducing Shipping's CO_2

The international shipping industry is firmly committed to playing its part in reducing emissions of CO_2 and other Green House Gases.

International shipping is already, by far, the most carbon efficient mode of commercial transport. But it is fully recognised that CO_2 emissions from the industry as a whole (some 2.7% of global emissions) are comparable to those of a major national economy.

The shipping industry therefore accepts that the CO_2 emission reduction which ships must aim to achieve should be at least as ambitious as the CO_2 emissions reduction agreed under any new United Nations Climate Change Convention.

However, shipping is the servant of world trade. The total emissions of shipping, as a sector, will therefore be determined, to a significant extent, by the expected long term growth of the world economy (and population) between now and 2050.

CO_2 Reduction Measures for Shipping Should be Led by IMO

As already acknowledged by the Kyoto Protocol, emissions from international shipping cannot be attributed to any particular national economy. Multilateral collaborative action will be the most appropriate means to address emissions from the maritime transport sector.

Multilateral collaborative action will be best achieved by governments at the specialist United Nations agency – the IMO - which has a successful track record in the development of global regulations governing the shipping industry's environmental performance. For example, the International Convention on the Prevention of Pollution by Ships (MARPOL), which now contains technical regulations for the reduction of CO_2, has been ratified and enforced globally through a combination of flag state and port state control by IMO Member States.

The delivery of significant emission reductions by the maritime sector will require that any mandatory measures adopted are applied on a uniform and global basis to avoid 'carbon leakage'. Most shipping companies have the freedom to decide to register their ships with the 'flag state' of their choice including those which, under the current Kyoto Protocol, are not Annex I nations. Measures to deliver meaningful emission reductions are thus much more likely to be achieved by instruments developed by governments at IMO.

In 2012, only about 35% of the world merchant fleet is registered in UNFCCC Annex I countries.

Taking Account of CBDR

The UNFCCC principle of 'Common But Differentiated Responsibility' (CBDR) cannot be practically applied directly to individual ships without the danger of significant 'carbon leakage'. The 'flag state'[1] with which a ship is registered, or indeed the 'nationality' of the entity operating the ship, can change frequently, especially when ships are bought and sold.

The direct application of the CBDR concept would also cause gross distortion of shipping markets, reducing the efficiency of maritime transport and thus the smooth flow of world trade.

IMO Agreement on CO_2 Technical Rules

In July 2011, governments at IMO agreed a comprehensive package of technical regulations for reducing shipping's CO_2 emissions which will enter into force in January 2013. The amendments to the MARPOL Convention (Annex VI) include:

- A system of energy efficiency design indexing for new ships (similar in concept to the ratings applied to cars and electrical appliances). The IMO EEDI will lead to approximately 25-30% emission reductions by 2030 compared to 'business as usual'.
- A template for a Ship Energy Efficiency Management Plan (SEEMP) for use by all ships. The SEEMP allows companies and ships to monitor and improve performance with regard to various factors that may contribute to CO_2 emissions. These include, inter alia: improved voyage planning; speed management; weather routeing; optimising engine power, use of rudders and propellers; hull maintenance and use of different fuel types.

Recognition of CBDR

The July 2011 agreement demonstrates that IMO is eminently capable of delivering a global solution for shipping which can be reconciled with the principle of CBDR - without prejudice to what UNFCCC might decide with respect to other industries. To address CBDR, the IMO agreement includes a regulation for the promotion of technical co-operation and the transfer of technology relating to the improvement of energy efficiency of ships, and requires maritime administrations - in co-operation with IMO - to provide support directly to developing states that request technical assistance.

However, the IMO principle of 'no more favourable treatment' ensures that standards adopted for shipping are applied equally throughout the world, delivering maximum environmental protection and improvement.

The international shipping industry therefore believes that the achievement of meaningful reductions in CO_2 emissions will be best achieved if nations agree that the development of detailed measures for the international merchant fleet should be directed by governments at IMO - while fully respecting the UNFCCC CBDR principle. CBDR can be reconciled with the need for uniform rules through a Market Based Measure, such as an IMO compensation fund, whereby some of the funds collected could be used for climate change mitigation and adaptation projects in developing nations.

Failure to deliver a global and uniform CO_2 reduction regime for international shipping will greatly reduce the ability of the shipping sector as a whole to reduce its emissions.

