

Climate Change and Reduction of Emissions of Greenhouse Gases from Ships: An Appraisal

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Abstract

Article 2(2) of the Kyoto Protocol imposes an obligation only on certain developed countries, working through the International Maritime Organisation (IMO), to pursue the reduction of greenhouse gas (GHG) emissions from marine bunker fuels. The IMO recently took the initiative to adopt a new legal instrument for the reduction of ship-generated greenhouse gas emissions. Some developing countries have suggested that the proposed IMO initiative should strictly adhere to Article 2(2) of the Kyoto Protocol and the principle of Common but Differentiated Responsibility (CBDR). Against this backdrop, this article intends to review the extent to which it is possible to propose an international legal instrument for the reduction of GHG emissions from marine bunker fuels which is applicable only to ships from developed countries considering the complex characteristics of the international shipping industry. This article also examines how far this approach is justifiable even within the framework of the CBDR principle.

The shipping of goods is one of the key issues for sustainable development. The lives and livelihood of people of both developed and developing countries are heavily reliant on the maritime transport sector. Marine transportation remains the main means of mobility for the transportation of goods. More than 95 percent of global goods are transported on seagoing vessels.¹

Fuel oil accounts for more than 50 percent of a ship's operating costs. To make the business cost-effective, most of the world's ship owners use degraded residue heavy fuel oil, which is popularly known as bunker fuel. These degraded fuels can produce significant amounts of black smoke, particulate matter, nitrogen oxides (NOX),

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1. Christian PISANI, "Fair at Sea: The Design of a Future Legal Instrument on Marine Bunker Fuels Emissions Within the Climate Change Regime" (2002) 33 *Ocean Development and International Law* 57 at 57.

unburned hydrocarbons (UHC), sulphur oxides (SOX), carbon monoxide (CO), and carbon dioxide (CO₂) during the burning process in marine diesel engines, boilers, and incinerators. These substances contribute to the process of depletion of the stratospheric ozone layer, accelerate the greenhouse effect, and contribute to acid rain and other environmental hazards.² Bunker fuels used in the aviation and maritime sectors contribute to almost 10 percent of global greenhouse gas emissions.³

According to a recent scientific study:

[s]hipping is estimated to have emitted 1,046 million tonnes of CO₂ in 2007, which corresponds to 3.3% of the global emissions during 2007. International shipping is estimated to have emitted 870 million tonnes, or about 2.7% of the global emissions of CO₂ in 2007.⁴

The study also stated that “by 2050, in the absence of policies, ship emissions may grow by 150% to 250% (compared to the emissions in 2007) as a result of the growth in shipping”.⁵ This increasing trend has led the global community to devise a comprehensive legal framework for the reduction of GHG emissions from marine bunker fuels. A negotiation is presently going on in the Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) for the adoption of a new international legal instrument for the reduction of GHG emissions from marine bunker fuels.

The Kyoto Protocol⁶ to the United Nations Framework Convention on Climate Change (UNFCCC)⁷ specifically urges Annex I countries⁸ to take the initiative to reduce emissions of GHG from marine bunker fuels. This article assesses the feasibility of making international regulations for reducing GHG emissions applicable only to ships from developed countries. It also examines the clash between the complex nature of international shipping and the principle of Common but Differentiated Responsibility (CBDR). The CBDR principle is highly relevant to the concerns of climate change. The principle states that sustainable development is a responsibility that is shared, albeit to a varying degree, between the North and the South. The IMO, on the other hand, has traditionally followed an equal treatment approach. The issues therefore go beyond the specific issue of marine bunker fuels, and raise broader concerns of the role of the CBDR principle and its implementation. The article will also analyse the extent to

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2. BIN Lin and LIN Cherng-Yuan, “Compliance with International Emission Regulations: Reducing the Air Pollution from Merchant Vessels” (2006) 30 *Marine Policy* 220 at 221.
 3. European Federation for Transport and Environment, “Bunker Fuels and the Kyoto Protocol: How ICAO and the IMO Failed the Climate Change Test” (June 2009), online: EFTE <www.transportenvironment.org/Pages/aviation/>.
 4. *Second IMO GHG Study 2009 (Executive Summary)*, IMO Doc. MEPC 59/4/7 (2009).
 5. *Ibid.*
 6. *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, 11 December 1997, 2303 U.N.T.S. 148 (entered into force 16 February 2005) [*Kyoto Protocol*].
 7. *United Nations Framework Convention on Climate Change*, 9 May 1992, 1771 U.N.T.S. 107 (entered into force 21 March 1994) [*UNFCCC*].
 8. Some developed countries and economy in transition countries have been included in Annex 1 of the *UNFCCC*.

which the tensions raised between the Kyoto Protocol's differentiated approach and the IMO's equal treatment approach can be reconciled.

Some leading developing countries are proposing that the CBDR principle should be strictly followed in the future negotiation of the international legal instrument for the reduction of GHG emissions from shipping and that the proposed legal instrument should be applicable only to the ships of developed countries.⁹ However, given the unique characteristics of this industry, this proposition may not be viable. This article proposes that a market-based mechanism guided by a global but differentiated approach without imposing different obligations on ships on the basis of their nationality can solve this problem amicably. Moreover, this article argues that an alternative approach to the long standing North-South paradigm of solving environmental problems in the international arena needs to be found in order to successfully handle the challenges of global environmental problems like climate change. That said, this article does not underestimate the need for the CBDR principle, but instead argues that an alternative approach is needed to implement the principle.

Part I discusses the provisions in the Kyoto Protocol relating to the emissions of GHG from marine bunker fuels. Part II discusses the theoretical discourses related to the CBDR principle and their relevance to the proposed legal instrument. Part III gives a short overview of international law relating to vessel-source and atmospheric marine pollution. Part IV gives a brief introduction to the negotiation in the IMO for a binding instrument for the reduction of GHG emissions from marine bunker fuels and the debate surrounding the implementation of the CBDR principle. Part V explores the possibilities of including provisions regulating GHG emissions from marine bunker fuels in the future implementing Protocol to the UNFCCC and the role of the CBDR principle in the negotiation process. Part VI examines how a market-based instrument for the reduction of GHG emissions from marine bunker fuels can solve the problem related to the implementation of the CBDR principle. Part VII discusses the mandate and competence of the IMO in the formulation of international regulations for the reduction of emissions of GHG from ships. Part VIII concludes that an alternative approach to the CBDR principle is needed for the maritime sector.

