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Tackling Maritime Bunker Fuel Emissions: The Evolution of Global Climate Change Policy at the International Maritime Organization

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ABSTRACT

Few industries are as global in nature as the maritime shipping industry and few environmental problems are as global in scope as anthropogenic climate change. Given the international nature of the maritime industry, in which goods owned by a company based in one country may be transported between two more countries by a ship flagged to a fourth country, carbon dioxide emissions from shipping have not been easily assigned to individual countries, and have instead been classified as "international emissions" and excluded from any emissions inventories. This problem of attribution has also confounded international environmental institutions' attempts to develop regulations for reducing emissions from international transport.

This paper adopts an institutionalist analytical framework to examine the problem of greenhouse gas emissions from the international maritime industry and response from the international community to this problem, which has played out over the last two decades. By exploring the responses to this complex problem by both the global climate change regime and the International Maritime Organization, a UN specialized agency based in London which develops guidelines, protocols, and regulations for the maritime industry, as well as the interactions between these institutions, this paper sheds light on the mechanisms that underlie the failure of international agreements to tackle global climate change.

Specifically, the paper asks why it has taken two decades for the International Maritime Organization (IMO), the United Nations agency charged with regulating the maritime industry, to develop the first regulatory responses to emissions from the industry. By tracing the process by which emissions from the maritime industry have been treated over time, this paper argues that a) there were several identifiable political opportunities available to the IMO during the mid-1990s to act on carbon dioxide emissions, but a combination of the institutional schedule of environmental issues within the IMO, anti-regulatory interests within the shipping industry, and the lack of a political champion of the issue within the IMO torpedoed any chance of action, and b) the UNFCCC has always acted to trigger debate on climate change in the IMO, but has also acted as a force that has changed the institutional behavior and norms of the IMO itself due to competition between conflicting principles between the two institutions. The paper concludes that institutional interaction on this issue has evolved over time, and is continuing to evolve, and that future policies that might successfully address this problem should seek to understand the controls that institutional behavior exert on state action.

The international maritime shipping industry is both a unique and a uniquely important economic sector. It is unique because there is a *single* international shipping industry for the entire global economic system. While each country may have its own domestic shipping fleet, and while each ship is registered under a sovereign-state flag, the intrinsic nature of the act of international shipping, of transporting goods produced in any number of countries from one port of export to another port of import, on a ship often flying a third country's flag, inherently involves multiple sovereign identities. The industry is unique further in that it transports goods in large part across physical space that is territorially in the global commons: international waters. Thus, not only are the interested economic parties intrinsically multinational, but *all* of the potential environmental impacts of the industrial activity of the industry, including even the localized pollution impacts of oil spills, regional air pollution or the transmission of invasive species in ballast water are also intrinsically global. The international maritime shipping industry is also uniquely important. The industry is the transport engine of the global economy: 90% of international trade moves by ship (Stopford, 2003).

For over two decades the international community has been aware of the problem of climate change and its causes. This paper examines the problem of greenhouse gas emissions from the international maritime industry and the response from the international community to this problem. Specifically, the paper asks why it has taken two decades for the International Maritime Organization (IMO), the United Nations agency charged with regulating the maritime industry, to develop the first regulatory responses to emissions from the industry. In particular, the paper analyzes institutional interactions between the IMO and the global climate change regime, including the Framework Convention on Climate Change (UNFCCC). By tracing the process by which emissions from the maritime industry have been treated over time, this paper argues that a) there were several identifiable political opportunities available to the IMO during the mid-1990s to act on carbon dioxide emissions, but a combination of the institutional schedule of environmental issues within the IMO, anti-regulatory interests within the shipping industry, and the lack of a political champion of the issue within the IMO torpedoed any chance of action, and b) the UNFCCC has always acted to trigger debate on climate change in the IMO, but has also acted as a force that has changed the

institutional behavior and norms of the IMO itself due to competition between conflicting principles between the two institutions.

INTRODUCTION

In order to understand how and why the International Maritime Organization has addressed the issue of climate change, it is important first briefly to lay out the regulatory framework and economic realities in which the maritime industry and the IMO operate, and secondly to place the IMO as an international organization in the *institutional* context in which it operates.

An Introduction to the Regulatory Framework of the IMO

The International Maritime Organization (IMO)[1] is a specialized agency of the United Nations tasked with developing regulations for the shipping industry. Their mission statement is to ensure "safe, efficient shipping on clean oceans," reflecting a commitment to safety of life at sea, to working with the industry to ensure it can carry out its work, and to the protection of the marine environment.[2] Founded in 1959 originally as an inter-governmental organization, the Intergovernmental Maritime Consultative Organization (IMCO), the IMO changed its name in 1982, reflecting a stronger commitment to a vibrant international institution.

The IMO is headquartered in London, UK (the only UN agency currently located in London), and has a Secretary-General and Secretariat comprised of several hundred full-time employees. An Assembly of national delegations from its currently 169 member states[3] is the governing body of the IMO, and the negotiating work is assigned to several Committees, separated by topic (e.g. Safety, Environment, Legal, Technical Co-Operation), and this work is further delegated to Sub-Committees (egg Safety of

[1] Please note that I will refer throughout this paper to "the IMO" rather than simply "IMO," which is the more common convention within IMO documents. Thus, for example, I will refer to actions "within the IMO" rather than actions "within IMO."

[2] The IMO has extended its own remit from simply the protection of the "marine" environment to the prevention of pollution from ships, including air pollution. This change took place during the initial discussions of regulations of sulfur dioxide and nitrogen oxide emissions during the 1980s. It was concluded that air pollution did have an impact on the marine environment itself and, more fundamentally, that no other institution was in a position to regulate such emissions from the shipping industry. The importance of this change to the debate on climate change regulation is discussed later in the paper.

[3] The majority of sovereign states that are not IMO members are land-locked nations from Sub-Saharan Africa and Central Asia, as well as several small island Pacific states. Notably the Cook Islands, which is not a UN-member state, is a member of the IMO (and an active one at that).

Navigation, Bulk Liquid and Gases, Standards of Training/Watch-Keeping). These Committees and Sub-Committees generally meet once or twice per year, depending on the work-load of the committee and will frequently and regularly use less formal working groups, expert groups, and correspondence groups to tackle difficult issues outside the framework of the committee plenary (IMO negotiations, Summer 2010, Personal Observation).

Equal Treatment for All Ships

The IMO has an institutional tradition of working closely with the shipping industry, in part perhaps because of the complexity of the industry, and the Secretariat makes frequent reference to this spirit of cooperation in negotiations. Perhaps most importantly, the International Maritime Organization relies on a principle of equal treatment for all ships regardless of national flag which is legally enshrined as "No more favourable treatment of ships" in the Convention on Pollution From Ships (MARPOL), the Convention on Safety of Life at Sea (SOLAS), and other IMO Conventions and is also known as the "non-discrimination" principle. According to this principle, all regulations shall be blind to the sovereign flag flying on any given ship.

Flag State Implementation

The regulatory logic of such a non-discrimination requirement is linked to the privileged position of the maritime industry in global trade flows. While non-discrimination principles are common in other UN organizations and institutions, including the World Trade Organization, the principle within the IMO is deeply linked to what is often termed (though not be the IMO) as the use of "flags of convenience." An individual ship-owner is free to register his/her ship under any sovereign flag offering a ship registry. As DeSombre (2006) argues, the relatively lax regulations within some countries and the anonymity and relative freedom from liability led many ship-owners to register their ships outside of their home country because under admiralty law, a ship operates under the laws of the state of the flag that it flies. Indeed, a ship in international waters acts legally as a slice of sovereign territory of the flag state (Ferrell, 2005).

The International Maritime Organization's remit extends to the creation of standards for all ships, but does not extend to enforcement of these regulations, which is left to the flag state and is referred to as "flag state implementation." Thus, the IMO

cannot force flag states to implement regulations. However, the IMO has recently established a voluntary member state audit scheme, in which third-party registered organizations, which are private consulting entities registered with the IMO, audit the implementation of IMO standards by flag states. There is a proposal under consideration by the Flag State Implementation (FSI) Sub-Committee at the IMO to make the voluntary audit scheme *mandatory*. This would be a first step towards the creation of an enforcement role for the International Maritime Organization (FSI Sub-Committee debate, July 2010, Personal Observation).

The use of flag state implementation and the existence of flags of convenience decouples the maritime industry from national sovereignty and the system of states. A complex web of companies, charterers, registries and crews serves to operate this industry essential to the global economy horizontally rather in vertical compartments of individual states. This decoupling impacts the negotiation positions of countries, whose interests are shaped by economic dynamics, but also by the structure of the flag states. The largest ships' registries in the world belong to Panama, Liberia, the Marshall Islands and the Bahamas, and 75% of ships in the international fleet fly the flag of developing nations.

Port State Control

Flag states, however, may not operate without any checks on their enforcement of standards on the ships flying their flags. Port states, that is states the ports of which receive merchant ships, may also impose regulatory checks on ships to ensure that they are operating at a sufficient level of safety, environmental, and labor standards and may delay ships until they come into compliance, a process which sometimes can detain ships by days, weeks, or even months, depending on the nature of the violation. Regional organizations of port states, known as regional MOUs (memoranda of understanding) that share information, resources, and protocols relating to the control of ships visiting their ports have been established outside the framework of the IMO, and representatives from these organizations participate as observers in IMO negotiations. Thus, regulations of the shipping industry operate on a system of IMO-negotiated standards, flag state implementation and port state control.

The Challenge of Greenhouse Gas Emissions from the Maritime Industry

It is within this regulatory landscape, of IMO-negotiated regulations, of flag state implementation and port state control, that the issue of greenhouse gas emissions from ships is situated. Ever since the conversion of the global merchant marine from sail power to coal engine power in the mid-19th century, international shipping has used fossil fuels (coal and then later fuel oil) as the primary fuel source for propulsion. While engine designs have changed, the combustion of any hydrocarbon will produce carbon dioxide, and thus CO_2 emissions. Maritime fuel oil is often referred to as "bunker fuel" because it is transported and carried in containers referred to as "bunkers" and the act of fueling a ship is referred to as "bunkering" a ship. The current fuel oil that is most widely used is the residue of the petroleum distillation process that is used to make Heavy Fuel Oil (HFO) (Notteboom and Verminnen, 2009).[4]

Just as few industries are as global in nature as the international maritime transport industry, few contemporary issues are as global in scope as climate change. Unlike many issues relating to environmental protection, neither the causes nor the impacts of climate change are localized. While bunker fuel carbon dioxide emissions from international shipping represent only 2.7% of overall global greenhouse gas emissions (IMO GHG Study, 2009), they are predicted to grow rapidly as the shipping industry continues to expand. This is because, given its intrinsically privileged place in international trade, any growth in the global economy that is linked to a growth in international trade will lead to a de facto increase in international shipping. In the absence of major changes to the fuel-source or method of propulsion of most ships, this means an increase in greenhouse gas emissions from international shipping.

Given this international nature of the maritime industry, in which goods owned by a company based in one country may be transported between two more countries by a ship flagged to a fourth country, carbon dioxide emissions from shipping are not easily or clearly assignable to individual countries. Furthermore, 75% of international maritime

[4] Although recent regulations of sulfur emissions in areas around Western Europe have led to requirements for the use of low-sulfur distillate fuel and these requirements will ramp-up over time.

bunker fuel emissions are physically emitted from ships flying the flag of sovereign states that are considered to be *developing* rather than *developed* countries.

The challenge of reducing greenhouse gas emissions from the shipping industry is complicated by the structure of the industry's mechanisms for assigning sovereignty using a flag-state and port-state system and greenhouse gas emissions from international maritime bunker fuels thus present a difficult set of nested challenges for environmental governance. The most elaborate challenge is how to regulate, or otherwise control, carbon dioxide and greenhouse gas emissions from *international* shipping, and specifically how to allocate responsibility for these controls across countries or other actors, including industry. This challenge is nested in the more fundamental challenge of how simply to attribute or assign emissions from the combustion of maritime bunker fuels to particular sovereign states or other entities, even before elaboration of a mechanism assigning responsibility for controlling them. These linked, nested challenges have been facing the International Maritime Organization for twenty years, as the challenge was first raised within IMO negotiations in 1991.

The challenge of tackling greenhouse gas emissions from the shipping industry is also nested in the greater challenge of tackling global climate change, and throughout the two decades of IMO negotiations, the *global climate change regime,* comprised of the United Nations Framework Convention on Climate Change (UNFCCC), other intergovernmental institutions like the Intergovernmental Panel on Climate Change (IPCC), and national policies specifically aimed at curbing climate change, has also been actively working on both the allocation of responsibility and the attribution of emissions from all sectors of the global economy.

The unique challenge presented by climate change regulation of maritime bunker fuel emissions is thus itself nested in a unique context of institutional interaction between the International Maritime Organization and the rest of the global climate change regime, including the United Nations Framework Convention on Climate Change. One institution was created to regulate an industry, and, by extension, the impacts of that industry on the environment and on human beings including climate change. The other institution was created to address a complex global problem, including its causes and effects, viz. climate change. In order to understand the processes and mechanisms by

which the international community is addressing climate change, we must understand the institutions involved in addressing one of its most complex challenges.

Understanding Global Environmental Governance

A brief theoretical consideration of institutional behavior, issue framing, coalition formation, and processes politicization of environmental issues is merited, if we are to understand the IMO and UNFCCC as actors in global environmental governance.

Environmental Institutions and Institutional Interaction

This paper adopts an institutionalist perspective, which argues that international institutions, while created by states, can affect state behavior (Keohane and Martin, 1995). Because institutions are created by states and can "provide information, reduce transaction costs, make commitments more credible, establish focal points for coordination, and in general facilitate the operation of reciprocity," (Keohane and Martin, 1995) their objective existence is important to understanding political behavior, and in this way is more all consuming than a realist approach:

> By seeking to specify the conditions under which institutions can have an impact and cooperation can occur, institutionalist theory shows under what conditions realist propositions are valid. It is in this sense that institutionalism claims to subsume realism (Keohane and Martin, 1995)

The institutionalist perspective offers a lens through which to understand state behavior in a cyclical and iterative system. States create institutions for the coordination-benefits to resolve problems that cannot be solved on their own, yet institutions develop traditions, modes of operating and structures that exist beyond the control of the state and influence the policy-options and political outcomes of policy-making.

Because environmental problems are complex, localized across scales, and involve many interests and actors, not only can no state solve them alone (Neumayer, 2001), but there is no single international institution to address international environmental issues (DeSombre 2006, 19). Institutions are created to address specific governance needs, and thus are tasked with particular sets of international problems on which they seek to coordinate the actions of member states. They offer benefits of coordination and interest seeking by individual states. In the maritime sphere, as

DeSombre points out, "Global governance by maritime institutions has taken two different tacks over the past century" (DeSombre 2006, 69). The first is the International Maritime Organization, which was created to address the legal issues related to shipping, and has gradually imported environmental issues into its areas of consideration, always with a primary focus on the maritime industry. The second is a resource-oriented approach to marine space, embodied primarily in the UN Convention on the Law of the Sea.

From this perspective, DeSombre argues that the IMO acts as a weak environmental institution because it lacks an institutional history of strong-enforcement and has an institutional history of close alignment with industry interests because it was created to coordinate, rather than to restrict industry practices. (DeSombre 2006, 76-78). Power structures within the IMO thus are perhaps unique to the industry and strongly influence its policy-outcomes:

> Governance difficulties in the IMO come from the distribution of various types of power and influence across member states. The traditional European and North American maritime states (who are, not coincidentally, the most powerful states in the international system generally) have less influence in the IMO than originally envisioned, because of the growth in flag-of-convenience ship registration, most of which takes place in developing states. A tension thus exists in the system between states generally powerful internationally that do not have as much structural influence and those states that are centrally important in determining international ship standards but do not otherwise have much international influence (DeSombre 2006, 79).

Not only do institutions exist as agents of consideration, but their policy-outcomes are also products of interaction *between* institutions. Dimitrov (2006), who adopts an institutionalist perspective arguing that it is the "post-realist consensus that international institutions matter and that policy agreements affect state behavior," contends that international environmental policy is characterized by 'regimes' and 'non-regimes,' that is the institutions that both have and have not emerged to address particular issues (Dimitrov 2006, 6-8). This analysis is particular interesting from a perspective of institutional interaction, because in a formal sense, adopting Dimitrov's conception of the definition of regime, following Krasner (1983), that is "implicit or explicit principles, norms, rules and decision-making procedures around which expectations converge in a

given area," then the IMO cannot properly be understood to be part of the global climate change regime.

In their chapter, "Conceptual Foundations of Institutional Interaction," Oberthür and Gehring (2006) follow Oran Young (1996)'s approach to institutional interaction, arguing for a taxonomy of four types of institutional interaction: *embededness,* which refers to practices of sovereignty or hierarchy of principles, *nestedness*, which refers to a functional relationship of a smaller institution inside a larger institution (a Protocol within a Convention can operate this way), *clustering* refers to issues linked in a singular institution which combines the activities of other institutions such as the Law of the Sea Convention, and *overlap* which results from simply de facto intersection, in which the activities of one institution produce "substantial impacts on each other" without a formal relationship (Oberthür and Gehring 2006, 20-21). In the case of the climate change regime and the IMO, these interact through *overlap* that has become formalized over time. There is no formal embedness or nestedness, although, as we will see, at times various actors have claimed that the UNFCCC's institutional principles should be carried into other institutions in cases of overlap.

Environmental Coalition Formation

While this paper adopts an institutionalist perspective, state actors, operating within institutional spaces, will also form coalitions for action when subsets of states have aligned interests and when joining forces is required to advance a particular agenda. Susskind (1994) depicts coalitions in environmental negotiations which take both positive and negative formulations. "Blocking coalitions" often develop in opposition to action and use both procedural maneuvering and persuasive arguments to prevent action which they perceive as in opposition to their interest. (Susskind, 1994). Of particular interest are coalitions which involve non-governmental entities including industries, which oppose environmental regulations, and environmental organizations which favor it. As discussed above by DeSombre, the IMO is in many ways a unique institution governed by the powers and structures of a single economic entity. In this way, the structure of the IMO shapes opportunities for coalition building within its institutional space in a way that is profoundly different from the structure of the climate change regime. Importantly, Ecchia and Mariotti (1998) use game-theory models to suggest that institutions

themselves are capable of "intervening in the framing of strategic interactions between countries," (Ecchia and Mariotti, 1998). This is something which evidence suggests may occur frequently on the question of bunker fuels, as the Secretariat frequently participates actively in issue framing.