IMO is also Developing Market Based Measures

The IMO agreement on technical measures demonstrates that there is widespread understanding amongst governments worldwide that the most effective means of reducing CO_2 emissions from ships will be for COP 18 to give IMO a clear mandate, so that it can finalise the Market Based Measures (MBMs) it is also developing.

Governments have already made various detailed proposals for a shipping MBM. These have been assessed by an international panel of experts and will be taken forward by IMO Member States during 2013. However, this task will be made easier if COP 18 can provide additional clarity on how IMO might reconcile CBDR with the shipping industry's need for an MBM that applies to ships on a uniform basis regardless of flag.

An MBM Linked to Fuel Consumption

With respect to a climate change funding mechanism, the clear preference of the majority of the shipping industry is for an international compensation fund linked to fuel consumption, rather than a system based on emissions trading. Most shipping companies, perhaps 90%, are small to medium sized enterprises that have a sound dislike of unnecessary complication. An IMO compensation fund linked to fuel consumption is the option which most shipping companies can probably accept and support, if agreed by governments.

As an interim measure, consideration is also being given by IMO to measures to monitor and verify CO_2 emissions from individual ships.

Shipping and the UNFCCC Green Fund

If governments so decide, any MBM adopted by IMO could also involve a linkage to the Green Climate Fund that was established by COP 17, in Durban, in 2011. The Green Climate Fund aims to generate US$100 billion per year by 2020, in order to help mitigation and adaptation projects in developing nations.

The position of ICS is that any contribution by shipping must reflect the sector's modest contribution to total global CO_2 emissions. As such, ICS will firmly resist any suggestion that shipowners should collectively pay tens of billions of dollars per year. The international shipping industry is not a cash cow!

IMO's Track Record on Environmental Regulation

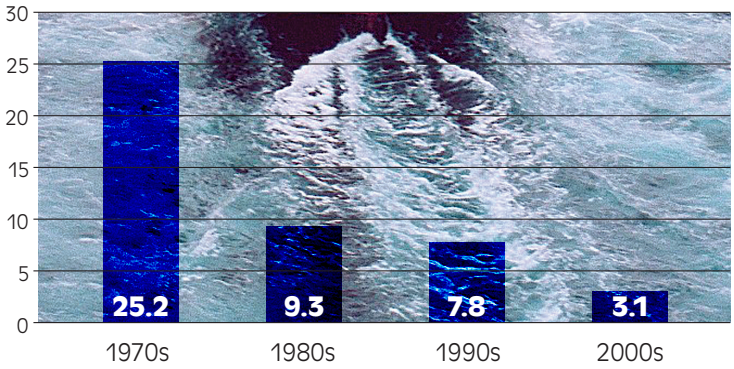
The level of ratification and enforcement of IMO Conventions is very high in comparison to international regulations governing many land based industries.[2]

The impressive track record of IMO is demonstrated by the success of the MARPOL Convention (which also now includes regulations to reduce ships' CO_2) in contributing to the substantial reduction of oil pollution since it entered into force.

MARPOL 73/78 has helped ensure a dramatic reduction in oil spilled by shipping

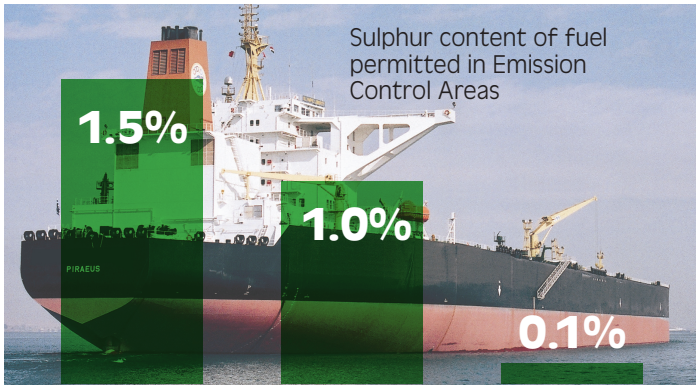
Average number of major oil spills per year (over 700 tonnes)

Source: ITOPF



In addition to the ground breaking agreement to reduce CO_2, the ability of governments at IMO to respond to political pressure and to deliver global environmental regulations involving complex issues has also been demonstrated by the agreement[3] to reduce pollutant atmospheric emissions (such as sulphur) from ships dramatically.

