State Responsibility and Assessment of Liability for Damage Resulting from Dumping Operations

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The Contracting Members of the London Dumping Convention are considering the establishment of a liability regime for dumping operations. The obligation for the establishment of such a regime is included in the provisions of the Convention and is linked with a moratorium on dumping of radioactive waste. This article discusses general principles of state responsibility for environmental protection and the specific obligations for states and individuals included in the Convention. It examines evidence pointing to the recognition of a need for a liability regime, the nature of liability for dumping operations, and the associated issues of reparation and compensation systems. The article concludes that the development of a liability regime for all dumping activities is the next necessary step to progress the effective application and interpretation of the convention, and it suggests a number of principles to be taken into consideration for the development of such a regime.

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In recent times there has been increased public awareness of the hazards to human health and the environment posed by the wide variety of wastes disposed at sea (especially the chemical and radioactive substances), by sub-seabed disposal, and by incineration. Discussions and arguments on the disposal of radioactive waste have been especially intense. International regulation of ocean dumping of radioactive waste began in 1958, when the First United Nations Conference on the Law of the Sea (UNCLOS I) declared: “Every State shall take measures to prevent pollution of the seas from dumping of radioactive wastes, taking into account any standards and regulations which may be formulated by international authorities.” Nevertheless, an international legal framework of regulation was not created until 1972, when the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter was adopted. This convention, popularly known as the London Dumping Convention (LDC), came into force in 1975, has been ratified by sixty-two states, and plays an increasingly major and decisive role in the control of marine pollution caused by dumping. Its regulations are largely included in three Annexes: Annex I, labeled the “black list,” specifies materials that must not be dumped at sea except in trace amounts; Annex II, the “grey list,” covers materials dumped under special provisions and strict regulations; and Annex III sets out conditions for issuance of permits for the remaining materials which is entrusted to national authorities.

5. LDC, supra note 4, at Annexes I-III. For a special study prepared by the
In 1983, at the Seventh Consultative Meeting, Kiribati and Nauru proposed an outright ban on the dumping at sea of any radioactive waste. Following a lengthy discussion, the Contracting Parties agreed to a moratorium on further radioactive dumping, pending a review by an independent panel of experts of the relevant scientific and technical issues. This panel was established by the LDC, with members nominated by the International Atomic Energy Agency and the International Council of Scientific Unions. The scientific panel produced a report in time for the Ninth Consultative Meeting of the LDC in September 1985. In the analysis of this inconclusive report, the moratorium on dumping was renewed for an indefinite period pending further review along the lines expressed in Resolution LDC.21(9), adopted on September 27, 1985. This Resolution not only extended the existing moratorium on the dumping of low-level radioactive wastes at sea, but also called upon the Contracting Parties to the LDC “to develop, as envisaged in Article X [of the LDC], procedures for the assessment of liability in accordance with the principles of international law regarding State responsibility for damage to the environment of other States or to any other area of the environment resulting from dumping.”

Participants of the Tenth Consultative Meeting, which was held in October 1986, decided to establish a group of legal experts to study the implications of the United Nations Convention on the Law of the Sea provisions on dumping, and LDC Article X referring to international responsibility and liability for marine environmental damage resulting from dumping. This Ad Hoc Group of Legal Experts on Dumping met for the first time in October 1987, and examined papers submitted by Australia, Nauru, and Spain. The Group Secretariat of the International Maritime Organization referring extensively to the contents and achievements of the convention and to all texts of regulations, guidelines, procedures, and criteria adopted by the Convention up to 1985, see I.M.O. Doc. LDC.9/INF.2 (1985).


8. Id.
also considered developments in other forums—especially regional organizations—as well as the relevance of the nuclear conventions. During the discussions, two divergent views appear to have emerged. Some experts considered that by virtue of Paragraph seven of Resolution LDC.21(9), the Group was given a clear mandate to develop a regime of liability in accordance with Article X of the LDC, while other experts considered that the need to produce a liability regime was still very much an open issue. The latter experts felt that a liability regime was not needed or that it was premature to embark upon the establishment of such a regime. As this view was supported by the majority, the Group failed to elaborate on the issues put forward in the papers submitted, and the Contracting Parties to the LDC were requested to “take note of the different views within the Group on developing procedures for the assessment of liability pursuant to article X of the LDC and take action as appropriate.”

The initiative taken at the Tenth Consultative Meeting to consider appropriate procedures for the development of a liability regime is a necessary step for the strengthening, and indeed implementation, of the LDC. Furthermore, the elaboration of a liability regime for dumping is a logical follow-up to the liability regimes already established in a number of other environmental areas where activities involving exceptional use to the environment are undertaken: notably, those involving outer space, the peaceful uses of atomic energy, and the maritime transportation of oil. The obligations undertaken by states in these areas include a duty of reparation, restitution, and compensation vis-à-vis victims of accidents that could not be prevented.

The following analysis involves a substantive consideration of the issues related to the establishment of a special liability regime and the attendant obligation of the LDC’s Contracting Parties to develop rules on state responsibility for ocean dumping. This analysis is not restricted to nuclear substances, but encompasses all ocean dumping activities by the Contracting Parties of the LDC.

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13. See supra note 7.
15. Id. at 1.
16. Finally, but not least important, the establishment of a liability regime is clearly related to the issues raised in the moratorium on the dumping of nuclear waste and rightly viewed as a “binding condition” for its termination. See I.M.O. Doc. LDC/IGPRAD 1/3/18, Annex at 4.
17. This is not the first effort to address the issue of liability for transfer pollution. See Final Act of the Diplomatic Conference on the consideration of article 17 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, done Mar. 22, 1974, reprinted in 13 I.L.M. 544 (1974) [hereinafter Helsinki Convention]; Z. Brodecki, Compensation For Damage To The Marine Environment Of The Baltic Sea Area (1987); S. Kuwabara, The Legal Regime Of The Protection Of The
II. Scope of the LDC Provision on State Responsibility

According to Article X of the LDC, the Contracting Parties must develop procedures for the assessment of liability resulting from dumping "in accordance with the principles of international law regarding State responsibility for environmental damage." The purpose of this paper is to elaborate on principles of international environmental law which are binding on all states, and to elaborate on the corresponding rules of state responsibility.

