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LAND-BASED SOURCES OF MARINE POLLUTION
THE GLOBAL FRAMEWORK FOR CONTROL

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I. INTRODUCTION

The world community has become increasingly aware that the oceans are interdependent. It discovered that land-based sources of marine pollution (LBSMP) originating in one state could impact on other states through the movement of ocean currents.[1] Acknowledging this as a large-scale problem, the Paris Convention for the Prevention of Marine Pollution from Land-based Sources was adopted in 1974[2] that defined LBSMP as:[3]

> the pollution of the maritime area (i) through watercourses, (ii) from the coast, including introduction through underwater or other pipelines, (iii) from man-made structures placed under the jurisdiction of a contracting party within the limits of the area to which the present convention applies.

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[1] LBSMP usually starts from a national source under a state's territorial sovereignty: Zajacek, "The development of measures to protect the marine environment from land -based pollution" (1996) 3 James Cook University Law Review 70. Coastal waters are often the most polluted while the open ocean is relatively clean: Churchill RR and anor, The Law of the Sea (1999, 3rd ed, Manchester University Press, Manchester) 332. Besides trans-boundary sources of LBSMP other sources include persistent organic pollutants (POPs) and pesticides, all of which have a cumulative impact on the marine and coastal environment: Walker, "Non-point source reducing its impact on coastal environmental quality", September 2002 at <www.mtsociety.org/Public_ outreach/danwakker.pdf> (visited March 2004). Pollutants are dangerous due to its cumulative effect as chemicals have poor solubility, their effects are long term, and they can travel long distances regionally and globally: United Nations Environmental Program (UNEP), Global Persistent Organic Pollutants Treaty, INC5/Johannesburg.

[2] (1974) 13 International Legal Materials 352. This Convention was replaced by the 1992 Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR Convention) where Article 1(e) excludes offshore installations from its scope. This is because the 1982 Convention deems pollution from oilrigs to be pollution from seabed (not land) activities.

[3] A protocol amended this definition in 1986 to include emissions through the atmosphere from land and man-made structures.

The 2001 Stockholm Convention on Persistent Organic Pollutants (POPs) followed this convention, which highlighted the need for solutions and for this to be shared by the international community in the same way as the oceans are shared.

International laws to control LBSMP first appeared as international custom. Owing to its vague and general nature, international initiatives were necessary to formulate more specific controls for this hazard. They included international legal and policy instruments that provided a more tailored legal framework while international management principles were absorbed into or applied within this framework. As early as the 1960s, social changes, scientific discoveries and technological innovations had resulted in the emergence of international principles for sustainable development that could be extended to LBSMP management. The principles included those on integrated coastal zone management (ICZM); environmental impact assessment; and the precautionary, polluter pays and cleaner production principles.[4] Strategies and programs for the sustainable management of natural resources were also advocated. For example, environmental impact assessment became an important tool for ensuring proper environmental behaviour and its evaluation, and it was increasingly required as a pre-condition for development activities.[5]

This article will describe and evaluate the effectiveness of the current international legal framework for LBSMP control.[6] It will examine the customary international law relevant to the resolution of LBSMP problems and discuss the treaty law. It will correlate the international

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[4] For example, the precautionary principle ensures that a substance or activity posing an environmental threat is prevented from adversely affecting the environment even if there is no scientific proof linking it to the damage: Cameron, "The precautionary principle: A fundamental principle of law and policy for the protection of the global environment" (1991) XIV:1 Boston College International and Comparative Law Review 2.

[5] UNEP, Environmental Impact Assessment, 13 UNEP Regional Seas Reports and Studies, 1990 at 1.

[6] Effectiveness refers to: (a) the mechanisms set forth in the treaty to ensure its implementation and compliance; (b) whether and to what extent the measures ensure the achievement of the treaty objectives; and (c) whether the obligations are written in such concrete terms that they can actually be implemented domestically: Nordic Council of Ministers, The Effectiveness of Multimedia Environmental Agreements: A Report from a Nordic Project, 1996:513 Tema Nord 5-6.

legal framework and international management principles. It will review that framework and evaluate the extent to which the benchmarks are reflected and applied in practice. Lastly, it will conclude that although the contemporary framework is more elaborate and advanced than customary international law, much work remains to be done for LBSMP control to be effective.

II. CUSTOMARY INTERNATIONAL LAW

Customary international law is a body of rules that binds the international community.[7] It comprises two interrelated elements: (a) consistent and general practice by states; and (b) *opinio juris.*[8] Under this regime, two broad and well-recognised interrelated principles provide a useful basis for the international control of LBSMP, namely, the principles of (a) good neighbourliness and (b) reasonableness.[9] In December 2001, the International Tribunal for the Law of the Sea delivered a judgment on LBSMP control in *MOX Plant*[10] that referred to it as an objective obligation. Prior to this case, no international tribunal had specifically dealt with this subject matter.

(a) Principle of Good Neighbourliness

The principle of good neighbourliness has been defined as follows:[11]

> No state may conduct, promote or sustain in its territory activities which cause other than inconsiderable and usual damage in the territory of a neighbouring state.

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[7] See Article 38(1)(b) of the Statute of the International Court if Justice.

[8] North Sea Continental Shelf Cases [1969] International Court of Justice Reports 3 (Germany v Denmark; Netherlands).

[9] International management principles are guidelines for sustainable development and are independent of the international regulatory framework. They apply to cross-jurisdictional and domestic LBSMP control.

[10] Mox Plant (Ireland v United Kingdom), Order of 3 December 2001 at <www.itlos/start2_en.html> (visited December 2003). For details see para 3(e) ibid.

[11] Hakappa K, Marine Pollution in International Law: Material Obligations and Jurisdiction (1981, Suomalainen Tiedeakatemia, Helsinki) 141. More broadly, this principle refers to state relations. Also, the United Nations Charter in the preamble provides that "the peoples of the United Nations" have expressed their determination to "live together in peace with one another as good neighbours".

This principle is expressly enunciated in Article 74 of the Charter of the United Nations[12] whereas other references are found in treaty practice and General Assembly resolutions on the development and strengthening of good neighbourliness between states.[13] The principle is based on *sic utere tuo ut alienum non laedas.* Under this principle, a state is obliged not to use or allow its territory to be used in a manner as to cause harm to the territory or rights of another state.[14] It is recognised as a general principle of international law[15] that has been confirmed in decisions such as *Trail Smelter.*[16]

(i) *Trail Smelter*

Trail Smelter was an arbitral proceeding on trans-boundary damage to crops and vegetation in United States territory caused by a Canadian copper smelter when it emitted sulphur dioxide into the atmosphere.[17] Applying the *sic utere tuo* principle, the Arbitral Tribunal stated:[18]

> [U]nder the principles of international law, as well as of the law of the United States, no state has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.

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[12] Article 74 provides: "Members of the United Nations also agree that their policy in respect to the territories...must be based on the general principle of good neighbourliness, due account being taken of the interests and well-being of the rest of the world, in social, economic, and commercial matters."

[13] For example General Assembly resolution 42/158, A/RES/42/158, 94th Plenary Meeting, 7 December 1987 at <www.u.org/documents/ga/res/42/a42r158.htm> (visited March 2004).

[14] Nygh PE and anor, Butterworths Concise Australian Legal Dictionary (1997, Butterworths, Sydney) 366.

[15] Lauterpacht H, Oppenheim's International Law (1955, 8th ed, Longmans, London) 346; Hickey, "Custom and land-based pollution of the high sea" (1978) 15 San Diego Law Review 422; Boyle, "Land-based marine pollution: Legal aspects" (1992) 16:1 Marine Policy 20, 24.

[16] United States v Canada (1941) 35 American Journal of International Law 648.

[17] For background see Kuhn, "The Trail Smelter Arbitration – United States and Canada" (1938) 32 American Journal of International Law 785; Bleicher, "An overview of international environmental regulation" (1972) 2 Ecology Law Quarterly 19.

[18] (1941) 35 American Journal of International Law 716.

Although *Trail Smelter* was on air pollution, it is relevant to other types of extraterritorial damage (including LBSMP damage) because it was concerned with:[19]

1. extraterritorial damage arising from the pollution of a shared environmental resources (frontier atmosphere);
2. pollution caused by the discharge of harmful chemicals from a fixed installation on land and whose operation was not unlawful *per se;* and
3. a state's responsibility based on its exclusive jurisdiction over the activities of the industry.