Finally, the IMO, as a unique institution, offers tremendous opportunity for issue linkage, as environmental decisions on issues ranging from acid rain, to climate change, to invasive species are made by a single Committee composed of the very same negotiators for all issues. At several junctures in the climate change debates, linkages between environmental issues have been highlighted.[5]

Non-State Actors, Social Constructions, and the Politicization of Science

Finally, understanding an institution's approach to climate change requires a consideration of non-state actors in shaping the processes of policy development. Issues are raised out of a complex web of scientific information and NGO pressure. Keller (2009) argues that agenda setting is in many ways driven not by states as rational actors, but by states and other agents of governance responding in an *ad hoc* manner to perceived environmental and scientific issues that are products of social constructions.

Understanding these constructions is a subject of wide discussion in sociology. Chatterjee and Finger (1994) argue that the ultimate approach taken is generally steered by economic interests of those who hold power (Chatterjee and Finger, 1994), while Faber (1992) sees a more *ad hoc* approach referred to as "eco-pragmatism" in which issues are able to penetrate to the level of governance when the understanding of their impact and uncertainty does not prevent action, in other words when scientific information aligns with practical governance considerations.

When it comes to climate change, the issue must be understood as a both a scientific issue that has been raised, but after this as a social construction (Pettenger et al., 2007). This is particularly true when it comes to the assignment and allocation of

[5] Anecdotally, this can spread even beyond environmental issues: I witnessed at least one negotiator argue against a navigational measure to separate ship traffic by contending that moving the traffic lane into a different current would force ships to increase their emissions and reduce their efficiency.

greenhouse gas emissions, a particularly thorny issue for international transport emissions. Lovbrand and Stripple (2006)'s analysis argues that the carbon cycle is bounded for political reasons, not scientific reasons and that this tends to politicize decisions that would otherwise seem purely scientific. (Lovbrand and Stripple) Karen Litfin (1998) regards this as a larger trend of the 'greening of sovereignty' in which state borders actually harden in response to environmental concerns, and territorialization becomes more, not less relevant in the face of environmental crisis (Litfin, 1998). Harriet Bulkeley argues that, for climate change, there is an increasing importance of networks of information exchange in constructing debates, rather than simply perceived country interest and coalition building (Bulkeley, 2005). This is not just true for emissions and climate change, but for understanding transport in geographic space in general (Knowles, Shaw, and Docherty, 2008). Thus, once the issue is framed and contextualized, territorialization of environmental problems becomes politicized, and this politicization feeds into the on-going institutional life of the problem.

The IMO and the Global Climate Change Regime: A Rationale for Investigation

The case presented by the International Maritime Organization's regulation of climate change is interesting to us as theorists of environmental governance for two distinct reasons. First, the IMO's principle of equal treatment for all ships lies in direct contradistinction to a principle that has become enshrined in the global climate regime and is included in Article 2 of the 1992 UNFCCC, which is that climate change should be addressed by countries according to their "common but differentiated responsibilities and respective capabilities." This principle, which I will refer to as CBDR, has been widely interpreted in the 1997 Kyoto Protocol to the UNFCCC to assign initial commitments for reducing greenhouse gas emissions to developed, but not to developing countries. Thus, the two principles within the two separate institutions are in apparent contradiction, creating an inherent institutional tension (Wang, 2010).

The second reason the case of the IMO is particularly interesting is the broader notion of co-equal international institutional interaction. Sovereign member states agreed the UNFCCC and its Kyoto Protocol as *the* international response to the problem of climate change. For most sectors of the economy, there may be other relevant international agreements, but there is no specific institution or specialized agency that

might challenge the UNFCCC for "institutional" ownership over international climate-related agreements on that issue. In the case of agriculture, the Food and Agriculture Organization provides information and statistical support on questions related to climate change, but because emissions from the agricultural sector are methodologically assigned to individual countries, these emissions are included in the UNFCCC's country-by-country approach to emission attribution. There was some delay in including land-use change emissions within the global climate change regime owing to their technical complexity, but no other institution is tasked with the development of policies to reduce these emissions. Other UN agencies address climate change from an adaptation, rather than a mitigation perspective, such as the UN Convention on Biological Diversity, which seeks to both document and limit the impacts of climate change on ecosystems across the globe.

The 'uniqueness' factor of the international maritime industry is only shared by the international aviation industry, and these two industries, whose emissions are often referred to simply as "international emissions" have been segregated from greenhouse gas emissions from other sectors of the economy in the UNFCCC process. Under current UNFCCC methodologies, for example, national inventories of emissions are required to report international emissions on the basis of the total amount of fuel oil bunkered in that territory, but are instructed *not* to include these emissions in their national totals. Thus, despite the fact that fuel oil burned for domestic shipping is included in transport emissions totals, despite the fact that there is no other distinguishing characteristic of international shipping emissions in a physical or chemical sense, and despite the fact that these emissions are no more or less likely to influence the global climate than any other combustion of fossil fuels, they have been treated separately in the regulatory process.

For these reasons, I argue, the case of the IMO and its regulations merits attention and further investigation. Because of its unique nature, the case of the IMO casts a critical light on both the role of institutions in global climate policy, and the salience of the question of attribution of emissions in the climate regime. The role of the IMO in global climate policy and international environmental governance has received relatively little attention in the literature (Oberthür 2003,2006).

Beyond theoretical considerations, the problem of climate change has been on the table for two decades, and during this time the magnitude of the current and projected impacts has only gotten worse and annual anthropogenic emissions have continued to rise globally (Copenhagen Diagnosis, 2009; IPCC 2007). The current regulatory approach has been insufficient to achieve the universally agreed international objective of "avoiding dangerous anthropogenic interference with the climate system," and numerous observers have questioned whether the current approach may be 'broken,' although there is no obvious alternative to it (e.g. Bodansky, 2010). By studying the case of maritime bunker fuel emissions in which no meaningful action has been taken by the international community, this paper contributes to a thorough unpacking of all aspects of the current approach to climate policy – an unpacking of which we are in poignant need if we can hope to confront this problem in the near future. Achieving the goal of avoiding dangerous anthropogenic climate change requires near-immediate action, and dramatic changes to the energy system powering the global economy. Understanding not just the political, but the structural and institutional reasons why action on climate change has been slow is thus an important contribution to the process of confronting the challenge of climate change.

RESEARCH QUESTIONS, METHODOLOGY, AND HYPOTHESES

How has the IMO as an institution addressed climate change regulation? More specifically, why has it taken nearly two decades (18 years since the UNFCCC was signed and ratified) for the IMO to develop its first substantive responses to reducing emissions from the maritime sector? What factors within the IMO influenced the course of development of the IMO's approach to climate change? What factors outside the IMO influenced the course of development of the IMO's approach to climate change? How have these outside and inside factors interacted? How has the relationship with the UNFCCC evolved over time and how has this shaped IMO's approach to climate change?

Overview of Methodology

In order to investigate these questions, I have adopted a process-tracing methodology, following George and Bennett (2005), in which documentary sources and elite interviews are used to trace a series of causal factors to explain an observed political

outcome. When key junctures are identified, possible hypothetical counterfactuals that may have led to an alternative policy-outcome are considered in order to "test" the strength causality of the proposed factor. This process-tracing methodology is appropriate to the task at hand, in part because the uniqueness of the case of the IMO does not present itself for easy comparative analysis (George and Bennet 2005). While a comparison of the IMO with its "sister" agency that regulates the international aviation industry, the ICAO might be fruitful, a process-tracing methodology allows us to understand how institutional factors within and outside the IMO have influenced the *evolution* of global climate change policy over time. As George and Bennett (2005) highlight, this methodology is particularly useful for exploring the development of new theories of politics.

The primary evidence used in this methodology is taken from a combination of intensive document review, observation of IMO Sub-Committee, Working Group, and Expert Group negotiations, and semi-structured elite interviews with relevant experts. Documents reviewed were found in the Maritime Knowledge Centre at the International Maritime Organization between June and August 2010. Documentary sources cited are included in the separate section of the reference list.

Background: The Process of Institutional Interaction

The institutional response of the IMO to the problem of climate change cannot be viewed in isolation from the larger global environmental climate regime, comprising the UNFCCC and domestic climate change policy-making. Sebastian Oberthür, in his 2003 review in *Climate Policy* entitled "Institutional interaction to address greenhouse gas emissions from international transport: ICAO, IMO and the Kyoto Protocol," argued that action on maritime bunker fuel GHG emissions in the IMO was slow because, while regulatory competition was a motivating factor for IMO action, it was not strong enough or forceful enough to lead to real change because of a lack of political will within the IMO. At the time, he suggested that increasing the credibility of the threat of UNFCCC action or unilateral EU action might spur action within the IMO (Oberthür 2003). While acknowledging there were references to climate change in the IMO before the Kyoto Protocol, Oberthür highlights the Kyoto Protocol's Article 2.2 as the "trigger" of IMO negotiation on the issue (Oberthür 2003).

While agreeing with Oberthür's overall assessment, this work seeks to expand the temporal scope of Oberthür's analysis in both directions. First, it includes analysis of pre-1997 IMO negotiations on possible climate change responses in order to highlight several key junctures that shaped the process of eventual action on climate change prior to the Kyoto Protocol and its Article 2.2 provisions. Secondly, in order to understand why current threats of extra-IMO action have been insufficient to move the issue forward within the IMO, the paper provides an analysis of institutional interaction between the IMO and the UNFCCC through the 2010 COP16 meeting in Cancun. By expanding the scope of analysis, we can more fully understand how the IMO has addressed climate change, and, in particular, understand the evolving role of UNFCCC-forcing on IMO action *over time*. Without challenging Oberthür's overall conclusion that the IMO has acted in climate change primarily in reaction to outside pressure, the temporal expansion of my analysis provides support for two related hypotheses. These hypotheses will be considered in separate analyses:

IMO Institutional Claim 1:

Before Article 2.2 in the Kyoto Protocol directed Annex I countries to act "through the IMO," to reduce maritime bunker fuel emissions, there were several identifiable political opportunities available to the MEPC and IMO during the mid-1990s to act on carbon dioxide emissions, but a combination of the institutional schedule of environmental issues within the IMO, anti-regulatory interests within the shipping industry, and the lack of a political champion of the issue within the IMO torpedoed any chance of action.

IMO Institutional Claim 2:

While outside pressure from the UNFCCC and European Union has increased the rate of progress on this issue within the IMO from 2007-2010, it has not altered any fundamental dynamics of IMO negotiations. The structure of the IMO's MEPC and its own institutional history have been a contributing factor to the IMO's slowness of action. Furthermore, the UNFCCC does not only act as a motivational source for IMO action, but also as a force that changes the institutional behavior and norms of the IMO itself. Once the UNFCCC principle of common but differentiated responsibilities coalesced after the Kyoto Protocol, a battle of institutional principles (equal treatment of all ships

vs. CBDR) ensued which itself stagnated the possibility of action. Discussions aimed at advancing universal market-based measures covering GHG emissions from ships have been marked by significant and frequent reference to the CBDR principle within IMO negotiations.

EXAMINING CLAIM 1: THE IMPORTANCE OF THE TREATMENT OF CLIMATE CHANGE IN THE IMO BEFORE THE KYOTO PROTOCOL

The Structure of the IMO's Decision Making Process

I will present evidence for Claim 1 chronologically and conclude this section with a summary analysis. The primary source of evidence is IMO documents, which were obtained from June-August 2010 at the Maritime Knowledge Centre at the International Maritime Organization headquarters in London.[6] Before presenting these documents, I will briefly review the structure of the IMO's decision-making processes.

The International Maritime Organization is organized into primary committees, which are annual or semi-annual meetings of national delegates and NGO-representatives designed to facilitate discussion and decision-making on subject matter relating to particular topics: maritime safety, protection of the marine environment, legal matters, or technical cooperation. All decisions by each of these committees are submitted as recommendations to the full IMO Assembly, which meets once a year and has the power to adopt proposals from the committees.

In order to facilitate the work of the committees, standing sub-committees on particular topics, ranging from recommendations for helping to implement requirements and recommendations by flag states to safety of navigation at sea, are established by the committees. Issues requiring finer, more focused-study are assigned to sub-committees by the committees, which will then consider the sub-committee report. In some cases sub-committees may report to two different overseeing committees, if the work on a particular issue overlaps the topical remits of more than one committee.

The process of how regulatory issues are raised within the IMO also merits attention. Any new issues are generally brought to the attention of the committee by

[6] Documents presented here are referred to by the acronymic code for each committee and sub-committee: the Marine Environment Protection Committee (MEPC), the Sub-Committee on Bulk Chemicals (BCH), which was a sub-committee under MEPC, until it was dissolved during a re-organization in 1994, and the Sub-Committee on Bulk Liquids and Gases (BLG) which replaced the BCH sub-committee in 1996.

interested parties (i.e. member states and/or registered NGOs or industry associations), in general through a process of documentary submission. Parties may raise a particular issue in the course of plenary, but if it has not been identified as an agenda item, this will result in an invitation for that party to submit information or a proposed action to the next meeting of the committee. The adoption of the agenda for a subsequent committee meeting is arranged as the final agenda item for the current meeting. This requires that sufficient interest in addressing an issue exist in order for an agenda item on the topic to be established. If few or no documents are submitted under a specific agenda item, the chair will not have the remit to structure debate around that issue and no progress will be made.

This structure has an advantage, namely that it focuses attention on a particular issue, allowing for numerous checks and frequent, iterative debate across working groups and sub-committees and at the committee level. Issues cannot simply "slide" through, but must be deliberately raised and debated with full knowledge of all parties. It has a disadvantage, however, in being somewhat cumbersome and slow. For example the issue of the transmission of invasive species in ballast water was first raised in the MEPC in 1990. The new IMO Convention on Ballast Water Management was finally agreed and opened for signature and ratification in 2005. (IMO). It still has not entered into force as of January 2011, although it is just a few countries shy of reaching the 30 required (George Backwell, January 24, 2011).

Because the agenda of the MEPC may be overloaded with competing issues, any particular issue is often assigned a time-line for action by the Assembly. Committee and sub-committee chairmen use this timeline for action, often calculated in years, to help advance debate at key moments, in other words as a way to spur consensus. However, if no consensus can be reached, the timeline for action can be (and is) frequently revised.

The IMO also has a strong tradition of making decisions by consensus, but has no requirement for consensus. Decisions can be taken by majority, without full agreement, though this is rarely done and is avoided whenever possible. This option is frequently highlighted when debate stagnates, and is itself a factor in attempts to break gridlock.

Finally, industry representatives and NGO representatives sit in sub-committee meetings and working groups as observers, but participate *de facto* as nearly full equals

in negotiation and debate and may chair sections of working groups (personal observation). They are often called upon for their expertise and lines between country party delegates and non-governmental observers are very difficult to distinguish at these levels. Industry groups and interested NGOs, including environmental NGOs, are entitled to and regularly submit documents for consideration by the committee. While they do not have formal voting rights in establishing consensus, their active participation and frequent interventions in sub-committee and committee meetings have strong influence over the course of decision-making.

What I have attempted to portray in this description of the IMO is a decision-making process that is at once conservative, and transparent. There is tremendous opportunity for individual party championing of issues and coalition building. There is tremendous influence of industry group representatives on the decision-making process, owing to both their level of participation in the process and a culture that seeks directly to involve industry in the regulatory process (Oberthür, 2003; personal observation). Finally, the decision-making process is inherently *ad hoc.* All of these attributes have had significant influence on how the IMO has sought to regulate greenhouse gas emissions from ships. The IMO may appear, and is genuinely, reactionary to external pressures, but its own internal mechanisms have greatly shaped how these reactions have proceeded.

How Reduction of GHG Emissions Was First Raised in the IMO

The general environmental issue of air pollution from ships was controversial when it was first raised within the IMO because addressing it was seen as expanding the remit of environmental protection from strictly preventing marine pollution from ships (as in the MARPOL Convention), to *pollution from ships in general* (IMO, 1991). The initial interest in reducing air pollution from ships was established in the late 1980s by the MEPC, which decided to pursue an "Air Pollution Annex" to MARPOL both to regulate sulfur dioxide and nitrogen oxide emissions from ships which were contributing to reduced air quality in ports, as well as to acid rain, and to regulate CFC and halon emissions from ships which were contributing to ozone depletion. (Annex to MEPC 32/12). Efforts to establish a framework for an "Air Pollution Annex" were fully

underway at MEPC 31 in July 1991, after initial resistance from industry groups to the inclusion of air pollution provisions under the remit of the IMO.

At its 21st meeting in September 1991, the Bulk Chemicals Sub-Committee considered an agenda item on the prevention of air pollution from ships, having been given terms of reference to this effect. Among other things, the BCH was tasked by the MEPC with considering the requirements for achieving emissions reduction goals for numerous air pollutants: CFC emission reduction (elimination by 2000), halon emission reduction (elimination by 2000), sulfur oxide emission reduction (50% from reference level by 2000), nitrogen oxide emission reduction and VOC emission reduction (70% of reference level by 2000) as well as the incineration of garbage on ships. (BCH 21/14) The "Action Plan" at the time dictated that BCH 21 should report to MEPC 32 in March 1992, which would further refine and instruct BCH 22 to draft the new air pollution annex to MARPOL in September 1992. (BCH 21/14) This would allow MEPC 34 in 1993 to consider the draft Annex and ultimately Adopt in 1994 for entry into force in 1995 (MEPC 32/12). Even at this stage, the BCH report already indicated that the 1992 completion date for its work was unrealistic, and it proposed a two-year extension (BCH 21/7).[7]

While no documentary submissions were submitted to BCH 21 in 1991 related to carbon dioxide or greenhouse gas emissions, the United Kingdom first raised the issue of carbon dioxide emissions during the Sub-Committee's plenary. As the report from the BCH Sub-Committee to the MEPC reads:

> "The United Kingdom delegation brought to the attention of the Sub-Committee their concern regarding carbon dioxide, stating that shipping is a significant source of carbon dioxide and an IMO policy which encouraged greater fuel efficiency might be helpful. The UK delegation further stated that consideration should be given to accurate monitoring and forecasting of carbon dioxide emissions from shipping and to the difficulty of allocating responsibilities to individual states." (MEPC 32/12, 1992).