IMO agreement to reduce atmospheric pollution from ships



[1] *Under the United Nations Convention on the Law of Sea (UNCLOS), the flag state is the administration or government of the state whose flag the ship is entitled to fly.*

[2] *MARPOL Annexes I and II (governing prevention of oil and chemical pollution) have been ratified by 150 nations covering over 99% of the world merchant fleet. Recent amendments to MARPOL Annex VI (which now address CO_2) already cover over 90% of the world fleet.*

[3] *The 2008 amendments to MARPOL Annex VI will, inter alia, reduce the sulphur content in fuel to just 0.1% in Emission Control Areas in 2015.*

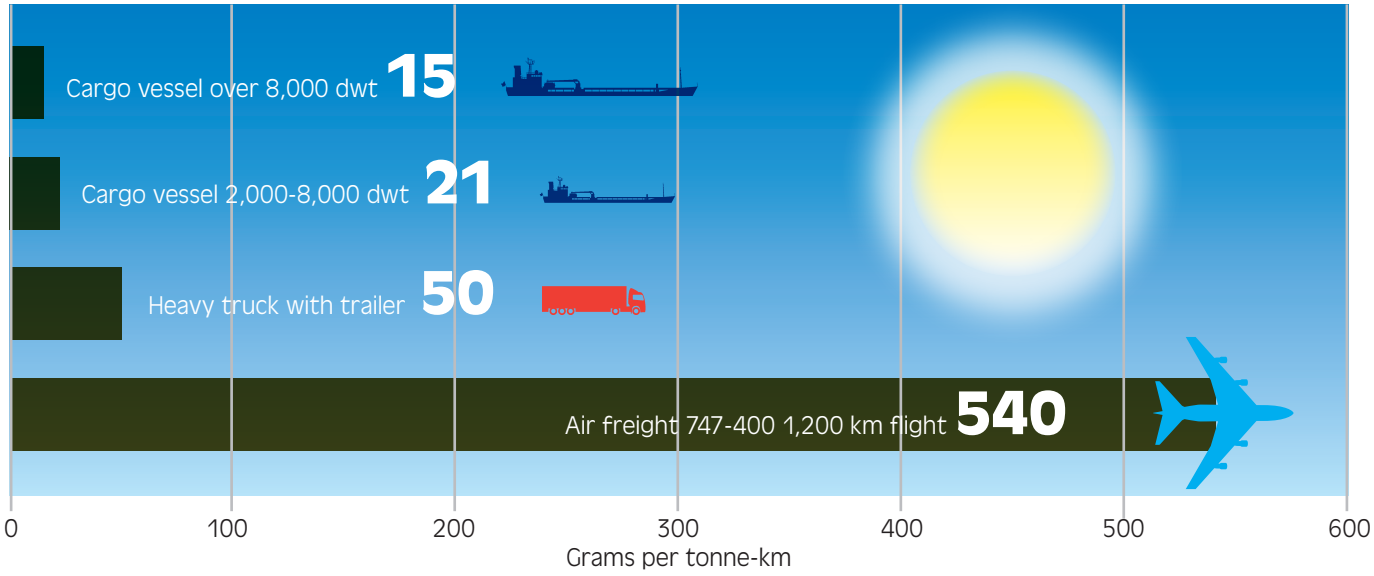
IMO agreement on technical regulations will reduce ships' CO_2

MARPOL Annex VI, Chapter 4 adopted July 2011

2013	2015	2020	2025	2030	2050
Regulations enter into force for over 90% of world fleet Ship Energy Efficiency Management Plan (SEEMP): mandatory implementation for all ships	EEDI requires new ships to meet agreed efficiency targets	New ships must improve efficiency 10% 20% CO_2 reduction per tonne/km (industry goal)	New ships must improve efficiency up to 20%	New ships must improve efficiency 30%	50% CO_2 reduction per tonne/km (industry goal)