However, *sic utere tuo* was not the sole reason for the decision. The Arbitral Tribunal also relied on the doctrine of equitable utilisation. As a result, the case has a broad application as seen in subsequent cases such as *Lake Lanoux.*[20]

(ii) *Lake Lanoux*

Lake Lanoux concerned a dispute on prospective damage between Spain against France. A hydroelectric project had resulted in waters being diverted from the lake. The Arbitral Tribunal created to settle the dispute affirmed that the exercise of state rights was acceptable if it did not ignore the rights of another state. It held:[21]

> France is entitled to exercise her rights; she cannot ignore the Spanish interests. Spain is entitled to demand that her rights be respected and that her interests be taken into consideration.

The essence of this case was the use of internal waters that changed the water quality or volume flowing to another state that was deemed unreasonable. However, no prior negotiation or consent would be required if such use did not interfere with the water systems of other states. This principle is applied extensively in state practice in the West

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[19] Kuwabara S, The Legal Regime of the Protection of the Mediterranean against Pollution from Land-based Sources, (1984, Tycooly International Publishing Ltd, Dublin) 31.

[20] (1959) XII United Nations Reports on International Arbitral Award 285; (1959) 53 American Journal of International Law 156 (Spain v France).

[21] (1959) XII United Nations Reports on International Arbitral Awards 285.

and the Third World,[22] and it is also recognised by many authors.[23] Although the substance of *sic utere tuo* is closely related to the duty not to pollute as laid down in *Trail Smelter,* as a corollary it implies that state responsibility exists for environmental damage. The United Nations Secretary-General has stated:[24]

> There has been a general recognition of the rule that a state must not permit the use of its territory for purposes injurious to the interests of other states in a manner contrary to international law.

As a consequence, a breach of this rule amounts to a breach of an international obligation incurring state responsibility.

(b) State Responsibility

State responsibility is the liability a state incurs for committing a wrongful act against another state or against the national of another state in certain circumstances.[25] It refers to the breach of an international obligation requiring the payment of compensation as determined by international law.[26] Article 4 of the Draft Articles on State Responsibility provides:[27]

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[22] Since this principle relates to the standard of behaviour in state relationships it has received general international recognition. It has been said that "[j]ust as in private law between owners of neighbouring plots of land (the duty not to obstruct the natural flow of water downwards, to refrain from polluting a river or the air by infecting refuse or fumes...), there exist, as between neighbouring States also, universal legal standards of behaviour": Verzijl JH, International Law in Historical Perspective (1970, Bd III, Leyden) 415, quoted in Hakappa K, Marine Pollution in International Law: Material Obligations and Jurisdiction (1981, Suomalainen Tiedeakatemia, Helsinki) 142.

[23] Hakappa K ibid.

[24] 1949 Survey of International Law, United Nations Doc A/CN4/1 Rev 1 at 4.

[25] Wallace-Bruce, "State responsibility" in Blay S and ors (eds), Public International Law: An Australian Perspective (1997, Oxford University Press, Oxford, 212).

[26] In Chorzow Factory [1928] Permanent Court of International Justice, Pub Series A, No 17 at 27-28 the court stated that "it is a principle of international law that any breach of an engagement involves an obligation to make reparation".

[27] For International Law Commission, Report on Draft Articles on State Responsibility, 1996 see International Law Commission, State Responsibility Electronic Archive at <www.un.org/law/ilc/archives/statresp.htm> (visited March 2004).

> An act of a state may only be characterised as internationally wrongful by international law. Such characterisation cannot be affected by the characterisation of the same act as lawful by internal law.

There are two theories on state responsibility: (a) the risk or objective theory; and (b) the fault or subjective theory. According to (a), states incur responsibility once they commit an internationally wrongful act. According to (b), states incur responsibility for an international wrong subject to proof of intention or negligence.[28] On the duty to prevent environmental harm to other states, states cannot abuse their sovereign rights by committing acts within their territory that cause harm in other states. If the duty is breached, the state incurs international responsibility if damage and casual link are proven to exist.[29]

(i) *Corfu Channel*[30]

Corfu Channel dealt with claims arising from the death of and injury to British seamen when two British destroyers *(Saumarez* and *Volage)* struck mines in Albanian territorial waters in the Corfu Strait. The International Court of Justice found Albania responsible because it failed to fulfil a key international obligation regarding its territorial waters, namely, the safety of the Corfu Strait as an international water-way. The court held that the principle of sovereignty incorporated "the obligation of every state not to allow its territory to be used for acts contrary to the rights of other states".[31] Albania should have warned "the vessels of the danger into which they were running...[and the] grave omissions involve...international responsibility".[32] As a result, Albania had to pay compensation to the United Kingdom.[33]

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[28] Wallace-Bruce, "State responsibility" in Blay S and ors (eds), Public International Law: An Australian Perspective (1997, Oxford University Press, Oxford) 214-215.
[29] For discussion on Article 12 of the Draft Articles on State Responsibility see Crawford and ors, "The ILC Draft Articles on State Responsibility: Toward completion of a second reading" (2000) 94 American Journal of International Law 662.
[30] [1949] International Court of Justice Reports 4.
[31] Ibid 22.
[32] Corfu Channel (Assessment and Compensation) [1949] International Court of Justice Reports 244.
[33] Ibid.

Although *Corfu Channel* did not explicitly refer to LBSMP control, the underlying principles are the same. This means that a state has to adopt measures within its power to prevent damage to another state if it knows or ought to know that an activity within its territory will cause adverse effect elsewhere.[34]

(ii) *Gabcikovo-Nagymaros*[35]

Gabcikovo-Nagymaros refers expressly to state responsibility for internationally wrongful acts in the context of failure to protect an international watercourse from damage due to a lack of vigilance and preventative measures. Although this case is not on marine pollution, strictly speaking, it is relevant to LBSMP control since the subject matter is marine environmental protection.

This case concerned the construction and operation of the Gabcikovo-Nagymaros System of Locks on the River Danube, a "joint investment" venture by Hungary and Slovakia under a treaty they signed on 16 September 1977 that entered into force on 30 June 1978. In October 1989, Hungary decided to abandon the works at Nagymaros. However, in November 1991 Slovakia began operating the Gabcikovo Project and in October 1992 began work to close the river. A dispute ensued that was referred to the International Court of Justice for determination.

The court found that the 1977 treaty was not only meant for energy production but it had other aims such as the protection of the natural environment. To protect the environment, the states had agreed to obligations of conduct, performance and results under Article 5 of the treaty.[36] This meant that they had to find a satisfactory solution for the volume of water to be released into the old riverbed and side arms for both riverbanks, and maintain the river's water quality *inter alia*.[37]

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[34] Rayfuse, "International environmental law" in Blay S and ors (eds), Public International Law: An Australian Perspective (1997, Oxford University Press, Oxford) 363.

[35] For the text of the judgment see [1997] International Court of Justice at <http://212.153.43.18/icjwww/idocket/his/ihsjudgement/ihs_ijudgment_970925_frame.htm> (visited February 2004).

[36] Ibid. Although the initial parties in 1993 were Hungary and Czechoslovakia, the latter later divided into two independent states, the Czech Republic and Slovakia. Eventually, the parties were Hungary and Slovakia.

[37] Ibid para 140.

Since the court found that both states had failed to observe their responsibility, they had jointly committed internationally wrongful acts resulting in damage. Consequently, they had an equal obligation to pay and receive compensation from each other.[38]

(c) Reasonable Use

According to the principle of reasonable use, states may use the oceans but such use must be reasonable. They cannot abuse the right or interfere unreasonably with the freedom of other states on the high seas.[39] This principle implies a positive obligation when using the high seas taking into account the interest of other states.[40] In marine pollution cases, it may be inferred that the principle comes with an obligation not to unreasonably pollute[41] the marine and coastal waters.

(d) General Observations

The discussion above suggests that the general principles of customary international law do not specifically deal with LBSMP control but only with issues on trans-boundary or international environ-mental impact.[42] This has many inferences: (a) the domestic aspects of marine pollution control have been left to the will of sovereign states; (b) the general obligation under customary international law may be extended to LBSMP control; (c) states have an obligation not to cause unreasonable harm to the legitimate interests of other states concerning the marine environment; (d) if harm is caused there is an obligation to make

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[38] Ibid para 152.

[39] Boyle, "Land-based marine pollution: Legal aspects" (1992) 16:1 Marine Policy 20.

