PART A

The Regulation of Vessel-Source Pollution in its Eco-Political Context

1 Vessel-Source Pollution, the Ecological Imperative and the Compliance Problem

1. Overview

The protection of the marine environment has become one of the most important ecological issues of modern times. Indeed, it forms part of that general emergence of environmental consciousness which has captured world attention in the past five decades or so and which figures so prominently in the politics of international discourse today. The sources of human-induced marine pollution[1] are numerous – these include discharges from land-based sources, ships, atmospheric deposition, ocean dumping and offshore oil and gas installations.[2] This work is concerned with the regulation of vessel-source marine pollution,

[1] A commonly accepted definition of 'marine pollution' or 'pollution of the marine environment' is 'the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities', see art. 1(4), United Nations Convention on the Law of the Sea, U.N. Doc. A/CONF.62/122 (1982), 21 I.L.M. 1261 (1982) (hereinafter 'LOSC'). This is also the definition adopted by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), see GESAMP, Impact of Oil and Related Chemicals and Wastes on the Marine Environment, Rep. Stud. GESAMP No. 50 (1993) (hereinafter GESAMP No. 50). Established in 1969, GESAMP is a scientific advisory body comprising experts nominated by a number of inter-governmental sponsoring agencies. It is currently undergoing a revamp of its operational and financing structure.

[2] Land-based pollution typically involves discharges of organic and industrial effluents into riverine and oceanic systems, while vessel-source pollution arises from operational and accidental discharges of oil and other harmful substances from ships into the sea. Atmospheric pollution involves mainly deposition of pollutants originating on land, and is thus part of land-based pollution. Dumping entails loading wastes from land on board ships for deliberate disposal at sea. It is thus to be distinguished from vessel-source pollution, which does not involve disposal of land wastes.

i.e. pollution of the sea emanating from both deliberate as well as accidental discharges by ocean-going ships.[3]

In the past few decades, international, regional and national regulation over shipping matters such as navigational safety, vessel-source pollution and maritime security have grown to such an extent that the global shipping industry today faces a litany of costly regulatory rules. Consequently, the shipowner's traditional right of free navigation is presently qualified by important imperatives such as the protection of the marine environment and the promotion of maritime safety. In particular, the emphasis on marine pollution control by concerned coastal and port states has come to substantially erode the traditional right of free navigation accruing to maritime states and their shipping interests.

Despite the proliferation of regulations over shipping, many international instruments which prescribe pollution control measures are still not effectively enforced and adhered to. Indeed, the most obvious weakness of the regulatory system appears to be its failure to ensure effective enforcement of and compliance with the relevant rules and standards.[4] Consequently, many 'sub-standard', low-cost ships run by irresponsible operators still ply the oceans today, posing significant risks to human lives and the marine environment.[5] This has led coastal and port states to impose more stringent regulations on ships entering or coming near their waters.

A central tenet of this work is the argument that deficiencies in the regime formation process and the peculiar features of the shipping

[3] The terms 'vessel' and 'ship' are used interchangeably, as in the LOSC. For vessel-source pollution generally, see D. W. Abecassis, The Law and Practice Relating to Oil Pollution from Ships (1978); D. W. Abecassis & R. Jarashow, Oil Pollution from Ships (1985); G. Timagenis, II International Control of Marine Pollution (1980); and K. Hakapää, Marine Pollution in International Law: Material Obligations and Jurisdiction (1981).

[4] P. S. Dempsey, *Compliance and Enforcement in International Law – Oil Pollution of the Marine Environment by Ocean Vessels*, 6 Nw. J. Int'l L. & Bus. 459, 541 (1984). For enforcement in international law generally, see e.g. W. M. Reisman, *Sanctions and Enforcement*, *in* 3 Conflict Management: The Future of the International Legal Order 273 (C. Black & R. Falk eds., 1971).