A. Principles of Environmental Protection

The starting point for the construction of a liability regime for ocean dumping is the principle of general international law sic utere tuo ut alienum non laedas—one should use that belonging to one in a manner which causes no damage to others. This "equality" of rights and obligations is implied in the Preamble to the LDC, as well as in Principle 21 of the Stockholm Declaration on the Human Environment. Principle 21 recognizes that states have "the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." The same principle is incorporated in Article 194 of the LOS Convention.

Thus, it is widely accepted that in a system consisting of equal and sovereign states, the freedom of independence enjoyed by each state becomes restricted at that point at which it interferes with the correlative exercise by other states of the same freedom. In the particular case of polluting activities, it is quite clear that action within the territory of one state may adversely affect the environmental interests and natural resources of other states. For example, the flow of water and the circulation of air ignore artificially imposed legal de-


18. LDC, supra note 4, at art. 10.
19. LDC, supra note 4, at preamble.
22. See LOS Convention, supra note 9, at art. 194.
marcation lines, and environmental damage to any part of these may not be restricted within the geographical zones of a state's jurisdiction.

The acceptance of the principle of *sic utere tuo* as a principle of public international law can be traced to the decision of the arbitral tribunal in *Trail Smelter* concerning damage caused in the United States by fumes from a smelter located in Canada. The tribunal concluded that

> under the principles of international law . . . 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.\(^2^4\)

Later, in *Corfu Channel*,\(^2^5\) the International Court of Justice decided that Albania's responsibility for damage to British naval ships and personnel caused by mines of unknown origin found within Albanian territorial waters was based on "every state's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other states."\(^2^6\)

That an obligation to prevent harm operates as a principle of international law is also implicit in the draft articles prepared by the International Law Commission (ILC) on a regime of international liability for injuries arising out of activities not prohibited by international law.\(^2^7\) Draft Article 1 specifies that liability for such injuries applies "with respect to activities or situations which are within the

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\(^2^6\) Id. at 22. This obligation was further acknowledged in the decision in the Lac Lanoux Arbitration between Spain and France. Affaire de Lac Lanoux (Spain v. Fr.) (1957), 12 R. Int'l Arb. Awards 281 (1963).
territory or control of a State, and which give rise to a physical consequence affecting the use or enjoyment of areas within the territory or the control of any other State.728 Also, the International Law Association, in its 1982 Draft Montreal Rules of International Law Applicable to Transfrontier Pollution,29 defined the principle of sic utere tuo as the customary foundation of the existing rules of international environmental law.30 Article 3 of these rules, entitled “Prevention and abatement” states:

(1) Without prejudice to the operation of the rules relating to the reasonable and equitable utilization of shared natural resources, States are in their legitimate activities under an obligation to prevent, abate and control transfrontier pollution to such an extent that no substantial injury is caused in the territory of another State.

(2) Furthermore, States shall limit new and increased transfrontier pollution, below the requirements of paragraph 1 of this Article, to the lowest level that may be reached by measures practicable and reasonable under the circumstances.31

The obligation to prevent harm is not, however, limited to harm arising out of territorial conduct. Conduct giving rise to the preventive obligation can occur in relation to activities on the high seas, in the air, in outer space, and in other areas beyond the limits of national jurisdiction when there is no question of a territorial link. More specifically, the pattern which emerges from a close examination of state practice, as well as the conventional law obligations of states, is that a state remains accountable for the harmful consequences of its conduct in any location if the state is in a position to take preventive measures with respect to such conduct. This principle is supported by the LDC, where Contracting Parties pledge “to take all practicable steps to prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.”32

This responsibility is reiterated in Draft Article 2(1)(c) of the ILC. This draft provision states, with respect to “lawful activities,” that the jurisdiction of a state “in relation to the use or enjoyment of any area beyond the limits of national jurisdiction, extends to any matter

28. BAXTER ILC REPORTS, supra note 24, at 155.
30. Id. at art. 3.
31. Id.
32. See LDC, supra note 4, at art. I.
B. State Responsibility for the Acts of Organs of the State and of Private Persons

"Responsibility" of a state means that an internationally wrongful act committed by one state against another entails certain consequences for the source state in the form of new obligations toward the victim. An act is considered internationally wrongful if its author violates an obligation established by custom or treaty in favor of another state. If a state commits such an act, defined by the ILC in its Draft Article 19 as an "international delict," the source state is responsible only to the victim. Those acts which are more serious, and which give rise to an aggravated degree of state responsibility toward the international community as a whole, qualify as "international crimes" affecting all states, and would create new rights and obligations for all states. Paragraph 3 of the ILC's Article 19 contains a list of acts which may constitute international crimes.

1. Acts of Organs of the State

When the activities of an organ or agent of the state cause harm to the territory of another state, and when the activities can, in law, be attributed to that state, there is no limit to the state's obligation to act to control the damage. This obligation extends to activities conducted anywhere outside a state's territory, as long as that state has the ability to exercise control over those activities. A number of international agreements clearly testify to the preeminence of state

33. Baxter ILC Reports, supra note 24, at 155.
responsibility in the “transnational” area. For instance, the 1967 Treaty on Principles Governing the Activities of States in the Exploration and use of Outer Space including the Moon and Other Celestial Bodies provides for the international responsibility of state parties to the treaty for “national activities in outer space . . . whether such activities are carried on by governmental agencies or by non-governmental entities.” Similarly, the 1972 Convention on Liability for Damage caused by Objects Launched into Outer Space imposes absolute liability on the “launching State,” which is defined as including “a State from whose territory or facility a space object is launched.” Significantly, these conventions also impose international liability on the controlling state for those harmful activities undertaken by private organizations or individuals.