What is immediately noteworthy about the UK's intervention is its recognition that shipping is a "significant" source of CO_2 emissions and its foreshadowing that

[7] Ultimately, Annex VI of MARPOL would be adopted in 1997 and enter into force in 2005, ten years behind the original schedule.

monitoring, modeling, and accounting would be challenges that the IMO would have to face. The representative from Germany also offered an intervention "flagging" the issue for further, deeper consideration. The BCH Sub-Committee welcomed these interventions, but the Chairman "pointed out that the question of carbon dioxide emissions was not included in the terms of reference of the Sub-Committee regarding work on prevention of air pollution from ships." (MEPC 32/12). After discussion and interventions by Norway, the UK and Sweden which suggested expanding the scope of air pollution under consideration, the representative from the Oil Companies International Marine Forum (OCIMF) "expressed the view that the scope of discussion on air pollution should only be decided by the MEPC" and not the BCH Sub-Committee. The Sub-Committee then agreed that it would recommend the MEPC to include such aspects in future work, an appeal to a higher authority.

This exchange, in September 1991, represents the first discussion of greenhouse gas emissions from shipping within the International Maritime Organization. In order to make sense of this discussion, it must be understood in the larger context of environmental policy making at the time. The 1979 Long-Range Transboundary Air Pollution (LRTAP) Convention and its 1985 Helsinki Protocol on Sulfur Dioxide Emissions, and the 1985 Vienna Convention and its 1987 Montreal Protocol on Substances that Deplete the Ozone Layer had just recently addressed the issues of acid precipitation and ozone depletion respectively in international fora that had agreed on courses of action to address these issues.

Of perhaps most lasting importance was the use of the Convention/Protocol approach to environmental issues in which goals are established in an initial convention and specified targets and time-tables are developed in a subsequent Protocol. Initial IMO action on SO_x and NO_x, CFCs and halons came shortly after the two protocols (1985 and 1987), and reflected improvements the consensus that those agreements embodied: to reduce SO_x by 30% and to eventually eliminate CFCs. (Helsinki Protocol, 1985; Montreal Protocol, 1987) Thus, the target based systems that had been developed in institutions outside the IMO were directly imported into the IMO, which had before it the challenging task of developing regulations for these air pollutants that could apply to the complexities of the shipping industry.

The issue of climate change, however, has a different story. In 1988, the World Meteorological Organization convened the Toronto Conference on the Changing Atmosphere, sponsored by the WMO and UNEP, first discussed the issue of global warming in an international context, and the first Intergovernmental Panel on Climate Change (IPCC) assessment report on the issue was released in 1990, the same year that the UN General Assembly, as part of its lead up to UN Conference on Environment and Development (UNCED) and the Earth Summit in Rio de Janeiro in 1992, agreed to plans for two years of preparatory meetings to negotiate a framework convention on climate change at UNCED.

Thus, in 1991, the United Kingdom's IMO representative was seeing action moving towards a new agreement on climate change in 1992, and thus attempted to raise the issue of carbon dioxide emissions from shipping within the IMO, recognizing that attribution and monitoring and accounting of emissions would be important in any future climate regime that came out of the 1992 Earth Summit, regardless of the precise provisions of the agreement itself. In short, the UNFCCC was influencing the IMO's approach to climate change before it even existed as a convention. However, the structure of the IMO decision-making process left little room for direct action on the issue by the BCH Sub-Committee in September 1991.

In March 1992, the United Kingdom followed up on its intervention from the previous September by submitting a proposed course of action to the full Marine Environment Protection Committee in document MEPC 32/12/3 entitled "Greenhouse gas emissions from shipping." The proposal highlights the preparatory work for a Framework Convention on Climate Change, "being prepared for signature at the United Nations Conference on Environment and Development to be held in June 1992." In particular the UK delegation's submission highlighted preparations by the Organization for Economic Co-operation and Development (OECD), under the auspices of the IPCC, to develop a methodology applicable to all countries for estimating GHG emissions" from international shipping on a "nation-by-nation," basis. The United Kingdom went on to describe its own efforts to quantify its emissions from shipping and revealed that its official statistics only include emissions originating in its territorial waters within 12 miles of the United Kingdom coast. Highlighting that "many, if not most, of [maritime]

emissions originate in international waters," the United Kingdom thus called for the IMO's "formal association" with the OECD/IPCC methodology development process

The first formal submission to the IMO relating to greenhouse gas emissions from shipping thus announced a "clear need to establish: first, reliable information on the total amount of greenhouse gas emissions from shipping; secondly, an equitable means of allocating responsibility for these emissions between the States involved." (MEPC 32/12/3). The United Kingdom concluded that responsibility allocation for these emissions "would seem to be very much a policy issue for IMO consideration," that it will "not be easy" and that "any action to control shipping greenhouse gas emission would need to be co-coordinated through IMO." They directly called on the MEPC to

> note the significance of GHG emissions from shipping in the context of the international discussions on climate change issues;
> agree that IMO should be formally associated with the work in hand under the auspices of the IPCCC on developing a methodology for estimating GHG emissions; and
> agree that IMO should consider how responsibility for GHG emissions from shipping worldwide might be equitably shared between States and make recommendations by the end of 1992, if possible, in order to facilitate action to follow up the Framework Convention on Climate Change. (MEPC 32/12/3).

What is revealed most directly by the United Kingdom's submission is the appeal to the IMO to retain what can be termed "coordination control" over the issue. The United Kingdom was explicitly reacting to the UNFCCC prep-coms and the IPCC's very nascent work on the development of methodology for carbon emissions accounting. The United Kingdom did not seek to challenge these processes or institutions, but argued instead that the IMO must be associated and *involved* with the process. The difficulty in attributing emissions and assigning reduction commitments to international shipping was also apparent from the start, and has remained a salient challenge ever since.

Absent from the appeal is an urgent call to *reduce* emissions from shipping. The primary concerns voiced in the first calls for action within the IMO are a) the IMO's participation in a global governance regime in order to maintain coordination of the issue and b) the recognition of the fundamental challenge of equitable distribution of commitments in a complex international industry. While the United Kingdom's desire for an "equitable distribution" can be interpreted as a call for maintaining uniform

standards across all countries for emission reductions (i.e. equal treatment of all ships), the main facet of the UK statement is not a forceful call for uniform emissions reductions, but a recognition that deciding on such reductions will itself be a major challenge for the IMO.

Setting a Course of Action: The First Critical Juncture in March 1992

The initial response to the UK proposal in the MEPC plenary is essential to discuss. Because the overall approach of the IMO to climate change is inherently path dependent, and the decision of MEPC 32 set the course for future action, this debate and decision represents the first critical juncture in the IMO's approach to climate change policy. Importantly, this juncture highlights the political stances taken *within* the IMO before the adoption of the FCCC at the Earth Summit.

During the plenary presentation of this initial proposed action, the delegation of Norway expressed concern with the UK proposal that responsibility be equally shared by all Member States, stating that Norway "felt that IMO's involvement should await the signing of the Climate Change Convention." Denmark, Sweden, the International Chamber of Shipping (ICS, the principal trade association for ship owners), Friends of the Earth International (FOEI) and Greenpeace International supported Norway's view that the IMO should *not* act before the FCCC was adopted. (MEPC 32/20). Japan echoed concerns related to responsibility sharing and agreed to await the outcome of the FCCC.

This "wait and see" stance should not be regarded as universally conservative in nature. The FOEI and Greenpeace clearly wanted action on climate change, but were perhaps concerned that pre-emptive action by the IMO would unhinge the progress at UNCED in some way or another, although this is speculation. Furthermore, equal distribution of responsibility, as the UK was proposing, ran counter to developing country and global South concerns about climate debt and climate justice, and thus an endorsement of action representing a potential commitment for action by the South would not be viewed favorably (see Chatterjee and Finger, 1994)

The ICS further clarified its own position: "The observer form the ICS believed there should be an objective evaluation as to whether there was a problem before making a decision on the UK proposal." (MEPC 32/20). Thus the industry representative group's

position advocating "wait and see" was more closely linked with climate skepticism, at least at this juncture in 1992.

The path forward in debate was carved by the delegations from Germany and the United States. The German delegation "expressed the view that CO_2 emissions *should* be incorporated into the current annex on air pollution under preparation" while the United States suggested that more information was needed to determine the "scope of the problem of CO_2 emission from ships" and that, therefore, the chemical should not yet be included. The German delegation and the observer from ICS both highlighted an inherent and important link between efforts to reduce NO_x emissions and CO_2 emissions. One of the principal ways to reduce NO_x emissions from marine engines is, essentially, to make them less efficient and thus burn more fuel, emitting more carbon dioxide (Krishnamurthy et al., 2007), with Germany using this link between the discussion of NO_x emissions under the air pollution remit and carbon dioxide as a justification for CO_2's inclusion under IMO remit. After the debate, and repeated calls for more information on the extent of the problem from ICS and the United States, the collective compromise conclusion of the committee was that:

> • the IMO Secretariat should associate itself with the OECD/IPCC methodology-establishing process, and
> • that CO_2 emissions should be under the scope of consideration for the committee and the BCH Sub-Committee,
> • that Members should submit data estimating CO_2 emissions from shipping, and
> • to wait for the outcome of UNCED before taking any decision on how to address emissions and,
> • *to instruct the BCH Sub-Committee not to include CO_2 as an element of the new annex, for the time being."* (emphasis added) (MEPC 32/20).

This decision by the Marine Environment Protection Committee marks the first formal inclusion of carbon dioxide emissions under the regulatory remit of the International Maritime Organization. Most importantly, however, the Committee rejected the German delegation's view that CO_2 should be included in the development of the new air pollution MARPOL annex.

The result of this decision was to associate the IMO with the nascent global climate regime's methodological processes, to call on member states to submit

information about GHG emissions, and to wait. A key opportunity to incorporate GHG reductions into the on-going process of establishing MARPOL Annex VI was missed, placing the air pollution (acid rain and ozone depletion) regulations on a forever separate track from carbon dioxide emissions (climate change). The phrase 'for the time being' indicated that this was not intended to be a permanent decision, but with an already delayed time-table for action on the new annex within the BCH Sub-Committee, this decision, made before the FCCC was negotiated and agreed in Rio, was effectively the death knell for concatenation of climate change to other air pollution issues within the IMO's regulatory processes.

In tracing this process, it is clear that the MEPC *could have* decided to include greenhouse gas emissions in the terms of reference for the new air pollution annex. The success of the proposal for such action was stymied by a fundamentally cautious approach, which had broad support. While the IMO is institutionally traditionally environmentally cautious (see discussion in DeSombre, 2006), the specific caution in this case was adopted in light of two kinds of *uncertainty:* uncertainty in the global climate regime governance process and UNCED, and uncertainty of the extent of "the problem," i.e. doubt either that GHG emissions from ships are a truly significant source of the problem, as the UK proposal had claimed, or that the science of global warming was itself credible.

Attempts to Champion the Issue Fall Flat: The Aftermath of UNFCCC

In response of the MEPC's request for information on CO_2 emissions to be submitted to the next meeting of the BCH Sub-Committee that took place September 1992, the delegation from Norway submitted an information paper, and was the only country to do so. The Norwegian submission reported that in 1980, emissions from the global international fleet totaled 372 megatonnes (Mt) of carbon dioxide, and that this figure had, owing to the economic crisis of the 1980s, declined by 1986 to 272 Mt CO_2. They conclude that the 1986 figure represented 1.3% of global CO_2 emissions at that time (BCH 22/INF.34).

The only other submission to relating in any way to CO_2 emissions was from the delegation from Argentina. The Argentine delegation submitted an impassioned plea for action on global warming, referring to the undesirable effects of global warming as

proven facts and announcing conclusively that "the effects of global warming have already been accurately calculated and that an increase of 1°C in the average temperature of the land atmosphere means an increase of 60cm in the level of the ocean." (BCH 22/7/15). Notably, Argentina highlighted the potential negative impacts on the safety of navigation if Antarctic ice floes continue to break off and float northward. Argentina concluded its plea with a simple statement, "Argentina endorses the proposals of the United Kingdom and Germany to include the reduction of carbon dioxide emissions in the new annex to MARPOL" (BCH 22/7/15), which was simply too late to champion the issue or advance it forward, and the moralizing fell flat. The BCH Sub-Committee dispatched with the Argentine plea quickly:

> "The Sub-Committee recalled that MEPC 32 instructed the Sub-Committee to include CO_2 emission from ships in the scope of discussions, but not to include CO_2 emission as an additional element of the new Annex at this stage. The delegation of Argentina briefly explained the situation of its country concerning the effect of greenhouse gases and stressed the importance of intensive consideration of this matter at the IMO." (BCH 22/14).

With that, the entire fervent discussion of MEPC 32 was reduced to a simple one-line statement. The September 1992 BCH report solidified the two-track consideration of CO_2 and other air pollutants, and no other delegation stepped forward to support the attempt by Argentina to re-open debate on the issue. The BCH Sub-Committee instead occupied itself with the busy and intensive work of developing regulations to combat ozone depletion, acid precipitation, and air pollution.

The fight by the United Kingdom to place CO_2 squarely in the MEPC's sights by including it in the discussions of the new MARPOL Annex was, however, not quite over. Because submissions to MEPC 33 (held in the Fall of 1992) required documents to be submitted in the summer during UNCED, no action on climate change was taken at this meeting, except that the IMO Secretariat reported that the formal link between the IMO Secretariat and the IPCC methodology group had been established (MEPC 33/20). In preparation for MEPC 34, which took place in July 1993, the United Kingdom submitted a proposal in light of the outcome of the UNFCCC, which, by that point, had attracted over 150 signatories including the United States:

The United Kingdom again invited the Committee to agree to the inclusion of CO_2 and (for the first time mentioned) other greenhouse gases in the air pollution annex. The United Kingdom argued along two lines of logic. First, the efforts currently under way to control NOx emissions could affect CO_2 emissions, and thus, CO_2 should naturally be included as "related" to the already included NO_x emissions. This logic had already been advanced by Germany. Secondly, the United Kingdom pointed out that the new UNFCCC called on developed countries to draw up emissions reduction schedules aimed at reducing global emissions to 1990 levels. Because international shipping was part of these global emissions, the UK logic went, the IMO should by the end of 1993 come up with a recommendation of how responsibility for greenhouse gas emissions should be shared between States in direct and deliberate response to the UNFCCC's provisions. They admitted that there might be "an issue as to whether greenhouse gas emissions from shipping are large enough to cause concern" but argued that regardless of whether this were true or not, it was "essential that IMO should take a view on measures to be implemented on greenhouse gas emissions." (MEPC 34/3/2). Once again, this plea for the IMO to take full ownership of the issue, for the first time corroborated by evidence rather than simple speculation that other institutions may be acting separately from the IMO, did not result in advancing the issue in the IMO. The UK attempt at championing the issue could not seem to overcome the conservatism of the IMO as an institution, nor the arguments from the shipping industry and the United States. The MEPC, following the ICS/USA position from MEPC 32, agreed to instruct the BCH Sub-Committee at BCH 23 to consider CO_2 in conjunction with NO_x, but *not* to include CO_2 and other greenhouse gases in the new air pollution annex.

The Role of the IMO's Decision-Making Process in Delaying Action

The results of BCH 23 highlight the way in which the structure of IMO decision-making inherently led to conservative inaction on this issue. Despite the fact that the MEPC 32 had directed the BCH Sub-Committee to include CO_2 emissions in their scope of consideration, only Argentina responded with a submission and did not advance a particular proposal and thus the issue was delayed. Despite the fact that MEPC 34 (July 1993) had directed the BCH Sub-Committee to take up the (narrowly defined) issue of the interactions between NO_x reductions and potential increases in CO_2 emissions, neither

the United Kingdom, nor any other country submitted a proposal for *how* this should be done. Thus, for two years from 1991 to 1993 debates on how to address CO_2 emissions made no progress within the IMO because each time a narrow window of an agenda item was opened, no country emerged to take the next step in advocating a particular approach beyond "inclusion" of the issue. The topic had been introduced, but solutions had not yet appeared and this meant that the IMO's regulatory framework would contribute to slow action.

While no formal documents were considered on the issue at BCH 23 (Fall 1993), Mr. A. P. Burgel of the Netherlands delegation did make a brief intervention, which is of note. Mr. Burgel, who had been chairing the correspondence groups actively working on SO_x emission reduction matters stated that:

> In the context of the climate convention an inventory of each country's CO_2 emissions (and emissions of other GHGs) will have to take place. The following question, in the opinion of the Netherlands, could be of interest and may be put before IMO in due course: Should the CO_2 resulting from the combustion of bunkers delivered in a certain country be counted as part of the CO_2 emission of that country, or should this be any other country, for instance the flag State of the ship to which the bunkers were delivered? This is obviously of great importance when the issue of reduction of these emissions should come up (BCH 23/13).

This intervention highlights the clearest formation of the fundamental problem that I outlined in the introductory section of this paper: how to attribute emissions from the international shipping industry? By suggesting this question to the IMO, Mr. Burgel attempted to separate the thorny question of responsibility for emissions reductions (thorny for industry because of its costliness and thorny to developing countries because of its distribution) from the "simple" question of accounting: allocating the known emissions to particular entities.

The Role of the Secretariat

An analysis of the processes that set the course of action for the treatment of climate change within the IMO must also include the IMO Secretariat, which became involved in the process in 1993-1994. In preparation for BCH 24 in September 1994, which had agreed to consider the matter of greenhouse gas emissions further, the

Secretariat submitted an information document (BCH 24/INF.7) to the Sub-Committee which outlines the IMO Secretariat's understanding of work within the IPCC on maritime emissions accounting. Recognizing the difficulty in allocating quantities of bunker fuel emissions, the IMO Secretariat reported that "the treatment of data on bunkers in national energy statistics is inconsistent between countries and…to a large extent, bunkers are treated as separate categories outside the national accounts." (BCH 24/INF.7).