I. UNFCCC-KYOTO PROTOCOL AND EMISSIONS OF GHG FROM MARINE BUNKER FUELS

The 1992 UNFCCC is the most significant global legal instrument in the fight against climate change. Its main aim is the "stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".¹⁰ The Convention introduced two main principles, namely the precautionary principle and the CBDR principle. The precautionary principle encourages states to take action even if there is scientific uncertainty.¹¹ On the other hand, the CBDR principle calls on parties to take action on the basis of equity and in

9. See parts IV and V below.

10. UNFCCC, *supra* note 7, art. 2.

11. *Ibid.*, art. 3(3).

accordance with respective capabilities. Accordingly, “the developed country Parties should take the lead in combating climate change and the adverse effects thereof”.¹²

Giving effect to the CBDR principle, Article 10 of the Kyoto Protocol¹³ imposes a legally binding emissions reduction target only on the developed countries listed in Annex I of the UNFCCC. The UNFCCC lists six gases as GHG.¹⁴ Annex 1 parties have committed to the reduction of their overall emissions of GHG by 5 percent below 1990 levels in the commitment period of 2008 to 2012.¹⁵ The Kyoto Protocol very specifically calls on developed countries to take action against GHG emissions caused by marine bunker fuels through the IMO. Article 2(2) of the Kyoto Protocol provides as follows:

The Parties included in Annex 1 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 Organisation and the International Maritime Organization, respectively.¹⁶

Although this issue was on the agenda of international climate negotiations for several years before the adoption of the Kyoto Protocol, parties failed to reach a consensus regarding the allocation of emissions.¹⁷ Considering the highly technical and international character of this sector, it was decided that co-ordination under the IMO would be the best option. This is the main reason behind the current wording of Article 2(2).¹⁸ Like all other provisions of the Kyoto Protocol, this article also strictly follows the CBDR principle. However, the drafters of this article failed to foresee the complexity of implementing the CBDR principle in the maritime sector.

However, long after the adoption of the Protocol, the IMO has yet to adopt a legally binding instrument for the limitation or reduction of GHG emissions from marine bunker fuels. It is doubtful, given the complexities of the global shipping industry, that any such attempt will be successful if developing countries insist on a strict application of Article 2(2) in the negotiation process, since any instrument which is applicable only to developed countries’ ships will not be successful in the international shipping system due to the unique characteristics of this industry.

II. IMPLEMENTATION OF THE CBDR PRINCIPLE IN THE PROPOSED LEGAL INSTRUMENT: AN ALTERNATIVE APPROACH

Although the Kyoto Protocol was heavily influenced by the precautionary principle, the obligation to reduce GHG emissions under the instrument is also based on the

12. *Ibid.*, art. 3(1).

13. *Kyoto Protocol*, *supra* note 6, art. 10.

14. The GHGs are Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulphur Hexafluoride (SF₆): See *Kyoto Protocol*, *supra* note 6 at Annex A.

15. *Kyoto Protocol*, *supra* note 6, art. 3.

16. *Ibid.*, art. 2(2).

17. Sebastian OBERTHÜR and Hermann E. OTT, *The Kyoto Protocol: International Climate Policy for the 21st Century* (Berlin, Germany: Springer-Verlag, 1999) at 111–13.

18. *Ibid.*

CBDR principle. The Protocol introduced differentiated responsibility in each and every relevant economic sector. CBDR is considered vital to international environmental law and sustainable development for two central reasons. On the one hand, it places the burden of responsibility primarily on developed countries on the basis that their populations are the main contributors to the problems of climate change and environmental degradation. In relation to international shipping, the historical responsibility of Annex 1 states is estimated at around thirty billion tons of CO₂ pumped into the atmosphere.¹⁹ Furthermore, it has been calculated that only 16 percent of tons shipped in bulk carriers began or ended their journey in non-Annex 1 countries.²⁰ On the other hand, CBDR dictates that responsibility should be shared according to the resources states command, and differentiated treatment depending on the differing economic and technical capacities of states.²¹ Current mechanisms to assist the world's poor in addressing the issues related to climate change are seen as woefully inadequate.²²

However, over-reliance on this principle may close the door on the future development of international regulations for reducing GHG emissions in certain areas like international shipping. Over-reliance on the CBDR principle may shift the focus from the main problem of environmental catastrophes to other associated issues like North-South dilemmas. It is high time to view the North-South paradigm of solving international environmental problems from a different perspective. As observed by Antonio La Viña:

Whether it is foreign debt, international trade, biodiversity, or climate change, this perspective frequently dominates international negotiations. There is a need to ask whether this paradigm should be reconsidered or even rejected. Indeed, the dominance of North-South perspectives often results in historical debates which then divert attention from the demand to deal with the problems that require solution. The demand is not to reject the paradigm totally, but to rethink and refashion it in such a way that the historical baggage of the past is put aside and the paradigm becomes not an obstacle to devising a global regime on climate change but instead a facilitator for such a system.²³

This article does not oppose the principle of differentiated treatment in general, but considering the international nature of the shipping industry, it is nearly impossible to impose different types of obligations on ships on the basis of their nationality. Common but differentiated treatment does not only mean the imposition of different types of obligations on different actors. The principle can be applied by imposing the same commitment or obligation on ships irrespective of their nationality, but providing the developing countries with financial help to comply with the rule. Differentiated

19. Andre STOCHNIOL, "Architecture for Mitigation, Adaptation and Technology Transformation for International Transport: Global and Differentiated" *International Maritime Emission Reduction Scheme* (September 2008), online: International Maritime Emission Reduction Scheme <http://imers.org/files/docs/Shipping_Climate_Architecture.pdf> at 13.

20. European Federation for Transport and Environment, *supra* note 3 at 13.

21. *Rio Declaration on Environment and Development*, UN Doc. A/CONF.151/26 (Vol. I) (1992), Principle 7.