Not all harmful private conduct leads automatically and immediately to state responsibility. The obligation of the state is to exercise “due diligence” to prevent and punish private conduct which

39. Id. at art. VI.
41. Space Liability Convention, supra note 40, at art. II.
42. According to Wolfrum, “the state is responsible only for the act of omission of its organs where they are guilty of not having done everything within their power to prevent the injurious act of private individual or to punish it suitably if it has occurred.” Wolfrum, supra note 34, at 271. See also Handl, supra note 37, at 528.
43. According to Baxter, liability is envisaged as being largely . . . the product of the duty of care or due diligence, the pervasive primary rule that is approved, and explained with equal facility, by the proponents of subjective and objective theories of responsibility. At a certain point along the way, one must admit the influence of a modified principle, more closely connected with the era of interdependence; for the duty of care will have to acquire a new dimension before it can account convincingly for such phenomena.

would violate the state's international obligations if the state were the actor (for example, obligations relating to oil pollution and harmful nuclear activities). Therefore, conventions dealing with private liability are often linked to a chain of state obligations forming part of international efforts designed to prevent or minimize damage arising from a particular activity. Moreover, the conventional regimes do not always distinguish the cases in which the conduct of activities is in private hands from those in which the activities are carried out by agencies of the state. In short, governments retain ultimate supervisory functions and duties even when they channel liability to private operators, including the duty to provide and guarantee compensation.

C. Enforcement Powers of Contracting Parties to the LDC and Implications for Liability

The provisions of the LDC clearly provide for the regulation of any dumping by the Contracting Parties. Elaborate provisions cover a wide range of measures. Primarily, the provisions are for the prevention of dumping and for the imposition of penalties for violations of the Convention's Article VII. Relatedly, considerable enforcement rights and obligations are attributed to Contracting Parties. First, with respect to the state in whose territory the dumping activity originates, each party shall take in its territory appropriate measures (for example, instituting a permit system) to prevent and punish conduct in contravention of the provisions of the Convention.

Second, a port state has the obligation to apply the Convention to vessels in its ports loading matter to be dumped. Accordingly, the loading-port state has the right to enforce the Convention upon ships of non-Contracting Parties not only while they are in port, but even after such vessels have left port. The loading-port state is thereby able to prevent illegal ocean dumping or dumping in contravention of the terms of license.

Third, Contracting Parties are permitted to enforce the Convention upon foreign vessels, aircraft, and fixed or floating platforms which are under their coastal jurisdiction. This right of enforce-

generally 7 M. WHITEMAN, A DIGEST OF INTERNATIONAL LAW 1059-67 (1906); Dupuy, Due Diligence in the International Law of Liability, in OECD, LEGAL ASPECTS OF TRANSFRONTIER POLLUTION (1977).
44. 8 M. WHITEMAN, DIGEST OF INTERNATIONAL LAW 738 (1967). This principle was reaffirmed in the United States Diplomatic and Consular Staff in Tehran (U.S. v. Iran), 1980 I.C.J. 3, 30-33 (May 20, 1980).
45. LDC, supra note 4, at art. IV(1).
46. Id. at art. VII(2).
47. Id. at art. VII(1)(b).
48. Id. at art. VII(1)(c).
ment includes the right to prevent foreign dumping in the exclusive economic zone, or in the fisheries zone of the state, or on its continental shelf.

Fourth, the flag state is obliged to apply the Convention to vessels and aircraft registered in its territory. In fact, in cases where a violation is committed on the high seas, enforcement lies primarily with the flag state, with certain residual powers given to the loading-port state. In addition, Contracting Parties agree to cooperate in the development of procedures for the effective application of the Convention on the high seas, including procedures for the reporting of vessels and aircraft observed to be dumping in contravention of the Convention.

In summary, competence for the issuing of dumping permits and for the control of dumping operations lies with the loading-port state. The loading-port state is assisted by the state of registry of the ship or aircraft, and by the state having coastal jurisdiction. It would, therefore, seem fair to suggest that failure of a state to exercise due diligence to prevent and punish conduct in contravention of the Convention will result in state responsibility, even if the conduct in question was actually committed by private individuals.

Provisions similar to the foregoing rights and obligations under the LDC are included in Articles 210 and 216 of the LOS Convention concerning the international seabed area. Furthermore, Article 139 of this convention, which defines the rights and obligations of states with respect to the resources of the seabed beyond national jurisdiction, explicitly specifies:

State Parties shall have the responsibility to ensure that activities in the Area, whether carried out by State Parties or State enterprises, or natural or juridical persons which possess the nationality of State Parties or are effectively controlled by them or their nationals, shall be carried out in conformity with this Part. The same responsibility applies to international organizations for activities in the Area carried out by such organizations.

Finally, Recommendation 86 of the Action Plan for the Human Environment, adopted at the Stockholm Conference, stipulates that states should “ensure that ocean dumping by their national anywhere . . . is controlled.”

49. Id. at art. VII(a)(a).
50. Id. at art. VII(3).
51. See LOS Convention, supra note 9, at 1266.
52. Id.
To conclude, general principles of international law, as well as state practice discussed in this section, suggest that a Contracting Party to the LDC is responsible not only for its own dumping activities, but also for unlawful dumping activities by private individuals. The later responsibility, however, results only if there is lack of due care and diligence on the part of the state. In a situation of concurrent state jurisdiction, the state which exercises effective control over the dumping activity is the one incurring international liability.