The IMO Secretariat's role as an intermediary between the IMO as an institution and the nascent institution of the UNFCCC has origins in both institutions. One of the first actions on climate change by the MEPC was to direct the Secretariat to associate itself with methodological planning taking place at the IPCC. In preparation for the first Conference of the Parties to the UNFCCC, the interim Climate Change Negotiating Committee, recognizing the expertise of the IMO, had requested the IMO to work with the new interim climate change secretariat to develop policy options for allocation (i.e. reporting) and control (i.e. reduction) of bunker fuel emissions. The back and forth reporting between the two institutions fell to the Secretariat.

As the IMO Secretariat reported to the BCH Sub-Committee in 1994, the Secretariat had informed the interim climate change secretariat that the allocation/control question had been raised within the IMO at MEPC 34 in July 1993 and at BCH 23 in September 1993 and also that it was scheduled to be discussed at BCH 24. The Secretariat also provided the IMO negotiators with the most recent information from the February 1994 meeting of the Intergovernmental Negotiating Committee for the Framework Convention on Climate Change and invited the Sub-Committee to take note.

This first submission reflects what has become the emergent role of the Secretariat on the climate change issue. The Secretariat cannot participate directly in the decision-making processes of the IMO. However, by interfacing with the other elements of the global climate regime, as it has over the past two decades, the Secretariat plays a unique role in this process. First, it has the power to shape the "outward" face of the IMO's action on climate change to the IPCC, UNFCCC, and international climate epistemic community. At the same time, it regularly reports to IMO decision-making bodies, allowing it to directly influence the course of debate. Thus the Secretariat occupies an outward presenting/inward looking "Janus-like" position on the issue of

climate change. This position has become significant in recent negotiations, but was became established through these early initial activities in the early 1990s.

A Decision on How to Approach International Transport Emissions Emerges

The report of the Secretariat to the 1994 meeting of the BCH sub-committee included the interim climate change negotiating committee's recommendation that the first UNFCCC COP take up the issue of allocation of bunkers, but that, at least initially, governments should be directed to report bunker emissions separately from the rest of their national inventories based on quantity of fuel sold, and should not include bunkers in their total national emissions. The INF-CCC also called for the "continuation and intensification" of the work of the IMO on emissions from bunker fuels. (MEPC 35/21).

This preliminary reporting guideline, developed by the global climate regime process in conjunction with the IPCC, with association with the IMO Secretariat, but without formal input from the IMO regulatory processes, would go on to become the reporting norm and continues to be to this day. While the UNFCCC has not taken up the regulation of bunkers, the INF-CCC's recommendation in 1994, without any input from the IMO, determined that national communications of greenhouse gas emissions would not include emissions from international transport.

Climate Change as a Ripe Issue

At this point in 1994, all of the elements for action by the IMO were in place. The issue had had several initial "hearings" at the IMO at both the committee and sub-committee level. At this time, the Secretariat was meeting with the nascent UNFCCC secretariat, reporting its work back to the IMO and reporting progress within the IMO to the UNFCCC. Complexities of allocation had been raised and discussed by several parties, the United Kingdom had emerged as the primary champion of the issue, and the UNFCCC had been negotiated and signed by nearly all countries across the globe, and included a recommendation to address bunker fuel emissions at its first Conference of the Parties and to work closely with IMO. While an opportunity to combine the carbon dioxide issue with other elements of air pollution had not been seized, the issue of GHG emissions had been raised and placed squarely in front of the IMO MEPC which had decided that it was within the IMO's overall remit of action on air pollution. In short, the issue of climate change in the IMO was now *ripe for action.*

The Second Critical Juncture: The Crowding of Issues at the IMO and the Importance of the Institutional Agenda

1995 however, was an unusual year at the IMO, and this strongly shaped the future of climate change regulations. During that year, the BCH Sub-Committee was dissolved, in favor of creating a new Sub-Committee on Bulk Liquids and Gases" (BLG), which would first meet in February 1996 (IMO, 1995). Thus, the Sub-Committee that had been assigned the question of CO_2 emissions by the MEPC from 1991-1994 ceased to exist and no Sub-Committee met during 1995 that could ostensibly take up the issue.

In the meantime, the MEPC was extremely busy, primarily in preparation for a planned Air Pollution Conference that would finalize the provisions of the new Air Pollution Annex to MARPOL to be held in 1997. CO_2, having been excluded from consideration in this annex, was not part of these discussions. To complicate matters, because of the fullness of the schedule of the IMO as a larger body, the MEPC met only once in 1995 (MEPC 37 took place in September) and once in 1996 (MEPC 38 took place in July) (MEPC 37/1/1; MEPC 38/1/1). Thus from 1994 to 1996, the issue of climate change was effectively excluded from consideration by the IMO. The overloading of the IMO schedule, and institutional concerns over funding and scheduling, created a situation that was not conducive to continued and intensified action on CO_2 emissions, despite the direct call from the Secretariat, from the new UNFCCC and from member states for exactly such action.

The Third Critical Juncture: A Breakthrough?

In March 1997, while the rest of the new air pollution annex was being drafted and codified for adoption, the delegation from the Netherlands submitted a document to the 39th Session of the MEPC on the subject of CO_2 emissions, breaking a nearly three year hiatus of formal discussion of the issue within the IMO. No longer was the idea of including CO_2 emissions in the new Annex possible, as it had been in 1993. Instead, the Netherlands reacted to "developments taking place with regard to these emissions outside the scope of the IMO," (MEPC 39/6/6) namely the impending 3rd Conference of the Parties to the UNFCCC which, after agreement of the 1995 Berlin Mandate, was slated to decide new binding targets to meet the obligations of Annex I Parties laid out in the UNFCCC. This 3rd UNFCCC COP would take place in Kyoto in late 1997.

At this juncture, the Netherlands referred to the "growing momentum" within the UNFCCC to set targets for the "so-called international emissions," cautioning that it "may be expected that the discussion on aviation will be brought to ICAO soon." (MEPC 39/6/6). Putting it rather bluntly, the Dutch delegation then argued that external pressure ought to force the IMO to take a stand on the issue:

> It is therefore considered important that IMO addresses this issue in the near future, although it would be premature to require IMO to develop binding regulations on the issue at this stage. Nevertheless, IMO should show meaningful activity and put the issue on its agenda. The compelling need to address the issue in other fora and/or under the auspices of other international conventions cannot be ignored and will have to encompass shipping as a generator of CO_2 as well (MEPC 39/6/6).

The delegation of the Netherlands proposed a two-step plan of action. The first step of action for IMO was to make an inventory of possible methods to reduce CO_2 emissions from ships, including the cost-effectiveness of such measures, including experts from IMO and UNFCCC. The second step was to then figure out how to take the best of these methods and bring it to the attention of the shipping community. No mention of enforcement regulations, targets, timetables, or measures was given, and the statement largely pointed to technical, rather than political, means of controlling emissions. The institutional utility of action before the Kyoto Conference was also made bluntly clear: "This resolution should be considered and preferably accepted during the diplomatic conference in September 1997, thus showing the commitment of IMO Member States to address an issue not currently covered by the draft annex on air pollution, but considered sufficiently important to act upon."

The full MEPC agreed to this proposition by the Netherlands for a new resolution on the issue and the delegation of the Netherlands agreed to draft a resolution to be considered at the Conference. The Netherlands thus acted as a champion of the issue in a pragmatic manner by selecting to move in such a way as to not be overly ambitious and playing off of concerns for the IMO to maintain its ownership of the issue.

The text of the draft resolution submitted by the Netherlands in August 1997 as document MP/CONF.3/22 and the final adopted text of Conference Resolution 8 are

attached as Appendix 2 and Appendix 3 to this paper, respectively. A quick comparison of the submitted draft and the final version that was adopted reveals two key changes:

> • The call for a meeting of a joint expert group between the IMO and the UNFCCC in order to investigate potential controls of emissions was amended to a call for a joint study quantifying CO_2 emissions from ships and modeling how they may change in future years.
>
> • The final resolution includes a reference to concerns regarding the relationship of CO_2 reductions to strategies to reduce NOx emissions.

The result of Conference Resolution 8 was thus to put CO_2 emissions reductions back on the agenda of the IMO in light of UNFCCC actions and to commission a study, to be carried out jointly by the IMO and UNFCCC, to determine the levels of carbon dioxide emissions from the international shipping industry. This plan of action was agreed to in September 1997 by the IMO member states before the Kyoto Protocol was agreed, but in direct anticipation of the issue coming up in the UNFCCC negotiations. The agreed-to-study would be come the IMO First Greenhouse Gas Study, which was completed in 2000.

Analyzing the Results: A Process-Tracing of Claim 1

Three distinct critical junctures have been identified that shaped the IMO's approach to climate change policy before the adoption of the Kyoto Protocol. These junctures can be used to identify the factors, both within and without the IMO, that have shaped the observed policy outcomes. The primary observed outcome of the pre-Kyoto period of negotiation in the IMO was Conference Resolution 8 and the 2000 First IMO GHG Study. While I will also contend that the pre-Kyoto negotiations have strongly shaped the IMO's more recent approaches to climate change regulation during 2007-2011, these will be assessed in the consideration of claim 2.

The first critical juncture was the decision by the MEPC in 1992 not to include greenhouse gas emissions in the new air pollution annex. As discussed above, this decision was made out of a cautious uncertainty for what would come out of the 1992 UNCED negotiation. Thus external policy uncertainty led to a wait-and-see approach in the IMO. Internally, on-going shipping industry resistance to accepting the veracity of climate change also led to hesitation. Taking a broader view, the IMO decided to address

acid precipitation and ozone depletion only in a separate annex only *after* the negotiation of concrete protocols in other fora. In this light, deciding to address climate change at this juncture would have been very progressive, as a framework convention still did not exist and the issue was not yet "ripe." What analysis of this juncture also indicates is that the IMO *qua* environmental organization is essentially *reactionary*; climate change was not raised in the IMO because it sought to be the vanguard of tackling the problem, but because the shipping industry was once again being brought into a discussion of international environmental governance.

The second critical juncture occurred in 1995. At this point, the issue of climate change was ripe for action because the UNFCCC had been signed and agreed, the Secretariat of the IMO had established links with it, and a call for proposals for how to address the problem had been cast open to the MEPC. External pressures were calling for further discussion of the issue within the IMO and the salient issue of developing a methodology for accounting for international emissions had been raised strongly within the IMO and within the UNFCCC process, but no decision had yet been made. Clearly, a window of opportunity for IMO-directed action existed. Two factors within the IMO prevented pronounced action from occurring or the IMO from taking the lead. First, the institutional structure of the IMO requires an issue-champion: a member state or organization to submit proposals for action in order to force the issue. While the United Kingdom had acted as this champion to put the issue of CO_2 emissions on the table, and the Netherlands had raised the level of debate by flagging the major problem of attribution of emissions, no country emerged at this juncture as a champion. This lack of a champion was compounded by a second factor: issue-competition within the IMO prevented any opportunity for debate or discussion on this issue. Thus, other issues relating to the institutional schedule at the IMO prevented movement.

The third critical juncture occurred in 1997. Once again, the external pressure of the UNFCCC debate forced discussion of the issue, as is clearly stated in the Dutch proposals. However, continued resistance to taking action watered down the Dutch proposal from a consideration of courses of action for reduction of emissions to a "full scoping" of the problem of emissions. Could the IMO have decided to follow the Dutch proposal? Yes. But industry calls for a full analysis of the problem made sure that only

the minimum amount of action required in order to demonstrate movement on the issue took place. Three windows of opportunity existed, but external and internal factors conspired to lead to a relatively modest outcome: the status quo of emissions reporting as "separate" from any accounts that required action and further studying of the issue in order to quantify the problem.

EXAMINING CLAIM 2: POST-KYOTO INACTION IN THE IMO AND THE IMPORTANCE OF CBDR

Article 2.2 of the Kyoto Protocol states:

> "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." (KP, 1997).

Sebastian Oberthür and Hermann Ott (1999), in their book *The Kyoto Protocol: International Climate Policy for the 21st Century* on the negotiations of the Kyoto Protocol, argue that Article 2.2 was not the subject of intensive debate on the infamous last night of negotiations of the Kyoto Protocol, but rather that, "bunker fuels had a low profile on the agenda of COP3." (Oberthür and Ott 1999, 108).

They argue that, in part, this was due to the contentiousness of the issue of allocation, already raised above. The 1996 meeting of the Subsidiary Body for Science and Technical Advice (SBSTA) to the UNFCCC, had identified several potential alternative methodologies for allocating responsibility bunker fuel emissions, including to the country of registry, the country where the fuel was sold, the country of the ship-operator, the country of departure or destination of the goods or the vessel, rather than the status quo of reporting the emissions in a separate category excluded from national communications. As Oberthür and Ott point out under the UNFCCC, "different countries would have been disadvantaged depending on which option had been selected." (Oberthür and Ott 1999, 112). Because of the politicization of this selection and the contentiousness of the issue related to the initial selection of developed country (Annex I) reduction targets, they argue that within the UNFCCC this led to an adoption of the least contentious option for allocation: coordinated action on the issue within the IMO. In

other words, because the issue of allocation required international coordinated action and was already politicized, and because the IMO existed as a potential coordinating institution, the text of Article 2.2 (which remained unchanged in the draft text from the start to the end of COP3 in Kyoto) simply passed the problem along to somebody else.

While Oberthür and Ott explain the outcome within the UNFCCC, I will consider the processes that led to the observed policy outcomes from the IMO that are visible in 2011: the Energy Efficiency Design Index, the Ship Energy Efficiency Management Plan, the Energy Efficiency Operational Index, and a discussion of other market-based measures. How and why did these options emerge and what role did Article 2.2 play in shaping this story? I will consider the process of policy-development from 1998 to 2011, with special attention to key junctures and the formation of coalitions over time.

The First Reactions to Kyoto in the IMO

The reaction to Article 2.2 in the IMO MEPC was immediate and merits consideration. The Organization, after all, had just been delegated primary responsibility for coordinating allocation of responsibility for emissions and developing a plan for reducing those emissions.

In keeping with its established role as intermediary, the IMO Secretariat submitted a document to MEPC 41, which was held in April 1998 at the IMO Headquarters in London. Document MEPC 41/8/2 relates to "information on co-operation between the Secretariat [of the IMO] and the Secretariat of the United Nations Framework Convention on Climate Change and report on the outcome of COP3 to the Framework Convention on Climate Change." This document first indicated that the results of the Air Pollution Conference were communicated to the Secretariat of the UNFCCC prior to the Kyoto Conference. The Secretariat then officially reported the results of the Kyoto Protocol to the IMO.

The MEPC responded to Article 2.2 by rejecting the differentiation between developed and developed countries. The report of the MEPC plenary debate stated three principles for IMO action on climate change, in light of Article 2.2:

> • The requirements for CO_2 reduction should pertain to all ships without differentiation between Annex I and Annex II countries as adopted by the Kyoto Protocol

> • The survey of CO_2 emission (i.e. the GHG study) should establish a clear picture of the relevant part of the shipping industry in the total global CO_2 emissions; and
> • A strategy to reduce CO_2 emissions from ships should be developed, taking into account all elements involved. (MEPC 41/20)

The final decision of the MEPC was to invite Parties to MARPOL and observer organizations to "submit studies regarding CO_2 emissions together with proposals on technical and operational options for CO_2 emissions control" (MEPC 41/20).

This institutional reaction to Kyoto clearly demonstrated a deepening of the issue within the IMO. Climate change was not being raised by a single delegation (the UK or the Netherlands) as in the past, but the Secretariat of the IMO itself, which was calling upon the MEPC for action on this issue, in response to Kyoto. Furthermore, and importantly, the MEPC called upon Parties to MARPOL, rather than IMO member states, to submit information relating to air pollution, indicating a coalescence of the on-going attempts to ensure that carbon dioxide emissions were treated as "air pollution," despite the lack of the issue's inclusion in Annex VI. This precedent would be important in moving the debate forward, and was an easy step given Resolution 8 from September 1997. For the first time, the view that the principle of "equal treatment of all ships" should apply to the allocation of responsibility for carbon dioxide emissions was formally raised within the MEPC, though it was not agreed as the way forward on this issue by the MEPC.

Additionally, the points being raised in the debate had also become more substantial: Greenpeace International submitted a proposal as an observer organization, submitted a document entitled "Fossil Fuels and Climate Protection: The Carbon Logic," which points out that avoiding the dangerous impacts of climate change will require breaking the dependence of our economies on fossil fuels (MEPC 41/5/3). Germany indicated in the IMO for the first time that the shipping industry "had already contributed with a considerable reduction of CO_2 emissions, due to the ongoing development of ship engines over the last 20 years, which has resulted in an almost 20 percent reduction of harmful emissions ratio per ton of transported goods." (MEPC 41/20). Because the negotiations of the Kyoto Protocol had involved such contentious political decisions about how to calculate emissions and emissions reductions in different sectors, this logic appeared to be bleeding into the IMO for the first time. All of these positions would

continue to be elaborated and advanced over the course of the next twelve years of negotiations.

From these documents it is immediately apparent that the UNFCCC's Article 2.2 had kicked the IMO into gear. This metaphor is apt: the IMO was ready to drive forward with ideas for how to reduce emissions and the external forcing from the climate change regime was driving the process forward. The structure of the car, however, had already been built up by over six years of discussion of the issue within the IMO.

The Secretariat Helps Clarify the Relationships: Two Additional Details

In preparation for the next MEPC meeting (MEPC 42 in October 1998), the Secretariat reported on its communications with the UNFCCC Secretariat. Recalling that the IMO had asked for clarification of how emissions from bunkers should be reported *from* the UNFCCC (despite of course the fact that the Kyoto Protocol essentially handed this issue off to the IMO), the Secretariat of the UNFCCC *reaffirmed* the current practice that international bunkers should be tallied on the basis of where the fuel was sold, but that these emissions should not be included in national totals. What had been an "interim" solution before the Kyoto Protocol was now regarded as a more final solution.

The Secretariat of the UNFCCC also went out of its way to correct MEPC 41, during which the view that "the requirements for CO_2 reduction should pertain to all ships without differentiation between Annex I and Annex II countries as adopted by the Kyoto Protocol," had been expressed. The Secretariat of the UNFCCC pointed out that under the UNFCCC, Annex II countries are also Annex I countries (they are all developed countries) and that there is no Annex II to the Kyoto Protocol, but simply "Annex I" and "non-Annex I" countries. This detail, while perhaps somewhat trivial, reflects the lack of significant institutional interaction between the delegates negotiating in the two fora.