[40] Article 2 of the 1958 Convention on the High Seas. The same principle appears in Article 87(2) of the 1982 Convention. Icelandic Fisheries [1974] International Court of Justice Reports 4 dealt with this provision and required the parties to consider the interests of other states in the conservation and equitable exploitation of fishing resources in the high seas.

[41] Boyle, "Land-based marine pollution: Legal aspects" (1992) 16:1 Marine Policy 20-21.

[42] It is difficult to apply the principle of "good neighbourliness" to the use of the sea since it refers more to geographical neighbours: Gavouneli M, Marine Pollution from Offshore Installations, (1995, Martinus Nijhoff, Dordrecht) 83. The use of the oceans not only results in pollution or damage in areas under coastal jurisdiction but also in the high seas or deep-sea bed where coastal states have no authority.

reparation; (e) provisional measures may be sought to protect the environment in urgent cases, such as that seen in the protection of the Irish Sea from pollution in *MOX Plant;* and (f) treaties are needed to address the deficiencies and problems in this area.[43]

III. TREATY LAW

It was the principle enunciated in *Trail Smelter* that originally provided the basis for more specific and extensive treaty rules and principles on environmental protection.[44] Today, the main instruments relevant to LBSMP control are the 1972 Convention on the Prevention of Maritime Pollution by Dumping of Wastes and Other Matters (London Convention) and the 1982 United Nations Convention on the Law of the Sea (1982 Convention).

(a) Early Developments

Marine pollution was not a matter of concern in international relations until a few decades ago.[45] Between the end of World War II and 1970, referred to as the "blank period" in the development of the international law on LBSMP control,[46] only a few treaties were adopted that mostly concentrated on marine oil pollution caused by ships.[47] In 1958 the first Law of the Sea Conference was held resulting in four conventions on:

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[43] Goering, "Mediterranean Protocol on Land-based Sources: Regional response to a pressing transnational problem" (1980) 13 Cornell International Law Journal 331-332.

[44] Many international instruments have adopted the principle established in Trail Smelter including: (a) Principle 21 of the United Nations Conference on Human Development, (1972) 11 International Legal Materials 1416-1469; (b) Article 30 of the 1974 Charter of Economic Rights and Duties of States, United Nations Doc A/9559 (1974); (c) Article 194(2) of the1982 Convention; and (d) Principle 2 of the Rio Declaration, (1992) 31 International Legal Materials 874. The Rio Declaration is more extensive in scope than the principle established in Trial Smelter.

[45] M'Gonigle RM and anor, Pollution Politics and International Law (1979, University of California Press, Berkeley) 81.

[46] Meng Q-N, Land-based Marine Pollution International Law and Development, (1987, Graham and Trotman, London) 93. Although it was a blank period, it was also a period of growing awareness brought about by incidents such as the outbreak of the Minamata disease (fish poisoned by mercury) in Japan in 1950-1960: Karau, "The control of land-based sources of marine pollution: Recent international initiatives and prospects" (1992) 25 Marine Pollution Bulletin 80.

[47] The 1954 International Convention for the Prevention of Pollution of the Seas by

1. the Territorial Sea and the Contiguous Zone;
2. the Continental Shelf;
3. the High Seas; and
4. Fishing and Conservation of Living Resources of the High Seas.

Those conventions have been reflected in later treaties addressing marine pollution caused by trans-boundary pollution and pollution generation whose impact had occurred wholly within a coastal state. This departs from customary international law that understandably only addressed trans-boundary pollution owing to its genesis based on inter-state conflict. Although the conventions address both trans-boundary and domestic situations, they do not formulate any specific legal regime for LBSMP control. The closest it came to doing this was in Article 24 of the 1958 Convention on the High Seas applying to offshore installations and LBSMP. Article 24 provides:

> Every state shall draw up regulations to prevent pollution of the sea by the discharge of oil from ships or pipelines or resulting from the exploitation and exploration of the sea bed and its subsoil, taking account of existing treaty provisions on the subject.

Kindt has deemed offshore oilrigs as a land-based source of oil pollution[48] reflecting Article 3(c) of the 1974 Paris Convention for the Prevention of Marine Pollution from Land-based Sources.[49] Further, since Article 25(2) of the 1958 Convention on the High Seas provides states with "much discretion"[50] it may be used to impose obligations on them to regulate LBSMP.[51] Article 25(2) states:

Oil (amended 1969 and 1971) is an early multilateral initiative to protect the marine environment. Two others were adopted in 1969: (a) International Convention Relating to Intervention on the High Seas in Case of Oil Pollution; and (b) International Convention on Civil Liability for Oil Pollution Damage. However, they relate mainly to the prohibition and prevention of ocean oil pollution and pay less attention to other marine pollution problems.

[48] Kindt J, Marine Pollution and the Law of the Sea (1986, William S Hein and Co Inc, Buffalo) Volume II at 743.

[49] The OSPAR Convention replaced this convention where Article 1(e) excludes offshore installations from its scope. The reason is that the latter deems pollution from oilrigs to be pollution from seabed (not land) activities.

[50] Boyle, "Marine pollution under the law of the sea" (1985) 17:2 American Journal of International Law 347.

[51] For the historical debate see the draft articles prepared by the International Law Commission on the Law of the Sea: [1956] 2 Year Book of International Law

> All States shall cooperate with the competent international organizations in taking measures for the prevention of pollution of the seas or air space above, resulting from any activities with radio-active materials or other harmful agents.

The provisions above seem to be the only international environmental law provisions pre-1972. Although they apply to the high seas, they are arguably relevant to LBSMP because land-based sources also pollute the high seas. However, without more,4 they are insufficient to represent an effective regime for LBSMP control. For example, they do not define harmful substances, are confined to the high seas, and exclude coastal waters under national jurisdiction where most LBSMP occurs.[52]

(b) Developments after 1970

There was mounting environmental concern for the protection of the marine environment in the 1970s.[53] To this end, many treaties were entered into, some of them relevant to LBSMP control.

(i) 1972 London Convention

Dumping is generally deemed a distinct source of marine pollution, but most marine dumping is caused by land-generated industrial waste or land dredged silt.[54] The preamble to the London Convention states:

> Marine pollution originates in many sources, such as dumping and discharges through the atmosphere, rivers, estuaries, outfalls and pipelines, and it is important that states use the best practicable means to prevent such pollution and develop products and processes which will reduce the amount of harmful wastes to be disposed of.

Commission (1957, United Nations, New York) 285-286.

[52] Meng Q-N, Land-based Marine Pollution International Law and Development, (1987, Graham and Trotman, London) 95.

[53] Johnston, "The environmental law of the sea: historical development" in Johnston D (ed), The Environmental Law of the Sea (1981, Erich Schmidt Verlag, Berlin) 41.

[54] UNEP, Marine Pollution from Land-based Sources, (1992, UNEP Industry and Environment, Paris) 3; Office of the London Dumping Convention, The London Dumping Convention: First Decade and Beyond (1991, International Maritime Organization, London) 55-56.

In addition, Article 1 obligates the contracting parties to promote the effective control of all sources of marine pollution. Based on these provisions, it may be said that the Convention has created a general obligation on states to control LBSMP.

Since LBSMP mainly enters coastal waters through pipelines and coastal outfalls, a legal framework is therefore essential for its control. The London Convention addresses dumping without explicit reference to these pollution pathways and the internal waters of a state.[55] For example, Article 3(3) states that "sea" means all marine waters other than the internal waters of states and Article 7 on control measures focuses on vessels, aircraft and platforms.[56]

The Convention has undergone significant changes since its adoption in 1972.[57] For example, a 1996 Protocol[58] introduced the "polluter pays principle" and the "precautionary principle" in Article 3(1)-(2). Article 3 has also widened the definition of dumping in Article 4[59] to include the storage of waste or other matter in the seabed and the subsoils from vessels, aircraft, platforms or other man-made structures at sea, by the abandonment or toppling at site of platforms or other man-made structures at sea, for the sole purpose of deliberate disposal. In spite of this, the Protocol continues to fall short of explicitly redefining "sea" to include internal waters, outfalls and pipelines.

Other matters dealt with in the 1996 Protocol include the obligation of states to: (a) eliminate pollution caused by dumping and incineration of

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[55] Article 3(a) defines dumping as: "(i) any deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea; or (ii) any deliberate disposal at sea of vessels, aircraft, platforms or other man-made structures at sea".