III. RESPONSIBILITY FOR WRONGFUL ACTS AND LAWFUL ACTIVITIES

A. Origin and Rationale

Those rules and obligations, the breach of which can be a source of responsibility, may be described as "primary." In contrast, the liability rules which the Contracting Parties are requested to develop in accordance with Article X may be described as "secondary," inasmuch as they are aimed at determining the legal consequences of failure to fulfill obligations established by the "primary" rules.\(^5\) The codification of rules of state responsibility has been on the agenda of the ILC since 1956.\(^5\) During the course of its work on state responsibility for internationally wrongful acts, the Commission decided in 1970 that there exists an additional category of activities deserving independent and special treatment with respect to the question of responsibility. This category was considered to include certain lawful activities, and was restricted almost exclusively to activities causing transboundary environmental harm. According to the Special Rapporteur Quentin-Baxter, the purpose of the ILC is to "identify rules and procedures which can safeguard national interest against losses or injuries arising from activities and situations that are in principle legitimate, but that may entail adverse transboundary effects."\(^5\) Thus, the ILC agreed to consider distinguishing responsibility for internationally wrongful acts from responsibility for the injurious consequences of activities which are lawful.

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55. F. Garcia-Amador, supra note 43, at 1. The tasks of codifying rules of state responsibility is divided into three parts: (i) The origin of international responsibility (the first reading has been completed); (ii) content, forms, and degrees of international responsibility (being considered now), see W. Riphagen, Preliminary Report on the Contents Forms and Degrees of International Responsibility, 2 Y.B. INT'L L. COMM'N 107 (1980) [hereinafter Riphagen ILC Reports]; and (iii) implementation of international responsibility and dispute settlement.

56. Baxter ILC Reports, supra note 24, at 105. See generally Akehurst, supra note 27; Handl, supra note 27; Pinto, supra note 27.
B. Wrongful Acts under the LDC

According to general international law, a state is responsible for its act or omission causing injury to another state when such act or omission constitutes an internationally wrongful act. In consequence, it is liable for the damage incurred. Thus, the Draft Articles on state responsibility prepared by the ILC define the basis of international responsibility in the following terms:

Draft Article 1
Responsibility of a State for its internationally wrongful acts.

Every internationally wrongful act of a State entails the international responsibility of that State.

Draft Article 3
Elements of an internationally wrongful act of a State.

There is an internationally wrongful act of a State when: (a) Conduct consisting of an action or omission is attributable to the State under international law; and (b) That conduct constitutes a breach of an international obligation of the State.

Also, Draft Article 19 on international crimes and international delicts defines a list of acts constituting international crimes, which includes, inter alia, "a serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment, such as those prohibiting massive pollution of the atmosphere or of the seas."57

The obligations and duties of the Contracting Parties to the LDC stipulate the following:

1. In accordance with the provisions of this Convention Contracting Parties shall prohibit the dumping of any wastes or other matter in whatever form or condition except as otherwise specified below:
   a) the dumping of wastes or other matter listed in Annex I is prohibited;
   b) the dumping of wastes or other matter listed in Annex II requires a prior special permit;
   c) the dumping of all other wastes or matter requires a prior general permit.
2. Any permit shall be issued only after careful consideration of all the factors set forth in Annex III, including prior studies of the characteristics of the dumping site as set forth in Sections B and C of that Annex.
3. No provision of this Convention is to be interpreted as preventing a Contracting Part from prohibiting, insofar as that Party is concerned, the dumping of wastes or other matter not mentioned in Annex I. That Party shall notify such measures to the Organization.58

In other words, a breach of a state’s obligation under the LDC vis-

57. See supra note 35.
58. LDC, supra note 4, at art. IV.
a-vis other parties includes: (a) The dumping of wastes or other matter listed in the “black list”; (b) the dumping of wastes or other material listed in the “grey list” without a prior special permit; and (c) the dumping of any wastes or matter without a prior general permit or without due consideration of the guidelines set forth in Annex III to the LDC. An LDC Contracting Party is also violating its international treaty obligations if it does not conform with the provisions of Article VI for the granting of general and special permits, for controlling the dumping operations through record keeping and publicizing of permits, and for the scientific monitoring of the condition of the seas as to the effects of dumping. A Finally, as discussed in Section II.C above, a Contracting Party to the LDC is responsible for wrongful acts committed by private individuals if it did not exercise due diligence in preventing and punishing such acts. The burden of proof in such cases lies with the source state.

C. Lawful Dumping Activities under the LDC and the Concept of Ultrahazardous Activities

Dumping is, nevertheless, not altogether forbidden, and Contracting Parties may permit the dumping of waste and other matter in compliance with the strict regulations and guidelines of the Convention. Lawful dumping activities include: (a) The dumping of wastes and other matter listed in the “grey list,” subsequent to the awarding of a special permit; (b) dumping of all wastes and matter not included in the “black list” or “grey list” after the award of a general permit in accordance with Annex III; and (c) dumping in compliance with the provisions of Article V. Article V allows dumping in the following instances: Cases of force majeure caused by stress of weather; cases where there is a danger to human life or a threat to the safety of vessels, aircraft, platforms, or other property; and cases of emergency issuance of a special permit for the dumping of “black list” substances. As these activities are lawful, no liability can, in principle, be attributed to the Contracting Parties or to private individuals simply for conducting such activities. Nevertheless, this is not to deny the possibility of harm and subsequent incurrence of liability if the dumping activities are abnormally dangerous. The idea behind liability for abnormally dangerous, yet lawful, activities indeed relates to the concept of ultrahazardous activities. These are activities which, because of their inherently harmful nature and attendant potential for damage, may result in a substantial change in the natural environment of another state or significant