The First Coalition Emerges: A Coalition for Industry-Driven Efficiency

The reader will recall that MEPC 41 also invited MARPOL parties to submit "studies regarding CO_2 emissions together with proposals on technical and operational options for CO_2 emissions control" (MEPC 41/20). The delegations and observer

organizations submitting such information were: the United States, the International Chamber of Shipping, and the Russian Federation.

The Russian Federation submitted an information document (MEPC 42/INF.28) stating that "it does not see any justification to implement urgently at the present time any restrictions on CO_2 emissions from ships." (MEPC 42/22).

The United States delegation submitted a report that it had commissioned from the Department of Engineering and Public Policy at Carnegie Mellon University, which concluded that shipping represented 2-3% of global carbon dioxide emissions. Furthermore, the US submitted to the IMO for the first time a detailed list of potential technical options and operational controls for limiting carbon dioxide emissions, which are broadly "1) a reduction in the amount of fuel burned, 2) fuel switching (i.e. use of alternative fuels) and 3) alternative power plant designs." Option 1 includes propeller design, reduction of drag through anti-fouling, weather routing, and slow steaming, though the delegation's submission suggests that reductions to be gained from the first options may be minimal and require study, and that slow steaming is unlikely to be able to be enforced. Options 2 and 3, they argue, would require "a long term research and development investment followed by an operational evaluation of the commercial viability" of either alternative fuels and the feasibility of alternative sources of power."

The International Chamber of Shipping for its part pointed out that shipping was relatively more efficient at moving goods than all other modes of transport, that new R&D related to ship design has generally been undertaken by engine manufacturers because reducing fuel costs is good business, and that slow steaming would not be likely to reduce overall emissions without ship-specific modifications. The ICS also highlighted that Article 2.3 of the Kyoto Protocol calls upon Parties to minimize the adverse effects of GHG reductions on international trade, in which shipping plays a central role, and that the best way to address this issue is to make it clear to the shipping industry that reductions would be cost effective if it reduced the amount of fuel being used and that this issue "must be tackled by means of framework agreements establishing emission controls on an international basis" with a global perspective, namely *without discrimination*. The ICS went to great lengths to highlight the role that the ship-building industry would play in any future efficiency improvements.

The only other intervention of note came as a communication from the European Commission in document MEPC 42/INF.22, indicating that the EU was considering *all* forms of transports in its implementing legislation for Kyoto but that "no specific actions are foreseen by the European Commission and the work within IMO will be followed closely. The communication clearly states that measures on shipping should not be restricted to industrialized countries only."

What is most immediately noticeable about the debate at MEPC 42 is that the United States and the ICS observer immediately framed the entire debate. The MEPC report indicated that several delegations supported both views (United States and ICS). A coalition for incremental, industry-driven efficiency had emerged. The points raised can essentially be boiled down to the following paraphrased argument:

> There may not be a major reason to go after shipping emissions because the industry is already efficient, but if we are going to do this, it has to be universal, and involve incremental improvements in energy efficiency and the design of new ships. The options for the current fleet are limited.

This argument has served as the foundational building block of the developed country-shipping industry coalition within the IMO negotiations on climate change ever since, and all of these positions, including, even, the threat of unilateral action by the European Union on shipping, were first elaborated at MEPC 42 in October 1998.

The First GHG Study

The First IMO Greenhouse Gas Study, was published in 2000 and concluded that international shipping represented 1.8% of global CO_2 emissions in 1996. The key conclusions from the study, which was conducted by the IMO jointly with Carnegie Mellon, Det Norske Veritas, the Econ Centre for Economic Analysis, and MARINTEK were as follows: that shipping was the most efficient means of transport of goods, that technical measures for future ship designs were more feasible and practical than immediate operational measures, that market-based mechanisms might be required to incentivize any operational changes or actions, and that overall shipping was a very small percentage of overall emissions. This is very similar to the collective position expressed by MEPC 42 in 1998 (the US/ICS position), but carried the weight of objectivity.

During the plenary debate at MEPC that considered the First IMO GHG Report, the delegation Japan raised for the first time the issue of the scope of regulations, namely that

within the IMO, debate had been structured around reductions in "carbon dioxide emissions" but that the IMO should really be considering "all greenhouse gas emissions not covered by the Montreal Protocol" which is the language of the Kyoto Protocol.[8]

The United Kingdom offered a retort to the implicit logic that shipping was a small percentage of overall emissions and that it was already efficient enough, arguing that, "it is the view of United Kingdom that shipping must contribute to the global efforts to reduce greenhouse gas emissions and that it is important that IMO should therefore take the lead in the development of an emission reduction strategy. Furthermore, it is essential to signal IMO's determination to deal with this issue to the Conference of the Parties to UNFCCC. United Kingdom believes that a statement, endorsed by the Committee, emphasising (sic) the importance that the IMO attaches to the consideration and development of strategies to limit or reduce emissions, should be included in our final report of this session." (MEPC 45/20). Again, the outside factor of the UNFCCC was seen as paramount: Japan pointed out that no timeline had been given to the IMO by the UNFCCC. Furthermore, the UK delegation noted that the conclusions of the GHG study indicated that reductions from technical measures would be outstripped by the increase in shipping, and thus all options: operational, technical, and market-based measures should be considered (Paragraph 8.19). While this viewpoint differed from that of the United States and ICS as presented in MEPC 42, it served to further coalesce debate around the three proposed courses of action outlined in the GHG Study: technical, operational, or market based measures. This terminology has continued to be used until the current time.

Most importantly, the United Kingdom flagged the issue of allocation that had been thoroughly unresolved in the GHG Study. That study had rejected the idea of including bunker emissions in national inventories, but as the United Kingdom pointed out, "The UNFCCC delegate at MEPC 44 informed the Committee that SBSTA will be considering the inclusion of international bunker emission allocations in the overall greenhouse gas inventories of Parties. It is therefore important that IMO takes a view on the question of allocation, and carefully reviews the analysis of the possible options."

The United Kingdom delegation had once again served the role of motivational

[8] At the next session of the Committee, Japan reported that it had conducted a supplementary study which found that non-CO2 GHGs represented only 3-4% of the total global warming potential of all GHG emissions from ships, with CH4 being 0.9%, N2O 0.8% and HFCs 1.1-2%. (MEPC 46/INF.33)

champion, advancing the cause of consideration of the issue and encouraging the IMO to champion a new strategy. However, the UK had offered no substantive proposals, but merely critiques of other strategies. The MEPC agreed with the UK's views in full plenary and called upon all Members to submit proposals to facilitate work at MEPC 46 in April 2001.

A Second Coalition Emerges: The Coalition for Action

At MEPC 46, a second coalition emerged which sought to avoid narrowly defining the IMO's actions in terms of its own energy efficiency and in terms of long-term, slow-acting technical measures. This coalition, comprised of Japan, Norway, and the United Kingdom, advocated action on GHG emissions from shipping and advanced the view that the IMO should seek to establish an emission standard for all ships, that action was needed sooner (by 2003) rather than later, and that all measures, including operational and market-based measures should be on the table. This coalition was sufficiently strong to prompt the MEPC to draft terms of reference for a working group that would evaluate proposals, and, for the first time since 1994, re-involve an IMO Sub-Committee in the process of developing a strategy (MEPC 46/23). Importantly, the proposal to develop an emission standard, advanced by Norway, explicitly couched the proposal as "a vehicle to facilitate the requirements of the Kyoto Protocol to limit or reduce greenhouse gas emissions from ships," thus referring to the mandate in Article 2.2 of the Kyoto Protocol.

At the next MEPC session in March 2002, the Norway-UK-Japan coalition again led the charge, this time joined by urgent calls for action from Friends of the Earth International (FOEI). Norway proposed an elaboration of its "standard" proposal from MEPC 46, which would include a baseline of efficiency as a target calculated on an emissions per tonne-mile basis. Norway and the UK also stated that the strategy should focus on CO_2, as the largest and most important GHG, and should be adopted by Assembly Resolution. Other delegations cautioned that this action was premature because the inter-sessional working group had not yet met (MEPC 46/23).

In the summer of 2002, the first working group to be established on the climate change issue operated as a correspondence group under the leadership of Norway. Member state and NGO participation in this group was voluntary but included Australia, Canada, China, Finland, France, Germany, Japan, the Netherlands, Norway, Korea,

Panama, Spain, Sweden, the United Kingdom, the United States, the European Commission, ICS, ICFTU (trade union confederation), INTERTANKO (oil tanker trade association), FOEI, IMarEST, and OCIMF. Thus the only developing countries to participate were China and Panama (because of its ship registry) and both industry trade groups and environmental and labor NGOs participated. The correspondence group had little enthusiasm for operational measures, but did highlight the issue of methodological allocation. Notably, neither Panama nor China offered any comments that were included in Norway's Report of the Correspondence Group, and only the non-governmental organization to submit an official comment was the ICS, which opposed operational measures and aligned itself closely with the United States on most issues. (MEPC 48/4/1).

The outcome of the correspondence group was to develop a Draft Assembly Resolution which would officially direct the "MEPC to identify and develop mechanisms needed to achieve [limitation or reduction][mitigation] of greenhouse gas emissions from shipping", including methodological aspects for allocation, and would develop a GHG emission index that could be used by ports, Governments, IMO or the UNFCCC. The proposal in 2002 also called for everyone involved to encourage voluntary measures to be adopted. (MEPC 48/4/1/Annex 1) Considering the slow movement of the issue up until 2002, the progress made by the correspondence group was noteworthy and substantial. The idea was to pass a full Assembly resolution that would chart a path toward a new IMO regulation to combat climate change, likely to be based on an environmental index.

This new resolution would thus accomplish what the 1997 Conference Resolution had not: it would officially decide that the IMO was going to reduce greenhouse gas emissions.

The Rise of CBDR in the IMO

In his opening statements to MEPC 48, the Secretary-General indicated his support for what appeared to promising progress on the greenhouse gas issue, stating that "it would be helpful if a draft Assembly resolution were prepared, indicating IMO's commitment to dealing with greenhouse gas issues." (MEPC 48/21).

At that MEPC session when this draft resolution was considered, a very important intervention was made, which, for the first time, raised the question of the UNFCCC's

principle of common, but differentiated responsibilities within the International Maritime Organization. The Chinese delegation stated that, with regard to the draft Assembly resolution,

> "it was at the request of the Conference of Parties of UNFCCC that IMO is considering the greenhouse gas emission from international shipping. According to Article 2, paragraph 2 of the Kyoto Protocol, the Annex I countries of UNFCCC, i.e., the developed countries should assume full obligations to reduce and limit the greenhouse gas emission from international shipping. Therefore, the Chinese delegation believes the draft Assembly resolution on IMO policies and practices related to reduction of greenhouse gas emissions from ships should make it very clear that the limitation or reduction of emission of greenhouse gases from ships are solely the obligations for the Annex I countries of UNFCCC. The developing countries shall undertake no obligation on the limitation or reduction of emission of greenhouse gases from ships. This view was supported by other delegations." (MEPC 48/21).

Several other developing country parties supported the Chinese intervention. The draft Assembly was worked over during the MEPC session working group, but the concern over the principle of common but differentiated responsibility (CBDR) was not fully addressed. In its final report, the MEPC, "noting significant progress made in developing the draft Assembly resolution, invited Members to submit comments to the next session on the issue raised by China in order to finalize the draft Assembly resolution at MEPC 49" (MEPC 48/21). This comment from the chair reflected simultaneously the importance of what China had raised, and the belief that it could be resolved at the next MEPC session.

2002 thus represents a critical juncture: at a time when a new coalition favoring a suite of IMO-originated actions led by Norway, Japan and the United Kingdom was rapidly advancing its plans within the somewhat slow IMO regulatory process, developing countries threw a wrench in the debate. The significance of this intervention cannot be overstated.

The "Coalition for Action" Response to CBDR

In a submission to MEPC 49 (July 2003), the United Kingdom gave an impassioned defense of the IMO's application of equal treatment for all ships, and attempting to refute

China's claim that IMO actions were subservient to the Kyoto Protocol, referring to the draft resolution submitted by the Netherlands in April 1997, referring to Article 15(j) of the Convention on the IMO, and eventually concluding that:

> It is submitted the IMO draft resolution on GHG emissions from ships is not simply a response to a request of the Conference to the Parties of the UNFCCC but a response to an issue that all parties to the IMO should be looking to address. Furthermore, on the basis, all international ships have to operate under the same regime and the principle of "No more favourable treatment of ships" existing under MARPOL 73/78, SOLAS 74 and other IMO Conventions, and the lack of a clear relationship between flag and economic benefits vis-a-vis international shipping, it is submitted the Assembly resolution should be binding on all Members of IMO. (MEPC 49/4/4).

In their submission, the delegation from Norway used a much more literal interpretation of the Kyoto Protocol's language:

> The part of [Article 2.2] relevant to the IMO is thus that Annex I Parties are required to pursue limitation or reduction of greenhouse gases from marine bunker fuels working through the IMO. The article does not state that Annex I Parties *shall* reduce or limit emissions, nor does it preclude non-Annex I Parties from being covered by future measures to be decided by the IMO. Our clear understanding of this article is therefore that the responsibility of the Annex I Parties is to see to that the IMO develops an emission reduction regime, and that the IMO may decide that the regime should cover both Annex I and non-Annex I Parties. (MEPC 49/4/6).

Issue Resolved? The Draft Resolution Moves Forward

Paragraph 4.9 of the MEPC 49 Report, states,

> The Committee considered the views provided by United Kingdom in its submission MEPC 49/4/4 and by Norway in its submission MEPC 49/4/6 on various aspects related to the application of the draft Assembly resolution and agreed that the draft Assembly resolution on IMO Policies and Practices related to reduction of greenhouse gas emissions from ships should be based on a common policy applicable to all ships, rather than based on the provisions of Kyoto Protocol which states that the reduction of greenhouse gas emissions is under the responsibility of the Annex I countries of the Protocol (MEPC 49/22).

The Marine Environment Protection Committee approved the Draft Assembly resolution and submitted it to Assembly 23 (2003) with a view to adoption. China vehemently objected, but, because full consensus is not required in could not block the decision:

> The Chinese delegation reiterated its position that the UNFCCC and its Kyoto Protocol are the fundamental international instruments on the global limitation or

> reduction of emissions of greenhouse gases. These instruments have established the principle that the developed and the developing countries have common but differentiated responsibilities, and require the developed countries to take the lead in shouldering the responsibility of emission reduction. Therefore, the Chinese delegation is of the opinion that IMO's consideration on reduction of greenhouse gases emissions from ships should adhere to the framework and the fundamental principles established in UNFCCC and the Kyoto Protocol. The draft Assembly resolution on IMO's Policies and Practices related to reduction of Greenhouse Gas Emissions from ships is contradictory to the fundamental principle of UNFCCC and its Kyoto Protocol, therefore, the Chinese delegation cannot agree to MEPC's approval of this draft resolution to be submitted to the twenty-third Assembly and should be further reviewed. China further suggests that IMO should invite Conference of Parties (COP) to UNFCCC to give its opinion on this issue (MEPC 49/22).

Despite this strong statement and threat to "go get my big brother, the UNFCCC," the majority decision appeared to have resolved the issue, and the MEPC and its working groups continued to dive deeper and deeper into the technical minutiae of operationalizing a proposal for an index based standard. Norway attempted to lead its coalition forward, despite hesitancy on the part of industry and the part of developing countries. The IMO Assembly adopted Assembly Resolution A.963(23): "Resolution on IMO Policies and Practices Related to Reduction of Greenhouse Gas Emissions from Ships", which outlined the strategy crafted by the Norwegian-led correspondence groups for an initial indexing scheme that could be used for further, later, regulations, and urged the development of mechanisms to reduce GHG emissions. The cumbersome process had made progress.

A Two Way/Three-Way Battle Rages On

At MEPC in 2004, it became clear that CBDR was not going to go away that easily. Despite the "victory" by the Norwegian-led coalition in advancing the Assembly Resolution, the resolution did not resolve the issue because it only laid out guidelines for an indexing approach and called for further work on developing mechanisms. The "implementation" of A.963(23) was still an open question, with industry's desire for limited and un-costly regulations primarily based on graduate industry-led efficiency improvements, the Norwegian-United Kingdom desire for more substantive operational measures, and developing country concerns over CBDR pulling in three directions rather than simply two. However, the "two-way" battle over CBDR was of primary concern, as

implementing the new Assembly resolution in any way was not possible without it.

The debate was not only forward looking toward future regulations, but stretched backward into the historical institutional memory. The developing country parties argued that CBDR was not a principle of the Kyoto Protocol, but rather was a principle enshrined in the UNFCCC from 1992.

> In considering the report of the correspondence group, the delegation of China supported by Brazil, India, Indonesia, Pakistan, Singapore (with the exception of paragraph 4.11.4) and Saudi Arabia expressed the following views, which were noted by the Committee:
>
> > the implementation of resolution A.963(23) should follow the principles and spirit of the resolution and be faithful to UNFCCC;
> >
> > the Annex 1 countries of UNFCCC should take the lead in reducing greenhouse gas emissions in accordance with the principles of common but differentiated responsibilities and the transfer of technological and financial assistance from the developed countries to the developing countries agreed to at the United Nations Conference on Environment and Development (UNCED) in Rio, 1992 and embodied in the Kyoto Protocol, 1997;
> >
> > technical follow-up to resolution A.963(23) can take place only on the basis of the principles stated…above;
> >
> > the Working Group on Air Pollution should not consider the report of the correspondence group until the above principles are duly taken into account (MEPC 51/22).

In response to these arguments, the exasperated chair simply gave up, found the positions irreconcilable and postponed further consideration of actions to implement the Assembly Resolution until the next MEPC session (MEPC 51/22).

At the next session, Norway tried simultaneously to argue against the CBDR principle (using reference to the Montreal Protocol which includes differentiation and which the IMO has been able to accommodate as well as to the 1991 IMO considerations on Air Pollution, thus stretching back in time *further* than China had at MEPC 51), and to advance guidelines for implementing the Assembly Resolution.

Friends of the Earth, International also urged a "global approach" out of a sense that action was required *now:* "due to the international nature of the shipping industry, the best forum to effectively tackle the issue of GHG emissions from shipping adequately is the IMO. A global approach will create a level playing field for all ship operators and all flag States" (MEPC 52/4/5), while India submitted a restatement of the CBDR principle, but indicated that this did not mean that there should be no agreement, but

simply that "the commitments of the developing countries for reduction in GHG emissions should be significantly less than that of the developed countries." (MEPC 52/4/9).