[56] Article 7 of the London Convention requires the states parties to implement the Convention in relation to all vessels and aircraft that are: (a) registered in its territory or flying its flag; (b) loading matter that is to be dumped in its territory or territorial seas; and (c) under its jurisdiction (including fixed or floating platforms) and believed to be engaged in dumping.

[57] The London Convention entered into force on 30 August 1975 and was amended in 1978, 1980, 1989 and 1993: International Maritime Organization, Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matters at <www.imo.org/Conventions/contents.asp?topic_id=258&doc_id=681> (visited December 2003).

[58] Ibid.

[59] Article 1 of the London Convention prohibits pollution by dumping.

wastes or other matter at sea to the maximum practicable extent;[60] (b) strengthen technical cooperation and assistance; and (c) increase liability for marine pollution control. It also provides for: (a) a more comprehensive list for the issuing of permits for dumping (such as a waste prevention audit); (b) the consideration of waste management options; (c) an assessment of the potential effects of dumping;[61] (d) a monitoring system to verify the permit conditions;[62] and (e) an arbitral procedure to resolve disputes relating to compliance with permit conditions. This means that the states parties to the Protocol may use arbitration to settle their disputes.[63]

(ii) 1982 Convention

A primary objective[64] of the 1982 Convention was to establish the first comprehensive framework to protect and preserve the marine environment as seen in Part XII.[65] It provides general provisions on the control of all sources of marine pollution (Articles 192-206) and specific provisions on various types of marine pollution (Articles 207-222). Articles 192-206 deal with the general rights and obligations of states including cooperation at the international and regional levels. Articles 199-205 provide for contingency plans if pollution occurs and Articles 122-123 provide for cooperation to protect enclosed and semi-enclosed seas. The provisions lay the foundation for the global and regional framework to control LBSMP.[66]

Article 207 is the key provision that deals specifically with LBSMP. It provides that:

1. states shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources including rivers and pipelines taking into account

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[60] Article 2. Article 1 of the London Convention requires prevention of pollution by dumping.
[61] Annex 2 Articles 2, 5-6, 12-15.
[62] Ibid Article 16.
[63] Annex 3 Article 1.
[64] See preamble para 4.
[65] Articles 192-237; Charney, "The marine environment and 1982 United Nations Convention on the Law of the Sea" (1994) 28:4 International Lawyer 884.
[66] See Article 197.

internationally agreed rules, standards and recommended practices and procedures;
2. states shall take other necessary measures to prevent, reduce and control such pollution;
3. states shall try to harmonise their policies at the appropriate regional level;
4. states, acting through international organisations or diplomatic conference shall try to create global and regional regimes (including recommended practices and procedures) to prevent, reduce and control LBSMP taking into account the regional features, economic capacity of developing states and their need for economic development, which rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary; and
5. the regimes referred to in paragraphs 1, 2 and 4 above shall include those designed to minimise, as much as possible, the release of toxic, harmful and noxious substances (especially the persistent ones) into the marine environment.

The most important aspect of Article 207 is the obligation imposed on states to: (a) take into account internationally agreed rules, standards and recommended practices and procedures; (b) endeavour to harmonize their policies at the appropriate regional level; and (c) act through competent international bodies or diplomatic conferences to establish rules for LBSMP control. Gouilloud has argued that Article 207 has at least three important functions:[67]

1. it provides a stimulus for national legislatures to develop or improve their laws in this area of pollution control;
2. it encourages cooperation to this end by neighbouring states; and
3. it provides a legal basis for the integration of pollution control policy and relevant institutional arrangements especially in coastal areas.

However, the provisions of Article 207 have been criticised because they do not represent any progress in the development of customary

[67] Gouilloud MR, "Land-based Pollution" in Johnson DM (ed), The Environmental Law of the Sea (1981, Erich Schmidt Verlag, Berlin) 244.

international law and are the weakest on environment protection by far.[68] The obligations are more precautionary than onerous in nature when compared to later regional conventions and protocols. The terms are also too general to provide a useful guide for LBSMP control.

For example, Article 207 requires states to only consider internationally agreed rules, standards, and recommended practices and procedures. Further, whether they take any measures would depend on their national capabilities. Article 207 does not indicate what these internationally agreed rules and standards and "other measures" are, and it fails to provide the criteria to determine the suitability of the standards and measures. It does not require adherence to any minimum international standards established by international organisations and does not address the underlying obligation of due diligence found in customary international law. Its language is vague and imprecise, such as the references to the obligation of states to "endeavour" to harmonise their national policies at the appropriate regional level and "to establish global and regional rules and standards" for LBSMP control. All of the above tend to decrease commitment or obligation, creating greater scope for states to claim rights than accept obligations. In sum, the obligations are so broadly formulated that Article 207 has little practical effect.[69]

An effective system to resolve marine environmental disputes between coastal states is important, and it should encourage the development of regional marine and coastal environmental standards. Therefore, Part XV (Articles 279-299) of the Convention on the settlement of disputes is commendable because it has a wide reach on the subject matter of disputes between states, which may be extended to disputes on the protection and preservation of the marine environment.[70] In addition,

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[68] Rose, "Protection and conservation of the marine environment" in Tsamenyi M and ors, The United Nations Convention on the Law of the Sea: What it means to Australia and Australia's Maritime Industries (1996, Centre for Maritime Policy, University of Wollongong, Australia) 155.

[69] Churchill RR and anor, The Law of the Sea (1999, 3rd ed, Manchester University Press, Manchester) 380.

[70] Compare the dispute settlement regime of the 1982 Convention: Adede AO, The System for Settlement of Disputes Under the United Nations Convention on the Law of the Sea (1987, Martinus Nijhoff, Dordrecht); Rosenne S and anor (eds), United Nations Convention on the Law of the Sea, 1982: A Commentary (1989, Martinus Nijhoff, Dordrecht).

the compulsory nature of this system will advance the cause further,[71] aided by Article 290 on provisional measures to prevent serious harm to the marine environment as seen in *MOX Plant.*

(c) Mox Plant

MOX Plant concerned the protection of the Irish Sea from radioactive pollution following a proposal to build the plant on England's coast. Ireland brought arbitral proceedings against the United Kingdom under the 1982 Convention when the latter would not suspend the authorisation of or stop the proposed plant.[72] Ireland pleaded that discharge from the plant was incompatible with the United Kingdom's obligations under the 1982 Convention to: (a) cooperate and protect the marine environment; (b) take all measures necessary to prevent, reduce and control pollution from all sources; and (c) minimise as much as possible the release of toxic, harmful and noxious substances, especially those that were persistent, from land-based sources.[73]

In the International Tribunal for the Law of the Sea, Ireland pleaded that the situation was urgent and requested for the indication of provisional measures under Article 290(5) of the 1982 Convention to suspend construction of the plant.[74] The United Kingdom argued that the request should be denied since the plant was not yet in operation.[75]

The tribunal eventually rejected Ireland's request in its Order of 3 December 2001.[76] Although it deemed the situation insufficiently urgent to justify provisional measures, it stated that the United

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[71] Article 286 is the main provision on compulsory dispute settlement and Article 288 provides that the decision is final.

[72] International Tribunal for the Law of the Sea, In the Dispute Concerning the MOX Plant, International Movements of Radioactive Materials, and the Protection of the Marine Environment of the Irish Sea (Ireland v United Kingdom), Request for Provisional Measures and Statement of Case of Ireland, 9 November 2001, paras 51-52.

[73] Generally see ibid para 114.

[74] Ibid para 150. See also the Joint Declaration of Caminos, Yamamoto, Park, Akl, Marsit, Eiriksson and Jesus JJ in MOX Plant, Order, 3 December 2001, para 27 at <www.itlos/start2_en.html> (visited December 2003).

[75] See International Tribunal for the Law of the Sea, Press Release, 29 November 2001.

[76] See MOX Plant, Order of 3 December 2001 at <www.itlos/start2_en.html> (visited December 2003).

Kingdom had a duty to cooperate under the fundamental principles on marine pollution control found in Part XII of the 1982 Convention and under general international law.[77] In other words, although Article 32(1) of the OSPAR Convention did not provide for provisional measures, the tribunal was not precluded from prescribing provisional measures under Article 290(5) of the 1982 Convention.[78] It also required the parties to consult forthwith to:[79]

> exchange further information with regard to possible consequences for the Irish Sea arising out of the commissioning of the MOX Plant; monitor risks, or the effects, of the operation of the MOX Plant for the Irish Sea; and devise, as appropriate, measures to prevent pollution of the marine environment, which might result from the operation of MOX Plant.

