

STATE RESPONSIBILITY FOR
ENVIRONMENTAL PROTECTION AND PRESERVATION:
Ecological Unities and a Fragmented World Public Order*

Jan Schneider**

1. Introduction

It is today becoming widely recognized that the planet earth--or, more expansively, the entire earth-space system--is an ecological unity both in a basic scientific sense and in the sense of interdependencies of the social processes by which mankind uses it. The plants, animals (including homo sapiens) and micro-organisms that inhabit the planet are united with each other and with their non-living surroundings in a network of complex, interrelated natural and cultural components known as the planetary "ecosystem." While there is this increasing realization of inextricable ecological interrelatedness, the world public order today remains essentially a loosely organized decision-making system in which some one hundred and fifty different territorial communities seek to promote and aggrandize their own particular interests. Although the states-as-sole-actors approach to international politics has long been discredited, the primacy of the state in contemporary international law and politics seems to remain unchallenged for the foreseeable future.

In view of the earth's biosphere as a single ecological system, and the fragmented nature of the contemporary international public order, it follows that there must be a basic obligation upon states to protect and preserve the human environment, and in particular that states must be responsible for using the best practical means available to them to prevent pollution and other destructive impacts on both their own and common resources. This basic obligation may seem obvious. But simple and self-evident as it might appear, it represents something of a radical departure from traditional international legal laissez-faire doctrines claimed by states in respect of activities affecting both their own territory and specific internationally shared resources such as the seas and air. Although it is fundamental to several recent international declarations of principle and to many emanations from customary international law, at present there exists no explicit treaty obligation laying down this responsibility in comprehensive terms capable of effective implementation. In fact, the whole in-

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**Associate at Covington & Burling; J.D. 1973, Ph.D. 1975 Yale University.

ternational law of state responsibility for environmental protection and preservation, and complementary questions of liability and compensation for environmental injury, is currently in a state of obscurity and flux. It is hoped that the present paper can make some contribution towards an elucidation of the various issues involved and hence towards its codification and progressive development.

In their interactions with each other in the use and enjoyment of resources, states and other actors on the world scene make claims and counterclaims for the prescription and application of authority. The first consideration to be faced in evaluating these contentions concerns the question of the basic permissibility of the activities involved, *i.e.* whether or not they have been prohibited by the world community. Assuming that the activities are permissible in some degree, the problem then becomes managing the public order consequences of the resulting deprivations so as properly to take account of environmental costs and benefits. The latter objective may be sought through measures to deter actors from incurring environmental risk and/or through allocating compensatory costs for the *ex post facto* control or elimination of injurious results. In keeping with the basic aim of international tort law to minimize unauthorized coercions and deprivations of all kinds, the fundamental question here is how to shape a law that serves all these purposes.

The aims or objectives being sought through what is very loosely termed the law of "state responsibility" for environmental protection and preservation, can thus be usefully described in terms of three broad subgoals: prevention of environmental deprivations, deterrence of impending environmental harm, and reparation or compensation for environmental injury which nevertheless results. The present discussion, after some initial observations on the general background of the doctrine of state responsibility in the environmental context, will examine international environmental law in light of each of these policy subgoals. The intention here is not only to explore the relevant substantive legal principles, but also to try to shed some light on the practical nature of the problems involved and of the procedures necessary to cope with them.

II. Background of State Environmental Responsibility

Less than a century ago U.S. Attorney General Judson Harmon asserted that "[t]he fundamental principle of international law is the absolute sovereignty of every nation, as against all others, within its own territory." From

this he concluded that "the rules, principles, and precedents of international law impose no liability or obligation" which inhibits a state from using the resources within its territory as it chooses without regard to the impact upon others.¹ Fortunately, this ultranationalistic notion was not adhered to at that time, nor has it won sympathy in the subsequent development of international law. Instead of the Harmon doctrine, the international community has clearly adopted the maxim of sic utere tuo ut alienum non laedas (use your own property so as not to injure that of another) fundamental to both Roman and common law.

Today state responsibility must be regarded as "a concomitant of substantive rules and of the supposition that acts and omissions may be categorized as illegal by reference to the rules establishing rights and duties."² Traditionally it has been defined in narrow terms of a wrongful act or omission which causes injury to an alien, but the doctrine has not been confined to that context. As the reporters of the Harvard draft Convention on the International Responsibility of States for Injuries to Aliens have acknowledged, "[t]he responsibility of a State may also be engaged by a violation of any treaty or any rule of customary international law under such circumstances as that no injury to an individual is involved."³ Since such responsibility may be either original with the state itself or vicarious as a result of unauthorized acts of its agents or nationals, there are a great number of possible permutations and combinations of international claim situations.⁴ Intricate problems may arise in connection with

1. Treaty of Guadalupe-Hidalgo - International Law, 21 Op. Att'y Gen. 274, 281 & 283 (1893-97). For some discussion of this matter see Utton, "International Environmental Law and Consultation Mechanisms," 12 Colum. J. Transnat'l L. 56, 57-59 (1973).

2. Brownlie, Principles of Public International Law 418-19 (2d ed. 1973).

3. "Convention on the International Responsibility of States for Injuries to Aliens" 45 (Sohn & Baxter reporters 1961). See generally Amerasinghe, State Responsibility for Injuries to Aliens (1967).

4. On this whole subject of who is responsible for what, see Fatouros, "Developing Legal Standards of Liability for Transnational Environmental Injury: Bases of Liability and Standing to Complain," in International Responsibility for Environmental Injury (Stein ed. forthcoming). And there are also questions of agency and joint tortfeasors. See Brownlie, supra note 2, at 441-44.

the participation of several states in the same act, and they can be further complicated by questions of responsibility of one state for the acts of another state or its nationals.⁵ This whole issue is currently under discussion in the U.N. International Law Commission, but neither the ILC nor any other authoritative body has yet agreed on a comprehensive set of principles or treaty articles.⁶

Meanwhile, "state responsibility" has acquired a more expansive meaning, and the term is now commonly employed by international lawyers to encompass a broad range of conditions under which international obligations may be incurred. In the environmental context, there has been explicit acceptance of the principle that states must bear responsibility for the effects of their actions on the environment of other states or the common environment. The international community has also expressed concern for clarifying the circumstances under which violation of a substantive norm entails an obligation to make reparation or to pay compensation for any resultant damage. Principles 21 and 22 of the Stockholm Declaration, which have frequently been cited in the present study and elsewhere, embody the current community expectations, and it seems worth repeating them fully in juxtaposition here:

Principle 21

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction

5. Id.

6. The ILC has, however, only been giving attention at this stage of its deliberations to the responsibility of states for internationally wrongful acts, leaving aside the problem of responsibility for risk. It is currently discussing a set of draft articles on the subject. For some useful introductory remarks and the text of and commentary on the draft articles submitted by Ago, the Special Rapporteur, see 2 Report of the International Law Commission on the Work of Its Twenty-Sixth Session, 29 U.N. GAOR Supp. 10, at 287, U.N. Doc. A/9610/Rev.1 (1974). After preparation of these articles, the General Assembly has asked the Commission to take up work on the topic of international liability for injurious consequences arising out of acts not prohibited by international law: See G.A. Res. 3315 (XXIX) (28 January 1975).

or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 22

States shall co-operate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction.⁷

Logically understood, this formulation would have to incorporate responsibility to prevent irremediable or noncompensable effects as well as liability for actual damage, responsibility to warn of reasonably foreseeable environmental consequences of otherwise lawful activities and responsibility to submit to peaceful and expeditious settlement disputes related to any of these matters. There has been some subsequent elaboration along these lines, but many crucial issues remain unstated and substantially misunderstood.

With reference to this expansive notion of international obligations, the pages that follow should indicate what progress has in fact been made toward developing effective sanctioning processes for the implementation or enforcement of international environmental law. I shall also try to indicate areas where there are basic deficiencies in the evolution of a regime of state environmental responsibility.

III. Prevention of Environmental Deprivations

Within the overall realm of state environmental responsibility, the first objective of international sanctioning or implementing processes is that of long-term prevention of environmental deprivations. Prevention embraces a great variety of measures and activities designed, over a varying range of time, significantly to reduce the probability of undesirable environmental effects. The instruments of policy involved encompass the whole range of diplomatic, economic, ideological and military strategies available for the maintenance of international public order. Specific examples of likely

7. Report of the United Nations Conference on the Human Environment, U.N. Doc. A/CONF.48/14, at 7 (1972) [hereinafter Report].

"police action" may include the promulgation of standards and criteria for use and enjoyment, inspection and monitoring of compliance, the prohibition of enjoyment of the resources to noncompliant users, and legal or administrative proceedings to investigate complaints and determine appropriate penalties for violators.

For a comprehensive view, it is necessary to look both at national policing systems and their sanctions for infringement of national environmental protection legislation and at the conditions under which, and means by which, these and certain other sanctioning processes are directed toward upholding multilateral prevention prescriptions. Then, with reference to how to determine what new preventive measures may be necessary or advisable in the future, a word ought to be added about the crucial role of monitoring in enabling management of resources according to sound scientific principles.

A. National Environmental Policing Systems

An excellent example in point, and one with which most international lawyers will be familiar, is the Canadian Arctic Waters Pollution Prevention Act. This piece of legislation is a model attempt by one state to provide comprehensive environmental policing for its designated area of coverage.⁸ No one doubts the particularly severe climatic conditions or other special ecological circumstances of Arctic regions. On the other hand, the political ecology of the Arctic is exceedingly complex and un conducive to joint action.⁹ Consequently, taking cognizance of its "responsibility for the welfare of the Eskimo and other inhabitants of the Canadian arctic and the preservation of the peculiar ecological balance that now exists in the water, ice and land areas of the Canadian

8. Rev. Stat. Can. 1970 (1st Supp.) c. 2 (1970).

9. The basic political ecological problem is as follows: On the one hand, claims of sovereignty on a sector theory have been raised as to certain parts of the Arctic by the Soviet Union. But, on the other, the United States, among others, has strongly and consistently opposed the advancement of any such claims or the drawing of baselines by Canada in its neighboring northern areas. As a result, any determination in an international forum of rules and regulations to apply to the Arctic, which would in effect refer to the Arctic north of Canada overwhelmingly, is not politically viable from the Canadian point of view. See generally Pharand, The Law of the Sea in the Arctic (1973).

arctic,"¹⁰ the government of Canada has gone ahead on its own with this legislation. The act prohibits and prescribes penalties for the deposit of "waste" in Arctic waters or on the islands or mainland under conditions that such waste may enter Arctic waters. It provides for civil liability resulting from such deposit on the part of persons engaged in exploring for, developing or exploiting the natural resources on the land adjacent to the Arctic Waters or in the submarine areas below the waters, or by persons carrying on any undertaking on the mainland or the islands of the Canadian Arctic or on Arctic waters, or by owners of ships navigating within Arctic waters and owners of the cargo of any such ship (which liability is absolute and not dependent upon any proof of fault or negligence). In addition to these basic substantive provisions, the act empowers the Governor General in Council to make regulations relating to navigation in shipping safety control zones and to prohibit any ship from entering such zones unless it meets the regulations concerning hull and fuel tank construction, navigation aids, safety equipment, pilotage, icebreaker escort, etc.; he may also order destruction or removal of ships in distress which are depositing waste or are likely to do so in the Arctic waters. The same legislation furthermore makes arrangement for "Pollution Prevention Officers" who among other things may, with the consent of the Governor General in Council, seize a ship and its cargo anywhere in the Arctic waters within the hundred-mile zone of coverage or elsewhere in the territorial sea or the internal or inland waters of Canada when there is suspicion, on reasonable grounds, that the ship, or ship or cargo owners have contravened the provisions of the act. Upon conviction for such an offense, a court can order the forfeiture of both the ship and its cargo.

Other nations have made differing policing arrangements in accordance with what they understand as the nature and scope of their pollution responsibility as concerns their own waters and coasts and in regard to inclusive resources. Some of the provisions of the U.S. Ports and Waterways Safety Program, for example, have farreaching extraterritorial effects.¹¹ But, in general, flag states, as might be expected, have expended very little energy in developing capabilities for pollution prevention on the part of their vessels (which may not even come near

10. Supra note 8, preamble.

11. Ports and Waterways Safety Act of 1972, 33 U.S.C.A. § 1221 et seq. (Supp. 1975).

their shores).¹² Rather than dwell on the extent of or jurisdictional bases for enforcement regimes, however, the point for present purposes is to highlight the basic nature of the policing and sanctioning processes themselves. As was shown by the example of the Arctic Waters legislation, a comprehensive set of preventive measures would encompass regulations for the conduct of operations in regard to the use and enjoyment of ecologically interdependent resources on a functional basis, investigatory powers to oversee compliance, subpoena and other powers for the production of witnesses and documents, seizure powers or bonding arrangements for the security of collateral with which to satisfy an adverse judgment, juridical or administrative procedures to evaluate conformity or nonconformity, and civil and/or criminal penalties for inadvertent or willful violation. The U.S. Ports and Waterways Safety Act even goes as far in its criminal penalties as, besides or in addition to stipulating fines, providing for imprisonment of up to five years.¹³

The references so far have been drawn primarily from the area of marine environmental protection, since that is the general subject of most direct and immediate international environmental concern at the present time. It goes without saying, however, that states individually and collectively also have an interest in protecting their air, rivers, lakes and other resources from pollution and other kinds of environmental deprivations and their people from various additional nuisances (e.g. noise) as well. It would be futile to attempt to catalogue all sorts of national environmental legislation and its enforcement provisions here (although that task has already in fact been begun by others elsewhere¹⁴). There are some variations, but the skeletal enforcement patterns are not fundamentally different in kind, and for the moment it should suffice to grasp the rudiments of what is needed.