The issue of CBDR had spread like wildfire and taken over the IMO discussion of the issue. No longer did debate hinge on different options for action or different technical approaches to indexing, but on the very question of who should be responsible at all.

Ignoring the Issue: 2005-2006

In order to by-pass this on-going blockade, the decision was made to separate "technical" matters related to proposals for reducing emissions from the "political" issues related to equal application vs. CBDR: "After consideration, the Committee agreed to consider the greenhouse gas emission issues in two steps: Step 1 should include all technical matters related to GHG limitations or reductions, and Step 2 should cover the political related issues including equal application or common but differentiated responsibilities." (MEPC 52/24). In doing so, the MEPC attempted to move forward on the consideration of the difficult and complex matters relating to what kind of indexing or implementation scheme would actually be feasible for a complex international industry from the question of *to whom* these regulations should apply.

Nonetheless, China would not let the issue drop, and refuted Norway's submitted claims on a point-by-point basis, including detailed reference comparing the Montreal Protocol to the UNFCCC. After a lengthy debate, no progress could be made to get past the by-pass on the political issue. The debate even became procedural at one point, with China and Saudi Arabia requesting two readings of the working group reports before the chairman adopted them and, once again, the MEPC report was approved by majority, not unanimously. The most significant binding conclusion of this meeting (MEPC 52 in 2005) was that "weather-routing" should not be considered as a possible reduction scheme and 'trials' of the indexing scheme would be undertaken on a voluntary basis.

The trials were conducted during 2005 and the results reported at the next meeting, where debate over CBDR was conspicuously absent. It seemed that by 2005, three years of failure to solve the "CBDR" issue within the IMO was beginning to wear on the MEPC, which was attempting to, on a voluntary and incremental basis, develop and operationalize mechanisms for indexing on a ship-type-by-ship-type basis. MEPC 53

approved "Interim Guidelines for Voluntary Ship CO_2 Emission Indexing for Use in Trials." Not the strongest regulation in the world, but perhaps it was the only step possible under the circumstances. The Guidelines provided an equation by which to calculate carbon dioxide emissions on a tonne-mile basis for each ship type as a means for comparison of energy efficiency improvements

At MEPC 54 in March 2006, the United Kingdom expanded the potential repertoire of actions to be pursued under the direction of the Assembly Resolution by introducing a proposal for an emissions trading scheme for shipping, rather than a standard based approach that had been advanced by Norway initially. Norway, also frustrated by slow action, called for giving priority to the evaluation of solutions (technical, operational, and market-based) and to revisit the work plan with a revised timetable. In response to this, a draft revised work plan was developed at this meeting, but again the issue of CBDR was conspicuously avoided.

The Road to the Second IMO GHG Study: The IMO's Offering to the UNFCCC and the Timeline

The Secretariat in October 2006, reported on the results of the attempt by the UNFCCC's SBSTA to revisit guidelines for including maritime bunkers in their national inventories. The SBSTA instructed Annex I parties to the Kyoto Protocol to outline *how* they were implementing Article 2.2 of the Kyoto Protocol, but could not resolve fundamental issues relating to reporting of these emissions as part of full national inventories. The SBSTA was "divided in two" and, as the UNFCCC requires consensus as opposed to the majority required by the IMO, could not resolve this perennial issue.

In light of the failure of SBSTA to advance the 'allocation' issue, Norway proposed "that the MEPC initiates an update of the IMO Study on Greenhouse Gas Emissions from Ships. The report was issued in March 2000, and we believe that knowledge on this issue has developed substantially since then. An updated report would in our view assist the Parties to the Convention on Climate Change in improving emission inventories for maritime transport." (MEPC 55/4/15). This proposal set the IMO on a path toward a second study of greenhouse gas emissions, in an effort to use the study to advance the issue of emission inventories in hopes of using this to break the "split in two" within the SBSTA. This study would also aid the IMO in improving its own voluntary indexing

scheme, and in the development of an emission baseline for CO_2 emission efficiency. MEPC 55 approved this timeline for action (again conspicuously avoiding CBDR), which would unfold over the next 3 years. The IMO could move forward only insofar as it only developed technical elements for baseline and index calculations and encouraged voluntary trials for their implementation.

2007: The Re-Invigoration of the UNFCCC Again Kicks the IMO into Gear

The structural constraints of conflicting principles had, for five years from 2002-2007, forced the IMO to adopt a strategy of developing voluntary index-based efficiency reporting. Anything mandatory or binding was not up for immediate consideration.

However, in early 2007, several countries and parties submitted proposals for urgently revisiting the IMO's response to GHG emissions, including Australia, Portugal, Denmark, and FOEI. Why the sudden increase in interest in moving forward more rapidly? The answer can be found in the description of the plenary debate in paragraph 4.42 in the report from MEPC 56:

> In the ensuing debate, a number of delegations argued that the lack of progress by international organizations may lead countries or regional organizations to take initiatives, such as unilateral inclusion of international shipping in the European Emission Trading Scheme. Given still a greater public and political focus on GHG emissions, the time had come for IMO Member States to show their willingness to act and deal with the global challenge on GHG emissions from international shipping in a mandate of the world community. Action was required to maintain and enhance the positive environmental image of maritime transport. (MEPC 56/23).

Thus, the rising spectre of external action by the European Union was forcing the IMO to take up the issue with more urgency. The increased concern for climate change related to the forthcoming publication of the 4th Assessment Report of the IPCC, as well the upcoming meeting in Bali in December 2007, which would lay a road map for a post-Kyoto second commitment period, had raised attention to the issue across the international environmental governance institutions:

> A large number of delegations stressed that climate change caused by greenhouse gas emissions from burning of fossil fuel was a steadily growing concern, and that scientists had found more and more proof of connections and that no disagreement of the big picture existed among the world's leading scientists. The threat from global warming was far too serious to be ignored and the shipping industry,

> although an environmentally friendly and fuel-efficient mode of transport, was still causing a part of the problem and should therefore also be responsible for a part of the solution (MEPC 56/23).

Fundamentally, the IMO united around its concern to maintain ownership of the issue:

> The Committee agreed that IMO should maintain its leading position to avoid unilateral action either on a regional or national level.

Nonetheless, in the course of this revisiting of the need for action, and calls for the IMO to take ownership not just of the technical, but the full policy implications of addressing CO_2 emissions from climate change, discussing CBDR again was unavoidable, and it was clear that no movement on this issue had occurred during the two years in which the IMO had tiptoed around it:

> Several delegations stated that CO_2 emissions were governed by the UNFCCC and its Kyoto Protocol and that the guiding principle of "common but differentiated responsibilities" for developing and developed countries also should be applied in IMO's work on reduction of greenhouse gases from international shipping. Other delegations stated that for the regulation of international shipping the principle of "no more favourable treatment" should be applied and that any measure aimed at controlling emissions of GHG from international shipping should be flag neutral. The majority of those delegations who spoke maintained that IMO should follow the work plan adopted by MEPC 55. (MEPC 56/23).

For the very first time, the Chinese delegation made a formal reservation of its position, rather than simply contributing to the debate. This was intentionally designed to highlight that even technical or methodological constraints could be seen as a "responsibility," and therefore fair game for CBDR.

> With regard to the issue of GHG emissions from ships, the delegation of China holds the view that the Committee shall only consider this issue from a technical and methodological perspective. Participation in discussions in this regard by the Chinese delegation shall not be interpreted that the delegation accepts that any relevant technical or methodological issue applies to non-Annex I Parties to the UNFCCC. (MEPC 56/23, 37)

Thus, in 2007, the threat of losing the issue to the EU and the UNFCCC had spurred the IMO to try to move forward again, but the entrenchment of the UNFCCC's CBDR principle as a political argument for inaction in the maritime industry as conceived by the IMO stymied these attempts. Caught between two UNFCCC-threats, from the outside and from the inside, the IMO was being effectively "squeezed" into action.

From Bali to Copenhagen and Beyond within the IMO (2008-2009)

From MEPC 57 in April 2008 to MEPC 61 in October 2010, interest and attention to the issue of greenhouse gas reduction by the IMO has not lagged and attention to the issue has been the centerpiece of the last five MEPC meetings, as the reinvigoration of the process in 2007 and the movement towards the Second GHG Study set in motion a chain of negotiations that have continued until the current time. Because of the wide-interest in the issue, the number of submissions to the MEPC has increased exponentially. This has benefitted debate by keeping attention and interest high, but has overwhelmed the capacity of the MEPC to achieve meaningful work within the context of the plenary debates because of the number of submissions, which has exponentially increased as shown in Figure 2.

At the start of the MEPC 57 meeting in April 2008, the Secretary General, responding to the recent action in Bali, called on the IMO essentially to follow the timeline advanced by the Bali Action Plan and to seek to conclude its actions on greenhouse gases, including agreements on the mechanisms for reduction by the end of 2009, so that these systems were ready for the conclusion of the Bali Road Map at Copenhagen. This aligned the IMO action plan timeline with the UNFCCC's.

Also in April 2008, a slew of new proposals for action were submitted, and, for the first time, these came jointly from numerous countries as well as from industry representatives. For example, Denmark, the Marshall Islands, BIMCO, ICS, INTERCARGO, INTERTANKO, and OCIMF submitted a joint proposal (MEPC 57/4/3) for a mandatory design index for new ships, which would become the basis of much of the further work on energy efficiency, and would eventually become the Energy Efficiency Design Index that is currently under consideration. Japan to use actual energy efficiency indexing from operational measures.

In addition to these technical measures, ideas for market based measures were also proposed, including a global levy on marine bunkers, submitted by Denmark. In an attempt to establish principles for the consideration of new proposals for technical operational and market-based measures, the Denmark-led coalition for action, which now had begun to include industry representatives proposed a list of 9 principles to be

followed in all IMO debates:

> 1. effective in contributing to the reduction of total global greenhouse gas emissions;
> 2. binding and equally applicable to all flag States in order to avoid evasion;
> 3. cost-effective;
> 4. able to limit, or at least, effectively minimize competitive distortion;
> 5. based on sustainable environmental development without penalizing global trade and growth;
> 6. based on a goal-based approach and not prescribe specific methods;
> 7. supportive of promoting and facilitating technical innovation and R&D in the entire shipping sector;
> 8. accommodating to leading technologies in the field of energy efficiency; and
> 9 practical, transparent, fraud free and easy to administer. (MEPC 57/21)

Predictably, numerous delegations rejected principle 2, and, after a failed attempt by the Chair to amend the language to simply say that it be binding to all ships rather than to all flag States (and thus assign responsibility to companies and not countries as a means to by-pass CBDR), the MEPC agreed to these principles by overwhelming majority and India and China reserved their positions.

This exchange prompted a highly unusual intervention by the Secretary General of the IMO, who argued that "he could see no conflict between the principles recommended and Article 2.2 of the Kyoto Protocol." The Secretariat thus formally sided against those delegations which sought to maintain the principle of CBDR within the IMO, breaking its traditional informational and assistance role in favor of advocacy. Also for the first time, Brazil formally reserved its position, stating its concern that "the views of developing countries were not properly considered." Mexico supported the position of Brazil in this regard. These two Latin American countries had not been active defendants of CBDR, but had become concerned that the IMO was sliding towards a position of simply operating categorically in majority-rule mode, and would ignore developing country positions routinely.

Nonetheless, the majority voting procedure of the MEPC and IMO flexed its muscles and, despite the reservations of developing countries, the MEPC went ahead with plans to structure an inter-sessional working group meeting in Oslo in Summer 2008 in order to begin to address the consideration of all the technical, operational, and market-based measures that had been put forward.

The New Negotiating Dynamic: An Agreement to Disagree?

This dynamic, in which developed country parties and industry groups move forward despite developing country reservations with the slow and methodical consideration of quite complex proposals has, despite the objections of Brazil and Mexico, become institutionalized. According to several IMO delegates and technical officers with whom I spoke, the pattern is now the same every time: China and India will take time at the start of plenary in the MEPC to complain about CBDR, but proposals will be assigned to the working group which will carry out its work and report back to the plenary at which point China and India will again complain about CBDR. The political impasse, based on conflicting institutional principles, has itself become institutionalized.

The First Intersessional Meeting of the Greenhouse Gas Working Group

The opportunity afforded by the decision to hold full working group meetings between MEPC sessions in June 2008 and again in March 2009 allowed for a final clarification of the somewhat inchoate and confusion panoply of different proposals and considerations that had been floated over the several years leading up to this point. The terms of reference for the first inter-sessional meeting sought to separate proposals into three categories, loosely following the three initial types of reduction mechanisms, technical, operational, and market-based measures, that had been identified ten years prior in the post-Kyoto discussions in 1998. Despite numerous other proposals, and despite the introduction of CBDR into the IMO, this three-way partition had not been fundamentally altered throughout the decade of negotiations.

Technical measures meant discussions of proposals for a ship design index, that would apply to newly built ships. This would be an efficiency standard-based approach for the ship building industry. Operational measures reflected an operational indexing scheme that would allow for comparison of the energy efficiency of different ship types in their current operation and allow for demonstrable improvement. And market based measures, which had been identified in the First GHG Study and championed initially by the United Kingdom as early as 2003, referred to various proposals for global levies, emission trading schemes, or other best practices/energy-efficiency based systems that would otherwise incentivize action on emissions.

What happened at the Inter-sessional Meetings is a microcosm of the larger

MEPC's attempt in 2005 to separate the technical from the political in order to avoid stalling debate. Immediately, the question of whether the indices would be "mandatory or voluntary" was shelved, in favor of getting to work on the difficult and thorny technical questions of how to calculate a baseline efficiency level for different ship-types. Because of this, the de facto status quo decision was to opt for voluntary indices which could later be made mandatory (MEPC 58/4). Thus, while the GHG-WG-1 meeting did nothing to resolve the CBDR political issue, it laid out a path for future work: voluntary indices first.

Interventions on Parade

After the inter-sessional working group meeting, negotiations in the IMO had become so contentious around the issue of greenhouse gas reductions, that the Secretary General spent his entire speech to the October 2008 MEPC meeting on the subject, and concluded that:

> "we should, ultimately, come up with a regime that will contribute positively, fairly and visibly to the wider efforts of the international community to combat climate change; a regime whereby **all** IMO Members engage in effectively reducing greenhouse gas emissions from international shipping in its entirety – not a small fraction thereof – and, in doing so, make sure that the special needs of developing countries are fully and comprehensively addressed" (MEPC 58/INF.24).

Nonetheless, debate was opened first on the question of the legal form of what any new (not yet agreed upon) mandatory measures on GHG reductions should take, whether they "should be in the form of amendments to MARPOL Annex VI, a new Annex VII to MARPOL, or a new stand-alone instrument." (MEPC 58/23). Amendments to Annex VI could be done through tacit approval, not requiring agreement of a new Convention by the Parties in a new diplomatic Conference. The other options, either a MARPOL Annex VII or a new agreement would require a full new diplomatic conference. Thus, the decision on the legal form would strongly shape the required consensus of individual parties, and, ultimately, likely the content of the agreement itself.

In part because of the presumption that the debate of this question implied, the exchanges were immediately heated. What followed was a unique, highly unproductive, debate in which 39 member states and three observer organizations formally stated and recorded their positions on the question of the applicability of the common but

differentiated responsibilities principle to the work of the IMO.[9] These parades of interventions may be common in other United Nations negotiations, but had not been in the International Maritime Organization.

While this debate broke down entirely on developed vs. developing country lines, the re-emergence of the three-way coalitional split also occurred in October 2008. For the previous five years, the primary fault-line in the IMO's approach to climate change had been developed vs. developing country. Now, however, the old split between the coalition for incremental industry-led efficiency improvement and the coalition for action was reinvigorated. Greece, for example, urged regulation to be flag-neutral, but more importantly was vehemently opposed to any market-based measures that involved either capping emissions (an emissions trading scheme) or involved a levy or tax on fuel. Greece thus took the lead representing industry interest in the development regulations that enable increases in energy efficiency (and therefore cost savings) but do not hurt the shipping industry, taking the mantle from the ICS-USA-Russia coalition of the late 1990s. Greece took the position, which would be followed frequently by other countries aligned with the maritime industry, that any action that "hurt" shipping would force the transportation of goods to other modes of transport which are *less* energy efficient than shipping. (MEPC 58/23). Thus, at this juncture we see a re-emergence of the classical three-way coalitional divide within the IMO.

Literally Agreeing Not to Agree: Top Down Control of the Issue

Pressure to act before COP15 in Copenhagen reached a fever pitch at MEPC 59 held at the IMO in July 2009. Over forty separate documentary submissions on greenhouse gas emissions, plus a handful of submissions from MEPC 58 that had not been considered yet because of time constraints, were included on the agenda for the meeting. The report of the meeting was over 350 pages in length.

In order to avoid the same stalemating debate as last time, the Chairman of the session, Mr. Andreas Chrysostomou of Cyprus, proposed a new way forward, which was that:

[9] Interventions were made by and recorded from China, Brazil, Saudi Arabia, France, Argentina, Hong Kong, Italy, Mexico, North Korea, Greece, the United States, Singapore, South Korea, Venezuela, Peru, the Philippines, Norway, Egypt, Finland, Belgium, Ghana, Chile, Namibia, the Netherlands, Australia, Russia, Uruguay, Japan, Iran, the United Kingdom, Bolivia, the Marshall Islands, Vanuatu, New Zealand, Ecuador, Denmark, Sweden, Indonesia, Colombia, FOEI, IACS, and the WWF.

> • the use of the word 'agree' would not imply approval, adoption, or decision;
> • interim measures for improved energy efficiency had already been agreed;
> • application issues and matters related to the form of the legal instrument would not be considered at this session, but be discussed at MEPC 60; (MEPC 58/23).