59. Id. at art. VI.
60. Id. at art. V.
transnational pollution of air or water.\textsuperscript{61} Ultrahazardous activities may be defined as all activities involving a risk of serious damage on an international scale which cannot be eliminated even by the exercise of utmost care. As defined by Jenks,\textsuperscript{62} the most important characteristic of such activities is a low probability of occurrence combined with a severe magnitude of transnational damage if materialized. Thus,

\begin{quote}
[It] does not imply that the activity is ultrahazardous in the sense that there is a high degree of probability that the hazard will materialize, but rather that the consequences in the exceptional and perhaps quite improbable event of the hazard materializing may be so far-reaching that special rules are necessary if serious injuries and hardship are to be avoided.\textsuperscript{63}
\end{quote}

Draft Article 1 for the Codification of Rules Concerning Liability for Lawful Acts goes further than this approach, and does not even attribute any qualifications to liability for lawful activities. Rather, it assigns liability for all activities "which give rise or may give rise to a physical consequence affecting the use or enjoyment of areas within the territory or control of any other State."\textsuperscript{64}

In view of the above considerations, it is suggested that Contracting Parties and private individuals undertaking lawful dumping activities are liable for all water pollution, air pollution, and harm to the marine environment and its natural resources, as well as harm to any interests of other states caused by such activities.

IV. CONSIDERATION OF AN INTERNATIONAL REGIME OF LIABILITY FOR DUMPING ACTIVITIES

A. Evidence Pointing to the Recognition of a Need for a Liability Regime

Article X of the LDC, which imposes upon Contracting Parties the obligation to develop procedures for the assessment of liability for dumping, is supported by other statements of a more general character, especially Principle 22 of the Stockholm Declaration. According to Principle 22, "[s]tates shall co-operate to develop further the international law regarding liability and compensation for the

\textsuperscript{61} B. Smith, supra note 24, at 119.
\textsuperscript{63} Jenks, supra note 62, at 107.
\textsuperscript{64} Baxter ILC Reports, supra note 24, at 155. See also supra text accompanying notes 27-28.
victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction.\textsuperscript{65} The same principle is reiterated in Article 235 of the LOS Convention:

1. States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law.
2. States shall ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction.
3. With the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment, States shall cooperate in the implementation of existing international law and the further development of international law relating to responsibility and liability for the assessment of and compensation for damage and the settlement of related disputes, as well as, where appropriate, development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds.\textsuperscript{66}

The need for the formulation of a liability regime is also an established principle of regional conventions. These conventions require member states to cooperate in the formulation and adoption of appropriate rules and procedures in respect of liability and compensation for damage from pollution of the marine environment.\textsuperscript{67} Moreover, the need for close cooperation among parties to the LDC and parties to those regional conventions concerned with dumping is recognized in Article VIII of the LDC.\textsuperscript{68} There are already three regional dumping agreements in force: the 1972 Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, for states bordering on the North Sea and the North-East Atlantic region,\textsuperscript{69} the 1976 Protocol for the Prevention of Pollution of the

\textsuperscript{65} Stockholm Principles, supra note 20.
\textsuperscript{66} LOS Convention, supra note 9, at art. 235.
\textsuperscript{68} LDC, supra note 4, at art. VIII.
\textsuperscript{69} The Convention for the Prevention of Marine Pollution by Dumping from
the Mediterranean Sea by Dumping from Ships and Aircraft,\(^7^0\) and the 1986 Protocol for the Prevention of Pollution of the South Pacific Region by Dumping.\(^7^1\) Although no attempts have been made yet to develop rules and procedures relating to state responsibility and liability under the above-mentioned regional conventions, it may reasonably be expected that the development and adoption of such rules and procedures by the LDC will encourage the adoption of similar measures at the regional level.

The undertaking of such an initiative and the attendant drafting of the necessary rules and procedures undoubtedly entail a number of legal and technical difficulties. The Contracting Parties may, therefore, be well advised to seek insights from developments in other environmental fields, especially the deliberations of the ILC on international liability for ultrahazardous activities, as well as the ILC's work on codification of rules of state responsibility. Following an agreement on this question of state responsibility and liability, the key issues to be considered include the nature of liability for dumping activities, and the assessment of compensation. These will be discussed next.

**B. The Nature of Liability for Dumping Activities**

There are two main conflicting schools of thought on the nature of state responsibility. The first accepts fault as the central constituent of liability. The second, a theory of "objective liability," accepts causation as the central constituent. According to the latter and most prominent view,\(^7^2\) the responsibility of a state flows from the breach of an international obligation caused by an act or omission attributable to that state. Breach of an international obligation is not, however, linked to subjective notions of intent or negligence. Rather, in order to establish "objective" responsibility, there need only occur a violation of an international obligation, the prerequisites to such vio-

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\(^7^0\) Ships and Aircraft, done Feb. 15, 1972, 119 U.K.T.S. (1975) [hereinafter Oslo Convention].


\(^7^2\) The ILC nowhere refers to fault in its draft articles on the responsibility of state for wrongful acts. For the definition of a wrongful act, see LDC, supra note 4, at draft art. 13.
lation being determined by the content of the specific obligation. Significantly, recent practice evidences that strict or "no-fault" liability (that is, liability determined without reference to wrongful intent or lack of diligence of the state) has secured a place in customary international law with respect to ultrahazardous activities. The underlying principle of strict liability is that the party which acts or controls an activity, and not the injured party, should bear the burden of proof, and should demonstrate the harmless effects of the activity.

There is ample evidence of the emergence of a doctrine of strict liability in a significant number of multilateral conventions. All conventions relating to civil liability for injuries arising out of nuclear activities provide for a strict liability regime. Liability is established in each case simply on the fact of causation of harm: the injured party does not need to show intent or negligence. Strict liability also appears in the two private law conventions directed at the protection of the sea against oil pollution by ships. The 1969 International Convention on Civil Liability for Oil Pollution Damage establishes a regime of limited but guaranteed strict liability, and is supplemented by the 1971 International Convention on the Establishment of an International Fund for Oil Pollution Damage, which functions as an additional and direct source of compensation. The doctrine of strict civil liability, combined with the principles of limited and compulsory insurance, is also incorporated into the 1977 Convention on Civil Liability for Oil Pollution Resulting from Exploration for and Exploitation of Sea-bed Mineral Resources.