[5] A 'sub-standard' ship or operation is one that is 'substantially below' the relevant IMO requirements, see IMO Assembly Resolution A.787(19) (1995) on Procedures for Port State Control, as amended by Resolution A.882(21) (1999). In addition, there are ships which do the barest minimum needed to comply with standards. These are technically (though minimally) in compliance and pose significant risks as well, see Organization for Economic Co-operation and Development (OECD), Maritime Transport Committee Report on the Removal of Insurance from Substandard Shipping 23–24 (2004) (hereinafter 'Removal of Insurance'), *available at* http://www.oecd.org/dataoecd/58/15/32144381.pdf (last accessed 29 Nov. 2004).

industry have led to a general lack of incentives for compliance with safety and pollution control rules. Thus, in spite of the retreat of the doctrine of free navigation and the growth in regulation over shipping, transgressions of safety, environmental and security rules by sub-standard ships remain all too common. The phenomenon of sub-standard shipping is rampant in many parts of the globe, involving cost-conscious operators who are indifferent to safety and pollution control rules.[6] Thus, many of these operators' ships are old, ill-maintained and operated in a manner falling far below or only minimally above the requirements set out by regulatory instruments.[7] This is to the great detriment of responsible operators, who face distinct competitive disadvantages compared to their low-cost, low-standard rivals.[8]

In recent years, the frequent occurrences of ship pollution incidents, both intentional and accidental, have raised questions as to why these incidents continue to occur despite the existence of numerous rules and practices relating to proper surveys by flag states and delegated classification societies, ship vetting by the oil industry, supervision by insurers and inspections by port state control authorities.[9] The inescapable conclusion appears to be that the prevailing international rules and standards, principally those enacted by the International Maritime Organization (IMO), have not been adequately enforced and complied with.

What is clear is that the contemporary structural realities within which the maritime trading system operates leave great room for inadequate implementation and enforcement of the relevant pollution control rules. Arising from the extremely competitive nature of the shipping business, a significant number of shipowners and operators continue to collude with indulgent flag states, classification societies and insurers to overlook safety and pollution standards so as to reduce

[6] L. Goldie, *Environmental Catastrophes and Flags of Convenience – Does the Present Law Pose Special Liability Issues?*, 3 PACE Y. B. INT'L L. 63, 89–90 (1991).
[7] *Supra* note 5.
[8] See generally ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), COST SAVINGS STEMMING FROM NON-COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL REGULATIONS IN THE MARITIME SECTOR, DSTI/DOT/MTC(2002)/8/final (hereinafter 'COST SAVINGS'), *attached to* submission of OECD to the 49th session of IMO's Marine Environment Protection Committee (MEPC), MEPC Doc. 49/INF.7 (2003). The figure '49' denotes a submission to MEPC's 49th session – further references to IMO Committee documents should be understood in similar vein.
[9] See generally H. Ringbom, *The Erika Accident and Its Effects on EU Maritime Regulation*, *in* CURRENT MARINE ENVIRONMENTAL ISSUES AND THE INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA 265 (M. H. Nordquist & J. N. Moore eds., 2001).

operating costs.[10] Thus, the very actors whose task it is to supervise and regulate the owners are effectively compelled to compete for the latter's patronage. Moreover, the generally secretive and fragmented nature of the shipping industry, together with clandestine efforts to use one-ship companies to shield owners' true identities and the reluctance among owners to co-operate and share information, all add to a lack of compliance incentives.[11]

In relation to the 'human element' of shipping, cost-cutting operators are known to hire cheap and ill-trained seafarers. This often results in low crew morale, high turnover and, more dangerously, overwork, fatigue and increased risks of negligence and accidents. On their part, cargo owners and charterers such as the oil companies often favour low-cost sub-standard vessels. Indeed, the chartering departments of major oil corporations are known to prefer cheaper, 'spot' market tonnage in order to enjoy lower freight rates.[12] This commonly drives freight rates down, to the advantage of the sub-standard operators.

At the same time, other actors in the maritime industry are susceptible to cost-cutting pressures. The marine insurers, for instance, compete intensely for shipowners' business, often forgoing higher premia and deductibles for riskier ships.[13] Meanwhile, shipbuilders respond to the cost-conscious culture by using cheaper high-tensile steel which renders ships lighter but more vulnerable.[14] Shipyards have also been known to impose pressure on classification societies keen on their business to lower certification standards.[15] In addition, banks, mortgagees and ship financiers may neglect to press for higher operational standards.