22. Stochniol, *supra* note 19 at 5.

23. Antonio LA VIÑA, *Climate Change and Developing Countries: Negotiating a Global Regime* (Quezon City, Philippines: Institute of International Legal Studies, 1997) at 189.

treatment can be given to developing countries without differentiating the main responsibility of environmental protection. In this respect, it is pertinent to discuss the different forms of differentiated treatment introduced by international treaties. Philippe Cullet identifies three forms of differentiated treatment:

The first type of differentiation refers to situations where treaties provide different obligations for different groups of states. Secondly, differential treatment also takes the form of measures to facilitate implementation in states which do not have the capacity to implement specific commitments. This is premised on equity and also the desire to foster the realization of the results benefiting the whole international community such as in the global environmental problems. Thirdly, while differential treatment is primarily a concept applying to inter-state relations, it is also relevant to the issue of broadening of the range of actors in international law and the role of non-state actors in addressing problems like climate change.²⁴

The Kyoto Protocol calls for the first form of differentiated treatment as well as the second and third form but the vessel-source marine pollution related provisions of the 1982 United Nations Convention on the Law of the Sea (UNCLOS)²⁵ and the IMO-initiated legal instruments, particularly the 1973 International Convention for the Prevention of Pollution from Ships (MARPOL 73/78),²⁶ mainly call for the second form of differentiated treatment. The third form of differentiated treatment is very relevant to this issue because non-state actors such as the shipping industry will be the main stakeholders if the IMO initiates any legal instrument for the reduction of GHG emissions from marine bunker fuels.

According to Article 207 of UNCLOS,

States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment *from land-based sources, taking into account characteristic regional features, the economic capacity of developing States and their need for economic development.*²⁷

Although UNCLOS specifically recognizes the CBDR principle in cases of pollution from land-based sources, it does not differentiate between ships of developed and developing countries in Articles 211 and 212, which deal with vessel-source marine pollution and marine pollution from or through the atmosphere.²⁸ Unlike Article 207, Articles 211 and 212 do not take into account the economic capacity of developing states in establishing global rules and standards for the protection of the

24. Philippe CULLET, *Differential Treatment in International Environmental Law* (Aldershot, United Kingdom: Ashgate Publishing, 2003) at 28.

25. *United Nations Convention on the Law of the Sea*, 10 December 1982, 1833 U.N.T.S. 3 (entered into force 16 November 1994) [UNCLOS], art. 56(1). For discussion on UNCLOS, see part III.

26. *International Convention for the Prevention of Pollution from Ships*, 17 February 1978, 1340 U.N.T.S. 61 (entered into force 2 October 1983) [MARPOL 73/78]. For discussion on MARPOL 73/78, see part III.

27. UNCLOS, *supra* note 25, art. 207(4) (emphasis added).

28. *Ibid.*, arts. 211 and 212.

marine environment. This is a clear recognition of the fact that imposing different types of pollution standards on the basis of the nationality of ships is a technically impossible proposition in the international shipping arena.

The IMO believes in equal treatment of all parties in respect of imposing obligations. IMO legislation never differentiates between the ships of developed and developing countries but calls for assistance to developing countries to enable them to fulfil their obligations. For example, although Article 17 of MARPOL 73/78²⁹ makes provision for providing technical assistance to least developed countries, it never imposes different types of legal obligations nor does it force developed and developing countries to undertake different levels of commitment.

In most cases, the IMO's policy of equal treatment is justifiable given the complex characteristics of the global shipping industry. For example, if the IMO imposes a different obligation or sets a different standard for GHG emission from ships of developed and developing countries, the question of which ships are under the jurisdiction of developing countries will arise. Giving a comprehensive or determinative answer to this question will be difficult for anyone. One of the major problems is that a huge number of ships operate under flags of convenience. In that case, ship owners from developed countries can easily disguise their identity. A flag of convenience can functionally be defined as the "flag of any country allowing the registration of foreign-owned and foreign-controlled vessels under conditions which, for whatever the reasons, are convenient and opportune for the persons who are registering the vessels".³⁰ As of 1 January 2004, 64 percent of the total tonnage of the world's merchant fleet was registered outside the owner's domicile.³¹

Many of the open registry countries have no effective control over the ships entitled to fly their flags. Moreover, their ships very rarely or never visit their own marine area. These countries find no incentive to prescribe stringent national regulations or ensure proper implementation of international instruments.

Under international law, an owner has full liberty to choose the flag for their ship. Consequently, every state has the right to set its own regulations and standards for registration. The nationality of a ship will be determined by the flag it is entitled to fly. Both the 1958 Convention on the High Seas³² and UNCLOS³³ require a condition of "genuine link" between the ship and the flag state, without precisely defining the meaning of the term. This seems to be an incomplete provision that has created more problems than it solves. This ambiguous provision has led scholars to have different interpretations of the term. Most scholars come to the conclusion that a mere administrative act such as registration is sufficient to fulfil the condition of a "genuine

29. MARPOL 73/78, *supra* note 26, art. 17.

30. Boleslaw Adam BOCZEK, *Flags of Convenience: An International Legal Study* (Cambridge, MA: Harvard University Press, 1962) at 2.

31. "Total Merchant Fleet by Country of Domicile" *Institute of Shipping Economics and Logistics* (1 January 2004), online: Institute of Shipping Economics and Logistics <www.isl.org/products_services/publications/samples/COMMENT_4-2004-short.shtml.en>.

32. *Convention on the High Seas*, 29 April 1958, 450 U.N.T.S. 11 (entered into force 30 September 1962), art. 5.

33. UNCLOS, *supra* note 25, arts. 91 and 94.

link”. Moreover, there is strong support for the opinion that the lack of a “genuine link” is not sufficient to refuse the grant of nationality to a ship.³⁴ As observed by the International Tribunal for the Law of the Sea (ITLOS):

[t]here is nothing in article 94 to permit a State which discovers evidence indicating the absence of proper jurisdiction and control by a flag State over a ship to refuse to recognize the right of the ship to fly the flag of the flag State.³⁵

All these shortcomings encourage the profitable business of “flags of convenience”.