12. On flags of convenience, see generally Boczek, Flags of Convenience (1962); "OECD Study on Flags of Convenience,"

4 J. Maritime L. & Com. 231 (1973).

13. 33 U.S.C.A. § 1227.

14. This is a main concern, for example, of the Environmental Law Centre of the International Union for the Conservation of Nature and Natural Resources (IUCN).

B. Sanctions to Enforce International Prevention Prescriptions

The above examples have dealt with preventive measures to enforce national legislation, but the requirements are not dissimilar either as regards the implementation or enforcement of international law. It has often been alleged that, since a norm may be said to have a sanction (and consequently be considered "law") when there is a government which will intervene if it is disobeyed, "therefore international law has no legal sanction."¹⁵ Except perhaps in the most narrow legalistic ratiocinations, that statement is meaningless or irrelevant, since international law has at its service a whole range of political, economic, social and even military sanctions on the part of nation-states to secure implementation.

As far as intervention by international machinery itself is concerned, a declaratory judgment by the International Court of Justice or some other international tribunal may have the character of a "sanction" or "measure of satisfaction."¹⁶ The declaration in the Corfu Channel case of the illegality of the British minesweeping "Operation Retail" provides a textbook example.¹⁷ There has, however, been some question about the

15. See Black's Law Dictionary 1507 (Rev. 4th ed. 1968).

16. On state responsibility and the role of declaratory judgments see the report by Garcia-Amador, Special Rapporteur, [1961] 2 Y.B. Int'l L. Comm'n 1, 14-16, U.N. Doc. A/CN.4/134 (1961). He explains that sometimes declaratory judgments "constitute a simple means of giving satisfaction for 'moral and political' injury caused to a State, or, in other words, a method of 'making reparation' for an act contrary to international law by formally declaring it to be unlawful and thus sanctioning or censuring the conduct imputable to the defendant state"; at other times such a judgment "constitutes a type of 'juridical reparation' for the unlawfulness of an act or omission capable of occasioning actual and effective injury and therefore constitutes a form of reparation sui generis." *Id.* at 15-16.

17. The International Court of Justice stated that "to ensure respect for international law, . . . the Court must declare that the action of the British Navy constituted a violation of Albanian sovereignty" and that "[t]his declaration is in accordance with the request made by Albania through her Counsel [for "the declaration of the Court from a legal point of view"] and is in itself appropriate satisfaction." [1949] I.C.J. Rep. 4, 35.

role of declaratory judgments in cases of potential environmental injury, with at least one writer ruling out resort to them as a means of determination of reciprocal rights and duties of parties to a dispute involving extraterritorial environmental interference caused by a per se lawful activity in the absence or in advance of actual, provable injury.¹⁸ Yet, as others have pointed out, the arbitral tribunal in the Trail Smelter case did, nevertheless, hold that "it is the duty of the Government of the Dominion of Canada to see to it that this conduct [the future operation of the smelter] should be in conformity with the obligation of the Dominion under international law as herein determined";¹⁹ so the question at the very least remains open.

Unfortunately, clarification has not been provided by the recent Nuclear Tests decisions, where the International Court of Justice chose not to confront the problem of illegality.²⁰ It will be remembered that the I.C.J. held, in effect, that cessation of the atmospheric testing by France, together with French public statements announcing an intention hereafter to test only underground, rendered moot the issue upon which it had been asked to pass judgment by providing the relief the parties wanted. More specifically, having found that "the original and ultimate objective" of the applicants in these cases "was and has remained to obtain a termination of those tests [aboveground]" and therefore that the claim "cannot be regarded as being a claim for a declaratory judgment,"²¹ the majority concluded that the controversy "no longer has any object and that the Court is not called upon to give a decision thereon."²² Dissenting

18. Handl, "Territorial Sovereignty and the Problem of Transnational Pollution," 69 AJIL 50, 72-75 (1975). But cf. the second use of declaratory judgments described in Garcia-Amador's report, supra note 16.

19. (United States v. Canada), 3 U.N.R.I.A.A. 1938, 1963 (1941).

20. Nuclear Tests (Australia v. France) and Nuclear Tests (New Zealand v. France), [1974] I.C.J. Rep. 253 & 457. For discussion, see e.g. Goldie, "The Nuclear Tests Cases: Restraints on Environmental Harm," 5 J. Maritime L. & Com. 491 (1974); Frank, "Word Made Law: The Decision of the International Court of Justice in the Nuclear Test Cases," 69 AJIL 612 (1975).

21. Id. at 263 & 457.

22. Id. at 272. It consequently also found that the application of Fiji for permission to intervene lapsed and

judges insisted, not only did this assertion fail to take account of the purpose and utility of a request for a declaratory judgment at international law, but it also changed the scope and nature of the formal submissions.²³ Still, the majority decision was not to decide.

In any event, in the overwhelming majority of circumstances, responsibility for enforcement of international environmental law so as to prevent injury will rest with individual states. When states ratify international treaties and agreements, they quite routinely have to pass detailed implementing legislation (although some of them are, of course, self-executing). Principle 4 of the General Principles on Marine Pollution has expressly provided that:

States should ensure that their national legislation provides adequate sanctions against those who infringe existing regulations on marine pollution;²⁴

and, for another example, each contracting party to the Paris Land-Based Sources Convention has specifically undertaken "to ensure compliance with the provisions of this Convention and to take in its territory appropriate measures."²⁵ But the responsibility of states to conform national legislation and enforcement action to agreed international norms is usually considered as implied under both conventional and customary international law and is rarely so explicitly stated. The specific sanctioning regimes often vary considerably in accordance with domestic constitutional criteria, although certain policing measures have been the subject of international accord. Examples in the latter category might be provided by the Oslo and London Ocean Dumping Conventions,²⁶ which stipulate that states should set up "spe-

that therefore "no further action thereon is called for on the part of the Court." Order of December 20, 1974, [1974] I.C.J. Rep. 530, 531.

23. See Joint Dissenting Opinion of Judges Onyeama, Dillard, Jimenez de Arechaga and Sir Humphrey Waldock, [1974] I.C.J. Rep. 494.

24. General Principles for the Assessment and Control of Marine Pollution, Report, supra note 7, Annex III, at 1. These principles, along with a Statement of Objectives on the same subject, were agreed to by the Intergovernmental Working Group on Marine Pollution convened in preparation for the Stockholm Conference.

25. Convention for the Prevention of Marine Pollution from Land-Based Sources, done June 4, 1974, in 13 Int'l Legal Materials 352, art. 12 (1974).

26. Convention for the Prevention of Marine Pollution

cial permit" systems for certain grey-listed substances taking account of various specified factors; but as to actual regulations and enforcement details, they too leave a great deal to the legislative, executive and judicial imagination of national governments.

On the core issue of what is to be prevented, by whom and to what extent, there is a multiplicity of existing treaties and customary obligations. The following is just a partial listing of the conventional prevention prescriptions intended to give some idea of their legislative scope and variety: the 1954 International Convention for the Prevention of Pollution of the Seas by Oil with its subsequent amendments and a whole host of related legislation;²⁷ the 1971 Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft and the following 1972 London Convention on the Dumping of Wastes at Sea;²⁸ the International Convention for the Prevention of Pollution from Ships;²⁹ the Paris Convention for the Prevention of Marine Pollution from Land-Based Sources;³⁰ the Outer Space Treaty;³¹ the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water;³² and the later Seabed Denuclearization and Tlatelolco treaties;³³ the Antarc-

by Dumping from Ships and Aircraft, done February 15, 1972, in 11 Int'l Legal Materials, at 262 (1972) and Convention on the Dumping of Wastes at Sea, done November 13, 1972, *ibid.* 1294.

27. Done May 12, 1954, [1961] 3 U.S.T. 2989, T.I.A.S. No. 4900, 327 U.N.T.S. 3; with amendments adopted April 11, 1962, [1966] 2 U.S.T. 1523, T.I.A.S. No. 6109, 600 U.N.T.S. 332; October 21, 1969, annexed to IMCO Assem. Res. 175 (VI) (1969); October 15, 1971, text in 11 Int'l Legal Materials 267 (1972).

28. Supra note 26.

29. Done November 2, 1973, in 12 Int'l Legal Materials 1319 (1973).

30. Supra note 25.

31. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, done January 27, 1967, [1967] 3 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205, arts 6-9.

32. Done August 6, 1963, [1963] 2 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43, preamble & art. 1.

33. Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on

tic Treaty³⁴ with its prohibitions, the draft European Convention for the Protection of International Watercourses Against Pollution³⁵ and other agreements to prevent river degradation, up to and including the new USSR draft Convention on the Prohibition of Action to Influence the Environment and Climate for special purposes.³⁶

"By whom" in most of these treaties means by the national or flag state of those carrying out the activities in question. A new and desirable development from the environmental point of view, nevertheless, is the provision for coastal state enforcement in the London Dumping Convention and elsewhere and its consideration at the Law of the Sea Conference.³⁷ "To what extent," of course, regularly means (as is not surprising) to the fullest extent necessary to accomplish the specified purposes according to agreed standards and criteria, and the reach of allowable enforcement measures is not usually an issue. In the debate over coastal state enforcement in the deliberations on the law of the sea, however, there has been sharp and highly vocal disagreement over whether or not such jurisdiction should extend to shore-based or in-port investigation and action only, detention of vessels, stopping and inspecting ships, power for ordering them out of coastal zones, arrest of offending vessels, institution of proceedings with only monetary or more drastic penalties, etc.³⁸ Again from the perspective of environmental protection, full enforcement au-

the Seabed and the Ocean Floor and in the Subsoil Thereof, done February 11, 1971, [1973] 1 U.S.T. 701, T.I.A.S. No. 7337 and Treaty for the Prohibition of Nuclear Weapons in Latin America, done February 14, 1967, 634 U.N.T.S. 281.

34. December 1, 1959, [1961] 1 U.S.T. 794, T.I.A.S. No. 4780, 402 U.N.T.S. 71.

35. Report, Council of Europe Doc. EXP/Eau (74) 6 Add. 1 (13 March 1974).

36. U.N. Doc. A/C.1/L.675, Annex (1974), reprinted in 13 Int'l Legal Materials 1472 (1974).

37. See supra note 26 & infra note 38.

38. At this point, these questions are very much open. Whatever its other virtues, to say that the enforcement provisions of the Marine Environment Single Negotiation Text, U.N. Doc. A/CONF.62/W.P.8/Part III (1975) are confusing is something of an understatement. Using this text as the future "basis for negotiation," which it is intended to be, may not at all expedite future deliberations of the Conference on this particular matter.

thority qualified only by requirements that such powers be exercised reasonably and nondiscriminatorily, without undue interference with other legitimate uses of the seas, and subject to readily available dispute settlement provisions is warranted. Since the issues of flag/port/coastal state jurisdiction have been belabored at length elsewhere and since LOS-III has at the time of this writing not yet even come close to resolving them, there is no apparent need for a further elaboration on these matters.

C. Environmental Monitoring

Before passing on, however, to the controversial subject of environmental deterrence measures and to the scarcely-considered subject of liability and compensation regimes, it should be strongly reemphasized that acquisition of accurate and broad-based information is critical to accomplishment of the objective of prevention of environmental injury. In order to be able both to evaluate the effectiveness of existing provisions and to determine what further preventive measures may be required, it is essential that there be an adequate international monitoring system. The need for ongoing and comprehensive monitoring on a global scale was, of course, recognized at the U.N. Conference on the Human Environment, and reference to the need for monitoring was incorporated in at least twenty-three specific Recommendations dealing with very diverse areas of concern.³⁹ Consequently, planning got underway for the establishment of the Global Environmental Monitoring System (GEMS).⁴⁰ Scientists from many countries are working on determining what variables have to be measured and what criteria should be used in assessment of the results.⁴¹ The present inquiry can only hope to touch in a few words on some of the basic legal implications involved.