For their part, many ports worldwide are unable or unwilling to conduct thorough inspections on visiting ships due to the expenses and delays involved. Not uncommonly, port inspectors may even be in complicity with classification societies to gloss over deficiencies in the

[10] COST SAVINGS, *supra* note 8, at 44. [11] These issues are elaborated upon in Ch. 2.
[12] Lloyd's List, *Oiling the Wheels of Misfortune*, 27 Jan. 2000. About half of the Very Large Crude Carrier (VLCC) market trades on the 'spot' market at any one time, see Third Report of the Expert Group on Impact Assessment of the Proposed Amendments to MARPOL Annex I, MEPC Doc. 50/INF.4 (2003).
[13] In fact, operators of whatever quality can find coverage if they look hard enough, and at prices which cause them little pain, see REMOVAL OF INSURANCE, *supra* note 5, at 65–6.
[14] In addition, shipowners are known to demand standard quality ships to be delivered fairly quickly at the lowest price, see INTERTANKO, TANKER TRENDS AND ECONOMICS 26 (2002).
[15] Lloyd's List, *A Ship for Whose Convenience?*, 12 Mar. 2001.

interest of faster 'turn-around' of ships. Overall, the whole emphasis in the shipping industry on cost-cutting and short-term profitability has led to a discernible decline in safety and pollution prevention standards.[16] This exerts a general downward pressure on freight rates to the detriment of the quality operator.

The above account of maritime trading realities, albeit simplified, goes to the heart of why proper compliance with the relevant rules and standards is often absent in the ship transportation industry. Whenever any actor tries to maintain safety and pollution prevention standards, he is faced with the prospect of losing business to cheaper competitors. At the same time, the proliferation of new rules and regulations actually confers a further competitive advantage on the sub-standard operator, who does not have to contend with the ever-increasing costs of compliance.[17] Overall, adequate incentives for compliance are lacking. In the result, a cycle of competition and lowering of standards is created, typically resulting in a 'race to the bottom' phenomenon.[18]

The situation is markedly worse in regions of the world where trading practices are less transparent, maritime administrations under-developed and port state control lacking. As such, it is market wisdom that many sub-standard ships engage in regional trades, rarely venturing into US or European waters where port state enforcement is known to be stricter.[19] Thus, as the competitive nature of the shipping industry continues to erode the effective enforcement of regulations, political pressure grows on legislators worldwide to impose ever more stringent laws on ship operators. Such pressure is especially evident in the aftermath of politically charged events such as vessel accidents causing massive ocean and coastal pollution.

That said, the maritime world comprises a diversity of actors, many of whom are perfectly responsible operators. Therefore, one needs to be

[16] See generally REMOVAL OF INSURANCE, *supra* note 5, at 23 and COST SAVINGS, *supra* note 8, at 44.
[17] COST SAVINGS, *supra* note 8, at 6.
[18] L. Goldie, *Recognition and Dual Nationality – A Problem of Flags of Convenience*, 39 BRIT. Y. B. INT'L L. 220, at 221 (1963). On trade policy, regulatory competition and the 'race to the bottom', see e.g. D. VOGEL, TRADING UP: CONSUMER AND ENVIRONMENTAL REGULATION IN A GLOBAL ECONOMY (1995) and REGULATORY COMPETITION AND ECONOMIC INTEGRATION: COMPARATIVE PERSPECTIVES (D. Esty & D. Geradin eds., 2001).
[19] For the view that intransigent owners may still trade among developing countries with limited resources for port state inspections, see H. E. Anderson III, *The Nationality of Ships and Flags of Convenience: Economics, Politics and Alternatives*, 21 TUL. MAR. L. J. 139, at 168 (1996).

discriminating before painting the whole industry with the same broad brushstroke. However, it remains true that even the most reputable of actors – states and industry alike – often experience commercial pressures and are susceptible to lapses of judgment or even outright transgressions. Hence, it is not uncommon for respectable owners, charterers, classification societies or insurers to compromise on regulatory standards in the face of tight schedules, severe competition and unprofitable market conditions.[20] This is borne out by the fact that a good number of ships which have been involved in serious accidents or detained by port state control authorities in recent years have been registered in and owned, operated, chartered, classed, insured or inspected by fairly reputable actors.