All of these open registry countries are non-Annex I countries under the Kyoto Protocol. Many of these countries do not have efficient survey or certification systems. If the proposed IMO instrument is applicable only to Annex I countries’ ships, more and more ship owners will be encouraged to register their ships in flags of convenience countries rather than developed countries. Any regulation of Annex I flag states will just lead to even greater use of flags of convenience under the authority of developing states.

Another very important issue is whether it is justifiable at all, even within the framework of the CBDR principle, to give differential treatment to some countries by jeopardizing the very object of a legal instrument. The CBDR principle is not an unrestricted concept. It has certain boundaries. Lavanya Rajamani identifies three boundaries in differential treatment: (i) it should not detract from the overall object(s) and purpose(s) of the treaty; (ii) it should recognize and respond to differences across predetermined political and other categories; and (iii) it should cease to exist when the relevant differences cease to exist.³⁶

This conceptual lens is immensely important. If the proposed IMO instrument is not applicable to three-quarters of the world’s merchant fleet, this instrument will not be able to play any significant role in the reduction of GHG emissions. The main purpose of the proposed instrument should be the reduction of emissions of GHG from marine bunker fuels. The next question is the identification of “predetermined political and other categories”. Unfortunately, while drafting the Kyoto Protocol, the predetermined situation in international shipping was not considered. Article 2(2) of the Kyoto Protocol totally failed to consider the issue of flags of convenience. Finally, if differentiated responsibility is given on the basis of the flag of the vessel, developing flags of convenience countries, not the developed countries, may be deemed as the current major players. Most global vessels now fly the flags of non-Annex I countries. In that case, Lavanya Rajamani’s third limitation should also be considered.

With this theoretical underpinning in mind, subsequent parts of this article will discuss what is happening in practice within the IMO and the Conference of Parties (CoP) of the UNFCCC.

34. Alan Khee-Jin TAN, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation* (Cambridge: Cambridge University Press, 2006) at 47–57.

35. *The M/V “SAIGA” (No.2) Case (St. Vincent and Grenadines v. Guinea)* [1999] 38 I.L.M. 1323, para. 82; *Constitution of the Maritime Safety Committee of IMCO Case* [1960] I.C.J. Rep. 150.

36. Lavanya RAJAMANI, *Differential Treatment in International Environmental Law* (Oxford: Oxford University Press, 2006) at 162.

III. INTERNATIONAL LAW RELATING TO VESSEL-SOURCE AND ATMOSPHERIC MARINE POLLUTION

To be effective, the future IMO instrument for GHG emissions reduction should not be operationally very different from existing vessel-source marine pollution related conventions. Considering the scope of the present article, an elaborate discussion on these conventions is not necessary. However, before discussing the IMO initiative for the reduction of GHG from ships, it is pertinent to have a short discussion on the international laws that regulate vessel-source pollution. Prevention of vessel-source marine pollution is largely portrayed as an extremely complicated area, which has led to the adoption of a large number of international instruments. Most remarkable of these instruments are UNCLOS and MARPOL 73/78. Both UNCLOS and MARPOL 73/78 specifically elaborate on the duties and jurisdiction of flag, port, and coastal states.

UNCLOS brings some basic reforms in the international environmental law of the sea. The most significant of these is that pollution can no longer be regarded as an inherent freedom of the seas; rather, its careful prevention from all sources is now a universal legal obligation for the global community. Additionally, UNCLOS has changed the focus from state responsibility or liability for environmental damage to international co-operation for the conservation of the marine environment by imposing a general obligation on states to protect the marine environment.³⁷

Part XII of UNCLOS deals with marine environmental protection and imposes a general obligation on states to protect and preserve the marine environment.³⁸ It provides for the sovereign right of states to exploit natural resources subject to the duty to protect the marine environment.³⁹ UNCLOS requires states to take all measures necessary for the prevention, reduction, and control of pollution of the marine environment from any source.⁴⁰ It addresses six main sources of ocean pollution including vessel-source pollution and pollution from or through the atmosphere. Apart from Part XII, some of the other provisions of UNCLOS are also relevant to vessel-source marine pollution, particularly those provisions that deal with different maritime zones. UNCLOS affirms the right to innocent passage for vessels of all countries in the territorial seas of other countries,⁴¹ but any act of wilful and serious pollution is illegal while a ship is in innocent passage.⁴² In order to control ship-generated pollution, a coastal state may enact laws for controlling innocent passage through its territorial seas, provided that the national laws are in conformity with international law.⁴³ UNCLOS also provides that ships, while transiting in straits used for international navigation, shall comply with generally accepted international environmental rules and procedures.⁴⁴

37. Patricia BIRNIE and Alan BOYLE, *International Law and the Environment*, 2nd ed. (Oxford: Oxford University Press, 2002) at 348.

38. UNCLOS, *supra* note 25, art. 192.

39. *Ibid.*, art. 193.

40. *Ibid.*, art. 194(1).

41. *Ibid.*, art. 17.

42. *Ibid.*, art. 19.

43. *Ibid.*, art. 21.

44. *Ibid.*, art. 39(2)(b).

Finally, UNCLOS grants the coastal states rights and jurisdiction for the protection and preservation of the marine environment in its exclusive economic zone.⁴⁵

UNCLOS elaborately deals with vessel-source pollution in Article 211. Article 211 of UNCLOS obligates states to create international regulations for the prevention, reduction, and control of pollution by vessels in the marine environment.⁴⁶ Articles 212 and 222 specifically deal with atmospheric pollution. Article 212 provides a prescriptive jurisdiction to states to take action against shipping-generated atmospheric pollution, which is subject to international rules and standards.⁴⁷ Similarly, Article 222 of UNCLOS imposes an obligation on states to implement and enforce international rules and standards for the prevention of vessel-source atmospheric pollution, which are developed through competent international organizations.⁴⁸

On the other hand, MARPOL 73/78 is the most important global legal instrument for the prevention of marine pollution from vessels. It regulates the design and apparatus of ships and establishes a system of certification and inspections. MARPOL 73/78 requires states to provide reception facilities for the disposal of different types of substances. Regulations covering the various sources of ship-generated pollution are contained in the six annexes of this Convention. Annexes I and II, governing oil and chemicals, are compulsory, but Annexes III, IV, V, and VI on packaged materials, sewage, garbage, and air pollution are optional. Any violation of MARPOL 73/78 within the jurisdiction of any party to the Convention is punishable either under the law of that party or under the law of the flag state.⁴⁹ Apart from these two major treaties, many other treaties adopted under the auspices of the IMO and other international organizations also play a significant role in the protection of the marine environment from vessel-source pollution.⁵⁰

The IMO had started working on shipping-based air pollution as far back as the late 1980s. In 1997, member states of the IMO adopted a new annex, namely Annex VI to MARPOL 73/78, for the prevention of shipping-based air pollution,

45. *Ibid.*, art. 58.