In so doing, Mr. Chrysostomou sought to find a pragmatic way to advance debate without becoming bogged down in debate on the legal form of a mandatory agreement, or even in the meaning of the word "agreement." His preliminary intervention in MEPC 59, combined with Secretary-General Mitropolous' recommendation that energy efficiency measures be finalized, while market-based-measures be discussed further, and a video message from the UNFCCC Executive-Secretary Mr. Yvo de Boer, set the tone for the meeting, by explicitly suggesting a proposed way forward:

> One political difficulty is that the Convention is based on the principle of common but differentiated responsibilities. Industrialised countries must lead in reducing emissions, while developing countries need support to engage in mitigation actions. The IMO, on the other hand, is based on equal treatment for all ships. Innovative thinking is needed to reconcile these principles and it can be done. For example, raising funds for adaptation and mitigation in developed and developing countries through a global cap on bunker fuels and deploying revenues from auctioning emission rights mainly in developing countries have both been mentioned as ways to reconcile the principles of the UNFCCC and the IMO. A global cap on bunker fuels would be in line with the "equal treatment" principle of the IMO. Using the obtained revenues to assist developing countries in addressing climate change would be in line with the provisions of the climate change Convention. (MEPC 59/24-Add-1)

The IMO had become so dominated by the conflict of principles that a three-pronged, top-down approach from chairman, to both secretariats was required to chart a path toward any progress. The "official" institutionalized positions of both the IMO and UNFCCC Secretary's was in favor of "action" by the IMO itself. While the Secretariats did not, of course, seek to dictate what course of action this would be, they rejected continued inaction.

In response to this top-down forcing, the Committee agreed and circulated guidelines for the Energy Efficiency Design Index (EEDI) and its voluntary verification, thus taking the next step toward a mandatory EEDI as a technical measure. In operational-measure space, the Committee agreed for the voluntary use of the Energy Efficiency Operational Indicator (EEOI), which is simply a method of calculating the

emissions per tonne-mile that can be used by all ships. Also in operational terms, the Committee agreed and circulated guidelines for the development of a voluntary Ship Energy Management Plan (SEMP)[10], which is a document that all ships should keep that will be their guideline for the most energy efficient operation possible. Lingering issues were largely technical (aside from the elephant in the room which was making these instruments mandatory), and included concerns over how to calculate baselines of ships with non-conventional propulsion systems, and how the baseline itself for the EEDI should be calculated over time (MEPC 59/24). Thus, once again, the effective strategy for the IMO was to make progress by devising ways to dodge the issue of CBDR.

Bringing It to Copenhagen: The New Game of Climate Finance

The Secretariat of the IMO was able to go to Copenhagen with a partly full basket. The intention had been (according to the Secretary-General's plans in 2008) to bring fully agreed mandatory energy efficiency instruments to the UNFCCC as a trophy of a job-well-done. While the guidelines for these instruments had been developed, they were only voluntary and interim, yet Mr. Eivind Vagslid, the Head Technical Officer of the IMO for Chemical and Air Pollution, was able to announce to a side-event on maritime bunker fuel regulations, sponsored by the International Centre for Trade and Sustainable Development, that the IMO had developed an EEDI, an EEOI and was working to finalize these schemes to make them mandatory, at the same time as it was considering other market-based measures (International Centre for Trade and Sustainable Development Bunkers Panel, personal observation, December 15, 2009). In addition to these statements, the IMO presented its recently completed Second Greenhouse Gas Study (2009). Overall, the IMO went to great lengths to show that it was actively working on the issue: in 2008 the IMO Council decided to designate 2009's IMO theme as "Climate Change: A Challenge for IMO, too."

Despite all of this, the Copenhagen Accord (2009) made no reference to bunker fuels, nor to the IMO and no decision was reached by the UNFCCC at COP15, despite very constant references to the fact that regional unilateral action on maritime fuels by the European Union was likely if no action was seen in the IMO or the UNFCCC. Proposals

[10] This concept had been introduced in October 2008 at MEPC 58 in several of the original proposals. The SEMP, as it was called in 2009, was later re-termed the SEEMP, the Ship Energy Efficiency Management Plan. This was a proposal advanced by Japan and thE United States in document MEPC 59/4/33.

for addressing bunker fuels were seen as widely contentious and no serious UNFCCC-based proposal appeared to have been tabled.

Making It Rain: The 2009 GHG Study and MEPC 60

Three years in the making, the Second IMO GHG Study was released in the Fall of 2009, in time for COP15. Importantly, the study points out that GHG emissions from shipping now comprise 2.7% of global emissions (rather than 1.8% in the first study), that these emissions are predicted to increase significantly in the absence of regulation, perhaps, if other regulations are in place in other industry, rising to as much as 18% of global emissions by 2050. These statistics are now routinely cited and used as justifications for action by the NGO community (COP16 negotiations, personal observations).

Perhaps most importantly, the 2009 GHG Study, which the IMO commissioned in 2006 at the prompting of Norway, provided an objective statement that a mandatory energy-efficiency design index (EEDI) would be a cost-effective emissions reduction strategy. This point was immediately exploited at MEPC 60 in March 2010, as the MEPC sought to finalize the EEDI to make it mandatory and to ensure that it should be agreed as a tacit amendment to MARPOL Annex VI:

> The Committee recalled also that it had considered the mandatory application of the EEDI as part of the debate on technical and operational measures for more than a decade and more recently, since Denmark submitted the proposal leading to the current EEDI framework and formula to MEPC 57 in document MEPC 57/4/3. Denmark had followed this up by suggesting MARPOL Annex VI to be the suitable instrument for such regulations in document GHG-WG 1/2/1. A large number of submissions to the last three sessions of the Committee, as well as to the intersessional meetings, had advocated or implied that the technical and operational measures needed to be mandatory to have any real effect and, of those, eight had specifically pointed to MARPOL Annex VI as the proper IMO instrument. (MEPC 60/22).

The rationale for using MARPOL Annex VI as the legal form was elaborated by Japan: "the MARPOL Convention has well-established and workable survey and certification provisions, and it could provide a similar legal basis for the mandatory EEDI and SEEMP requirements, and the amendments to MARPOL Annex VI would be the fastest path to implementing such requirements as mandatory measures." (MEPC 60/22).

MEPC 60 decided that the EEDI would become mandatory and would be an

amendment to MARPOL Annex VI. There was recognition that it would require technical fine-tuning to be accomplished in an inter-sessional working group during the Summer of 2010, but that a draft revision to MARPOL Annex VI would be submitted to MEPC 61 that included the EEDI and SEEMP after further work of the Working Group. Brazil, China, Cuba, India, Indonesia, Saudi Arabia, and Venezuela all reserved their positions on the inter-sessional working group and Brazil, China, India, Saudi Arabia and Venezuela reserved their positions on the plans to make the EEDI and operational energy efficiency measures mandatory (MEPC 60/22). Frustration on the part of developing countries with the process was palpable, as combinations of these countries reserved their positions at every decision. This prompted concern from several states:

> A number of delegations expressed concerns that many of the conclusions reached by the working group were made by majority and not by consensus, in particular on mandatory energy efficiency measures and their possible inclusion in MARPOL Annex VI. Other delegations observed that the Committee should continue, as it always had, to make every effort to reach consensus (MEPC 60/22).

Which, in turn, prompted the Secretary-General to intervene, announcing that

> "In this Organization, we dislike taking a vote. Voting is divisive and one would ask what chances of implementation have the technical standards adopted in this Organization if the decision to introduce that standard has been made on a 51 to 49% basis. Sometimes, the decision, if consensus cannot be achieved, will have to be made in accordance with the Organization's well established and well functioning Rules of Procedure, meaning that decisions are made on a majority basis, which leads to the conclusion that whatever people may think, this is a democratically based Organization." (MEPC 60/22)

In other words, the IMO was going to move forward on this issue even if that were to only be possible by majority vote. As the majority of delegations supported equal treatment for all ships, this position would rule the day.

A New Tactic of Resistance to IMO Action

Because attempts at using CBDR were seeming not to be able to stop progress by majority rule, some delegations, including South Africa advanced a view that,

> "before the energy efficiency measures could be considered as mandatory requirements for all ships (irrespective of flag), the impact for developing countries should be assessed in line with the requirements of resolution A.998(25) on the need for capacity-building for the development and implementation of new, and amendments to existing, instruments." (MEPC 60/22)

This represented a new, and more resigned, objection to the progress of the IMO, namely that if CBDR won't block action, at least capacity-building needs of developing countries should be taken into account when considering mandatory energy efficiency measures.

In July 2010, the IMO convened a working group on energy efficiency measures with terms of reference to hash out the final technical details of the technical and operational measures with an eye to making them mandatory for all countries. Overall the tenor of the energy efficiency working group was much more technical, and much more relaxed than the market based measures expert group. This is not to say that the negotiations were not without their contentiousness. The case of the debate around one of the operational measures is illustrative of this, and shows the shifting nature of coalitions in IMO climate change negotiations:

An interesting coalition emerged on the subject of the mandatory nature of the Ship Energy Efficiency Management Plan (SEEMP). The terms of reference of the working group were such that the contents of the SEEMP were to be elaborated by the working group in July 2010, but discussion of the question of its mandatory or voluntary nature was not included, and the Chairman repeatedly reminded delegates that the SEEMP had already been agreed upon as mandatory for the purposes of drafting the amendments to MARPOL Annex VI and that this question was not to be revisited under the ToR of the working group. Nonetheless, Saudi Arabia, China, India, the ICS, and Greece all made interventions questioning the validity of the SEEMP's mandatory status. Thus a brief coalition emerged of developing country and industry or industry-aligned parties, as these two groups were usually in opposition over whether rules should be global in application (which industry preferred) or differentiated (which developing countries preferred). In this case, neither group wanted any regulation. I asked one negotiator from a country that is a major flag state about why the SEEMP and operational measures were so frowned upon by industry, which seemed to accept as given a new design index:

> It is easy to agree to something which will affect future ships in the future rather than retrofitting or fixing current ships now. Ship-owners and therefore industry can go along with this, because it won't hurt them now, or at least not much. I agree with ICS that the SEEMP doesn't benefit the environment by having one extra degree of auditing by a flag state administration, it just creates more

> paperwork. This is one of the big problems: many of these regulations simply increase the paperwork for the crew, who have less and less training. It goes like this: there is a new regulation requiring a certificate. The master will make sure the boat is in compliance so if anyone ever checks there is a stamped document, but otherwise the code sits on the shelf and no one does anything with it. Much of the crew may not know what the SEEMP or whatever means, but they know enough to be in compliance. The environment doesn't benefit at all in these circumstances.

Technical energy efficiency measures for new ships (the EEDI) were being allowed to move forward because action on climate change was necessary to keep the issue within the IMO and because this posed the most minimal burden on ship owners and operators. The SEEMP would be, as one observer referred to it, a "hollow shell," a mandate in name only, without any mandatory content or enforcement mechanism.

MEPC 61: A Further Breakdown

As of this writing, the most recent meeting of the MEPC took place in October 2010. Perhaps most notably, first hand accounts of the negotiations as well as the press reports of the outcome reflected the fact that "talks on the GHG issue broke down" at MEPC 61. Frustrations with the inability to prevent actions boiled over and the CBDR issue finally cracked the IMO. The meeting ended with no solid conclusion on the question of a path forward and the wounds that were cut by the continuous reliance on majority voting cut extremely deeply. Indeed, on the question of market-based measures, the official IMO description of the outcome of the meeting appeared to take a step backward:

> The Committee agreed Terms of Reference for an intersessional meeting of the Working Group on GHG Emissions from Ships, to be held in March 2011, tasking the group with providing an opinion on the compelling need and purpose of MBMs as a possible mechanism to reduce GHG emissions from international shipping and further evaluating the proposed MBMs considered by the Expert Group, including the impact of the proposed MBMs on, among others, international trade, the maritime sector of developing countries, LDCs and SIDS, as well as the corresponding environmental benefits. A report from the inter-sessional group will be submitted to MEPC 62 in July 2011. (IMO Press Release, October 2010).

This is not to say that nothing moved forward. The Committee did agree to get to work drafting the amendments to MARPOL Annex VI that will include the EEDI, which will

establish a required energy efficiency index for new ships, as well as the "hollow" SEEMP requirement.

The New Role of the UNFCCC in the IMO: From Copenhagen to Cancun

After COP15, the 'threat' of action within the UNFCCC on the bunker fuel issue appeared to dissipate somewhat. The advanced rhetoric gave way to a new era under the Copenhagen Accord, in which everything was up for reconsideration procedurally.

At the second inter-COP meeting of the Ad Hoc Working Group on Long-Term Cooperative Action of the UNFCCC in August 2010, the Cook Islands delegation submitted a text (hereafter the "Cook Islands text") which sought to use the UNFCCC to break the impasse on CBDR within the IMO by stating straightforwardly that the UNFCCC:

> "*Encourages* the International Civil Aviation Organization and the International Maritime Organization to carry out their work in accordance with their respective Conventions and customary practices, taking into account applicable principles and provisions of the Framework Convention on Climate Change." (Cook Islands Text, July 28, 2010).

In order to explicitly assure that CBDR would be met, the Cook Islands text, anticipating the success of market based measures, also stated:

> *Requests* the International Civil Aviation Organization and the International Maritime Organization to ensure that the majority of any revenue arising from the implementation of such policy approaches and measures shall be made available to support climate change adaptation and mitigation in developing countries, in particular small island developing states and least developed countries. (Cook Islands Text, July 28, 2010)

This text was never formally accepted. The operative verb in this paragraph "Request" is one which is difficult because of the relationship between the UNFCCC and the IMO as co-equal and not hierarchical institutions. As UNFCCC representative pointed out, the UNFCCC cannot request the IMO to do anything because the IMO is not a subsidiary body to the UNFCCC, but is a separate entity with legal standing. According to him, all the UNFCCC can do is to "invite, and invite rather nicely" the IMO to do anything at all.

A New Paradigm Has Coalesced at Cancun

It is clear that the new form of international discussion of maritime bunker fuel emissions is two-fold: there is a desire to finally include these emissions into a binding instrument (what I call the "mitigation interest") and, there is a desire to develop a

mechanism that levies shipping as a potential source of steady revenue for adaptation to climate change or for a fund for climate mitigation actions (what I call the "finance interest").

A "way forward" that will allow the IMO and the UNFCCC to coordinate action on this issue but also adhere to their respective principles has been gradually charted that seeks to combine the mitigation and the finance interests. The suggestion mentioned by Secretary De Boer in his address to the MEPC in 2009: breaking the impasse on CBDR by assigning a market-based measure that would impose a levy or cap on bunker emissions and use the funds generated from this to support climate adaptation activities in developing countries, was one of the first hints of this.

A more coherent proposal for a levy-distribution scheme has been advanced by a non-governmental organization called the International Maritime Emissions Reduction System (IMERS), founded by Dr. Andre Stochniol. In the Copenhagen version of this proposal, bunker fuel emissions would be attributed on the basis of country of import (destination) and would assess a levy per ton of carbon at the carbon price of a major domestic carbon-trading scheme (Dr. Stochniol was at the time proposing the US scheme). The levy would then be redistributed directly to the governments of developing countries for use in projects designed to adapt to climate change. In 2009, the proposal in this form was intended to be adopted by the UNFCCC, separate from the IMO, but the idea got relatively modest attention. A similar market-based measure was also proposed to the IMO by the IUCN, for which Dr. Stochniol served as a representative-observer in IMO meetings in 2010.

In Cancun, NGO interests also advanced a modified version of the IMERS-proposal. This time, the advocates of the "mitigation-and-finance" way forward, pitched the idea more explicitly as a way to address the issue of UNFCCC-IMO conflict of principles. Rather than a purely UNFCCC-based mechanism, the goal was for the UNFCCC to invite the IMO to develop the market-based mechanism that would apply equally to all ships, but that the UNFCCC would be handed the revenue to distribute in a differentiated manner. Advocates in Cancun specifically targeted developing country delegates in hopes that they would champion the issue and agree to accept that the IMO would be able to impose a global levy (personal observation).

This way forward certainly does not seem to be universally accepted. In particular, developed country parties have concerns over the overt focus on finance, rather than mitigation, they do not want the industry to be used as a cash cow. Some proposals were floated that would tax the global shipping industry, but would not do so on the basis of emissions, yet the revenue would still be provided to developing countries. Similarly, developing country parties remain very concerned that an IMO-based mechanism will impose undue burdens on them. As an IMO expert from a BASIC country, who was also UNFCCC delegate, described these concerns after Copenhagen:

> "I think there is a great hypocrisy from the United States. They say they go to Copenhagen to reach a deal and then they stall. The only country that thinks the Copenhagen Accord is a good document is the United States, no other country thinks it represents progress of any kind. And they do not commit to cuts in emissions and there is no progress. Then we come to the IMO MEPC in March, it's just three months after the failure in Copenhagen, and all of a sudden they have this urgency to move quickly to act to get an agreement at the IMO on shipping. Where is that urgency coming from? They did not have the urgency in Copenhagen! It is hypocritical, and we know they are not doing it for reasons of climate urgency, then why are they doing it? It's because in the IMO they can get an agreement that will make developing countries pay. All of the measures proposed will make developing countries pay, and they will pay more because the payments and fees etc are related to fuel usage and it costs more to send goods to developing countries which are generally further away."

Still, as one representative from a European transportation NGO described, "Our goal is to convince developing countries that they will win and not lose from this, that if they don't go for a rebate mechanism, they won't get any money at all."

In Cancun, COP16 President Espinoza released draft text on bunker fuels at the end of the first week of negotiations. It instantiated the idea that the requirement of differentiation could be achieved by using revenues from some sort of global mechanism to support adaptation and mitigation in developing countries:

> 41. *Recognizes that the limitation and reduction of emissions of greenhouse gases not* controlled by the Montreal Protocol from international aviation and maritime transport should be pursued working through ICAO and IMO, respectively, setting global emission reduction targets on a scale consistent with the long-term global goal as defined in paragraph 4 above;
>
> 42. *Further recognizes that global policy frameworks should be developed without* delay by ICAO and IMO, taking into account the principles and provisions of the

> Convention and in accordance with their respective principles and customary practices, provided that the implementation of such policy frameworks would not lead to competitive distortions or carbon leakage and that revenues generated would support mitigation and adaptation actions in developing countries;
>
> 43. *Invites ICAO and IMO to report to the Conference of the Parties, at its seventeenth* session, and to its subsidiary bodies, as appropriate, and at regular intervals thereafter, on their activities, policy approaches and measures relevant to paragraph 41 above.

This text, which sets out the mitigation interest in paragraph 41 and the finance interest in paragraph 42, was clearly an attempt to reconcile the competing principles of the two institutions. However, the issues surrounding finance and differentiation proved too much for progress in Cancun, and the final outcome of COP16, the Cancun Agreements contain no mention of bunker fuels or the IMO.