The challenge of eradicating sub-standard shipping and of ensuring safer ships and cleaner oceans will thus have to be met with greater enforcement rigour. The problem is largely due to the fact that the international regime formation process which generates the relevant regulations often fails to lay down optimum conditions for compliance and effectiveness. In particular, the regulatory process at the International Maritime Organization (IMO) – the primary global forum for regulating ship safety and pollution issues – often omits to address the ship operators' lack of *incentives* to install or practise adequate safety and pollution control features.

Similarly, in laying down obligations for states to provide port reception facilities for ship wastes, the relevant IMO treaties such as MARPOL 73/78[21] do not adequately address most states' lack of incentives to do so. As far as the system for reviewing implementation is concerned, IMO procedures for reporting compliance and analysing state reports are lacking. In general, the treaties tend to emphasise the technical features of safety and pollution control measures without going to the root causes of sub-standard shipping, *viz*. the absence of incentives for compliance and the lack of enforceability of measures. Hence, the scenario of proliferating rules with inadequate implementation is all too pervasive in the maritime sector, be it at the international, regional or national levels.

Such regime deficiencies are themselves the direct result of features in the ship transportation industry which actively impede implementation

[20] COST SAVINGS, *supra* note 8, at 51.
[21] 1973 International Convention for the Prevention of Pollution from Ships, as amended by the 1978 Protocol thereto, 1341 U.N.T.S. 3; 17 I.L.M. 546 (1978) (in force 2 Oct. 1983). See Ch. 3 for details.

of and compliance with rules. As analysed later, the nature of the industry and the dynamics of interaction among its various actors frequently lie at the root of sub-standard shipping practices. In this regard, the present work aims to assess the systemic compliance challenges faced not only by the international regime formation system (comprising, *inter alia*, IMO and the state actors), but also by the ship transportation industry itself. Among the issues to be analysed are the cost-conscious nature of the industry, its lack of incentives for responsible behaviour and the conflict of interests facing actor-regulators like IMO, flag and port states, private classification societies and marine insurers.

Within the maritime sphere, the systemic deficiencies in the international regulatory system are often met by states or group of states resorting to unilateral or regional laws and stringent port state control action.[22] This is particularly common in the aftermath of ship pollution incidents which attract huge media and political attention. In recent years, incidents such as the *Amoco Cadiz*, *Exxon Valdez*, *Erika* and, lately, the *Prestige*, have pressured states to impose ever more stringent regulation on the shipping industry. In this regard, unilateral and regional action going beyond internationally agreed standards are often less than desirable as they undercut the ideals of uniformity and certainty which the multilateral process seeks to uphold. Yet, in the face of continued intransigence by sub-standard ship operators, unilateral and regional action have become preferred political options for environmentally conscious states which view multilateral decision-making to be too slow and encumbered.

Overall, the shortcomings of marine pollution regulation can be explained by the quartet of variables expounded by the scholars E. B. Weiss and H. Jacobson in their study of compliance with international treaty requirements. These factors are: the nature of the accord in question, the nature of the activity being regulated, the international environment within which regulation takes place, and features peculiar to individual state parties to treaties.[23] While these factors are frequently

[22] See generally J. Hare, *Port State Control: Strong Medicine to Cure a Sick Industry*, 26 GA. J. INT'L & COMP. L. 571 (1997); A. Clarke, *Port State Control or Sub-Standard Ships: Who is to Blame? What is the Cure?*, LLOYD'S MAR. & COMM. L. Q. 202 (1994); G. C. KASOULIDES, PORT STATE CONTROL AND JURISDICTION: EVOLUTION OF THE PORT STATE REGIME (1993); and Z. O. ÖZÇAYIR, PORT STATE CONTROL (2004).

[23] See ENGAGING COUNTRIES: STRENGTHENING COMPLIANCE WITH INTERNATIONAL ACCORDS 4 (E. B. Weiss & H. Jacobson eds., 1998). See also THE IMPLEMENTATION AND EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL COMMITMENTS: THEORY AND PRACTICE (D. Victor et al. eds., 1998); and R. Mitchell

interconnected in any analysis of environmental regulation, it will become apparent that in the specific realm of vessel-source marine pollution, the ship transportation industry's resistance or equivocation toward regulation is a major factor impeding compliance with and effectiveness of the relevant regulatory regimes.