MOX Plant has made a significant contribution to the development of the international law on LBSMP control by interpreting the scope of Part XV of the 1982 Convention and finding that it is non-exclusive in relation to dispute settlement. The tribunal observed:[80]

> [E]ven if the OSPAR Convention, the EC Treaty and the Euratom Treaty contain rights or obligations similar to or identical with the rights and obligations set out in the Convention, the rights and obligations under those agreements have a separate existence from those under the [1982] Convention on the Law of the Sea.

However, Nelson V-P's separate opinion has suggested that the scope of Article 282 of the Convention is narrower than anticipated. He stated:[81]

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[77] Ibid para 82.

[78] Lagoni, "Regional protection of the marine environment in the North East Atlantic under the OSPAR Convention of 1992", Paper presented at the Conference on Stockholm Declaration and Law of the Marine Environment, Stockholm University, 22-25 May 2002 at 11.

[79] See MOX Plant, Order of 3 December 2001, para 89 at <www.itlos/start2_en.html> (visited December 2003).

[80] Ibid para 50.

[81] Separate Opinion of Nelson V-P, MOX Plant, Order of 3 December 2001, para 7 at <www.itlos/start2_en.html> (visited December 2003). Para 51 of the Order states "that the application of international law rules on interpretation of treaties to identical or similar provisions of different treaties may not yield the same results, having

> I am in the agreement with the Tribunal that 'for the purpose of determining whether the Annex VII arbitral tribunal would have prima facie jurisdiction, Article 282 of the convention is not applicable to the dispute submitted to the Annex VII arbitral tribunal.' However, I have doubts concerning the reach of paragraph 51 which may well render article 282 and 281 ineffective.

Other provisions in the 1982 Convention may have the same effect. For example, the parties may choose alternative means of dispute settlement without having to submit to the Convention's compulsory adjudication procedure[82] or they may conclude treaties modifying or superseding the Convention's provisions.[83] However, such cross-referencing and interaction generate both options and overlapping.[84] *Southern Bluefin Tuna*[85] is an example where the Convention's compulsory adjudication procedure was undermined by the procedure provided under a trilateral regional agreement, the 1993 Convention for the Conservation of Southern Bluefin Tuna (Bluefin Tuna Convention).[86] The Arbitral Tribunal in this case had: (a) found that the 1982 Convention fell "significantly short of establishing a truly comprehensive regime of compulsory jurisdiction entailing binding decisions";[87] (b) preferred to endorse consent-based agreements; and (c) challenged the viability of the compulsory nature of the dispute resolution regime of the 1982 Convention.[88]

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regard to, inter alia, differences in the respective contexts, objects and purposes, subsequent practice of Parties and travaux preparatoires".

[82] Article 280 of the 1982 Convention.

[83] Ibid Article 311.

[84] Sturtz, "Southern Bluefin Tuna Case: Australia and New Zealand v Japan" (2001) 28 Ecology Law Quarterly 467.

[85] Award on Jurisdiction and Admissibility, 4 August 2000, (2000) 39 International Legal Materials 1359 para 66.

[86] In this case, Australia and New Zealand complained that Japan had over fished the tuna thereby violating obligations under the Bluefin Tuna Convention and the 1982 Convention. Although the Arbitral Tribunal issued protective provisional measures against Japan, it had to deal with the overlap issue first of all, namely, whether the Bluefin Tuna Convention undermined Part XV of the 1982 Convention: ibid.

[87] Ibid para 62.

[88] See Bluefin Tuna Convention Article 16; Sturtz, "Southern Bluefin Tuna case: Australia and New Zealand *v* Japan" (2001) 28 Ecology Law Quarterly 479. However, in the tribunal, Keith J came to a very different conclusion finding that the 1982 Convention had jurisdiction because Article 16 of the Bluefin Tuna Convention did not exclude such jurisdiction: Southern Bluefin Tuna, Award on Jurisdiction ad

The final determination in *MOX Plant* would depend on the forthcoming decision of another arbitral tribunal constituted under Annex VII of the 1982 Convention dealing with the next stage of Ireland's complaint. Irrespective of what the outcome will be, it is clear that the compulsory nature of the Convention's adjudicative system needs clarification. To be effective, the Convention requires a broader framework whose compulsory procedure is true to its name. When this happens, effective cooperation in LBSMP control will begin to occur.

(d) Integrated Coastal Zone Management

Since most LBSMP is concentrated in the coastal zone, a regime for ICZM has important implications for coastal states.[89] The Environment Directorate of the Organisation for Economic Cooperation and Development (OECD) has defined ICZM as:[90]

> the management of the coastal zone as a whole in relation to local, regional, national and international environmental goals. It imposes a particular focus on the interaction between the various activities that occur in the coastal zone and between coastal zone activities and activities in other regions.

As a result, ICZM may be said to be a continuous and dynamic process by which decisions are made for the sustainable use, development, and protection of coastal and marine areas and resources.[91] In an era of changing beliefs, behaviour and social infrastructures, ICZM has emerged as a new approach for dealing with the many inter-connected problems of coastal zone management. Coastal communities and coastal managers have realised that *ad hoc* decisions often result in

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Admissibility, note 5 above at 1401 para 30.

[89] The coastal zone is seen as encompassing those areas of the sea, land and waterways in close proximity to the coastline including offshore islands: Singer and anor, "Coastal management policy considerations" in Davie JDS and anor, Coastal Zone Management in Northern Australia, Proceedings of a Workshop held in conjunction with the Conference on Coasts and Tidal Wetlands of the Australian Monsoon Region, Darwin, Australia, November 1984 at 27.

[90] OECD Environmental Directorate, Environment Committee, Report on Coastal Zone Management: Integrated Policies and Draft Recommendation of the Council on Integrated Coastal Zone Management, Paris, 16 October 1991 at 37.

[91] Cicin-Sain B and anor, Integrated Coastal and Ocean Management: Concepts and Practice (1998, Island Press, Washington DC) 39.

unwise policy choices bringing about the degradation of coastal and marine environments by increased beach/ coastal erosion, nutrient flows, run-off, sewage, and litter pollution. Decision-makers should therefore decide and act in a coordinated, integrated manner to reduce costs and minimise losses caused by *ad hoc,* duplicative and/or short-term management decisions.[92]

Many economic sectors including those on maritime and natural resources, tourism and conservation tend to exist in the coastal zone. In harmonising[93] and balancing their interests with the natural coastal system,[94] ICZM seeks to unify policy components across the board to achieve comprehensiveness, aggregation and consistency.[95] A report in Australia has stated that more than 80% of marine pollution affecting Australian seas comes from the land. Consequently, an integrated policy approach to the coastal areas, seas and oceans is needed to minimise ocean pollution.[96]

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[92] In 1993, the Australian Resource Assessment Commission Inquiry into the Coastal Zone examined in detail the reports and recommendations on coastal issues from 1960-1980. The inquiry concluded that coordination and integration were needed to overcome the short term and fragmented approach to management, the main cause of continuing problems concerning the degradation of the coastal zone: Commonwealth of Australia, Resource Assessment Commission, Coastal Zone Inquiry, Final Report (1993, Australian Government Publishing Service, Canberra).

[93] Para 4 of the preamble to the 1978 Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution states that there is a "need to develop an integrated management approach to the use of the marine environment and the coastal areas which allows the achievement of environmental and development goals in a harmonious manner".

[94] Kildow, "The roots and context of the coastal zone management" (1997) 25:3 Coastal Management 254; Scura and anor, "Lessons for integrated coastal zone management: The ASEAN experience" in Chua TE and anor (eds), Aquatic Living Resources Conference Proceedings, International Centre for Living Aquatic Living Resources, Manila, 1992 at 37.

[95] Integration in coastal management may embrace the following dimensions: inter-governmental, geographical (land-water interface), intersectional and interdisciplinary. This improved management will save marine environments and help the health of coastal communities. Since the latter depends on the health of coastal ecosystems, the economic aspect is for an ecologically sustainable marine-based industry that will promote investment, employment and economic returns.

[96] Australia, Australia's Oceans New Horizons – A Commonwealth Agenda, 1997 page 3 at <www.deh.gov.au/coast/index.html> (visited March 2004).