Analyzing the Results: A Process-Tracing of Claim 1

The second claim was that the path that the IMO has charted since the Kyoto Protocol has been a result of the mixing of the institutional behavior of the IMO itself with an "incursion" of the principle of common but differentiated responsibilities, which was attached to the issue of climate change, rather than to the UNFCCC as an institution. This led the IMO to chart a slow and deliberate course that had to negotiate pressure not to act too quickly from industry, pressure to prove it was acting from the UNFCCC, and pressure to stop acting under its own principles from developing countries.

It is clear that after the Kyoto Protocol was agreed, there was an opportunity to move forward before the principle of CBDR was elaborated. This window lasted from the start of 1998 until the start of 2002. During this time, the IMO's principle response was the First GHG Study, which was itself largely a response to industry demand to have objective numbers on the "scope of the problem."

With developing countries gradually rallying around the idea that CBDR applied within the IMO, a tripartite division of interest coalitions within the IMO emerged. The result was to force a temporary alliance between those countries favoring strong(er) action (Norway, UK, Japan) and those countries favoring weaker, though global action which were aligned with industry in order to fight calls for differentiation and/or inaction from developing countries. The role of the Secretariat was clear: it favored action to

maintain its own position of ownership of the issue, but did not want to dictate the specific terms of the actions to be taken. The result of this was that the Secretariat explicitly joined the "anti-developing country" coalition, abandoning its traditional ostensibly neutral role.

It is onto this landscape that we can elaborate the picture of the IMO "responding" to the issue of climate change in 2007. If international negotiations outside the IMO had not heated up in 2007, it is unlikely that the IMO would have continued to actively and seriously debate the issue. However, because interest was reinvigorated as a result of both the science of climate change becoming more clear and as a result of the attention to the issue created by the Bali conference and the road toward Copenhagen, the IMO was *catalyzed* to redouble its activities. The Secretary-General began his impassioned speeches calling for action in a clear effort to maintain institutional ownership of the issue and the issue took over MEPC meetings from 2008 until present.

However, the UNFCCC in this role was only a catalyst for action and not a dictator. The actual results in terms of policies and negotiations were a clear result of the three-way coalitions acting in different within the IMO. Furthermore, the division of the possible responses to climate change emissions into technical, operational, and market-based measures, as identified in the first greenhouse gas study in 2000, was the result of the industry-aligned coalition's approach in 1998 and the institutional momentum of these three types of proposals. This division allowed "action" on climate change to be claimed by the IMO, when, in reality, as several delegates pointed out, little to nothing was actively being done that would make any difference to the problem of climate change. The separation of debate into these three sections served the interest of the maritime industry, which continues to hold the most powerful position within the IMO, but allowing progress on future efficiency standards without requiring progress on others.

Finally, the "external" forcing factor of the UNFCCC threat of action has clearly dissipated. Debates within the UNFCCC clearly recognize that unilateral action is not viable: the two institutions will either move forward together according to their own principles, or not move forward at all. However, the principle of CBDR has not disappeared from the IMO negotiations, but has instead become institutionalized. In

effect, it has become detached from the UNFCCC altogether and is now used as a general principle by developing country parties.

The slowness of action by the IMO must be understood as a product (literally in the sense of multiplication) of the IMO's industry-oriented institutional ethos and the incursion of the principle of differentiation from the UNFCCC. This destructive tension has limited progress on reducing emissions, but has not fully stymied it, although it is clear that when industry and developing country positions overlap, as they did regarding the SEEMP requirement, no meaningful environmental regulation will take place. The recent public breakdown of talks at MEPC 61 indicates that resistance to market-based measures is strong, and the threat of an anti-regulatory coalition between industry-aligned countries and developing countries is not negligible.

CONCLUSIONS

The Future of Bunkers Regulations

Despite the fact that threat of unilateral action from the UNFCCC as a forcing agent in IMO is clearly waning, the UNFCCC still has a very important role to play of catalysis and it is not likely that anything beyond the EEDI will come out of the IMO without direction. The IMO has, since 1991, only acted on climate change in response to prompting. Originally, in the 1990s and early 2000s, this prompting was a threat and, as one delegate put it, "above all, the IMO wants to make sure that the shipping industry is regulated within the IMO and not from the UNFCCC." Now, however, the recognition that the two institutions must move together has lowered that threat of action, and the lack of any decision on bunkers at Copenhagen or at Cancun may take the wind out of the IMO regulatory sails. As a UNFCCC representative discussed, even UNFCCC text that simply invites the IMO to continue to report to the UNFCC has utility because it means that the MEPC is prompted to at least discuss the issue, as opposed to simply ignoring it.

The idea of overcoming the conflict of principles through a "global tax and partial rebate" style mechanism is unlikely to go away and has become stronger over the last two years, but it is far from being implemented. It is an idea that has originated within the NGO community, but, unlike other ideas such as REDD+, which started on the sidelines but were thrust into the spotlight when they were championed by country-parties, no country-champion for the rebate scheme has emerged because developing country-parties

are wary of a universal mechanism and developed country parties are concerned that the finance interest rather than the mitigation interest has become dominant. Until a champion emerges for such an idea, it is unlikely to go anywhere.

There is still hope for policy-progress on this issue, however. When I spoke with a UNFCCC representative while President Espinoza's text on bunkers was on the negotiating table, he said that the key provision was in Paragraph 41 of the draft text, viz. if the UNFCCC invited the IMO to figure out what its contribution to emissions reductions should be to achieve a 2°C target, then the IMO would have before it an emissions reduction target. It would not be binding, but would serve as an objective reference point for further action in the IMO. Of course, even an objective assessment of this sort would be politicized. As an IMO technical officer, pointed out in response to a question about the 2°C-target: "It is a political and not a scientific decision. For example, if you say in 2050 you want to cap global emissions at 15 gigatonnes, do we assume that the IMO is 2.7% of these emissions as it is now, or that international trade will continue to grow?" Still, a UNFCCC catalyzed, non-binding target for the IMO would likely make sure that regulatory action did not stop with the EEDI.

Coming to Terms with Two Decades of Inaction

The IMO has been discussing climate change for two decades, but, as of this writing, has not finally adopted any binding instrument in response, and emissions from the sector have grown, and will likely continue to grow in the future, in the absence of regulation.

Sebastian Oberthür's analyses of institutional interaction between the IMO and the UNFCCC presents a UNFCCC-driven process: "The limited action [the IMO] has taken has mainly been driven by a threat of regulation by the climate change regime." (Oberthür 2006, 60). In this analysis, the IMO is "unenthusiastic" and all action was triggered by Article 2.2 of the Kyoto Protocol. This paper has explored more fundamental structural and institutional reasons both for institutional interaction and for inaction. The formation of the global climate change regime itself in 1992, even without a specific request to the IMO, was sufficient to catalyze initial decisions related to climate change in the IMO that formed the bedrock for the institutional response to Article 2.2. Oberthür attributes the slow action in the IMO both to the lack of an overall environmental remit,

and to the shipping industry's claims that shipping is part of the solution not part of the problem (Oberthûr 2006, 68). However, as time has progressed, it is clear that this argument alone is correct, but not sufficient. The IMO has continued to take largely 'symbolic' and industry-acceptable actions and has attempted to use these as justifications to other institutions for continued IMO-control of the issue. Because the principle for distribution of responsibility in the UNFCCC has been carried over by member states to a separate institution in the sphere in which they overlap, the institutions have come into conflict. The evolution of the interpenetration of the IMO and the UNFCCC, and the profound effect of the conflict of principles between the two organizations has sharply impacted the IMO's own approach to the issue within the MEPC. I do not argue that the IMO would have been progressive without CBDR, but rather claim that the additional "third coalition" formed by developing country parties starting in 2002, altered the traditional "pro-action" and "pro-inaction" coalitional dynamic within the IMO.

In the post-Copenhagen era, where the UNFCCC is seen as more dysfunctional and an inadequate institution to address the complexities of climate change, the nature of the UNFCCC-driven process is changing toward one of catalysis as the essential function. Institutional interaction is only one part of the puzzle. As one IMO expert, bluntly put it: "the only way we are actually going to do anything about [emissions] is if it hurts in the pockets of the ship owners," and this is something that it generally has proved particularly difficult to accomplish.

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Marine Environment Protection Committee

MEPC 32/12
MEPC 32/12/3
MEPC 33/20
MEPC 34/3/2
MEPC 35/21
MEPC 37/1
MEPC 38/1
MEPC 39/6/6
MEPC 41/5/3
MEPC 41/8/2
MEPC 41/20
MEPC 42/INF.28
MEPC 42.INF.22
MEPC 42/22
MEPC 45/20
MEPC 46/23
MEPC 48/4/1
MEPC 48/21
MEPC 49/4/4
MEPC 49/4/6
MEPC 49/22
MEPC 51/22
MEPC 52/4/5
MEPC 52/4/9
MEPC 52/24
MEPC 55/4/15
MEPC 56/23
MEPC 57/4/3
MEPC 57/21
MEPC 58/4
MEPC 58/INF.24
MEPC 58/23
MEPC 59/24
MEPC 60/22

Bulk Chemicals Sub-Committee
BCH 21/14
BCH 22/INF.34
BCH 22/7/15
BCH 23/13
BCH 24/INF.7

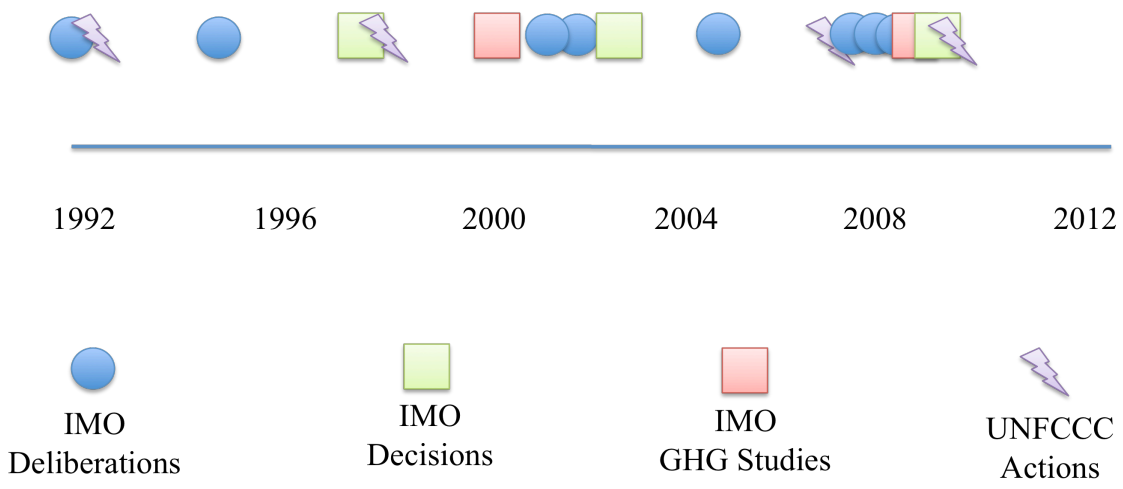

Figure 1. Timeline This is a timeline of the interactions between the UNFCCC and the IMO. The purple lightning bolts show the UNFCCC, the Kyoto Protocol, the Bali Action Plan and the Copenhagen Accord. The green squares show the IMO Resolution 8 at the 1997 Conference, the 2003 Assembly Decision, and the 2009-10 Decisions to make the EEDI Mandatory. The red squares show the two IMO GHG Studies. The blue circles show periods of intensive deliberation within the IMO over the issue of greenhouse gas reductions. Note that major IMO decisions and key deliberations in 1992, 1997 and in 2009 directly preceded actions by the UNFCCC that were anticipated by the IMO. Note also how the Bali Action Plan reinvigorated debate within the IMO.

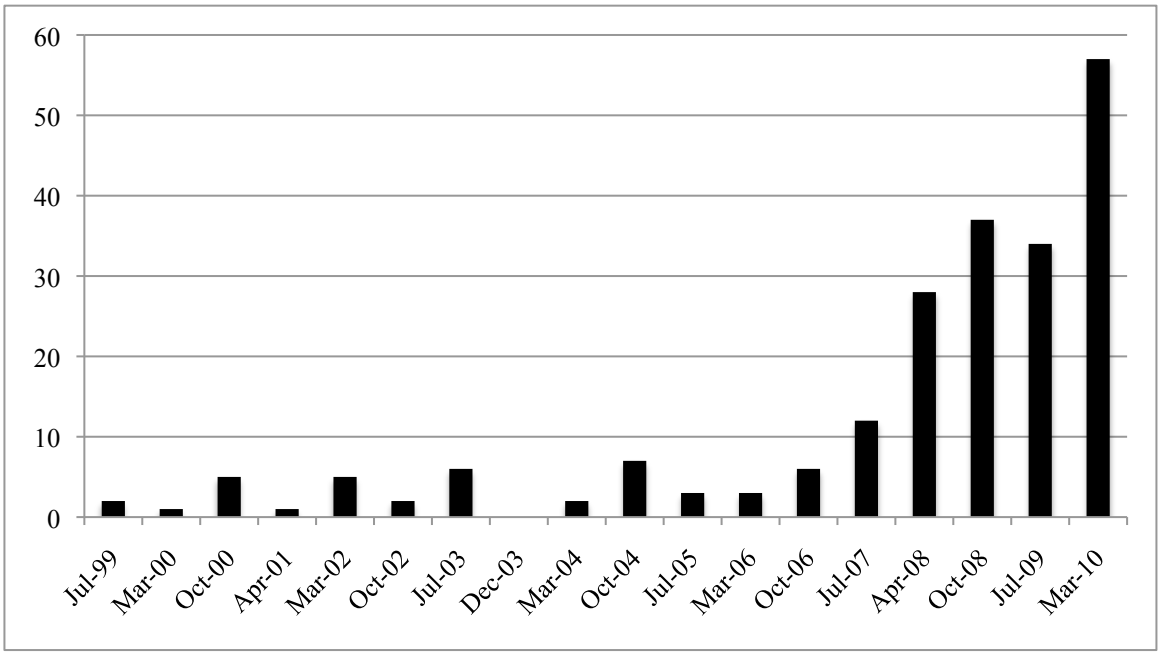

Figure 2. The number of climate change or greenhouse gas related submissions by IMO member states and observer organizations to the MEPC over the last decade. Note the nearly exponential increase in submissions starting in 2007 as a result of the Bali Action Plan and the anticipated "road to Copenhagen."

Appendix: Text of Draft Conference Resolution Submitted by Netherlands

ANNEX
DRAFT CONFERENCE RESOLUTION

CO_2 emissions

THE CONFERENCE,

RECALLING article 16(3) of the International Convention for the Protection of Pollution from ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78),

ALSO RECALLING resolution A.719(17) adopted on 6 November 1991 by the Assembly of the International Maritime Organization concerning the prevention of air pollution from ships,

HAVING ADOPTED the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78),

RECOGNIZING that CO_2 emissions, being greenhouse gases, have an adverse effect on the environment,

RECOGNIZING FURTHER that the new Annex VI on Prevention of Air Pollution from ships does not cover CO_2 emissions from ships,

NOTING that parties to the United Nations Framework Convention on Climate Change (UNFCCC) have recognized the adverse effects of greenhouse gases to the atmosphere and that international emissions originating from international shipping and aviation, form a substantial part of the total emissions world-wide,

NOTHING FURTHER that the UNFCCC has recognized that the climate system should be protected for the benefit of present and future generations of mankind and that the global nature of climate change calls for the widest possible co-operation by all countries world-wide. The UNFCCC obliges parties to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. In order to achieve this, parties should take measures and policies that are cost effective and comprise all economic sectors.

RECOMMENDS that CO_2 emissions from ships are addressed by the international responsible regulatory body for shipping, i.e., the International Maritime Organization,

INVITES the Organization to exchange information on the issue of emissions with the Secretary-General of the UNFCCC,

INVITES FURTHER the Organization in co-operation with the UNFCCC, to establish a joint expert group where experts on emissions are encouraged to explore the possibilities of controlling CO_2 emissions and look into the cost effectiveness of possible measures which would be brought to the attention of the Marine Environment Protection Committee in order to take action as deemed appropriate,

URGES Member States to participate in forming such a joint expert group and to bring proposals for that purpose forward to the Committee and the Conference of the Parties to the UNFCCC.

Resolution 8 of the 1997 Air Pollution Conference, September 1997

CONFERENCE RESOLUTION 8

CO_2 EMISSIONS FROM SHIPS

THE CONFERENCE,

HAVING ADOPTED the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78),

RECOGNIZING that CO_2 emissions, being greenhouse gases, have an adverse effect on the environment,

RECOGNIZING FURTHER that Annex VI of MARPOL 73/78 does not address CO_2 emissions from ships,

NOTING that parties to the United Nations Framework Convention on Climate Change (UNFCCC) have recognized the adverse effects of greenhouse gases to the atmosphere and that these gases originating from international shipping and aviation contribute to the global inventory of emissions,

NOTHING FURTHER that the UNFCCC has recognized that the climate system should be protected for the benefit of present and future generations of mankind and that the global nature of climate change calls for the widest possible co-operation by all countries world-wide. The UNFCCC obliges parties to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.

1. INVITES the Secretary-General of Organization to cooperate closely with the Executive Secretary of the UNFCCC in the exchange of information on the issue of emissions of greenhouse gases;

2. INVITES the Organization in cooperation with the UNFCCC, to undertake a study of CO_2 emissions from ships for the purpose of establishing the amount and relative percentage of CO_2 emissions from ships as part of the global inventory of CO_2 emissions. The Study should estimate emissions for the most recent year where they may be reasonably estimated and should also address how shipboard emissions and their relative percentage contribution to the global inventory may change in future years, in light of reductions to be made in other sectors as well as other trends that may be reasonably anticipated through sound scientific analysis;

3. INVITES FURTHER the Marine Environment Protection Committee to consider what CO_2 reduction strategies may be feasible in light of the relationship between CO_2 and other atmospheric and marine pollutants, especially NOx since NOx emissions may exhibit an inverse relationship to CO_2 reduction; and

4. URGES Member States of the Organization to participate in the study on CO_2 emissions referred to above and propose any appropriate strategies to the MEPC.