In the first place, states which permit or engage in activities which result in the release of substances that may cause environmentally deleterious consequences have a

39. See Report, *supra* note 7, at 59.

40. For description, see "The Global Environmental Monitoring System," U.N. Doc. UNEP/GC/31/Add.2 (1975). See also Report of the Governing Council of the United Nations Environment Programme on Its Third Session, U.N. Doc. UNEP/GC/55, at 45-47, 112 (1975).

41. *Id.*

responsibility which should be given explicit recognition, in the best interests of their own citizens as well as to be consistent with the rights of other states, to determine the effects of such activities. Secondly, the system cannot work properly to protect common interests unless there is wide dissemination of appropriate information in respect of the release of substances, or the known presence of substances, likely to cause pollution and of the particular features of a given environment and e.g. its sensitivity to pollutants. Participation in GEMS and other international monitoring systems is at present voluntaristic only, but at least in one important area--marine environmental monitoring--states have agreed on certain firm commitments. The draft article on monitoring negotiated at the Geneva session of LOS-III obligates states both to "observe, measure, evaluate and analyse, by recognized methods the risks or effects of pollution of the marine environment" and to "provide at appropriate intervals reports of the results obtained . . . to UNEP or any other competent international or regional organizations, which should make them available to all States."⁴² Yet this is only part of an overall necessity: Similar obligations should be acknowledged and upheld in respect of other areas and ecological interdependencies.

There will be more discussion of some of these issues later in connection with the subject of environmental warning and notification. The point here and now is simply, once more, that the responsibility to acquire knowledge and assess the consequences of ongoing and proposed actions is not merely a time-to-time affair, but a continuous individual and reciprocal responsibility of states prerequisite to any conceptualization and protection of common environmental interests at a time of emerging inextricable ecological interdependency. In short, a reliable and up-to-date data base is fundamental to wise and informed political choice.

IV. Deterrence of Impending Environmental Harm

Supplementary to their overall interest in long-term prevention of environmental deprivations, states must also be concerned with the deterrence of particular threats to the environment that have emerged and been clearly posed or

⁴². Results of Consideration of Proposals and Amendments Relating to the Preservation of the Marine Environment, U.N. Doc. A/CONF.62/C.3/L.15/Add.1, at 1, art. 8 (1975).

are imminently promised. Such a danger which one state may have an obligation--vis-a-vis its own citizens and/or the international community--to try to avert may have had its origin in activities taking place either in another state's territory or in areas beyond national jurisdiction or control. Furthermore, the state which must bear primary responsibility to deter impending environmental deprivations need not necessarily be the state which was charged initially with the obligation to prevent the threatened effects, nor is that former state (or its nationals) particularly likely ultimately to be held liable for any damage which may nevertheless result.

Admittedly the whole theory of "state responsibility" on these questions is still nebulous and underdeveloped, and rights and duties of states in such cases of environmental damage are especially difficult to define. Perhaps the understanding of the problem can be facilitated through some concrete illustrations of the multivariate types of circumstances that may be involved. When an injurious situation has actually emerged there is an immediate problem of abatement or minimization of damage, but at times it may seem essential or desirable to seek to avert the very severe risk of grave environmental danger through injunctive or other temporary relief rather than waiting for an actual threat to materialize; for accomplishment of these objectives, interstate environmental warning and notification networks are necessary, and some observations will be added about progress to date in this regard.

A. Abatement and Minimization of Damage

Probably the most dramatic illustration of pollution-abatement measures is still provided by the Torrey Canyon catastrophe.⁴³ The tanker, whose deadweight tonnage of 118,285 ranked her third largest in the world at the time of her demise, was owned by a Bermuda corporation, which was

⁴³. For presentation of the facts and analysis of the legal issues raised by this disaster, see Brown, "The Lessons of the Torrey Canyon," 21 Current Legal Problems 113 (1968); McGurran, "The Externalities of a Torrey Canyon Situation: An Impetus for Change in Legislation," 11 Natural Resources J. 349 (1971); Utton, "Protective Measures and the Torrey Canyon," 9 B.C. Ind. & Com. L. Rev. 613 (1968); Comment, "Post Torrey Canyon: Toward a New Solution to the Problem of Traumatic Oil Spill," 2 Conn. L. Rev. 632 (1970).

controlled by an American oil corporation, was registered in and flew the flag of Liberia, and was manned by an Italian crew; she was chartered by a British oil company partially owned by the British government, was insured by companies in the United States and Great Britain and was claimed for salvage by a Dutch corporation. When on March 18, 1967, going at full speed, the Torrey Canyon struck a reef off the southwest corner of England, she was carrying 880,000 barrels of Kuwaiti crude oil. The oil started spilling out of her raked tanks almost immediately after grounding, and after three days it had covered an area over 35 miles long and 18 miles wide. Carried along by the wind, tides and the Gulf Stream, the thick blanket of crude oil spread toward some of the best resort beaches and fishing areas in the United Kingdom. Under the circumstances, the British could hardly have been expected to sit back and wait for the rights and responsibilities to be sorted out among all the interested parties, and indeed the British government would have been sorely remiss in its responsibilities for failure to act to avert the danger to its own resources (not to mention those of its neighbors and inclusive resources). Consequently, after the Dutch salvors gave up their attempt to refloat the vessel, the Royal Air Force bombed her in a manner calculated to ignite the oil remaining within the hulk so that it would burn before it also leaked out onto the waters. Almost two dozen large vessels and an accompanying host of smaller craft began spraying and shoveling detergent on the slick to emulsify it, but a great deal of oil still managed to pollute the waters and blacken the shores of Cornwall, the States of Guernsey and later of France.

The use of force by the RAF in the above instance was, of course, an uncharacteristic occurrence, and most oil spills occasion more routine "cleanup" measures. But tanker casualties themselves are, unfortunately, becoming a more familiar phenomenon. Seemingly to spur international decision-makers to provide for effective measures, each major world conference dealing with environmental affairs and pollution appears to have its own benchmark incident. The Stockholm Conference was marked by the Cherry Point oil spill.⁴⁴ In that incident, a Liberian tanker was unloading

⁴⁴. For details see "Canada Asks U.S. Payment for Oil Spill on West Coast," N.Y. Times, June 10, 1972, at 36, col. 5; "Oil in Canadian Waters" (edit.), id., June 27, 1972, at 40, col. 1.

at the Cherry Point refinery of Atlantic Richfield Corporation located in Ferndale, Washington. She accidentally spilled some 12,000 gallons of crude oil, a good deal of which fouled about five miles of beaches in British Columbia, Canada. This spill was relatively small in and of itself, but it produced major political repercussions, engendering angry Canadian newspaper articles and forcing an emergency debate in Parliament. Meanwhile, the refinery and authorities on both sides of the waters took prompt action to contain the spill and minimize the damage, and consequently "the damage to Canadian waters and shoreline was less than might otherwise have resulted."⁴⁵ The Caracas session of the Law of the Sea Conference had its casualty as well. When the tanker Metula, which flew the flag of the Netherlands and was owned by the Curacao Shipping Company and carried Shell oil, went aground in the Straits of Magellan she lost 6,000 tons of crude oil along a front of about twenty-five miles. Undoubtedly, this accident should have given a jolt to the Committee 3 delegates discussing preservation of the marine environment.⁴⁶ Fearing that the ship might split

45. Statement on the Cherry Point Oil Spill by Hon. Mitchell Sharp, Secretary of State for External Affairs, House of Commons Debates, quoted in 11 Can. Y.B. Int'l L. 314, 333-34 (1973). On the Canadian reaction in general and subsequent handling of cleanup costs, a Canadian source supplied some three dozen clippings, including: "U.S. Oil Spill Leaving Film on B.C. Beach," Gazette (Montreal), June 6, 1972; "Municipal Workers, Volunteers Cleaning Up B.C. Spill," Toronto Globe & Mail, June 7, 1972; "B.C. Oil Spill Tars Pipeline's Future," Ottawa Journal, June 7, 1972; "MPs Back Demand for Oil Spill Payment," Montreal Star, June 9, 1972; "Compensation Demanded for Oil Spill in B.C.," Evening Telegram (St. Johns), June 9, 1972; Sellar, "Oil Spill Damages Sought," Calgary Herald, June 9, 1972; "U.S. Oil Company Billed for Spill," Montreal Star, June 29, 1972; "ARCO Sets Up Offices for Oil Damage Bills," New Westminster Columbian, June 24, 1972; "ARCO Pays \$19,000 Cleanup Bill," Vancouver Sun, Aug. 10, 1972; "Oil Spill Billing Will Hit \$26,000," New Westminster Columbian, Aug. 8, 1972.

46. For facts and discussion, see Third Committee, Summary Record of the Fifteenth Meeting, U.N. Doc. A/CONF.62/C.3/SR.15 (1974), reprinted in 2 Third United Nations Conference on the Law of the Sea: Official Records 372, 373-75, U.N. Sales Doc. E.75.V.4 (1975).

apart imminently and thereby endanger safety of navigation, the well-being of coastal inhabitants and the life of local marine species, the Chilean government immediately undertook emergency measures; in view of their considerable experience, the governments of Canada and the United States offered experts and technical assistance to these operations.

It ought again to be emphasized that what is being deterred in all these cases of abatement measures is not merely impending pollution injury to waters and amenities. There is also a very clear and present danger to living resources in circumstances of oil spills or other casualties. As one expert has observed:

A slick kills as it goes, often doing some of its worst damage far from the scene of the disaster. Oil from the Arrow, which went aground in Chedabucto Bay, off Nova Scotia, in February, 1970, killed seabirds--forty-eight hundred of them--as far away as Sable Island, a hundred and ten miles out in the Atlantic from the wreck. The damage a slick does as it travels is comprehensive, destroying both the very foundation of sea life, the plankton, and the highest reach of it, the birds in the air. Phytoplankton, the tiny plants responsible for photosynthesis and for the primary production of more than ninety per cent of the living material in the seas, must function in the upper levels of the oceans, where light penetrates. Fish feed on it, and the fish attract birds. Because of this cycle, all these creatures are victims of oil spills; also destroyed are the surface-mating fish eggs and fry.⁴⁷

This account excludes mention of the further economic and social consequences in terms of a dependency of coastal populations on fishery resources, of national and global populations on protein resources from the sea, etc. And the discussion thus keeps reverting to the original observation of inescapable ecological interdependencies.

Short-term measures to abate or minimize environmental harm are not, of course, exhausted by the example of oil spills containment measures. Such endeavors may

47. Mostert, "Profiles: Supertankers," New Yorker 45 & 46 (2 parts, May 13 & May 20, 1974), the quotation being from Part II, at 75. See also Mostert, Supership (1974), which expands upon these articles.

instead be concerned with activities on air, land, sea or elsewhere involving any number of possible substances and dangers. An outstanding example of the variety of factors that may be involved is provided by the Palomares incident.⁴⁸ When a United States B-52 nuclear bomber collided with a jet tanker during a refueling mission, four bombs were dropped by accident. Two of the bombs that fell on land ruptured and their TNT charges exploded, scattering uranium and plutonium particles near the Spanish coastal village of Palomares and thereby causing a grave and imminent danger to the inhabitants and ecology of the area. The governments of the U.S. and Spain immediately undertook a huge effort to free the region from contamination, which even included the burying of some 1,750 tons of mildly radioactive Spanish soil in the U.S.⁴⁹ A third bomb hit the earth intact, but the fourth hydrogen bomb somehow managed to get lost. On the assumption that the missing object lay somewhere on the deep and mountainous bottom of the Mediterranean within a 125-square mile locus, naval experts began an intense submarine search. It was located after two months, but the recovery operation was beset by bad luck and the bomb tumbled down a deep underwater shelf to get lost again for nine more desperate days. At last, after 80 days, the bomb--reported to be a 20-megaton device with an explosive force equal to 20 million tons of TNT--was retrieved in a highly specialized 48-hour operation by a U.S. Navy salvage crew. U.S. Naval and Air Force commanders on the scene opposed any public display on security grounds, but a compromise was worked out under which certain selected Spanish officials and newsmen were allowed to view the bomb aboard the task force's flagship so as to be able to assure themselves and the public that the danger had really been averted. As far as is known, that is the first time a hydrogen bomb has ever been put on display.⁵⁰

⁴⁸. See generally Lewis, One of Our H-Bombs is Missing (1967); Szulc, The Bombs of Palomares (1967).

⁴⁹. "Radioactive Spanish Earth Is Buried 10 Feet Deep in South Carolina," N.Y. Times, Apr. 12, 1966, at 28, col. 3.

⁵⁰. On these final details, see Szulc, "H-Bomb Is Recovered After 80 Days," id., Apr. 8, 1966, at 1, col. 4; Szulc, "Dented H-Bomb Is Displayed on Recovery Ship," id., Apr. 9, 1966, at 1, col. 4.

As all these instances illustrate, once the danger has materialized, the general nature and extent of measures that should be taken to abate it are often quite clear. In the above cases it was also by and large rather easy to see who had the best means and greatest responsibility to take them. The latter factor is, however, not always so readily apparent. Consequently, to avoid undue haggling and critical delay, for some contingencies specific international arrangements have been made as to who is to take what action.