The ICZM approach has many benefits including the coordination of research efforts, harmonisation of norms and provision of criteria for discharge controls and standardisation of data and procedures.[97] Within this framework, projects with a potential for pollution are discouraged or modified to an acceptable level in conformity with specified standards.[98] For example, ICZM helps the management of activities to diffuse sources of pollution such as run-off from farms, forest clearing, and city streets.[99] Thus, LBSMP control can be very effective within an integrated management regime.[100]

The principle of ocean management in an integrated and sustainable way is enshrined in the preamble to the 1982 Convention. Although the Convention provides the legal basis for implementing the management principles of sustainable development of marine and coastal environment and resources,[101] it does not provide a framework for management. It does not guide states on how to govern the ocean and coastal areas in an integrated manner, how to deal with the effects of such use, or how to coordinate ocean and coastal management.[102] Overlapping domestic authorities in coastal management, competing uses of coasts and oceans, and the Convention's inadequate approach to ICZM pose problems too. For example, the precautionary principle's definition is unsatisfactory, while the principles on polluter pays and on cleaner production are absent from this regime.[103]

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[97] Pitts D, Analysis of Strategic Planning Processes and Initiatives for Coastal Zone Management, Resource Assessment Commission Consultancy Report, Commonwealth of Australia, 1993 at 53.

[98] Clark JR, Coastal Seas the Conservation Challenge (1998, Backwell Science, Oxford) 41.

[99] Ibid.

[100] Kelleher G and anor, "Guidelines for establishing marine protected areas", Marine Conservation and Development Report, 1991 at 1.

[101] Chapter 17 of Agenda 21 makes this issue clear in several instances. See Tsamenyi M, "Mechanisms for integrated resource management", Paper presented at the 29th Annual Conference of the Law of the Sea Institute, Denpasar, Bali, 19-22 June 1995 at 22; Kimball, "The UN Conference of the Law of the Sea and marine environmental protection" (1995) 7 Georgetown International Environmental Law Review 746.

[102] Cicin-Sain B and anor, Integrated Coastal and Ocean Management: Concepts and Practice (1998, Island Press, Washington DC) 72.

[103] By adopting the management principles in marine environmental resource planning and implementation in Chapter 17 of Agenda 21, it was recognised that current sectoral approaches were inadequate for the purposes of LBSMP control: Tsamenyi BM, "Mechanisms for integrated resource management", Paper presented at the 29th

IV. SOFT LAW

International environmental concern peaked at the United Nations Conference on the Human Environment held in Stockholm in June 1972. The Conference produced the 1972 Stockholm Declaration and Action Plan. Since then, several other initiatives have sprouted good intentions and "soft law".

For example, in 1985 the Governing Council of UNEP adopted the Montreal Guidelines on the Protection of the Marine Environment from Land-based Sources to assist governments to develop appropriate bilateral, regional and multilateral agreements.[104] In June 1992, the Earth Summit was held in Rio de Janeiro on the 20th anniversary of the Stockholm Conference that gave the international community the chance to establish new environmental priorities.[105] Two major global conventions on climate change and bio-diversity were adopted including the following soft law instruments: Agenda 21, the Forests Principles, and the Rio Declaration.[106] Of these, Agenda 21 is most relevant to LBSMP control.

In 1995, UNEP convened the Conference on the Protection of the Marine Environment from LBSMP in Washington (Washington Conference) in response to the recommendations of Chapter 17 of Agenda 21.[107] It became a major step towards the protection of the marine environment from LBSMP. The conference also adopted unanimously the Washington Declaration on Protecting the Marine Environment from Land-based Sources and a Global Program of Action for the Protection of the Marine Environment from Land-based Activities (1995 GPA).[108]

Annual Conference of the Law of the Sea Institute, Denpasar, Bali, 19-22 June 1995.

[104] Fisher, "Land-based pollution of the marine environment" (1995) 12 Environmental and Planning Law Journal 120.

[105] UNCED, United Nations DOC A/Conf 151/5/Rev 1, 13 June 1992; (1992) 31 International Legal Materials 876.

[106] Wensley, "Global trends: The emergence of international environmental law" in Boer B and ors, Environment Outlook Law and Policy (1994, Federation Press, Sydney) 9.

[107] Para 17.26 of Agenda 21.

[108] UNEP, Report on Marine Environment – Washington Declaration – Global Program of Action [1996] 26:1 Environmental Policy and Law 37-51.

(a) 1972 Stockholm Declaration and Action Plan

Although the Stockholm Declaration and Action Plan represent soft law,[109] they address various aspects of environmental deterioration[110] and for the first time provide principles dedicated to the prevention and control of marine pollution including the urgent control of LBSMP.[111]

The Stockholm Declaration consists of a preamble with a common commitment by the states parties to protect the human environment. There are 26 principles to inspire and guide the world community to preserve and enhance its physical environment, including the implied protection against trans-boundary and domestic LBSMP. Principle 1 recognises that individuals have certain fundamental rights including an environment of quality that allows a life of dignity and well being for which they bear "a solemn responsibility" to protect and improve for present and future generations.

While the expression LBSMP is not mentioned explicitly in the Stockholm Declaration, the spirit of some of the principles relates closely to the control of the problem. An example is Principle 6 whose broad language includes the discharge of pollution on land, at sea and in the air.[112] Principle 7 implements Principle 6[113] as it specifically refers to marine pollution from all sources and obligates states to prevent sea pollution. Principle 21 also extends state responsibility to affected areas under national jurisdiction and beyond.[114]

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[109] (1972) 11 International Legal Materials 1421. There were 113 states at the conference that produced a Master Plan by consensus to protect the global environment: Angsman and anor, "The Stockholm Conference: A synopsis and analysis" (1973) 8 Stanford Journal of International Studies 31.

[110] The Preparatory Committee, in its report to General Assembly in 1971, stated that "the Declaration should not formulate legally binding provisions, in particular, as regards relations between states and individuals": United Nations Doc A/Conf 48/PC/19, 1971 paras 27-32.

[111] Principle 7 of the Stockholm Declaration.

[112] Timagenis GRJ, International Control of Marine Pollution (1980, Oceania Publications Inc, Dobbs Ferry) 90.

[113] Meng Q-N, Land-based Marine Pollution International Law and Development (1987, Graham and Trotman, London) 97.

[114] Okidi CO, Regional Control of Ocean Pollution: Legal and Institutional Problems and Prospects (1978, Sijhoff and Noordhoff, The Netherlands) 2.

The Action Plan has 109 recommendations on management, environmental assessment and other supporting measures,[115] some of them relevant to LBSMP control. For example, Recommendation 71 calls for the use of best practicable means so that the release of toxic substances (such as heavy metals and organochlorin compounds) into the environment may be minimised. Recognising that LBMSP may be potentially hazardous to marine ecosystems, Recommendation 86(f) requires strengthened controls over these sources of pollution. Recommendation 92(b) calls upon states to act early to control domestically all significant sources of marine pollution including land-based sources.

However, the Stockholm Declaration is generally a non-binding and passive legal instrument without control mechanisms. The provisions on LBSMP control are also too flexible and broad.[116] Nonetheless, the Declaration is important because it heralds the start of international environmental law on LBSMP control and represents the international community's sense of dedication to the establishment of basic rules on international environmental law.[117] It focuses international attention on the more prescriptive standards and paves the way for further initiatives in the area, such as the 1985 Montreal Guidelines and Agenda 21. Further, in 1995 the Washington Conference produced the Global Program of Action for the Protection of the Marine Environment from Land-based Sources (GPA) specifically addressing LBSMP control.

(b) 1985 Montreal Guidelines[118]

The Montreal Guidelines includes national legislation for the protection of the marine environment from LBSMP. They provide a checklist of provisions that governments may select, adopt or elaborate, as appropriate, to meet the needs of specific regions to control LBSMP.[119]

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[115] Part B of the Action Plan has 10 recommendations on marine pollution under the heading "identification and control of pollutants of broad international significance".

[116] Zajacek, "The development of measures to protect the marine environment from land-based pollution" (1996) 3 James Cook University Law Review 72.

[117] Birnie PW and anor, International Law and the Environment (2002, Oxford University Press, Oxford) 1.

[118] UNEP, "Protection of the Marine Environment against Pollution from Land-based Sources", UNEP/WG.120/3 (Part IV); (1985) 14 Environmental Policy and Law 235.

[119] UNEP, "Protection of the Marine Environment Against Pollution from Land-based Sources" (Montreal Guidelines), Environmental Policy and Law, 1985, Volume 14 at 77. This gave options to states to take into account the Guidelines.