Although these conventions channel liability to private individuals (such as operators and owners of nuclear facilities and vessels, tanker owners and oil companies, offshore oil and gas rig operators

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and owners, and carriers and shippers of hazardous and noxious substances other than oil), it is quite clear that states have subjected themselves, and not only private individuals, to the consequences of the strict liability regime. More specifically, the legal context of these conventions is private civil liability, but the consequences of a strict liability regime might lead to responsibility at an international level involving states.

This article asserts that state responsibility should arise in any case where compensation by a private operator or owner is precluded due to the state's failure to perform its treaty obligations, especially for failing to require adequate financial security or failing to enact effective substantive and procedural legislation to ensure adequate compensation. Significantly, certain treaties on nuclear liability support this approach. The Brussels Convention on the Liability of Operators of Nuclear Ships\(^7\) and the Vienna Liability Convention\(^9\) explicitly provide for liability on the part of the state that controls private operators of nuclear facilities if the private operators and their insurers are unable to satisfy claims for compensation. Furthermore, Article II of the Space Liability Convention specifies that "a launching State shall be absolutely liable to pay compensation for damage caused by its space objects on the surface of the earth or to aircraft in flight."\(^8\) It also provides that states are liable for activities of private operators, and this liability is strict liability, since the only exoneration is gross negligence or intentional misconduct on the part of the victim.\(^8\) Finally, after the disintegration of the Soviet Union's Cosmos 954 satellite over Canadian territory, the Canadian claim was phrased in terms both of the Space Liability Convention and customary international law.

The principle of absolute liability applies to fields of activities having in common a high degree of risk. It is repeated in numerous international agreements and is one of "the general principles of law recognized by civilized nations" (article 38 of the Statute of the International Court of Justice). Accordingly, this principle has been accepted as a general principle of international law.\(^8\)

\(^{78}\) See Liability of Operators of Nuclear Ships Convention, \textit{supra} note 74, at art. III.  
\(^{79}\) Vienna Liability Convention, \textit{supra} note 74, at art. VII(1).  
\(^{80}\) Space Liability Convention, \textit{supra} note 40, at art. II.  
\(^{81}\) \textit{Id.} at art. VI.  
In light of the foregoing analysis, it is suggested that the civil liability conventions are clear evidence of the acceptance of the rule of strict state liability for the international consequences of activities adversely affecting the environment. Two basic categories of injury appear to trigger international strict liability for dumping activities. The first consists of harm arising out of the fault of either the state or the private operator, in the sense of wrongful intent or failure to exercise due diligence. The second category relates to activities defined as ultrahazardous. Under the LDC, ultrahazardous activities are characterized as unlawful, and therefore prohibited, even in the absence of harm or prior to proof of harm. Thus a categorical prohibition of such activities is implied. On the other hand, a state's strict and absolute liability for lawful activities in the future does not imply total prohibition of such activities, provided that the activities no longer produce actual injury, that reparation has been made, and that measures have been taken to prevent future occurrence.

V. Reparation and Compensation

A. Principles of Reparation and Compensation

The legal consequence of the breach of an international obligation may be the creation of a duty to make adequate reparation. In the language of the Permanent Court of Justice in Chorzów Factory, the essential principle contained in the notion of an illegal act—a principle which seems to be established by international practice and in particular by the decisions of arbitral tribunals—is that reparation must, as far as possible, wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed.

Reparation refers to a variety of remedial measures which an offending state might be required to take. These measures are summarized in the ILC's draft articles on state responsibility:

Draft Article 6
1. The injured State may require the State which has committed an internationally wrongful act to:
   (a) discontinue the act, release and return the persons and objects held through such act, and prevent continuing effects of such act; and
   (b) apply such remedies as are provided for in its internal law; and
   (c) provide appropriate guarantees against repetition of the act.
2. To the extent that it is materially impossible to act in conformity with paragraph 1(c), the injured State may require the State which has commit-

83. LDC, supra note 4, at art. IV(1)(a).
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...ted the internationally wrongful act to pay to it a sum of money corresponding to the value which a re-establishment of the situation as it existed before the breach would bear.85

Thus, the first form of reparation is the duty to discontinue the conduct constituting a breach of obligation, combined with the provision of appropriate guarantees against repetition of the conduct. The second form of reparation is restitution, which is the obligation to eliminate the effects of the breach, and to restore the situation to its initial state. The third form of reparation is pecuniary compensation, which arises when restitution is practically impossible or insufficient. According to Chorzów Factory:

Restitution in kind, or, if this is not possible, payment of a sum corresponding to the value which a restitution in kind would bear; the award, if needed, of damages for loss sustained which would not be covered by restitution in kind or payment in place of it—such are the principles which should serve to determine the amount of compensation due for an act contrary to international law.86

In practice, the selection of the appropriate form of reparation in a particular case depends on the facts of the case, the specific nature of the breach of obligation, and the extent of the consequences of the breach. It is suggested that with respect to ocean dumping, measures imposed as restitution should include, as a first priority, removal of the offending dumped matter and restoration of the affected area to its initial state. In addition, compensation should be paid for damages suffered as a result of the contravention.

B. Joint Responsibility

In the course of dumping activities, a number of operators might use the same dumping site, or sites in close proximity to each other, thereby giving rise to the issue of joint liability and compensation.87 The Space Liability Convention provides an example of joint responsibility, specifying that states jointly participating in the launch of a space object “shall be jointly and severally liable for any damage caused.”88 States deemed to be jointly participating in a launch include states which launch or procure the launch, as well as states from whose territory or facility the launch occurs.