It is, first of all, firmly established by customary international law doctrines of self-help that any state does not have to await actual catastrophe at its borders, but has a right to protect itself from impending disasters, even to the extent of employing necessary and proportional force under the circumstances.⁵¹ And in the particular case of oil spills, the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties specifically authorizes parties to take such measures as may be necessary:

to prevent, mitigate or eliminate grave and imminent danger to their coastline or related interests from pollution or threat of pollution of the sea by oil, following upon a maritime casualty or acts related to such a casualty, which may reasonably be expected to result in major harmful consequences.⁵²

But conditions may arise when it is advisable or desirable that action be taken before it is evident which particular state is the primary target of the impending harm or where there is reason to be greatly concerned over grave and imminent danger to shared resources, and some provisions are being made to meet these types of situations. Canada and the United States, for example, have adopted a "Joint U.S.-Canadian Oil and Hazardous Materials Pollution Contingency Plan for the Great Lakes Region," which fixes spheres of responsibility for the U.S. Coast Guard and the Canadian Ministry of Transport and whose purpose is "to provide for coordinated and integrated response to pollution incidents in the Great Lakes System by responsible federal, state,

51. See the discussion of self-defense, self-preservation and security in McDougal & Feliciano, Law and Minimum World Public Order 213-16 et seq. (1961).

52. Done November 29, 1969, in 9 Int'l Legal Materials 25 (1970).

provincial and local agencies."⁵³ With comparable objectives in regard to a more broadly inclusive resource, the governments of Belgium, Denmark, France, West Germany, the Netherlands, Norway, Sweden and the United Kingdom, in the Bonn Agreement Concerning Pollution of the North Sea by Oil, have carved up that sea by longitude and latitude into zones of state responsibility "[f]or the sole purposes of this Agreement";⁵⁴ in them the parties have obligations to make assessments and take measures:

whenever the presence or the prospective presence of oil polluting the sea within the North Sea area . . . presents a grave and imminent danger to the coast or related interests of one or more Contracting Parties.⁵⁵

The International Convention for Northwest Atlantic Fisheries might also be cited in this connection, but the panels of states responsible for the subareas delineated therein are only supposed to oversee developments and then to make recommendations to the governments collectively involved as to the need for ameliorative measures to counteract any observed depletion of the stocks.⁵⁶ And there are undoubtedly other examples making varying arrangements in accordance with differing degrees of imminence of harm.

With regard to inclusive resources in general, any state(s) or international organization(s) aware of circumstances endangering the marine or other environments may, of course, always present to the state under whose jurisdiction or control the activities concerned are being carried out, a request for the termination or restriction of such activities and the elimination or reduction of the threat. States can take upon themselves the responsibility to back up such demands by many sorts of political, economic and other pressures.

53. The Plan itself was adopted on June 10, 1971. It was described and its purpose is here cited from the Agreement on Great Lakes Water Quality, April 15, 1972, [1972] 1 U.S.T. 301, T.I.A.S. No. 7312, Annex 8.

54. Entered into force August 9, 1969, in 9 Int'l Legal Materials 359, art. 6 (1970).

55. Id., art. 1.

56. Done February 8, 1949, [1950] 1 U.S.T. 477, T.I.A.S. No. 2089, 157 U.N.T.S. 157.

B. Injunctive and Other Temporary Relief

At times it seems essential or desirable to avert the very severe risk of grave danger rather than to wait until an actual threat has materialized. States may seek to accomplish this through varied channels, drawing on political and other pressures for deterrence. When the United States was contemplating "Cannikin," its third underground nuclear weapons test on the Aleutian Island of Amchitka, the Canadian Minister for External Affairs lodged a formal protest with the U.S. Department of State, and Japanese officials also expressed concerned opposition.⁵⁷ These apprehensions were supplemented by several unofficial demonstrations by Canadian citizens and environmental groups, in addition to those of U.S. environmentalists. The blast was nevertheless carried out. While no surface radiation was detected and the explosion did not cause the earthquakes that had been feared by some, it did produce high intensity shock waves affecting large areas. In view of the magnitude of the shock waves registered in Japan, the Japanese government then sent a formal protest to the U.S.

Another example of reckless or exceedingly risky behavior, this time in connection with the use of inclusive resources, deterrence of which was the object of determined international efforts, was project "West Ford."⁵⁸ The U.S.

57. On the general subject of the international legal implications, see Stein, "Cannikin," in International Responsibility for Environmental Injury, supra note 4. On the protests see e.g. Kentworthy, "Nixon May Cancel Aleutians A-Test," N.Y. Times, Sept. 9, 1971, at 1, col. 4; Szulc, "U.S., Britain Wary on Security Talks," id., Oct. 2, 1971, at 1, col. 7; Walz, "12 Sail for Amchitka to Fight Atom Test," id., Oct. 3, 1971, at 14, col. 4; "Gamble in the Aleutians" (edit.), id., Oct. 4, 1971, at 38, col. 2; Kentworthy, "Nixon Authorizes Atomic Explosion in the Aleutians," id., Oct. 28, 1971, at 1, col. 4; "Canada Voices Disquiet," id., Oct. 28, 1971, at 26, col. 8; Turner, "H-Bombs Tested in the Aleutians Despite Protest," id., Nov. 7, 1971, at 1, col. 8; "Shock Waves Felt in Japan," id., Nov. 7, 1971, at 64, col. 6.

58. On the legal issues involved see Weiss, "Project West Ford: Needles in Space," in International Responsibility for Environmental Injury, supra note 4. On the protests see e.g. Finney, "Needle Antennas Stir Space Furor," N.Y. Times, July 30, 1961, at 48, col. 1; Sullivan, "Needles Orbiting to Be Tried Again," id., Feb. 3, 1962, at 5, col. 1; Finney,

government made plans to release 20 kilograms of tiny copper "hairs" or "needles" in outer space to form a belt around the earth about 15 kilometers wide and 30 kilometers deep, the objective being to test its feasibility to reflect communications signals. The prospect of such manipulation of the environment of nearby space caused international as well as national scientific groups and individual scientists to air their very serious concern about potentially adverse effects upon radio and optical astronomy. The Soviet Union also complained that the needles might interfere with the movement of spacecraft, but that issue or pseudoissue did not receive as much attention as the fears of the astronomers and their supporters. As a result of the many protests, a special meeting of the President's Scientific Advisory Council was called to review the project and advise whether the launching should be stopped, and the PSAC deemed that it would be a safe undertaking. The first launch of West Ford consequently went ahead a month later, but the dipoles failed to disperse properly to form the belt; the final attempt took place two years later. After the success of the last effort, the U.S.S.R. made its first formal public protest through the United Nations. Description of subsequent propaganda maneuvering and countermaneuvering is not germane here. The point is that in such cases the determining factor or norm for state responsibility has to be the probability of risk rather than the wrongfulness of the conduct in and of itself. Richard Kearney, the U.S. member of the International Law Commission, made reference to this project on the part of his country and asked the ILC: "Was there a question of responsibility there?"⁵⁹ As Ambassador Kearney himself gave evidence of fully realizing, the answer from the perspective of the rational and progressive development of international environmental law had to be rather obvious.

The above two paragraphs discussed direct efforts to stop or deter a planned action. It ought to be added that

"New Panel to Screen Space Experiments," *id.*, May 10, 1962, at 16, col. 4; "Needles Orbited for Radio Relay," *id.*, May 13, 1963, at 1, col. 5; "U.S. Assures World Scientists Needles Are Harmless," *id.*, May 18, 1963, at 9, col. 7; "Soviet Again Hits U.S. Needles Test," *id.*, May 21, 1963, at 3, col. 1; Brewer, "Soviet Is Accused of Space Secrecy," *id.*, June 7, 1963, at 10, col. 3; "More Needles in Space?" (edit.), *id.*, Sept. 23, 1963, at 28, col. 2.

59. Remarks of Mr. Kearney, [1973] 1 Y.B. Int'l L. Comm'n 7.

states and other actors often seek also to invoke the authority of relevant courts and administrative bodies for temporary injunctive relief in aid of their causes. The hope is to obtain an official stay of the action either pending further investigation of its likely consequences or as an interim measure on the path to a final judgment disallowing the proposed activity.

In the Amchitka situation, several conservation groups joined forces to seek an injunction of the tests primarily on the basis that the U.S. Atomic Energy Agency's impact statement did not satisfy the requirements of the National Environmental Policy Act. The U.S. District Court for the District of Columbia entered summary judgment for the AEC, but the Court of Appeals for the D.C. Circuit reversed and remanded.⁶⁰ After remand, there was a subsidiary controversy over discovery, which was itself the subject of an interlocutory appeal.⁶¹ The District Court subsequently denied a preliminary injunction, the Court of Appeals denied the environmentalists' motion for summary reversal and a stay,⁶² and the case went all the way up to the highest court in the land. The U.S. Supreme Court, in a most rare occurrence, agreed to hear on Saturday morning a plea against the blast scheduled for that same afternoon. It rejected the last-minute appeal by a vote of 4:3⁶³ a few minutes before the 12:30 deadline, and the 5-megaton warhead went off on schedule⁶⁴--with the dissenting justices still insisting that they 'would grant the injunction so that the case can be heard on the merits.'⁶⁵

Despite this landmark case, injunctions are a fairly routine occurrence in U.S. environmental litigation. The

60. See Committee for Nuclear Responsibility v. Seaborg, 463 F.2d 783 (D.C. Cir. 1971).

61. Id. at 788.

62. Id. at 796.

63. Committee for Nuclear Responsibility v. Schlesinger, 404 U.S. 917, 92 S.Ct. 242, 30 L. Ed. 2d 191 (1971).

64. See Turner, 'H-Bombs Tested in the Aleutians Despite Protest,' supra note 57.

65. See Mr. Justice Douglas' dissent, 404 U.S. 917; Justices Brennan and Marshall would also have granted a temporary restraining order pending plaintiff's filing of a petition for certiorari and action by the Court on the petition. 404 U.S. 930.

most notable example from the international point of view occurred in connection with the construction of the Trans-Alaska Pipeline. In an action by three U.S. conservation groups with intervention by their Canadian counterparts and later consolidation with compatible claims of an unincorporated association of commercial fishermen, the District Court (again of D.C.) did enjoin the issuance of certain permits necessary for the construction of the haul roads and the pipeline itself on grounds that otherwise the environmental interests "would suffer irreparable injury."⁶⁶ After further hearings, however, the court dissolved its preliminary injunction, denied a permanent injunction and dismissed the complaints--which judgment was vacated and remanded, and the litigation went on.⁶⁷ There was quite a bit more litigation before the pipeline got its final approval, but it is important that construction was at least halted for some months of further investigation while environmentalists had their day in court.

International tribunals too have been known to grant injunctions in environmental cases, but often with questionable effect. At an early stage of the Fisheries Jurisdiction cases, the International Court of Justice did issue Orders Concerning Interim Measures of Protection which, among other things, provided that both sides in the two cases should "each of them ensure that no action of any kind is taken which might aggravate or extend the dispute submitted to the Court" and also "each of them ensure that no action is taken which might prejudice the rights of the other Party in respect of the carrying out of whatever decision on the merits the Court may render."⁶⁸ The 1972 Orders also held that the Republic of Iceland should refrain from taking any measures to enforce its purported new fisheries Regulations against ships registered in the United Kingdom or the Federal Republic of Germany outside the agreed 12-mile fisheries zone and that that state

66. Wilderness Soc'y v. Hickel, 325 F. Supp. 422, 424 (D.D.C. 1970). See also Natural Resources Defense Council v. Morton, 458 F.2d 827 (D.C. Cir. 1972).

67. See Wilderness Soc'y v. Morton, 479 F.2d 842 (D.C. Cir. 1973).

68. Fisheries Jurisdiction (United Kingdom v. Iceland) and Fisheries Jurisdiction (Federal Republic of Germany v. Iceland), Interim Protection, Orders of 17 August 1972, [1972] I.C.J. Rep. 12, 17 & 30, 35.

should further refrain from applying any administrative, judicial or other measures against such ships, their crews or other related persons because of their having engaged in fishing activities between 12 and 50 miles; for their part, the U.K. and Germany were directed not to take more than 170,000 and 119,000 metric tons of fish respectively from the "Sea Area of Iceland."⁶⁹

A year later, having meanwhile decided that it had jurisdiction to entertain the suits⁷⁰ and being aware that negotiations had taken place between Iceland and the other states with a view toward reaching interim arrangements pending final settlement of the disputes, the I.C.J. issued subsequent Orders Concerning Continuance of Interim Measures of Protection.⁷¹ Two judges lodged outright dissents, one of them placing great stress on the changed scientific and economic conditions of the fishstocks themselves, which he felt gave rise to questions which were serious enough to warrant inviting the Parties, before the Court took up any position on the continuance of interim measures, to furnish it with the relevant information . . . as to the evolution and exploitation of the fishstocks;⁷²

and another, also voting against the new injunctions, questioned whether new political circumstances did not necessitate either the revocation or at least modification of the terms of the earlier orders on grounds that they were rather obviously ineffective:

The reason is that, as no one can be unaware, there have been numerous clashes in the disputed fishery-zone between Icelandic coast-guard vessels and trawlers flying the British or Federal German flag. Some of these incidents, such as collision between two vessels or the firing of shells by Icelandic coastguard vessels, were in my view grave enough to warrant the exercise by the Court of its right to modify the terms of its original decision.