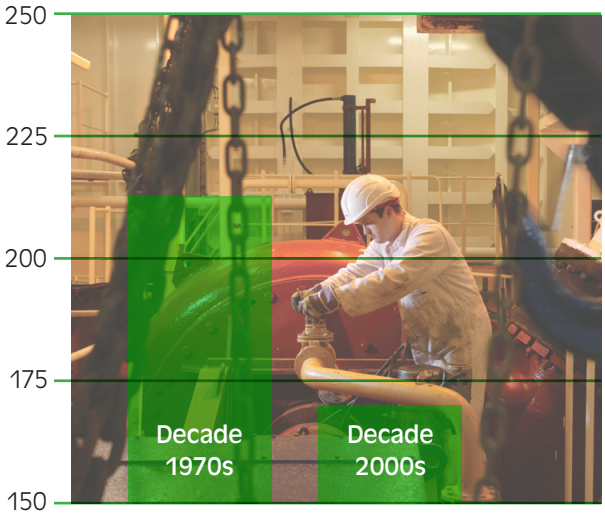
Comparison of CO_2 emissions between different modes of transport

Source: NTM, Sweden



Improvements to energy efficiency of ship engines oil consumption (gram/kw/hour)

Source: Danish Shipowners' Association



IMO in session in London

How is Shipping Reducing its CO_2 Emissions?

The consensus of opinion within the global industry is that it will be possible for shipping to reduce CO_2 emitted per tonne of cargo transported one kilometre (tonne/km) by 20% between 2005 and 2020, through a combination of technological and operational developments, as well as the introduction of new and bigger ships, designed to the new IMO Energy Efficiency Design Index. This is a significant challenge given that there have already been substantial improvements in the efficiency of ships' engines.

In the longer term, depending on technological developments which at the moment cannot be fully anticipated, the industry believes it should be possible to deliver even more dramatic emission reductions (although for the foreseeable future shipping will remain dependent on fossil fuels).

Although the shipping industry is already very energy efficient, additional improvements to hull, engine and propeller design are expected to produce further reductions in fuel consumption. There may also be possibilities for the better utilisation of waste heat.

The increasing size of many ships is also expected to improve fuel efficiency. In addition, operational measures (e.g. better speed management throughout the course of a voyage) are also expected to reduce fuel consumption and are addressed in detail by the new Ship Energy Efficiency Management Plan that has been made mandatory by IMO.

Shipping companies have a very strong incentive to reduce their fuel consumption and thus reduce their CO_2 emissions: bunker costs represent an increasingly significant proportion of ships' operational expenses, having increased by about 300% in the last 5 years.

There is every expectation that marine bunker prices will remain high. Furthermore, the cost of ships' fuel is expected to increase by a further 50% as a result of the increased use of (low sulphur) distillate fuel that will follow the implementation of the new IMO rules (MARPOL Annex VI) that will apply globally in Emission Control Areas by 2015.

Alternative Fuel Sources

The various parts of the shipping industry - shipowners, shipbuilders and classification societies (the depositories of technical expertise in the industry) - are actively examining a number of ways to reduce CO_2 emissions, both for new and existing ships, which are primarily linked to reducing fuel consumption. In the longer term, however, the shipping industry is also exploring a number of alternative fuel sources to help reduce CO_2 emissions.

Renewable energy sources, such as wind and solar power, may have a place in helping to meet some ancillary requirements, such as lighting on board ships. However, they are not practical for providing sufficient power to operate ships' main engines (the huge physical size of ships should not be underestimated).

Fuel cells may be a possibility for new ships in the very long term, although they are currently too limited in range to offer a viable solution. Even ***nuclear propulsion*** for merchant ships is technically possible, although safety and security implications and support infrastructure costs would require serious consideration.

The current assumption, therefore, remains that ships will continue to burn fossil fuels for the foreseeable future, and that the most significant means of reducing CO_2 emissions will be achieved by further improvements in efficiency across the entire transport chain.

Liquid Natural Gas (LNG) produces lower emissions, and could be a solution for some short sea trades if supply infrastructure can be developed. Third generation ***biofuels*** might conceivably provide a possible alternative although there is, of course, considerable public debate about the net environmental costs (and social effects) of the wider use of such fuels.

The International Chamber of Shipping (ICS) is the principal international trade association for merchant shipowners, representing operators at IMO and other inter-governmental fora that impact on shipping. ICS membership comprises national shipowners' associations from 36 nations representing all sectors and trades and over 80% of the world merchant fleet.

International Chamber of Shipping

38 St Mary Axe
London EC3A 8BH
Tel + 44 20 7090 1460

info@ics-shipping.org

www.ics-shipping.org

www.shipping-facts.com