46. *Ibid.*, art. 211.

47. Erik Jaap MOLENAAR, *Coastal State Jurisdiction over Vessel-Source Pollution* (The Hague: Kluwer Law International, 1998) at 501.

48. UNCLOS, *supra* note 25, art. 222.

49. Molenaar, *supra* note 47 at 431–2.

50. A non-exhaustive list of these conventions is: *International Convention on Oil Pollution Preparedness, Response and Co-operation*, 30 November 1990, 30 I.L.M. 733 (entered into force 13 May 1995) and its *Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances*, 15 March 2000, [2003] ATNIF 9 (entered into force 14 June 2007); *International Convention on Civil Liability for Oil Pollution Damage*, 27 November 1992, 1953 U.N.T.S. 255 (entered into force 30 May 1996); *International Convention on the Establishment of an International Fund for the Compensation for Oil Pollution Damage*, 27 November 1992, 1953 U.N.T.S. 330 (entered into force 30 May 1996); *International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea* (HNS), 3 May 1996, 35 I.L.M. 1406 (not yet entered into force) [HNS]; *International Convention on Liability and Compensation for Bunker Oil Spills*, 23 March 2001, U.K.T.S. (No. 8) 2005 (entered into force 21 November 2008); *International Convention on the Control of Harmful Anti-Fouling Systems on Ships*, 5 October 2001, IMO Doc. AFS/CONF/26 (entered into force 17 September 2008); *International Convention for the Control and Management of Ship's Ballast Water and Sediments*, 13 February 2004, [2005] ATNIF 18 (not yet entered into force); *Nairobi International Convention on the Removal of Wrecks*, 18 May 2007, IMO Doc. LEG/CONF.16/19 (not yet entered into force).

which entered into force on 19 May 2005.⁵¹ However, Annex VI does not cover GHG emissions from marine bunker fuels.

One particular issue to be noted is that neither the provisions on vessel-source marine pollution in UNCLOS nor the IMO conventions impose differentiated responsibility on ships on the basis of their nationality.

IV. NEGOTIATIONS IN THE IMO FOR A BINDING INSTRUMENT FOR THE REDUCTION OF GHG EMISSIONS FROM MARINE BUNKER FUELS AND THE CBDR PRINCIPLE

In 2000, the IMO undertook a comprehensive study of greenhouse gas emissions from ships (IMO GHG Study 2000).⁵² Following this study, GHG emissions from ships is now one of the main issues on the agenda of the MEPC of the IMO. At the 57th MEPC meeting, held in March 2008, some developed countries and shipping associations proposed the adoption of an IMO instrument that would be “binding and equally applicable to all *flag States* in order to avoid evasion”.⁵³ Developing countries led by China, India, and Brazil strenuously opposed this proposal. They submitted that any measures adopted by the IMO should be applicable only to Annex I parties to the UNFCCC in accordance with the principle of “common but differentiated responsibility”.⁵⁴ After considering both sides of the argument, the chairman of the MEPC proposed that the instrument will be “binding and equally applicable to all *ships* in order to avoid evasion”.⁵⁵ Developing countries were not agreeable to this proposal. Intervening in the debate, the Secretary-General of the IMO commented:

[T]hat the Committee should address the issue from IMO’s global mandate and competence and, to that effect, he considered ... to replace ‘flag States’ by ‘ships’ ... helpful. He 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 (say 5 or 50) under its flag when developing countries with a large number of ships under their flag (up to 6,000)—which is the case in today’s shipping reality—were not obliged to comply with the same measures.⁵⁶

At the 58th MEPC meeting, held in October 2008, IMO member states again debated this issue. Developing countries again argued in favour of the CBDR principle as “[i]n their view, any mandatory regime aiming at reducing GHG

51. Bin and Lin, *supra* note 2.

52. UNFCCC, “IMO Study of Greenhouse Gas Emissions from Ships” (31 March 2000), online: UNFCCC <http://unfccc.int/files/methods_and_science/emissions_from_intl_transport/application/pdf/imoghmain.pdf>.

53. *Future IMO Regulation Regarding Green House Gas Emissions from International Shipping*, submitted by Denmark, Marshall Islands, BIMCO, ICS, INTERCARGO, INTERTANKO, and OCIME, IMO Doc. MEPC 57/4/2 (2008) (emphasis added).

54. *Report of the Marine Environment Protection Committee on Its 57th Session*, IMO Doc. MEPC 57/21 (2008), paras. 4.74, 4.78, and 4.79.

55. *Ibid.*, para. 4.75 (emphasis added).

56. *Ibid.*, para. 4.81.

emissions from ships should be applicable to developed countries listed in Annex I of the UNFCCC only”.⁵⁷ On the other hand, developed countries argued that:

[A]s 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 meaningless and ineffective for the purpose of combating climate change, if applicable only to Annex I countries.⁵⁸

The 59th MEPC meeting, held in July 2009, after considering the serious state of GHG emissions from marine bunker fuels presented in the IMO GHG Study 2009, agreed to introduce the following voluntary and interim measures which were to be reconsidered at its 60th meeting, to be held in March 2010:

1. the interim Guidelines on the method of calculation of the Energy Efficiency Design Index for new ships;
2. the interim Guidelines for the voluntary verification of the Energy Efficiency Design Index;
3. the Guidance for the development of a ship energy efficiency management plan;
4. the Guidelines for the voluntary use of the Energy Efficiency Operational Indicator.⁵⁹

The MEPC decided to report these developments within the IMO to the 15th Conference of the Parties (CoP 15) of the UNFCCC, held in Copenhagen in December 2009. CoP 15 agreed to consider a successor instrument to the Kyoto Protocol. The meeting also approved a work plan for further consideration of a binding market-based instrument at the 60th MEPC meeting. Finally, the IMO Secretary-General urged all countries to ensure 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”.⁶⁰

The very strict position of some of the leading developing countries is in fact the main obstacle towards the adoption of mandatory market-based measures for the reduction of GHG emissions from marine bunker fuels. The 59th MEPC meeting decided that it would consider the issue of a mandatory market-based instrument in its next meeting, after observing the developments in the CoP 15 of the UNFCCC. Against this backdrop, the following part will briefly discuss the different proposals submitted to the CoP 15 of the UNFCCC for the amendment of Article 2(2) of the Kyoto Protocol.