69. *Id.* at 17 & 35.

70. *Jurisdiction of Court, Judgments*, [1973] I.C.J. Rep. 3 & 49.

71. *Interim Measures, Orders of 12 July 1973*, [1973] I.C.J. Rep. 302 & 313.

72. *Dissenting Opinion of Judge Petren*, [1973] I.C.J. Rep. 310. The other is the *Dissenting Opinion of Judge Gros*, [1973] I.C.J. Rep. 306.

Furthermore, these incidents . . . constitute so many flagrant violations on either side of the operative part of the Orders of 17 August 1972. The measures should therefore be reviewed and others indicated concerning inter alia the presence of warships.⁷³

In any case, Iceland continued to disregard the injunctions against it, although a few months after the second set of orders, Iceland and Great Britain reached an "Interim Agreement in the Fisheries Dispute"⁷⁴ (but such was not the result of similar discussions with the Federal Republic). Finally, by 10 votes to 4, the World Court decided against Iceland on the merits but held that all parties in interest were under mutual obligations to negotiate in good faith for the equitable solution of their differences.⁷⁵ Whether and to what extent the judgment itself will be honored has yet to be seen.

A second, equally or more unencouraging instance of international preliminary injunctions in an environmental controversy occurred in the Nuclear Tests cases. In the course of the challenges by Australia and New Zealand to French atmospheric weapons tests over the South Pacific, the International Court of Justice again felt called upon to issue Orders Concerning Interim Measures of Protection. By 8 votes to 6, the Court instructed France to "avoid nuclear tests causing the deposit of radioactive fall-out" over Australia and New Zealand pending final decision in its proceedings.⁷⁶ The orders came down on June 22, 1973, and less than one month later on July 21 France exploded another device over its Pacific atoll of Mururoa; the French government also went ahead with another series of

73. Declaration of Judge Ignacio-Pinto, [1973] I.C.J. Rep. 304, 305.

74. Done November 13, 1973, in 12 Int'l Legal Materials 1315 (1973). See also Belgium-Iceland: Agreement on Fishing Within Fifty Mile Limit Off Iceland, done September 7, 1972, in 11 Int'l Legal Materials at 941 (1972); Iceland-Norway: Agreement Concerning Fishing Rights, done July 10, 1973, in 12 Int'l Legal Materials at 1313 (1973).

75. Merits, Judgments of 25 July 1974, [1974] I.C.J. Rep. 3 & 175.

76. Nuclear Tests (Australia v. France) and Nuclear Tests (New Zealand v. France), Interim Protection, Orders of 22 June 1973, [1973] I.C.J. Rep. 99, 106 & 135, 142. See supra TAN 20-23.

tests less than a year later. Subsequently, however, it will be recalled that various French officials issued unilateral statements of intention to cease atmospheric explosions and pass onto the stage of underground tests after the 1974 blasts, so allaying the fears of the two applicants as regards radioactive danger to their people and resources. In light of these declarations, as has been already indicated above, the I.C.J. chose not to make a declaratory judgment on the legality of atmospheric nuclear testing or to render any other judgment in the case. It might well be, however, that French policy and actions were ultimately influenced by the very fact of the juridical proceedings themselves.

C. Warning and Notification

At the drafting stages of the Declaration on the Human Environment of the Stockholm Conference, Principles 21 and 22 on state responsibility and liability were accompanied by a third principle relating to the duty to provide proper warning to other states. "Draft Principle 20," as originally proposed by the Working Group on the Declaration, provided as follows:

Relevant information must be supplied by States on activities or developments within their jurisdiction or under their control whenever they believe, or have reason to believe, that such information is needed to avoid the risk of significant adverse effects on the environment in areas beyond their national jurisdiction.⁷⁷

Some delegations, however, contended that any such consultation responsibilities were inappropriate for inclusion in the Declaration on directly opposite grounds: it was contended, on the one hand, that they "were inherent in the obligations undertaken by Member States in the Charter of the United Nations," and, on the other, that they "were an extension of these obligations which would be outside the scope of a declaratory and inspirational instrument."⁷⁸

⁷⁷. "Draft Declaration on the Human Environment," U.N. Doc. A/CONF.48/4, Annex, para. 20, at 4 (1972). For discussion see Sohn, "The Stockholm Declaration on the Human Environment," 14 *Harv. Int'l L.J.* 423, 496-502 (1973).

⁷⁸. Sohn, *supra* note 77, at 497, quoting U.N. Doc. A/CONF.48/PC.12, at 8 (1971).

And there was much further debate and a whole intervening spectrum of opinion as to the proper nature and content of an acceptable compromise.

No solution was reached either before or at the Conference itself. In Stockholm the recognition of a duty to warn was effectively blocked by the Brazilian delegation. Brazil was at the time undertaking feasibility studies for a giant hydroelectric installation on the Parana River, which eventually flows into Argentina becoming the La Plata. Argentina feared that such alteration in the flow of the river might cause floods, droughts, water pollution and other injury to Argentine environmental interests, and that government therefore called upon its neighbor to enter into consultations before going ahead with the plans. Accordingly, Argentina proposed at the Conference that the principle be strengthened by adding:

This information must also be supplied at the request of any of the Parties concerned, within appropriate time, and with such data as may be available and as would enable the above-mentioned Parties to inform and judge by themselves of the nature and probable effects of such activities;⁷⁹

while Brazil, on the contrary, wanted expressly to limit it:

No State is obliged to supply information under conditions that, in its founded judgment, may jeopardize its national security, economic development or its national efforts to improve environment.⁸⁰

The Conference finally avoided a decision on the question by deciding to refer it to the General Assembly the next fall, in the hopes that a consensus might emerge by that time.

In the G.A. a few months later, Brazil took the lead in coming forth with something of a conciliatory proposal. The new, substantially weakened resolution, which was cosponsored by a large number of developing countries and a few developed countries, recognized

that co-operation between States in the field of the environment, including co-operation towards the implementation of principles 21 and 22 of the Declaration of the United Nations Conference on the Human Environment, will be effectively achieved if official and public knowledge

79. *Id.* quoting U.N. Doc. A/CONF.48.CRP.5 (1972).

80. *Id.* quoting U.N. Doc. A/CONF.48/14, at 119 (1972).

is provided of the technical data relating to the work to be carried out by States within their national jurisdiction, with a view to avoiding significant harm that may occur in the environment of the adjacent area.⁸¹

It then further stipulated that such "technical data" should be given and received in the "best spirit of co-operation and good-neighborliness" and without its being used "to delay or impede the programmes and projects of exploration, exploitation and development of the natural resources of the States in whose territories such programmes and projects are carried out."⁸² It is clearly this last caveat, intended to stress the paramountcy of economic and social development, that won the support of the multitudes for General Assembly Resolution 2995 (XXVII). While on balance according it their support, however, some countries were quite worried about the possible implications that might be drawn from the somewhat feeble character of 2995 as regards the overall concept of state environmental responsibility. They therefore promoted concurrent passage of G.A. Resolution 2996 (XXVII), which states flatly that "no resolution adopted at the twenty-seventh session of the General Assembly can affect principles 21 and 22 of the Declaration of the United Nations Conference on the Human Environment."⁸³

Governments soon began to realize, nevertheless, that the exhortation to provide "technical data" and no more, as laid down in 2995, was simply not enough from the point of view of environmental protection. Consequently, the next year the General Assembly passed a new and stronger resolution on "Co-operation in the Field of the Environment Concerning Natural Resources Shared by Two or More States."

G.A. Resolution 3129 (XXVIII) specifically considers that it is necessary to ensure effective cooperation between countries through the establishment of adequate international standards for the conservation and harmonious exploitation of natural resources common to two or more States in the context of the normal relations existing between them;

81. G.A. Res. 2995, 27 U.N. GAOR Supp. 30, at 42, U.N. Doc. A/8730 (1972).

82. *Id.*

83. G.A. Res. 2996, 27 U.N. GAOR Supp. 30, at 42, 43, U.N. Doc. A/8730 (1972).

and it considers further that

co-operation between countries sharing such natural resources and interested in their exploitation must be developed on the basis of a system of information and prior consultation within the framework of the normal relations existing between them.⁸⁴

It therefore requests the Governing Council of the United Nations Environment Programme to report on measures adopted for the implementation of these two paragraphs and solicits UNEP and member states to take them fully into account. The second session of the UNEP Governing Council accordingly requested the Executive Director to prepare a study and make proposals along these lines.⁸⁵ After consulting widely with governments and international organizations, the Executive Director proposed in his report, among other things, that there should be consideration of a draft code of conduct setting forth general principles and guidelines for the conduct of states in the conservation and harmonious exploitation of shared natural resources,⁸⁶ and the third Governing Council authorized him to establish an intergovernmental working group to begin the drafting.⁸⁷ This decision was not reached, however, without a fair amount of doubt and hesitation, with the roll call vote being 28 votes to 1 with 20 abstentions; it should not be without interest that the single negative vote was cast by Brazil.⁸⁸

84. G.A. Res. 3129, 28 U.N. GAOR Supp. 30, at 48, 49, U.N. Doc. A/9030 (1973).

85. Report of the Governing Council of the United Nations Environment Programme on Its Second Session, 29 U.N. GAOR Supp. 25, at 119, Decision 18(II), U.N. Doc. A/9625 (1974). See also id. at 54-64. It is interesting that this decision was taken by a vote of 29 in favor to 1 against and 16 abstentions, and that Brazil cast the only negative vote. Id. at 61.

86. "Co-operation in the Field of the Environment Concerning Natural Resources Shared by Two or More States: Report of the Executive Director," U.N. Doc. UNEP/GC/44, at 41 (1975).

87. Report of the Governing Council of the United Nations Environment Programme on Its Third Session, U.N. Doc. UNEP/GC/55, at 124, Decision 44(III), (1975). See also id. at 82-86.

88. Id. at 84. See also note 85 supra.

In some cases and with regard to certain problems, states have very recently begun to try to elaborate upon and implement, on a multilateral and bilateral basis, these information and prior consultation responsibilities. The 1974 Principles Concerning Transfrontier Pollution of the Organization for Economic Co-operation and Development specify both that countries concerned should exchange "all relevant scientific information and data on transfrontier pollution" (an advance over merely "technical data" or plain "information" in the previous formulations) and also that they should "promptly warn other potentially affected countries of any substances which may cause any sudden increase in the level of pollution in areas outside the country of origin of pollution" (which may be taken to imply a responsibility to analyze available information and present it in a readily assimilable form).⁸⁹ The 1975 Canada-U.S. Agreement on the Exchange of Information on Weather Modification Activities, for another example, not only tries to elaborate upon the type of information to be communicated, in what form, and by and to whom, but also commits the responsible agencies in each country to "consult with a view to developing compatible reporting formats, and to improving procedures for the exchange of information."⁹⁰ In keeping with G.A. Resolution 3129, the parties additionally "agree to consult . . . regarding particular weather modification activities of mutual interest," except in extreme emergencies.⁹¹ But the manner and procedures for incorporating such prior consultations into the conduct of their normal relations is not spelled out.

Finally, at the Law of the Sea Conference, the international community has been doing some work clarifying and expanding upon evaluation and notification requirements. A new draft article agreed to at the Geneva session obligates states which have reasonable grounds for expecting that planned activities under their jurisdiction or control may cause substantial pollution of the marine environment both

89. OECD Doc. C(74)224 (21 November 1974), reprinted in 14 Int'l Legal Materials 242, 246, Titles G & F respectively (1975). Also relevant is Title E on the principle of information exchange and consultation.

90. Done March 26, 1975, in 14 Int'l Legal Materials 589, art. 3 (1975).

91. Id., the quotation being from art. 5 and the emergency exemption found in art. 6.

to "assess the potential effects of these activities" and to "communicate reports" thereof.⁹² At first its value as a means for the transfer of information and issuance of environmental warning may seem somewhat wanting, since states are merely to communicate the reports "to UNEP or any other competent international or regional organizations, which should make them available to all States." Yet, this draft article on environmental assessment must be interpreted in light of an earlier draft article on global and regional co-operation negotiated at the Caracas session of LOS-III, which provides that a state which becomes aware of cases in which the marine environment is in imminent danger of being damaged or has been damaged by pollution "shall immediately notify other States it deems likely to be affected by such damage, as well as the competent international organizations."⁹³ Taken together, the combination of responsibilities is not inconsequential.