86. Factory at Chorzów, 1928 P.C.I.J. at 47.
87. For treatment of the issue of joint responsibility see I. BROWNLIE, supra note 37, at 456; B. SMITH, supra note 24, at 44.
88. Space Liability Convention, supra note 40, at art. V.
Another example of joint responsibility is provided by an earlier version of the International Maritime Organization's (IMO) 1984 Draft Convention on Liability and Compensation in Connection with the Carriage of Hazardous and Noxious Substances by Sea (Draft HNS Convention), which proposed a system of joint and several liability for carriers and shippers of wastes. This approach was contemplated by the IMO's Legal Committee, in view of the fact that an important element of risk from shipment of dangerous cargoes derived not from transportation practices, but from the inherently harmful nature of these cargoes. In addition, the Committee recognized the difficulties involved in identifying the individual shippers of different consignments on the same vessel, as well as the problems of accurately assessing potential danger posed by the cargoes.

It is suggested that, in principle, a party injured by dumping activities should be entitled to claim compensation from all those whose dumping contributed to the damage. In those cases where the sources of damage are inseparable, each participating party should be responsible for paying compensation for the total damage suffered, irrespective of the actual quantity dumped by the operator in question. However, an alternative to a strict system of joint and several responsibility could be a "staged" system of shared liability. The obligation to pay compensation would not be expressed as a single "flat" amount, but would be "layered" according to multiple, "staged" amounts of compensation. Such a system would, of course, need to be combined with a more exclusive channeling of liability. This system could, for instance, involve a two-tier approach, as was envisaged in the IMO's Draft HNS Convention involving a primary liability of the shipowner and an excess ("residual") liability of the shipper. Obviously, the choice in favor or against a particular system of joint responsibility would need to take account of the implications for both the availability and cost of insurance.

C. Limited v. Unlimited Liability

The existing conventions on civil liability arising out of nuclear activities and the maritime transportation of oil provide for limited but strict liability, combined with compulsory insurance. These

90. For recent developments in this area, see CERTAIN CALL FOR DRAFT HNS, 9 HAZARDOUS CARGO BULL. 9 (1988-89).
91. Draft HNS Convention, supra note 89, at art. 6.
conventions channel liability to the operator of the activity, and their limits on liability reflect a realization that most operators' capacity to pay compensation is not consistent with the actual scale of the damage. In contrast, the Space Liability Convention, which imposes absolute and unlimited liability on the launching state, provides that:

The compensation which the launching State shall be liable to pay for damage under this Convention shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred.\(^9\)

The issue, therefore, is whether the extent of international strict liability should be the same for all types and degrees of damage, or whether the extent of liability should depend on the degree of loss only. ILC's Draft Article 19 on state responsibility for international crimes and international delicts suggests that the regime should vary according to the seriousness of damage, and, in particular, refers to "massive pollution of the atmosphere or of the seas."\(^8\) In view of the above observations it may be suggested that a state should be subject to unlimited liability for damage resulting from: (i) the fault or intent of the state with respect to both unlawful and lawful dumping under the LDC; and (ii) the failure of the state to exercise due diligence to prevent dumping of substances in Annex I ("black list") and dumping of substances in Annex II ("grey list") without a special permit. Furthermore, a state should be subject to limited liability for damage resulting from the failure of the state to exercise due diligence to prevent all other types of unlawful dumping (for example, dumping without a general permit or dumping without proper record keeping), as well as all other types of lawful dumping.

It is not suggested that state liability would provide an autonomous solution to the problem of ocean dumping. On the contrary, it should be regarded as complementary to private liability. The latter must be preserved in accordance with the traditional principle of responsibility involving a congruence of legal and operational responsibility, and in accordance with the "polluter pays" principle in terms of damage compensation (as distinct from prevention, cleaning, and reparation costs).

Liability of private operators, then, should be strict liability across the board, meaning that operators will be strictly liable for "sudden"

93. Space Liability Convention, \textit{supra} note 40, at art. 10.
incidents of environmental damage, as well as for “gradual” pollution. This regime would be in accordance with the strict nature of the existing regulatory regime for ocean dumping in the preventive field. Private operators should, nevertheless, enjoy limited liability with respect to both unlawful and lawful dumping activities. These provisions would take account of practical problems of individual solvency or financial capacity, as well as the ultimate legal responsibility retained by states concerning supervisory functions.

To conclude, it is suggested that limited liability of private operators, and limited liability of states with respect to lesser forms of unlawful dumping and all forms of lawful dumping, is justified provided that existing preventive regulations are kept under close review for their short-term and long-term adverse environmental effects, and that they are upgraded as soon as environmental damage is suspected. Obviously, the envisaged restructuring of the Annexes to the Convention will be of key importance to the assessment of liability.95

D. Compensation Systems

Existing civil conventions regulating liability employ various types of compensation systems to ensure adequate recovery by victims. These systems may be described by three broad categories: (1) International compensation funds financed from direct contributions by states; (2) international mutual guarantee funds financed by groups of potential polluters; and (3) international guarantee funds financed by private individuals under compulsory insurance schemes.