57. *Report of the Marine Environment Protection Committee on Its 58th Session*, IMO Doc. MEPC 58/23 (2008), para. 4.27.

58. *Ibid.*, para. 4.28.

59. “IMO Environment Meeting Issues Technical and Operational Measures to Address GHG Emissions from Ships” (20 July 2009), online: IMO <www.imo.org/Newsroom/mainframe.asp?topic_id=1773&doc_id=11579>.

60. *Ibid.*

V. GHG EMISSIONS FROM MARINE BUNKER FUELS AND THE FUTURE IMPLEMENTING PROTOCOL FOR UNFCCC: THE ISSUE OF THE CBDR PRINCIPLE

A number of proposals have been submitted by the member states for both the amendment of the Kyoto Protocol pursuant to Articles 20 and 21 of the Kyoto Protocol and the adoption of a successor instrument to the Kyoto Protocol pursuant to Article 17 of the UNFCCC. These are discussed below. Like most other aspects of climate change negotiations, the bone of contention in these proposals was the CBDR principle.

Some countries have proposed that provisions relating to the GHG emissions from the maritime sector in the new Protocol should impose an equal obligation on all member states for the limitation or reduction of emissions of GHG from marine bunker fuels. The Secretariat of the UNFCCC received five drafts for the new protocol submitted by Japan, Tuvalu, Costa Rica, the United States (US), and Australia.

In its draft for the proposed protocol, Japan suggested the following provision:

The Parties 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 Organisation and the International Maritime Organization, respectively.⁶¹

From the proposed text from Japan, it is clear that if the provision is accepted by member states of the UNFCCC, the IMO will be able to adopt a legal instrument that will be equally applicable to all flag states.

On the other hand, Tuvalu proposed a levy “on goods imported by means of international maritime transport into developed country Parties which have derived from developed country Parties”.⁶² Tuvalu’s proposal simply imposes an obligation on the developed countries for a contribution to the proposed climate change fund. Unlike the present Article 2(2) of the Kyoto Protocol, the proposal does not require that the future legal instrument adopted under the auspices of the IMO for the reduction of GHG emissions from marine bunker fuels be made applicable only to developed countries.

The Costa Rican draft proposed a number of options. These included provisions for action through the IMO by only Annex 1 parties as well as an alternative option for action through the IMO by all parties.⁶³

The US draft does not say anything specifically on this issue.⁶⁴ However, the overall approach of the US proposal is to impose obligations for the reduction of GHG emissions on some of the major developing countries together with Annex 1

61. *Draft Protocol to the Convention Prepared by the Government of Japan for Adoption at the Fifteenth Session of the Conference of the Parties*, UN Doc. FCCC/CP/2009/3 (2009), at 4.

62. *Draft Protocol to the Convention Presented by the Government of Tuvalu under Article 17 of the Convention*, UN Doc. FCCC/CP/2009/4 (2009), at 15.

63. *Draft Protocol to the Convention Prepared by the Government of Costa Rica to be Adopted at the Fifteenth Session of the Conference of the Parties*, UN Doc. FCCC/CP/2009/6 (2009), at 38–9.

64. *Draft Implementing Agreement Under the Convention Prepared by the Government of the United States of America for Adoption at the Fifteenth Session of the Conference of the Parties*, UN Doc. FCCC/CP/2009/7 (2009).

countries. In its draft, Australia proposed that the new protocol should include provisions to address emissions from maritime transport, including appropriate direction to develop separate sector-specific agreements.⁶⁵

Apart from these proposals for a new protocol, the Secretariat of the UNFCCC received eleven proposals for the amendment of the Kyoto Protocol. Some of these proposals specifically addressed the issue of amendment of Article 2(2). For example, the European Union proposed amending the present Article 2(2) to state that “[p]arties shall take the necessary action to achieve a reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from international aviation and maritime transport”.⁶⁶

However, most of the developing countries were not supportive of these proposed changes. Some leading developing countries submitted a proposal to amend the Kyoto Protocol,⁶⁷ suggesting that they will not accept any specific emissions reduction commitment for developing countries, even though some of the leading developing countries are major contributors to global GHG emissions. Although their proposal made no specific provision for GHG emissions from marine bunker fuels, its overall approach is supportive of the existing Article 2(2) of the Kyoto Protocol.

No consensus on this issue has been achieved in the CoP 15. Rather, a political accord known as the Copenhagen Accord⁶⁸ has been adopted by some of the countries and similarly noted although not adopted by the CoP 15. The Copenhagen Accord does not directly deal with the maritime sector. One of the goals of the Accord is to mobilize “100 billion dollars a year by 2020 to address the needs of developing countries”.⁶⁹ Through the adoption of a market-based mechanism, the maritime sector may play a role on mobilizing this fund.⁷⁰

VI. IMPLEMENTATION OF THE CBDR PRINCIPLE THROUGH A MARKET-BASED INSTRUMENT

This part argues that the CBDR principle can be implemented in the maritime sector through a market-based mechanism for the reduction of GHG emissions. However, at the moment, this issue is hugely contested.

After the first IMO study on ship-generated GHG emissions, the IMO Assembly adopted Resolution 963/23, calling upon parties to adopt a mandatory market-based

65. *Draft Protocol to the Convention Prepared by the Government of Australia for Adoption at the Fifteenth Session of the Conference of the Parties*, UN Doc. FCCC/CP/2009/5 (2009), at 12.