Since the present paper is primarily an introduction to a new and important area of international law, this is not the place to attempt an extensive analysis of trends in legal and organizational development. The main point to be gleaned for present purposes remains that, slowly and tentatively, there is developing a legal norm of environmental warning and notification the violation of which may entail international responsibility on the part of states.

V. Reparation or Compensation for Environmental Injury

When environmental deprivations have not been prevented or potential hazards have not been effectively deterred, there then arises the problem of reparation of the harm and

92. Results of Consideration of Proposals and Amendments Relating to the Preservation of the Marine Environment, supra note 42, art. 9, draft article on environmental assessment.

93. Results of Consideration of Proposals and Amendments Relating to the Preservation of the Marine Environment, U.N. Doc. A/CONF.62/C.3/L.15, art. 5 (1974), reprinted in 3 Third U.N.C.L.O.S.: Official Records, supra note 46, at 260. It is worth noting in passing that warning and consultation provisions have already been written into the London Ocean Dumping Convention, supra note 26, art. 5, and into the regional Agreement Concerning Pollution of the North Sea by Oil, supra note 54, art. 6.

compensation for the damages that have occurred. It is in connection with this subgoal of legal sanctioning processes that the reference to concern over "international law regarding liability and compensation for the victims of pollution and other environmental damage" in Principle 22 of the Stockholm Declaration becomes of direct concern here.⁹⁴ As has been explained by other writers at length, there are actually three relevant subsidiary aspects to the problem of what is to be done after the fact of injury: "restoration" of relationships between or among the parties involved, "rehabilitation" or immediate reparation of the values destroyed, and "reconstruction" or long-term avoidance of unauthorized manipulation of the basic value relations at issue.⁹⁵ Since international environmental law is still in such a relatively primitive stage of development, it is not often possible to distinguish among these aspects in considering existing precedents. The varying purposes that different liability and compensation regimes can be made to serve should nevertheless be kept in mind throughout the following discussion.

The basic question here is the standard of liability to be applied. Whether the basis of liability is fault or negligence, on the one hand, or whether there is strict or absolute liability, on the other, may obviously make a great deal of difference in their respective rights and value positions as far as the parties themselves are concerned. And it is highly important from the perspective of the protection and preservation of the environment without further degradation that liability follow upon demonstration merely of causality of injury, rather than requiring reparation or compensation only upon proof of intention to harm or some other wrongfulness of behavior. A second fundamental and related question is who is to be held liable. Assuming liability attaches to the type of conduct involved, it is clear that a state is liable for damage attributable or imputable to it. When damage has been caused by its national or some activity under its jurisdiction or control, however, a state may choose in the first instance to provide appropriate recourse directly against the natural or juridical person(s) involved; but following

94. Supra TAN 7.

95. See McDougal & Feliciano, supra note 51, at 287-96; McDougal, Lasswell & Vlasic, Law and Public Order in Space 404-06 et seq. (1963).

exhaustion of any such local remedies, the state that is itself injured or is the national state of a damaged party still has the right to present a claim to the responsible state, and the latter state would then be answerable for any compensation found to be due (although it would probably then seek to extract payment from the particular relevant actor or actors). Under some circumstances, nevertheless, reciprocally or otherwise, states may wish to assume liability in the first instance for certain activities of their nationals. Further complications can arise in connection with both of these questions. For example, designation of liability and assessment of the nature and extent of damages are likely to be much more difficult as concerns injury to inclusive or shared rather than exclusive or nonshared resources. And on the matter of the repository of the liability, situations are not at all unforeseeable where there will be joint liability and perhaps indemnity from one responsible state or other party to another.⁹⁶

International law on many of these issues is, to repeat, not at all clear. Certain consistent and generalizable patterns of reparation and compensation requirements can, nevertheless, be observed in the contemporary development of international environmental law. I shall try to discuss the standard of strict or absolute liability both as it is emerging under general circumstances and as it has been applied to certain ultrahazardous activities. Then, since the possibility and feasibility of insurance underlies so much of the policy consideration in this area, some description and commentary will be added about the nature and functions of various environment-related compensation funds.

A. Emergence of Strict Liability for Environmental Injury

"Strict liability" is liability without fault, and it may be said to exist when compensation is due from one actor to another for injuries caused despite compliance with any particular standards of care. A number of variations on the theme of strict liability have evolved in common law jurisdictions (e.g. nuisance, ultrahazardous activities, trespass and borderline doctrines such as res ipsa loquitur),

96. For a good summary treatment of principles and problems of international responsibility of states and international claims, see Bishop, International Law 742-899 (3d ed. 1962).

but for present purposes a general comprehension of the generic term should suffice. It cannot be said that there are no defenses to strict liability since, depending on the degree of strictness involved, it may be subject to the classic exonerations for tortious acts: force majeure, acts of God or interventions of other third parties. Consequently, while some writers use the terms "strict" and "absolute" liability interchangeably, others prefer to reserve the latter for conditions under which very few or no exculpations apply; usage here will attempt somewhat to follow that general distinction.⁹⁷ But all of these are just words, none of which is very precise, and it must be recognized that what goes on in any given case is a balancing of multiple and multidimensional interests rather than merely pinpointing along some nonexistent linear theoretical projection.

As Professor L.F.E. Goldie has argued in several articles on liability for pollution, "the Trail Smelter, Corfu Channel and Lac Lanoux cases clearly point to the emergence of strict liability as a principle of public international law."⁹⁸ Others who have analyzed these very few precedents in the field of international environmental law usually tend to agree with him that there is an evolving norm of strict liability for environmentally injury modelled on the century-old rule adumbrated in the famous English case of Rylands v. Fletcher.⁹⁹ In that case, the defendants, who were proprietors of a mill, had built a large reservoir on their own land for their own business purposes. It was perfectly lawful for them to do this, and they employed for the project a competent engineer and competent contractors. Unfortunately, however, due to the unknown and unsuspected presence of an old and abandoned mine shaft, water leaked out of the reservoir and flooded the tunnels in the mine operated by the plaintiff on his own adjoining property. The plaintiff therefore sued to recover the damages caused by the flooding of his mine, and the House of Lords found

97. See generally Goldie, "Liability for Damage and the Progressive Development of International Law," 14 Int'l & Comp. L.Q. 1189 (1965); Jenks, The Prospects of International Adjudication 514-46 (1964).

98. Goldie, "International Principles of Responsibility for Pollution," 9 Colum. J. Transnat'l L. 283, 306 (1970).

99. L.R. 1 H.L. 330 (1868), extracted in Shulman & James, Cases and Materials on the Law of Torts 61 (2d ed. (1952)).

in his favor. The theory of the case was that the mill owners had put their land to a "nonnatural use" by collecting on it an unusual amount of water and that they were consequently liable for damage caused to someone else's property; as the Lord Chancellor observed, "that which the Defendants were doing they were doing at their own peril."¹⁰⁰

Parallels in the Trail Smelter¹⁰¹ situation are not difficult to find. That controversy, it will be remembered, involved damage occurring or having occurred in the territory of the United States and alleged to be caused by an agency situated in Canada. More specifically, the Consolidated Mining and Smelting Co. of Canada Ltd. was operating a smelter at Trail, British Columbia, which was one of the largest and best-equipped such plants on the North American continent. Due at least in part to certain characteristics of river and air currents in the valley shared by the two countries, the fumes were claimed to be causing air pollution and damage to crops in the increasingly-populated farming areas around Northport, a town in the State of Washington. The arbitral tribunal set up to resolve the matter found that the Dominion of Canada was responsible at international law for the conduct of the mining company in Canadian territory, that the damage south of the border was indeed caused by the operation of the Canadian smelter and consequently that indemnity was due from Canada to the United States in compensation for the injury. It based its decision on the much-quoted observation that "no State has the right to use or permit the use of its territory in such a manner as to cause injury by

^{100.} Shulman & James, supra note 99, at 70. And as Lord Cranworth added:

If a person brings, or accumulates, on his land anything which, if it should escape, may cause damage to his neighbor, he does so at his peril. If it does escape, and cause damage, he is responsible, however careful he may have been, and whatever precautions he may have taken to prevent the damage.

Id. at 71. See also Bohlen, "The Rule in Rylands v. Fletcher," 59 U. Pa. L. Rev. 298 (1911).

^{101.} (United States v. Canada), 3 U.N.R.I.A.A. 1911 & 1938 (1938 & 1941), reprinted in 33 AJIL 182 (1939) & 35 AJIL 684 (1941).

fumes in or to the territory of another or the properties or persons therein . . ."¹⁰²

An even clearer illustration of the application of strict liability in the context of environmental injury is the Gut Dam¹⁰³ arbitration between the same two countries. The facts may be summarized in the following way: In 1874 the Canadian Chief Engineer of Public Works proposed to his government that it construct a dam between Adams Island in Canadian territory and Les Galops belonging to the U.S. for the purpose of improving navigation in the St. Lawrence River. After many investigations and reports and formal approval by an act of the U.S. Congress, the Canadian government proceeded to construct the dam in 1903; experience soon demonstrated that it was too low to serve the desired ends and, again with explicit U.S. permission, Canada increased the height of the dam a year later. Between 1904 and 1951 several manmade changes affected the flow of water in the Great Lakes-St. Lawrence River basin, and, while the dam itself was not altered in any way, the level of the water in the river and nearby Lake Ontario increased. In 1951-52 the level of waters reached unprecedented heights which, in combination with storms and other natural phenomena, resulted in extensive flooding and erosion damage on both the north and south shores of all the lakes. In 1953, the government of Canada removed its dam as part of the construction of the St. Lawrence Seaway, but the problem of U.S. claims for damages allegedly resulting from the presence of Gut Dam still festered for some years. The Lake Ontario Claims Tribunal set up to resolve these matters, after initially determining that Canada had an obligation to all citizens of the U.S. and not just the owner of Les Galops as regarded the construction of the dam and that such responsibility was not limited in time to some initial testing period, observed that "the only issues which remain for its consideration are the questions of whether Gut Dam caused the damage for which claims have been filed and the quantum of such damages."¹⁰⁴ The arbitral tribunal was, in

¹⁰². Id. at 1965.

¹⁰³. See "Canada-United States Settlement of Gut Dam Claims," September 22, 1968, Report of the Agent of the United States before the Lake Ontario Claims Tribunal, in 8 Int'l Legal Materials 118 (1969).

¹⁰⁴. Decision of February 12, 1968, quoted in id. at 138, 140.

other words, clearly adopting a standard of strict liability, since it was not interested in hearing any arguments for or against fault or negligence in planning and construction or of whether Canada knew or ought to have known what injuries might result. Following upon this holding by the Claims Tribunal, the two governments concerned reached a negotiated settlement of a lump-sum payment from Canada to the U.S. "in full and final satisfaction of all claims of United States nationals for alleged damage caused by Gut Dam,"¹⁰⁵ which was then approved by the Tribunal.¹⁰⁶

It is worth mentioning in passing that these two neighbors are at it again--this time with the parties reversed. Plans are underway for a \$400 million irrigation project in North Dakota, which Canadians maintain, among other things, will badly pollute the Souris River in Manitoba.¹⁰⁷ The government of Canada has tried to invoke the provision of the 1909 Boundary Waters Treaty that such waters "shall not be polluted on either side to the injury of health or property on the other"¹⁰⁸ in an attempt to stop the project. Failing that, however, it claims that the U.S. should be strictly liable for any resultant damage north of the border. Backers of the Garrison Diversion, as the project is known, concede that the river will be polluted or at least "degraded," but they insist the effects will be relatively slight.¹⁰⁹ On June 23, 1973, the Canadian Embassy in Washington transmitted to the U.S. Department of State another in a series of diplomatic notes protesting against the Garrison Diversion Unit.¹¹⁰ This problem of the Souris and other rivers is only one of several environmental disputes simmering these

¹⁰⁵. Agreement on Settlement of Claims Relating to Gut Dam, November 18, 1968, [1968] 6 U.S.T. 7863, T.I.A.S. No. 6624.

¹⁰⁶. Communication of September 27, 1968, quoted in 8 Int'l Legal Materials 140-42 (1969).

¹⁰⁷. See Borders, "Manitoba Fears River Plan in U.S.," N.Y. Times, Aug. 25, 1974, 1, at 11, col. 1.

¹⁰⁸. January 11, 1909, 36 Stat. 2448 (1909-11), T.S. No. 548, art. 4.

¹⁰⁹. Borders, supra note 102.

¹¹⁰. "Garrison Diversion Unit," Canada Department of External Affairs Press Release No. 48 (June 24, 1975). The Note cites previous diplomatic correspondence and continuing consultation going back to 1969.

days in North America,¹¹¹ and environmental problems are not necessarily any more solicitous of national boundaries elsewhere.