They identify the responsibilities needed to protect and preserve the marine environment, provide provisions that prevent trans-boundary pollution, and adopt measures against LBSMP and so forth.[120] There are the usual provisions on definitions, general obligations, special measures, and specific strategies.[121] More specifically, the Guidelines draws upon regional treaties relevant to LBSMP control and incorporate the elements and principles found in the 1974 Paris Convention,[122] the 1974 Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention),[123] the 1980 Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources (Athens Protocol),[124] and the 1982 Convention (particularly Part X11).[125]

The significance of the Guidelines lies in the consolidation and globalisation of the obligations. They elaborate on and advance the LBSMP control regime particularly by defining "marine pollution" and "land based sources". For example, the words "marine ecosystems" instead of "marine life" are used [126] to indicate that both living and non-living factors may affect and pollute the marine environment. Offshore facilities have been included for the first time in the definition of "land based sources".

Further, a management plan may be used to set aside certain important ecologically or biologically sensitive areas, and to especially protect them.[127] Guideline 7 provides that states should, "consistent with international law, take all appropriate measures...to protect certain areas to the fullest possible extent from pollution, including from land-based sources." The specific strategies are found in three Annexes that deal with: (a) the protection, preservation and enhancement of the quality of the marine environment; (b) the classification of substances;

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[120] Montreal Guidelines 2-9; UNEP/WG 120/3 (Part IV).
[121] See Guidelines 1-19; Annexes 1-3.
[122] (1974) 13 International Legal Materials 352.
[123] Ibid 546.
[124] (1980) 19 International Legal Materials 869; Brown ED, The International Law of the Sea (1994, Dartmouth Publishing Company, Aldershot) 349.
[125] Fisher, "Land-based pollution of the marine environment" (1995) 12 Environmental and Planning Law Journal 120.
[126] See Article 1(4) of the 1982 Convention.
[127] Compare Articles 194(5) and 211(6) in the 1982 Convention, which are not clear on LBSMP control.

and (c) the monitoring and management of data.[128] These strategies provide a reference point for marine environmental quality standards, emission standards and environmental planning.[129]

However, the Montreal Guidelines to a large extent repeats the existing international legal obligations for LBSMP control in a non-binding instrument. It does not explain the concepts governing the meaning of the precautionary principle, the polluter pays principle, and the principle on cleaner production. More detailed content is therefore required including a more comprehensive checklist of relevant factors. There is also no logical scientific framework for the protection and management of the marine environment[130] and the provisions are only recommendations. Nevertheless, the Guidelines is still the first instrument to apply to LBSMP control exclusively and in this sense provides a sound basis for the negotiation of a binding global treaty.[131]

(c) Agenda 21

The Sustainable Development Agenda for the 21st Century, more commonly known as Agenda 21, is a comprehensive global action plan intended to provide a framework for the achievement of a sound, healthy and sustainable world environment.[132] It is based mainly on the Report of the 1989 Brundtland Commission.[133] The work began in the Preparatory Commission appointed by the United Nations General

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[128] UNEP, "Protection of the Marine Environment against Pollution from Land-based Sources (Montreal Guidelines)" (1985) 14 Environmental Policy and Law 77. Substances are classified according to a black and grey list. Black list substances include organic biocides such as persistent hydrocarbons of petroleum origin, carcinogenic substances, and by-products of biological and chemical warfare: Montreal Guidelines, Annex para 1.1-1.7. Grey listed substances are basically pollutants that are not on the black list, and are less noxious or more easily absorbed by natural processes.

[129] Fisher, "Land-based pollution of the marine environment" (1995) 12 Environmental and Planning Law Journal 121.

[130] Gray, "Integrating precautionary scientific methods into decision making" in Freestone D and anor (eds), The Precautionary Principle and International Law: The Challenge of Implementation (1996, Kluwer Law International, The Hague) 144.

[131] Boyle, "Land-based marine pollution: Legal aspects" (1992) 16:1 Marine Policy 20, 34. See also Birnie PW and anor, International Law and the Environment (2002, Oxford University Press, Oxford) 418.

[132] Adopted in Rio de Janeiro on 14 June 1992.

[133] World Commission on Environment and Development, Our Common Future, (1987, Oxford University Press, New York) (Brundtland Report).

Assembly where the agenda for a global conference to consider the implementation of the Brundtland Commission recommendations was prepared.[134] In doing so, the Preparatory Commission requested UNEP to evaluate the effectiveness and relevance of the Montreal Guidelines on LBSMP control and to convene an intergovernmental meeting of experts to consider the principles and programs from the scientific, technical, and economic perspective.[135]

After reviewing extensively the Guidelines, UNEP presented its report to an intergovernmental meeting of experts in Halifax, Canada in May 1991 where the continuing relevance of the Guidelines was considered and where the meeting agreed on a coherent strategy that included national, regional and global elements of LBSMP control. It identified various issues including strategies, finances, political commitment, and institutional responsibility,[136] and its recommendations were included in Chapter 17 of Agenda 21 following their acceptance.

Chapter 17, entitled "Protection of the Oceans, all Kinds of Seas, Including Enclosed and Semi-enclosed Seas and Coastal Areas, and the Protection, Rational Use and Development of their Living Resources", is devoted to protecting and preserving the world's oceans. Although marine pollution control did not focus in a separate instrument at the Earth Summit[137] since it is generally reflected in the 1982 Convention and other regional agreements,[138] Chapter 17 makes many important recommendations on marine pollution from all sources. They include:

1. the application of preventive, precautionary and anticipatory approaches to avoid degradation of the marine environment;
2. the prior assessment of activities that significantly impact upon the marine environment;

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[134] General Assembly Resolution 44/228 of 22 December 1989.

[135] See UNEP, Review of Development and Activities since 1985: Note by the Secretariat, United Nations Doc UNEP/MG/IG/1/2; for the text of Agenda Item 4 on "Review of development and activities since 1985", 6 February 1997 see <www.unep.org/unep/gpa/pol1b5.htm> (visited May 2004).

[136] For the conclusions of the Halifax meeting see ibid paras 26-30.

[137] Johnston, "UNCED: The coastal and ocean challenge" in Koh KL and ors, Seapol Singapore Conference on Sustainable Development of Coastal and Ocean Area in South East Asia: Post Rio Perspectives (1995, Faculty of Law, National University of Singapore, Singapore) 11.

[138] See Agenda 21, Introduction, Chapter 17.1.

3. the integrated protection of the marine environment;
4. the development of economic incentives to apply clean technologies; and
5. the application of the polluter pays principle.

Chapter 17 also recommends that the living standards of coastal populations particularly in developing states be improved[139] and there be additional financial resources, cleaner technologies and relevant research to support developing states to implement environmental commitments.[140] Many of the recommendations, including that on the integrated management of marine and coastal areas, are relevant to LBSMP control.[141]

(d) 1995 GPA

The deliberations of the participants at the Washington Conference resulted in the development of a global program of action for LBSMP control known as the GPA.[142] Generally, the GPA provides valuable insights into what is needed in order to deal more effectively with the LBSMP problem and with how states may be persuaded, encouraged or helped in this regard. It lists the criteria for the successful implementation of programs to establish and strengthen regional and

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[139] The objective of this program area, which is relevant to LBSMP control, is expressed as follows: "States, in accordance with the provisions of the UN Convention of the Law of the Sea on the protection and preservation of the marine environment, commit themselves in accordance with their policies, priorities and resources to prevent, reduce and control degradation of the marine environment so as to improve its life support and productive capacities": Program Area B, Chapter 17.22, Agenda 21.

[140] Ibid Chapter 17.23.

[141] Agenda 21 identifies seven core program areas for oceans in Chapter 17 including integrated management and sustainable management in coastal areas. The GPA highlights this issue providing that states should "focus on sustainable, pragmatic and integrated environmental management approaches and processes such as integrated coastal area management, harmonized, as appropriate, with river basin management and land use plans": Joint Inter Secretariat/Interagency Consultation of the Global Program of Action for the Protection of the Marine Environment from Land-based Activities, UNEP (Water) /LBA/IS-IA.1/6, Introduction, para 19.