An example of an international compensation fund appears in the Brussels Supplementary Convention.96 Under this Convention, each Contracting Party guarantees compensation for transfrontier nuclear damage exceeding the compensation ceiling of the Paris Nuclear Act.97 In addition, a fund jointly financed by the Contracting Parties provides a collective guarantee of compensation for nuclear damage over and above the compensation to be paid by each Contracting State and the operator therein.98

The Member States of the Barcelona Convention99 have also acknowledged the need for the establishment of an interstate guarantee fund, and to this end adopted Resolution 4, which proposes that “a study should be made of the possibility of establishing an inter-State Guarantee Fund for the Mediterranean Sea Area and that the study should be entrusted to a Committee of experts from the Contracting

96. Brussels Supplementary Convention, supra note 74.
97. Id. at art. VII.
98. Id.
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Parties to the Convention.\textsuperscript{100} An international mutual guarantee fund is the system adopted by the Fund Convention.\textsuperscript{101} Individual compensation funds supported by compulsory insurance are established, inter alia, by the International Convention on Civil Liability for Oil Pollution Damage\textsuperscript{102} and the Convention on Civil Liability for Oil Pollution Resulting from Exploration for and Exploitation of Sea-bed Mineral Resources.\textsuperscript{103}

In the case of ocean dumping and incineration activities, however, damage to the environment may arise not so much as the result of a catastrophic accident, but rather the slow release ("gradual" pollution) of radioactive or other harmful substances to the marine environment. Liability might, therefore, arise not only during the dumping activity (which includes loading, transportation, and disposal), but after the dumping has been carried out. Moreover, dumping activities have a continuing character since they tend to be concluded in the same designated sites, and their repercussions may, in terms of gradual pollution, expand over a long period of time.

This is not to say that the risk of an accident during the stages of loading, carriage, and disposal of dumping material is not substantial. Thus, it is suggested that operators be requested to establish special funds for compensation guaranteed by insurance. According to the precedent established in the Convention on Liability of Operators of Nuclear Ships,\textsuperscript{104} the operator responsible for dumping activities should be exclusively liable in the first instance for accidental damage.\textsuperscript{105} However, in the case of slow release of hazardous substances into the marine environment, the diversity of the dumpsites used, the longevity of certain wastes, and the accumulation of waste in neighboring or joint dumpsites may make it very difficult to establish the origin of damage. Thus, identifying the party or parties responsible, and determining the corresponding state or private responsibility, may be nearly impossible in some cases.

A solution to this problem might be the establishment of two types of state funds. The first fund would guarantee compensation over

\begin{enumerate}
\item The recommendation was set by the Intergovernmental Meeting on the Protection of the Mediterranean. \textit{See} Action Plan for the Protection of the Mediterranean Basin, convened by the Executive Director of UNEP in Barcelona, Jan. 28, 1975, reprinted in \textit{S. KUWABARA}, supra note 17, Annex I, at 143-47.
\item Fund Convention, supra note 76, at art. 2.
\item CCL, supra note 75, at art. IV.
\item Convention on Civil Liability for Oil Pollution Resulting From Exploration for and Exploitation of Sea-bed Mineral Resources, supra note 77, at art. 3.
\item Liability of Operators of Nuclear Ship Convention, supra note 74.
\item \textit{Id.} at preamble.
\end{enumerate}

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and above the ceiling on private operators' liability for damage caused during or in the aftermath of the dumping activity. The second fund would compensate for "unidentifiable" damage that is seriously suspected to be caused by dumped materials. This fund would cover damages such as general degradation of the environmental quality of the seas, depletion of fishing stocks, and deprivation of amenities. This fund could be financed at the international level by charges collected from all major sources of dumping. Its resources could also be used to monitor the deterioration of dumped wastes (especially those subject to strict regulation for monitoring), to undertake the restitution of the environment, and to ensure that environmental damage from dumping activities will not be repeated.

VI. CONCLUSIONS

Development of rules and procedures for the assessment of liability for dumping activities in accordance with the principles of international law regarding state responsibility for environmental damage is the obligation embedded in Article X of the LDC. The next step to progress is the effective application and interpretation of the LDC provisions. This obligation is supported by both the general principles of international law and customary state practice regarding state responsibility and liability for internationally wrongful acts. Furthermore, the ILC, which has been working on the codification of rules of state responsibility for many years, is considering whether the strict liability of states should also extend to the injurious consequences of activities which are lawful, but which inherently cause transnational damage (ultrahazardous activities).

The adoption of Resolution LDC.2(9) demonstrates the determination of the Contracting Parties to the LDC not to resume dumping of low-level radioactive material before the adoption of an adequate and comprehensive regime for the attribution of liability. In the light of the legal analysis presented in this study, the following proposals should also be taken into consideration by the Contracting Parties of the LDC.

Competence for the control of dumping activities lies with state authorities. Fault or intent of a state, or its failure to exercise due diligence to prevent and punish conduct in contravention of the LDC, will result in state responsibility for the international adverse effects on persons, property, or the environment, even if the conduct was by private individuals. The effect of this state responsibility resulting from the state's ultimate supervisory functions is that, in the case of unlawful dumping activities, the source state is strictly and absolutely liable not only for its own acts, but also for the acts of private individuals. This liability of the state is also unlimited, ex-
cepting cases where lesser forms of unlawful dumping have occurred through no fault or wrongful intent of the state.

In the case of lawful dumping activities, Contracting Parties to the LDC are strictly and absolutely liable for environmental damage by virtue of the control principle, as well as because of the inherently harmful nature of ocean dumping. Nevertheless, they may limit their liability provided there was no fault or intent on their part.

Private operators are strictly, but limitedly, liable for any damage resulting from either unlawful dumping or lawful activities, in accordance with the traditional principle of responsibility, as well as the “polluter pays” principle. The attribution of private liability in the case of lawful acts is justified in view of the inherently harmful nature of ocean dumping.

Due to the particular nature of dumping activities, a “layer” compensation system is recommended. This system could take the following form: (a) Establishment of an individual compensation fund, supported by a compulsory insurance scheme, to cover accidents during the stages of loading, carriage, and disposal of waste; (b) establishment of a state fund to guarantee compensation for damage exceeding the liability ceiling for private operators; (c) establishment of a state fund to compensate for damage over and above the limit of private liability for gradual pollution occurring during or in the aftermath of dumping; and (d) establishment of an interstate fund to compensate unidentifiable environmental damage, possibly financed from the international collection of charges from all major dumping sources.