Turning now to the other two cases cited at the outset of this section, Corfu Channel¹¹² and Lac Lanoux,¹¹³ the existence of strict liability is not difficult to maintain. The former case involved a finding by the International Court of Justice that the People's Republic of Albania was liable for the consequences when British warships struck mines in the Albanian waters of the Corfu Channel. More exactly, the conclusion of the Court was "that Albania is responsible under international law for the explosions which occurred . . . and for the damage and loss of human life which resulted from them, and that there is a duty upon Albania to pay compensation to the United Kingdom."¹¹⁴ The liability stemmed directly from the presence of the mines and the failure to warn the approaching vessels, with no proof required of any malevolence, neglect or other wrongfulness on the part of Albania. By contrast, the Lac Lanoux arbitration was a suit by Spain to block, before it was undertaken, a hydroelectric project by France using the waters of the lake. It was decided that the proposed project would not be in violation of France's obligation under treaties with its neighbor or under general international law, since it was found to represent a reasonable utilization of the water resources that should not prove injurious to Spanish interests. The tribunal, nevertheless, did add that, if the works did in fact cause pollution or other actual damage, "Spain could then have claimed that her rights had been impaired."¹¹⁵

Besides these few juridical requirements, there have been certain other instances of voluntary compensation for environmental injury by governments or other actors without proof of fault, but their precedential value is questionable and limited. A much-cited example is the ex gratia payments by the United States government to the

111. For mention of some others see Borders, supra note 107.

112. [1949] I.C.J. Rep. 4.

113. (Spain v. France), 12 U.N.R.I.A.A. 281 (1957), digested in 53 AJIL 156 (1959).

114. [1949] I.C.J. Rep. 23.

115. 12 U.N.R.I.A.A. 303.

Japanese government as compensation for Japanese nationals who sustained personal and property damage as a result of the nuclear tests in the Marshall Islands in 1954. Although the tests themselves may be considered lawful measures for security, due to a series of miscalculations or for some other reason, a number of Marshallese, Japanese and Americans were injured by the test of March 1 of that year and the series as a whole somewhat disrupted activities of the Japanese fishing industry.¹¹⁶ The U.S. tendered two million dollars to Japan "for purposes of compensation for the injuries or damages sustained" and "in full settlement of any and all claims against the United States or its agents, nationals or juridical entities" as a result of the tests, but did so "without reference to the question of legal liability."¹¹⁷ And to take a more recent example on the part of a private actor, the Atlantic Richfield Company, which operated the refinery at Ferndale, Washington that was the site of the 1972 Cherry Point oil spill, paid an initial cleanup bill of \$19,000 submitted by the municipality of Surrey for its activities. ARCO later agreed to pay another \$11,606.50 to be transmitted by the U.S. to the Canadian government for its costs incurred in connection with cleanup operations, but would not consent to reimburse an additional item of \$60 designated "bird loss (30 birds at \$2 a bird)." Again this was done, "without admitting any liability in the matter and without prejudice to . . . rights and legal position."¹¹⁸

B. Imposition of Absolute Liability for Ultra-hazardous Activities

Many systems of municipal law contain rules creating "absolute" or exceedingly strict liability for failure to

116. See McDougal & Schlei, "The Hydrogen Bomb Tests in Perspective: Lawful Measures for Security," in McDougal & Associates, *Studies in World Public Order* 763 (1960).

117. Agreement on Personal and Property Damage Claims, January 4, 1955, [1955] 1 U.S.T. 1, T.I.A.S. No. 3160.

118. The terms and conditions were specified in a Note from the U.S. Department of State to the Canadian government on November 13, 1974. On reimbursement for the cleanups, see "ARCO Pays \$19,000 Cleanup Bill" and "Oil Spill Billing Will Hit \$26,000," *supra* note 45.

control operations which necessarily create a serious or unusual risk of harm to others. Such designations are, to repeat, only words, and it is essential to look at the varied factors and policies behind them. These rules are based, at least in part, upon principles of loss distribution and liability imposed upon the effective (insured or self-insured) defendant. Ian Brownlie reports that it is the general opinion that international law at present lacks such a doctrine, although Wilfred Jenks has proposed that the law be developed on the basis of a Declaration of Legal Principles Governing Ultrahazardous Activities Generally, which would be adopted by the U.N. General Assembly.¹¹⁹ But he also acknowledges that caution is required in accepting the statement that existing law lacks such a principle, "because the operation of the normal principles of state responsibility may create liability for a great variety of dangerous activities on state territory or emanating from it."¹²⁰ And in any event, absolute liability has at least been recognized as regards certain exceptionally risky or hazardous activities in several multilateral conventions. Of particular interest for present purposes is the increasing imposition of absolute liability in respect of nuclear installations and the operation of nuclear ships, in respect of damage caused by space objects, and as concerns certain types of oil pollution incidents.

Dealing with a relatively new and obviously dangerous enterprise, the drafters of the 1962 Brussels Convention on the Liability of Operators of Nuclear Ships were quite straightforward:

The operator of a nuclear ship shall be absolutely liable for any nuclear damage upon proof that such damage has been caused by a nuclear incident involving the nuclear fuel of, or radioactive products or waste produced in, such ship.¹²¹

The only narrow exculpation allowed is for intentional wrong on the part of the injured party:

¹¹⁹. Brownlie, *supra* note 2, at 463. See also Jenks, "Liability for Ultra-Hazardous Activities," 117 *Recueil des Cours* 99 at 196 (1966); Kelson, "State Responsibility and the Abnormally Dangerous Activity," 13 *Harv. J. Int'l L.* 197 (1972).

¹²⁰. *Id.*

¹²¹. May 25, 1962, in 57 *AJIL* 268, art. 2 (1963).

If the operator proves that the nuclear damage resulted wholly or partially from an act or omission done with intent to cause damage by the individual who suffered the damage, the competent courts may exonerate the operator wholly or partially from his liability to such individual.¹²²

The operator may have an independent right of recourse against some other party, but this basic liability is certainly strict enough to deserve its appellation of "absolute"; the extent of the liability in respect of any one nuclear incident is, however, limited to approximately \$100 million.¹²³

The 1963 Vienna Convention on Civil Liability for Nuclear Damage was equally succinct: "The liability of the operator [of a nuclear installation] for nuclear damage under this Convention shall be absolute"¹²⁴--although its exculpatory clause is slightly broader, allowing the competent court if its law so provides to relieve the operator wholly or partly if he proves that the nuclear damage resulted "either from the gross negligence of the person suffering the damage or from an act or omission of such person done with intent to cause damage";¹²⁵ the Vienna Convention allows states to set limits of not less than \$5 million for any one nuclear incident.¹²⁶ And the above are but two of four early conventions in the field of nuclear liability,¹²⁷ the others being the 1960 Paris Con-

122. Id.

123. Id. art. 3. The limit is set at 1500 million francs. See Mendelsohn, "The Value of the Poincare Gold Franc in Limitation of Liability Conventions," 5 J. Maritime L. & Com. 125 (1973).

124. Opened for signature May 21, 1963, in 2 Int'l Legal Materials 727, art. 4 (1963).

125. Id.

126. Id.

127. On this subject see generally Cigoj, "International Regulation of Civil Liability for Nuclear Risk," 14 Int'l & Comp. L.Q. 809 (1965); Hardy, "The Liability of Operators of Nuclear Ships," 12 Int'l & Comp. L.Q. 778 (1963) and his "Nuclear Liability: The General Principles of Law and Further Proposals," 36 Brit. Y.B. Int'l L. 223 (1960); Konz, "The 1962 Brussels Convention on the Liability of Operators of Nuclear Ships," 57 AJIL 100 (1963).

vention on Third Party Liability in the Field of Nuclear Energy¹²⁸ and the 1963 Convention Supplementary to this Paris (OECD) Convention.¹²⁹ As what is of direct interest in the present context is the strictness of the standard of liability specified, the precise mechanics of these agreements need not be explored here. It is, nevertheless, worth noting that, in keeping with their primary concern being the risk inherent in the activities themselves involved, these international conventions treat all nuclear operators--whether government agencies or private corporations--on a similar basis. Finally, as concerns maritime carriage of nuclear material, in order to ensure that the operator of a nuclear installation will be exclusively liable for damage caused by a nuclear incident, the Vienna and Paris Conventions have been complemented by a fifth agreement: the 1971 'IMCO Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material exonerates any and all other persons.¹³⁰

Another area for which there has been designation of liability so strict as to verge on being absolute is the exploration and exploitation of outer space. The various expressions of world community expectations in this realm have already been recorded, and that discussion does not need repetition. The essential point to note is that, while the 1967 Outer Space Treaty states only most generally and summarily that a launching state "shall bear international responsibility" and

is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the moon and other celestial bodies,¹³¹

¹²⁸. Done July 29, 1960, in 8 Europ. Y.B. 202 (1960).

¹²⁹. Convention Supplementary to the (OECE) Paris Convention of 1960, January 30, 1963, in 2 Int'l Legal Materials 685 (1963).

¹³⁰. Done December 17, 1971, in 11 Int'l Legal Materials 277 (1972).

¹³¹. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, done January 27, 1967, [1967] 3 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205, art. 7.

there has been some further clarification of the nature of the liability. The 1971 Convention on International Liability for Damage Caused by Space Objects expressly provides that a launching state "shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight."¹³²

There may be exoneration from this absolute liability in accordance with the broader standard, i.e. if the state responsible for the launch establishes that "the damage has resulted either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State or of natural or juridical persons it represents," but no exoneration whatsoever is to be granted in cases where the damage has resulted from activities conducted by a launching state "which are not in conformity with international law including, in particular, the Charter of the United Nations and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies."¹³³ By contrast, where two ultrahazardous activities or in this instance space expeditions clash, in other words where one space object causes injury to another or persons or property on board, then a fault standard is to be reinstated and the launching state "shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible."¹³⁴

Finally, as the potential hazards of oil spills and other catastrophes are increasing almost exponentially, more and more strict liability may be finding a place in the legislative regime of the law of the sea as well. It has already been mentioned in passing that liability under the Canadian Arctic Waters Pollution Prevention Act "is absolute and does not depend upon proof of fault or negligence" (with certain relatively minor exceptions).¹³⁵ There is, in addition, some indication of movement multilaterally toward such a standard. During the negotiations of the 1969 IMCO International Convention on Civil Liability for Oil Pollution Damage,¹³⁶ there was considerable debate as to whether the

^{132.} Done March 29, 1972, T.I.A.S. No. 7762, art. 2.

^{133.} Id. art. 4.

^{134.} Id. art. 3.

^{135.} Supra note 8, para. 7. See TAN 10-11 supra.

^{136.} Done November 29, 1969, in 9 Int'l Legal Materials 45 (1969).

applicable standard should be fault or strict liability.¹³⁷ Even after the Torrey Canyon disaster, there was substantial although diminishing support for a fault basis. But after much deliberation, by the time of the Brussels Conference which concluded this IMCO "Private Law" Convention, the tide of international opinion had clearly shifted to favor a rather strict standard. The resultant liability provision is worth quoting at length, to give an overall idea of how such requirements are put together:

1. Except as provided for in paragraphs 2 and 3 of this Article, the owner of a ship at the time of an incident, or where the incident consists of a series of occurrences at the time of the first such occurrence, shall be liable for any pollution damage caused by oil which has escaped or been discharged from the ship as a result of the incident.
2. No liability for pollution damage shall attach to the owner if he proves that the damage:
 - (a) resulted from an act of war, hostilities, civil war, insurrection or a natural phenomenon of an exceptional, inevitable and irresistible character, or
 - (b) was wholly caused by an act or omission done with intent to cause damage by a third party, or
 - (c) was wholly caused by the negligence or other wrongful act of any Government or other authority responsible for the maintenance of lights or other navigational aids in the exercise of that function.

¹³⁷. See Healy, "The CMI and IMCO Draft Conventions on Civil Liability for Oil Pollution," 1 J. Maritime L. & Com. 93, 93-98 (1969); Goldie, supra note 89, at 314-17. See also Avins, "Absolute Liability for Oil Spillage," 38 Brooklyn L. Rev. 359 (1970); Bergman, "No Fault Liability for Oil Pollution Damage," 5 J. Maritime L. & Com. 1 (1973). See generally Dowd, "Further Comment on the Civil Liability and Compensation Fund Conventions," 4 J. Maritime L. & Com. 525 (1973).

3. If the owner proves that the pollution damage resulted wholly or partially either from an act or omission done with intent to cause damage by the person who suffered the damage or from the negligence of that person, the owner may be exonerated wholly or partially from his liability to such person.¹³⁸

This is obviously not "absolute" liability, being not nearly as strict as the nuclear or space formulations; but, even without the "wholly" restriction in paragraph 2, it could still be argued to be a bit stricter than most traditionally allowable defenses under international maritime law. The trend of development by which it was reached is, of course, also significant. Moreover, whatever its precise categorization, this convention is also notable for being backed up by supplementary arrangements setting up compensation funds for oil pollution damage.