[142] More than 100 states, 17 global and regional international organisations, and 27 non-governmental organisations attended the Conference: (1996) 26 UNEP Report, Rio Follow up, Marine Environment Environmental Policy and Law 11.

global networks, and encourage and facilitate interregional cooperation, among others.[143]

Chapter II of the GPA aims to develop comprehensive, continuing and adaptive programs of action at the national level to identify and assess the nature of the problem, the types of contaminants, the sources of degradation and so forth. It establishes priorities for each area affected (including the management objectives for such areas) and the source categories of pollution. Chapter III emphasises regional cooperation while the next chapter deals with international cooperation. Regional cooperation is noted as a crucial issue particularly when states have coasts in the same marine area in enclosed or semi-enclosed seas. As a result, the GPA calls upon states to participate actively in strengthening their existing regional and subregional relationships and to negotiate new regional conventions and programs.[144] The GPA also recommends that states should invite multilateral financing agencies and other development bodies to cooperate in their programs including the implementation of regional agreements.[145]

To implement the GPA program successfully, Chapter IV stresses the role of international cooperation in enhancing capacity building, technology transfer, and financial support.[146] At the global level, the GPA program recommends regular reviews of the world's marine environment. In terms of international cooperation, it has provision for capacity building, mobilisation of resources, information, experience and expertise.[147] It also provides for a clearing-house mechanism[148] that is a referral system through which decision-makers are provided with current information, practical experience, and scientific and technical expertise.[149] The GPA has called on states to take specific global measures to develop a global, legally binding instrument on

[143] Basiron, "The Global Program of Action for the protection of the marine environment from land-based activities," (1996) 3 Malaysian Institute of Maritime Affairs Bulletin 3.
[144] GPA para 31.
[145] Ibid para 32.
[146] Ibid para 45.
[147] Ibid para 50.
[148] United Nations, Commission on Sustainable Development, Overall Progress Achieved Since the United Nations Conference on Environment and Development, Report of the Secretary General, E/CN.17/1997/2, 31 January 1997 para 72.
[149] GPA para 51.

POPs[150] and to develop plans to deal with the inadequate treatment of wastewater or sewage. It also has proposals on the global nature of problems caused by the inadequate management and treatment of wastewater through pipelines.[151]

To implement the projects on LBSMP control, the GPA has adopted instructive policies and strategies earmarked especially for funding purposes. It has called upon UNEP, the World Bank, the United Nations Development Program, regional development banks, and other agencies within the United Nations system to support and strengthen measures and activities for the protection of the marine environment from LBSMP. It has been suggested that it is preferable that this effort be addressed in regional workshops to develop pragmatic and integrated coastal area management plans.[152]

In practice, assistance from the Global Environment Facility (GEF) is becoming significant under the GPA.[153] As part of its Operational Strategy, the GEF has undertaken a catalytic role to protect international waters from degradation caused mainly by pollution from land-based activities.[154] By mid-2000, the GEF works program had funded 753 projects totalling US$2,974 million, 13% of which was spent on international waters projects including LBSMP control,[155] while more than 60 regional and global NGOs have also been involved in the design and implementation of these projects.[156]

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[150] Ibid para 88(a). This resulted in the 2001 Stockholm Convention on Persistent Organic Pollutants.

[151] See generally note 143.

[152] Note that GPA paras 93-99 call for additional areas of international cooperation.

[153] Additional private funding sources include international commercial banks, export credit agencies, multilateral loans and multilateral equity funds: GPA, Washington Declaration on the Protection of the Marine Environment from Land-based Activities, Annex II, paras 12-13; see also Agenda 21 para 17.23.

[154] Operational Strategy of the Global Environment Facility (1996, GEF Secretariat, Washington DC) Chapter 4 at <www.gefweb.org/public/opstrat/ch4.htm> (visited August 2003).

[155] Global Environment Facility, Project Performance Report 2000, GEF Council, Agenda Item 9, 9-11 May 2001, page 1 at <www.gefweb.org/c.17.8.pdf> visited March 2004).

[156] Global Environment Facility Focal Points at <www.gefweb.org/participants/focal_Points/focal_points.html> (visited August 2003).

The GPA is well structured for identifying LBSMP problems and for establishing the criteria for their effective control. It has proposed and initiated a coherent strategy and methodology to develop programs of action at national, regional and international levels. It has established links between various GPA activities and integrated legal, economic and technological policies. It has promoted civic participation in marine environmental policies to control LBSMP. Since 1999, a UNEP coordinating office for the GPA has been operational at The Hague.

In spite of the above intentions and initiatives, the GPA has not yet been implemented fully. Being recommendatory in nature, it has no binding force. Although some progress has been made, this has been slow and unsatisfactory.[157] Participation in the meetings of the expert group on the implementation of GPA has also been low.[158] As a result, development has been achieved in some regions only, instead of in most of the world's oceans.[159] Nevertheless, the GPA has enhanced the global system of ocean governance[160] and has progressed LBSMP control. In this sense, the GPA may be deemed a preliminary and positive step towards a global convention on LBSMP control.

V. CONCLUSION

The above discussion has shown that a comprehensive and effective treaty at the global level to address LBSMP has not yet been achieved. Customary international law on the subject is vague in spite of *MOX Plant* imposing an obligation to control LBSMP, and the relevant treaty

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[157] About half of the world's coasts are threatened by development related activities resulting from intensified coastal erosion, decreased protection from storm damage, and loss of bio-diversity: World Resource Institute, World Resources 2000-2001 (2001, Oxford University Press, Oxford) 29.

[158] United Nations General Assembly, Advance, Unedited Text, 56th Session, Oceans and the Law of the Sea, 28 March 2001 para 328. However, the adoption of the 2001 Stockholm Convention on Persistent Organic Pollutants is an achievement.

[159] United Nations General Assembly, Advance, Unedited Text, 56th Session, Oceans and the Law of the Sea, 28 March 2001 para 327.

[160] Borgese, "The Regional Seas Program: A new direction", GPA News Forum, UNEP, Information to the Delegates of the 1999 SIDS/UNGASS; see also United Nations General Assembly Special Session on Development of Small Island Developing States, New York, 27-28 September 1999 at <www.iisd.ca/sids/> (visited March 2004).

law is still evolving. The domestic impacts of LBSMP have also not been addressed properly.

The early treaties were not directed specifically at LBSMP and did not formulate any legal regime for its control. International management principles were also absent in the early treaties. The 1982 Convention, the only global treaty that addresses LBSMP control, [161] does so in broad terms only, and its provisions are consequently too general to establish specific international standards for control. Neither does the convention address the polluter pays principle, the precautionary principle, and the principle on cleaner production, nor does it provide adequate guidance for the control of LBSMP in an integrated and sustainable way.

On the other hand, soft laws have been more specific in the effort to combat LBSMP. For example, Agenda 21 in Chapter 17 has recommended that international management principles be applied, including those on polluter pays and clean technology. It has also recommended that policies to guide global funding mechanisms be developed. The GPA has provided detailed management strategies in an integrated and sustainable manner and stressed the need for international and regional cooperation in enhancing capacity building, technology transfer and financial support. It has called upon financial institutions including the World Bank to advance international cooperation to alleviate the problems. However, soft laws are non-binding and accordingly their implementation cannot be guaranteed at any level.

The effective control of LBSMP requires that the rules and standards established by international treaties be implemented fully. In this regard, international efforts should be complemented by regional approaches. Although global efforts are important, the Washington Declaration refers to the intention of states parties to engage in regional efforts to protect and preserve the marine environment from LBSMP.[162] This is because although "important agreements have been

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[161] See Article 207(1) of the 1982 Convention and discussion above.

[162] UNEP Status Report on Implementation of the Global Program of Action of the Marine Environment from Land-based Activities, Informal Inter-governmental Consultation to Review Current Status and Further Steps in Implementation of the GPA, (Water) GPA-IG.2/2, The Hague, 11-12 May 1998, clause 8.

concluded at the global level, implementation will be better addressed at the regional level."[163]

At this stage, the GPA is the most important global instrument on LBSMP control and success in the battle against LBSMP is not possible without its implementation. To this end, the GPA is being implemented in a general sense under the UNEP Regional Seas Program, and progress has been made to fulfil GPA objectives. However, generally speaking, wholesome satisfactory outcomes are yet to be seen although progress has been achieved in regions where developed states or jointly developed and developing states have participated in LBSMP control regimes. This highlights the need for a comprehensive global treaty and the model adopted should provide for effective cooperation through the interlocking of regional and global arrangements.

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[163] United Nations, Commission on Sustainable Development, Overall Progress Achieved Since the United Nations Conference on Environment and Development, Report of the Secretary General, E/CN.17/1997/2, 31 January 1997 para 74.