66. *Proposal from the Czech Republic and the European Commission on Behalf of the European Community and Its Member States for an Amendment to the Kyoto Protocol*, UN Doc. FCCC/KP/CMP/2009/2 (2009), at 4.

67. *Proposal from Algeria, Benin, Brazil, Burkina Faso, Cameroon, Cape Verde, China, Congo, Democratic Republic of the Congo, El Salvador, Gambia, Ghana, India, Indonesia, Kenya, Liberia, Malawi, Malaysia, Mali, Mauritius, Mongolia, Morocco, Mozambique, Nigeria, Pakistan, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sri Lanka, Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia and Zimbabwe for an Amendment to the Kyoto Protocol*, UN Doc. FCCC/KP/CMP/2009/7 (2009).

68. *Copenhagen Accord*, UN Doc. FCCC/CP/2009/L.7 (2009).

69. *Ibid.*, para. 8.

70. *Outcome of COP 15 and the Work of MEPC on Market-Based Instruments in 2010*, submitted by World Wide Fund for Nature (WWF) and Greenpeace International, IMO Doc MEPC 60/4/53 (2010).

instrument for the reduction of GHG emissions from vessels.⁷¹ Six years after the adoption of that resolution, and twelve years after the adoption of the Kyoto Protocol, the IMO has yet to adopt such mandatory market-based mechanisms.

IMO member states have put forward various proposals for market-based mechanisms. Some countries, including Norway, Germany, and France, proposed emissions trading.⁷² On the other hand, there is a Danish proposal for imposing a global levy on marine bunker fuels. States also showed their divergent views in respect of a new regulatory instrument.⁷³ Some states are of the opinion that a new mechanism should be established through an amendment to MARPOL 73/78, and some countries proposed an entirely new legal instrument.⁷⁴

However, progress in the discussions on adopting a mandatory market-based mechanism is mainly dependent on the consensus of states on the interpretation of the CBDR principle. Even the IMO's competence over the political and legal aspects of this issue has been questioned by some developing countries.⁷⁵

At the 59th MEPC meeting, some of the developing countries took the robust position that the market-based mechanism must be based on the CBDR principle. According to China:

[t]his principle should not only be reflected in the establishment of emission reduction targets for each country, but also in funding mechanisms and technical specifications. In implementing new technical specifications, developed countries should provide assistance to developing countries in the areas of technology, funding and capacity-building.⁷⁶

The Chinese delegation also stated that the MEPC in this meeting may preliminarily consider the issue but full consideration can only be given after taking into account the political arrangement and outcome of the Copenhagen conference. Moreover, China was also of the view that the IMO can only consider the technical issues, and that the political, legal, and economic matters should be decided by the Conference of Parties of the UNFCCC.⁷⁷

At the 60th MEPC meeting, held in March 2010, state parties again hotly debated the issues of CBDR and market-based instruments. The Chinese delegation took the position that the IMO's mandate to work in this field basically evolved from the Kyoto Protocol.⁷⁸ Moreover, the Copenhagen Accord proposed at the CoP 15 of the UNFCCC reaffirmed the CBDR principle, so it should be the key principle in the negotiation process.⁷⁹ China also requested that the IMO defer the discussion on this issue until the

71. *IMO Policies and Practices Related to Reduction of Greenhouse Gas Emissions from Ships*, Resolution A.963 (23), IMO Doc. A 23/Res.963 (2004).

72. European Federation for Transport and Environment, *supra* note 3 at 17.

73. *Ibid.*, at 14.

74. *Ibid.*

75. *Report of the Marine Environment Protection Committee on its 59th Session*, statement by the Delegation of China on GHG Issues, IMO Doc. MEPC 59/24/Add.1 (2009), Annex 13.

76. *Ibid.*, para. 3.

77. *Ibid.*, para. 5.

78. *Report of the Marine Environment Protection Committee on its 60th Session*, IMO Doc. MEPC 60/22 (2010), Annex 4.

79. *Ibid.*, at 1.

16th session of the Conference of Parties to the UNFCCC (CoP 16) to be held in Mexico.⁸⁰ Peru openly supported the Chinese view to postpone discussions on this issue within the IMO.⁸¹ Brazil, Saudi Arabia, South Africa, Argentina, India, the Philippines, and Cuba also strongly advocated for the CBDR principle at the meeting. However, unlike China, they did not propose that the IMO defer its work until the CoP 16 of the UNFCCC.⁸² Malaysia, although strongly supporting the principle of CBDR, seemed to be convinced that this principle could be implemented through a market-based mechanism.⁸³ Developed countries, including Spain, the US, France, Germany, Sweden, Portugal, and Italy strongly supported the IMO's competence for work in this field.⁸⁴

In the end, the 60th meeting of the MEPC "concluded that more work needs to be done before it completes its consideration of the proposed mandatory application of technical and operational measures designed to regulate and reduce emissions of greenhouse gases (GHGs) from international shipping".⁸⁵ The 60th meeting established an Expert Group to undertake a feasibility study and to assess the different proposals submitted by member states for a market-based instrument for international maritime transport.

Finally, preferential treatment should be given to goods that are transported to and from least developed countries and not to the vessels which fly developing countries' flags. Preferential treatment can be given to developing countries using market-based mechanisms or through other alternative means. As proposed by the European Federation for Transport and Environment, "market-based measures should be global ... and take account of CBDR through (a) exemptions for routes to and from least developed countries that together do not exceed 2% of GHG emissions and (b) differentiated allocation of revenues".⁸⁶ In this manner, the CBDR principle will be implemented without differentiating between ships simply on the basis of their nationality.

A scientific study commissioned by the IMO suggested that there was significant potential to achieve reductions of CO₂ emissions through the introduction of a market-based instrument through the application of the no more favourable treatment principle.⁸⁷ The study also suggested that the CBDR principle could be implemented through the appropriate distribution of revenues raised from the market-based mechanism.⁸⁸ The study proposed that a higher proportion of revenue should be given to the least developed countries for climate change adaptation and mitigation purposes.⁸⁹ The study also showed that this revenue could have a positive impact on the

80. *Ibid.*, at 2.