In view of the diversity, influence and differing interests of target actors in the marine pollution arena, their behaviour in affecting compliance with rules and regulations merits special consideration. Thus, it will be argued in this work that the peculiarities of the ship transportation industry substantially affect the nature and effectiveness of the relevant accords, particularly in relation to the lack of incentives among state parties and industry actors to implement these accords. Consequently, prescriptive efforts to enhance the regulation of vessel-source pollution should be directed toward influencing changes within the shipping industry itself. Since this factor can be identified as the root cause of the compliance problem, it should ideally be the most suitable (though not necessarily susceptible) candidate for 'manipulation'.[24]

Ostensibly, such a strategy would be the most cost-effective means of fostering behavioural change among the relevant actors, thereby providing optimal incentives for compliance with safety and pollution control regimes. Prescriptions for achieving this goal are elaborated upon in this work. These include the inculcation of a culture of compliance throughout the ship transportation industry, the broadening of regulatory measures to encompass non-shipowner actors such as the cargo owners and classification societies, and the promotion of pro-active rule-making, legislative discipline and stakeholder equity within international regulatory agencies.

2. Regulating the Sources of Marine Pollution

In economic parlance, all forms of pollution can be considered externalities of economic growth, the costs of which cannot be adequately internalised into the operator's cost-benefit analyses. Human-induced marine pollution exhibits the core features of the commons tragedy:[25]

et al., *International Vessel-Source Oil Pollution*, *in* THE EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL REGIMES: CAUSAL CONNECTIONS AND BEHAVIORAL MECHANISMS 33 (O. Young ed., 1999).

[24] Weiss & Jacobson eds., *supra* note 23 at 4–5.

[25] See G. Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968); and G. HARDIN, EXPLORING NEW ETHICS FOR SURVIVAL 254 (1972).

it is in large part introduced by economic activities accompanying growing human populations and changing consumption patterns, the negative costs of which fail to be incorporated into the operator's reckoning and are left to be shouldered by all participants in the societal system. Thus, economically rational shipowners and operators are led to engage in activities such as discharging wastes into the oceans and neglecting safety standards to the point of introducing risks of marine accidents – typical cases illustrating the tragedy of the commons.

It is trite knowledge that two-thirds of the earth's surface is made up of water and that the oceans form the very foundation of life itself. Half of the global human population live in coastal areas and are highly dependent on the sea for food, transportation and general livelihood. Human political and social development over the ages owed a great deal to the growth of maritime trade and commerce. Today, 95 per cent of world trade, by weight, continues to be conducted by sea.[26] Hence, in view of the crucial importance of the oceans to life, the pollution of the marine environment and its effects require serious attention.

The deleterious impact of marine pollution has been widely documented. In general, the degradation of the marine environment is most pronounced in coastal areas where rapid population growth, urbanisation and industrialisation have resulted in serious habitat loss and deterioration in the quality and productivity of the marine ecosystem.[27] Given the importance of the oceans to planetary ecology, the preservation of the oceans' environmental health has become a critical concern for the global community. To this end, the state parties to the United Nations Convention on the Law of the Sea (LOSC) are obliged to take measures that are necessary to prevent, reduce and control pollution of the marine environment from any source.[28] Numerous instruments ranging from multilateral conventions to 'soft law' pronouncements such as Agenda 21[29] have also reiterated the importance of marine environmental protection.

[26] R. R. Churchill & A. V. Lowe, The Law of the Sea 255 (1999).

[27] For the effects of marine pollution generally, see D. Brubaker, Marine Pollution and International Law: Principles and Practice (1993); R. Clark, Marine Pollution (1997); and J. Burger, Oil Spills (1997). For resource protection issues, see C. Joyner, *Biodiversity in the Marine Environment: Resource Implications for the Law of the Sea*, 28 Vand. J. Transnat'l L. 635 (1995).

[28] LOSC, art. 194.

[29] U.N. Doc. A/CONF.151/26/Rev. 1 (Vol. I) (1992), see particularly Ch. 17. See also the 1992 Convention on Biological Diversity, 31 I.L.M. 818 (1992), particularly its 1995 'Jakarta Mandate' on Marine and Coastal Biological Diversity, U.N. Doc. UNEP/CBD/COP/2/19.