81. *Ibid.*

82. *Ibid.*, at 3–5, 7–9, and 12.

83. *Ibid.*, at 10.

84. *Ibid.*, at 1 and 9–12.

85. "IMO Environment Committee Makes Progress" *IMO* (26 March 2010), online: IMO <www.imo.org/newsroom/mainframe.asp?topic_id=1859&doc_id=12724>.

86. European Federation for Transport and Environment, *supra* note 3.

87. *Scientific Study on International Shipping and Market-Based Instruments*, IMO Doc. MEPC 60/INF.21 (2010).

88. *Ibid.*, at 2.

89. *Ibid.*

economies of these countries, which could lead to a 2.46 percent increase in their GDP.⁹⁰ Developed countries may also benefit from the Clean Development Mechanism.⁹¹

VII. THE IMO'S MANDATE AND COMPETENCE FOR FORMULATING INTERNATIONAL REGULATIONS ON VESSEL-SOURCE MARINE POLLUTION

Another very important issue is the forum for all the concerns discussed above. The IMO's competence to propose and initiate a global instrument for the reduction of ship-generated GHG emissions does not derive from the Kyoto Protocol. The IMO's competence basically comes from UNCLOS and the IMO Convention.⁹²

According to UNCLOS, the IMO has a global mandate and competence for the protection of the marine environment from vessel-source pollution.⁹³ UNCLOS does not prescribe an all-encompassing set of new standards for the prevention of vessel-source pollution. Instead, it mainly incorporates within its provisions standards prescribed in sectoral international legal instruments. In doing so, UNCLOS by reference incorporates existing as well as future instruments to be adopted under the auspices of the IMO.⁹⁴ The IMO's official position is that "[w]hile UNCLOS defines the features and extent of the concepts of flag, coastal and port State jurisdiction, IMO instruments specify how State jurisdiction should be exercised to ensure compliance with safety and anti-pollution shipping regulations".⁹⁵

Moreover, Articles 211(1) and 212(3) of UNCLOS call on state parties to establish global rules, standards, and recommended practices and procedures to prevent, reduce, and control atmospheric and vessel-source marine pollution, acting especially through competent international organizations. It is an obligation of state parties to UNCLOS to develop international legal instruments through diplomatic conferences or a competent international organization (in the present context, the IMO) to reduce vessel-source atmospheric marine pollution through emissions of GHG.⁹⁶ According to Article 59 of the IMO Convention, the IMO "shall be brought into relationship with the United Nations in accordance with article 57 of the Charter of the United Nations as the specialized agency in the field of *shipping and the effect of shipping on the marine environment*".⁹⁷ This mandate of the IMO is not subject to

90. *Ibid.*, at 3.

91. *Ibid.*

92. *Convention on the Inter-Governmental Maritime Consultative Organization*, 6 March 1948, 289 U.N.T.S. 3 (entered into force 17 March 1958), amended and renamed as *Convention on the International Maritime Organization*, 14 November 1975, 9 U.T.S. 61 (entered into force 22 May 1982) [IMO Convention].

93. See UNCLOS, *supra* note 25, arts. 211 and 212.

94. Tan, *supra* note 34 at 196.

95. *Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization*, IMO Doc. LEG/MISC/3/Rev.1 (2003), at 7.

96. For a discussion on the obligations of states under UNCLOS to mitigate climate change: see Meinhard DOELLE, "Climate Change and the Use of the Dispute Settlement Regime of the Law of the Sea Convention" (2006) 37 *Ocean Development and International Law* 319.

97. Charter of the United Nations, 24 October 1945, 1 U.N.T.S. XVI (emphasis added).

the UNFCCC or to its Kyoto Protocol. “The Organization, thus, had a global mandate and global competence on matters related to the protection of the environment from emissions caused by shipping and was not subordinated to any other UN body in that respect.”⁹⁸

The IMO should go ahead with its initiative for an effective legal framework for the reduction of GHG emissions from marine bunker fuels even if a deviation from Article 2(2) of the Kyoto Protocol is needed for practical and pragmatic reasons.

VIII. CONCLUDING REMARKS

The challenge for the adoption of the proposed international legal instrument is providing globally uniform regulations for international maritime transport while maintaining the CBDR principle.⁹⁹ A global but differentiated approach¹⁰⁰ through the above-mentioned market-based mechanism may give us a solution to this critical problem.

It is very unlikely that the IMO will be able to adopt any effective and mandatory measures for the reduction of GHG emissions from marine bunker fuels within the present commitment period of the Kyoto Protocol if developing countries do not consider the reality of international shipping. Article 2(2) of the Kyoto Protocol will not be a driving force but rather a bottleneck for a global consensus on mandatory measures for reducing ship-generated GHG emissions if developing countries take a strict position on both the issues of implementation and interpretation of the CBDR principle.

As states clearly seem, at this stage, to disagree on a protocol for the post-2012 era, it will be pragmatic for the IMO to go forward with its own initiatives without giving much emphasis to Article 2(2) of the Kyoto Protocol. The member states of the IMO should continue the negotiation process for the adoption of an effective international legal instrument for the reduction of GHG emissions from vessels. The development of any legal instrument for this type of pollution should follow the pattern of MARPOL 73/78, which deals with other types of vessel-source marine pollution. There are no reasonable grounds to significantly differentiate GHG emissions from vessels from other types of vessel-source marine pollution. However, the proposed regulation should take a somewhat different approach considering the debate related to the CBDR principle.

In view of the serious ramifications of climate change, the authors share the view of the delegation of the Cook Islands at the 60th meeting of the MEPC:

We agree that Climate Change discussions must address sustainable development and of course we are engaged on the all-important discussions on mitigation and adaptation but our overriding concern in the South Pacific is one of survival ...

[W]e appeal to all Member States to recognize our dilemma, and that of other small island, developing States and if not open their heart, open their minds so that progress can be made and give us hope for our future survival.¹⁰¹

98. *Report of the Marine Environment Protection Committee on its 58th Session*, *supra* note 57, para. 4.29.

99. Stochniol, *supra* note 19 at 8.

100. *Ibid.*

101. *Report of the Marine Environment Protection Committee on its 60th Session*, *supra* note 78, Annex 4.