C. International Environmental Compensation Funds

The Brussels Conference which adopted the International Convention on Civil Liability for Oil Pollution Damage also passed a Resolution on Establishment of an International Compensation Fund for Oil Pollution Damage, which recommended early establishment of such an insurance fund founded on two basic principles:

1. Victims should be fully and adequately compensated under a system based upon the principle of strict liability.
2. The fund should in principle relieve the shipowner of the additional financial burden imposed by the present ["Private Law"] Convention.¹³⁹

Accordingly, at another IMCO Conference in Brussels two years later, a new agreement was concluded toward these ends. Although its preamble states that the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage¹⁴⁰ is to be

¹³⁸. Supra note 136, art. 3.

¹³⁹. In 9 Int'l Legal Materials 66, 67 (1970).

¹⁴⁰. Done December 18, 1971, in 11 Int'l Legal Materials 284 (1972). For analysis of the working arrangements involved, see Hunter, "The Proposed International Compensation Fund for Oil Pollution Damage," 4 J. Maritime L. & Com. 117 (1972).

"supplementary to" the earlier provisions, it is only somewhat so. On the one hand, it does raise the amount of compensation available from the \$14 million limit of the IMCO "Private Law" Convention to about \$34 million.¹⁴¹ On the other hand, however, it still does not expand coverage to pollutants other than oil, nor does it encompass damage outside the "territory including territorial sea" of the parties.¹⁴² As far as procedure is concerned, if the Fund Convention comes into force and its Oil Pollution Fund is created--which has not yet happened--contributions in respect of each state party are to be paid in by the petroleum industry on the basis of tons of oil received in ports or terminal installations.¹⁴³ Actions for compensation or indemnity will be able to be brought against the Fund in the national courts of the state or states in which the pollution damage has been caused or deterrence measures have been taken to prevent or minimize damage.¹⁴⁴

At the time of this writing, the Oil Pollution Liability Convention has just come into force while the supplementary Fund Convention, to repeat, has not yet. In the meantime, however, the provisions of the Tanker Owners Voluntary Agreement concerning Liability for Oil Pollution¹⁴⁵ and the Contract Regarding an Interim Supplement to Tanker Liability for Oil Pollution,¹⁴⁶ known respectively

141. Id. The limit is set at 450 million francs. On the problem of conversion rates, see Mendelsohn, supra note 123.

142. See Fund Convention art. 3.

143. Id. art. 10.

144. Id. art. 7, incorporating by reference art. 9 of the Liability Convention, supra note 136.

145. January 7, 1969, in 8 Int'l Legal Materials 497 (1969). At present, the owners of over 99% of the Western industrialized world's tanker tonnage are parties. Booklet entitled TOVALOP 4 (Int'l Tanker Owners Pollution Federation Ltd., reprint 1973).

146. January 14, 1971, in 10 Int'l Legal Materials 137 (1971). The receivers of over 90% of the world's cargoes of crude and fuel oil are said to be parties to the agreement. Becker, "A Short Cruise on the Good Ships TOVALOP and CRISTAL," 5 J. Maritime L. & Commerce 609, 614 (1974).

as TOVALOP and CRISTAL, are applicable.¹⁴⁷ TOVALOP, as its name indicates, is a contract among the tanker owners to the effect that, "[i]f a discharge of Oil occurs from a Participating Tanker through the negligence of that Tanker (and regardless of the degree of fault)" and in addition "if the Oil causes Damage by Pollution to Coast Lines within the jurisdiction of a Government or creates a grave and imminent danger of Damage by Pollution thereto," then the tanker owner is obliged to remove the oil or to reimburse the removal costs incurred by the government of the coastal state.¹⁴⁸ Maximum liability in any one incident is limited to the lesser of \$100 per gross ton of the tanker or \$10 million total.¹⁴⁹ Although it does offer something by way of reparation, TOVALOP has certain readily apparent disadvantages, such as requiring proof of negligence, running in favor only of governments and applying only to oil removal costs and not to other measures of deterrence of or compensation for damage.

The other agreement, CRISTAL, is an oil company attempt to supplement the compensation provisions of the "Private Law" Convention and TOVALOP pending entry into force of the Fund Convention. It is a contract among the companies to create a fund out of which public or private persons can be compensated for pollution damage up to \$30 million per incident.¹⁵⁰ The Oil Companies Institute for Marine Pollution Compensation Ltd., a Bermuda entity organized to administer the fund of CRISTAL, is liable only in cases where liability arises under the terms of TOVALOP or the Liability Convention.¹⁵¹ It has been said that CRISTAL is a legitimate attempt of oil companies to forestall a multiplicity of national and local liability legislation for oil pollution

¹⁴⁷. TOVALOP and CRISTAL became effective on October 6, 1969 and April 1, 1971 respectively. When the former came into operation, at least 50% of the tanker tonnage of the world had become parties. TOVALOP, supra note 145, at 4. And the latter required Oil Companies receiving over 50% of the world's seaborne crude oil and fuel oil becoming signatories in order to come into effect. CRISTAL, supra note 146, clause III(A).

¹⁴⁸. Supra note 145, art. 4.

¹⁴⁹. Id. art. 6.

¹⁵⁰. Supra note 146, art. 4.

¹⁵¹. Id.

damage until a suitable international regime comes into force.¹⁵² It also represents an attempt at industry-wide self-insurance arrangements.

The oil companies are not concerned with their liability solely as regards tanker ownership and operation. In view of the growing impetus toward exploration and exploitation of the resources of the continental shelf and the seabed, the same basic group of corporations felt called upon in late 1974 to conclude an Offshore Pollution Liability Agreement ("OPOL").¹⁵³ This new contract is not restricted to negligence and does provide for compensation to private persons. Its main operative paragraph on remedial measures, reimbursement and compensation for claims states as follows:

If a Discharge of Oil occurs from a Designated Offshore Facility, and if, as a result, any State or States take Remedial Measures and/or any Person sustains Pollution Damage, then the Party hereto who was the Operator of said Designated Offshore Facility at the time of the Discharge of Oil shall reimburse the cost of said Remedial Measures and pay compensation for said Pollution Damage up to an overall maximum of U.S. \$16,000,000 per Incident . . .¹⁵⁴

Exceptions are allowed for damage which resulted from acts of war or other hostilities, was wholly caused by an act or omission done with intent to cause damage by a third party, was wholly caused by the negligence or other wrongful act of any state or other licensing authority, or resulted from an act or omission done with intent to cause damage or from negligence of the claimant¹⁵⁵--i.e. fairly standard strict liability exonerations. The signatories formed under the laws of England the Offshore Pollution Liability Association Ltd. for the purpose of administering this contract and certain other functions.¹⁵⁶

The above examples all deal with internationally and transnationally organized environmental compensation funds.

¹⁵². Dowd, supra note 137, at 541.

¹⁵³. Done September 4, 1974, in 13 Int'l Legal Materials 1409 (1974).

¹⁵⁴. Id. Clause IV(A).

¹⁵⁵. Id. Clause IV(B).

¹⁵⁶. Id. Clause II. The Rules of the Association appear in 14 Int'l Legal Materials 147 (1975).

Funds created in pursuance of national legislation may also have international significance, of which a noteworthy example is that established under the U.S. Trans-Alaska Pipeline Authorization Act of 1973.¹⁵⁷ After providing for strict liability for activities in connection with the pipeline right of way on the part of the holder,¹⁵⁸ the Act goes on to create a compensation fund to pay for related incidents. The liability provision is as follows:

Notwithstanding the provisions of any other law, if oil that has been transported through the trans-Alaska pipeline is loaded on a vessel at the terminal facilities of the pipeline, the owner and operator of the vessel (jointly and severally) and the Trans-Alaska Pipeline Liability Fund established by this subsection, shall be strictly liable without regard to fault in accordance with the provisions of this subsection for all damages, including clean-up costs, sustained by any person or entity, public or private, including residents of Canada, as a result of discharges of oil from such vessel.¹⁵⁹

Exoneration is allowed for damages caused by act of war or negligence of the United States or other governmental agency and for negligence of the damaged party, and liability is limited under this subsection to \$100 million for any one incident.¹⁶⁰ The Fund itself is to be a non-profit corporate entity that may sue and be sued in its own name, with its resources to be maintained at the level of \$100 million by imposition of a fee of five cents per barrel by the pipeline operator against the owner of the oil.¹⁶¹ Aside from the immediate and obvious interests of Canada and Canadian citizens in this piece of U.S. legislation,¹⁶²

157. 43 U.S.C.A. § 1651 (Supp. 1975).

158. *Id.* § 1653(a) & (b).

159. *Id.* § 1653(c)(1).

160. *Id.* § 1653(c)(2) & (3).

161. *Id.* § 1653(c)(5).

162. See also § 1654 of the Act, which authorizes the President of the United States to enter into negotiations with the government of Canada on a whole range of issues concerned with pipelines or other transportation systems for the transport of natural oil and gas, including environmental and energy issues.

it is a matter generally worthy of international concern whether or not provision is made sufficiently to take into account possible environmental costs and ways of meeting them in such a large-scale undertaking as this.

VI. A Note on Private Rights of Action Under National and Local Laws

Since the present focus of inquiry is on "state responsibility" in particular within the broader context of "world public order," there has been little discussion here of private rights of action in domestic arenas. This by no means should be taken to imply that the possibility of private litigation or other action is not of great significance. Sometimes it is found preferable to international solutions. In Michie v. Great Lakes Steel Division, National Steel Corp.,¹⁶³ for example, plaintiffs residents of the Windsor area in Canada who are regular recipients of effluents from the Detroit industrial complex in the U.S., chose to institute private actions against three industrial corporations and seek remedies for their air pollution in U.S. courts under municipal law rather than waiting for a long and tedious international claims process as in Trail Smelter or Gut Dam.¹⁶⁴ And the new Nordic Environmental Protection Convention,¹⁶⁵ which provides for reciprocal access to foreign courts on an equal basis with nationals of the forum country for environmental causes of action, envisions such suits on a regular and usual basis among citizens and legal entities of the four countries involved. Furthermore, in some cases private arrangements may be made to provide rapid com-

¹⁶³. 495 F.2d 213 (6th Cir. 1974), cert. denied 419 U.S. 997, 95 S.Ct. 310, 42 L. Ed. 2d 270 (1974). Thirty-seven residents of Canada brought this suit against the three corporations, claiming that pollutants emitted by the defendants' plants were noxious and represented a nuisance which resulted in damage to their persons and property. At the time of this writing, the suit is still pending. For discussion of why this form of action was preferred to the international claims route, see Ianni, "International and Private Actions in Transboundary Pollution," 11 Can. Y.B. Int'l L. 258, 266-70 (1973).

¹⁶⁴. See TAN 101-06 supra.

¹⁶⁵. Convention on the Protection of the Environment, done February 19, 1974, in 13 Int'l Legal Materials 591 (1974).

pensation without need of juridical intervention of any type, as the U.S. government undertook to do in regard to 597 claims filed in connection with the Palomares incident¹⁶⁶ and as it is reported ARCO privately is doing by opening up a claims office to handle claims resulting from the Cherry Point oil spill.¹⁶⁷

Frequently such private litigation under national and local laws will be capable of resolving satisfactorily and expeditiously the controversy. Often, nevertheless, the juridical tangle likely to result without additional benefit of international liability and compensation arrangements will be highly confusing. There was a good deal of private litigation--some of it effectively resolved--in the wake of the Torrey Canyon disaster; and in the more recent incident, as regards the Cherry Point costs, ARCO is reputed now to be bringing suit against the charterers of the tanker for indemnity.¹⁶⁸ Yet in most such situations, with all the parties and countries involved with different applicable fault and limitation provisions and other conflicting legal requirements, truly prompt and adequate compensation seems virtually unimaginable without prior general agreement on a standard of strict liability for some actor imposed in accordance with certain set rules and regulations. And it is only through such agreement that the parties in interest can know reliably beforehand the possible consequences of their activities so as to be able to make arrangements for insurance or other cost-spreading devices.

¹⁶⁶. It was announced on January 16, 1967 by U.S. Embassy sources in Madrid that the U.S. had paid \$558,104 to 475 Spaniards who suffered damage when the four bombs fell. U.S. officials said that 597 claims had been filed and that all of them would be paid. A group of residents from Palomares alleged, however, that only 3% of the claims had been paid in full, and they asserted that outstanding claims totaled \$2.5 million. "U.S. Pays Spanish Claims for Damage by Lost Bomb," *N.Y. Times*, Jan. 16, 1967, at 14, col. 3.

¹⁶⁷. See "ARCO Sets Up Offices for Oil Damage Bills," *supra* note 45.

¹⁶⁸. For discussion of the Torrey Canyon litigation see Brown and Comment, *supra* note 43. As far as ARCO is concerned, information has been gained from interviews with officials of the corporation and officials of the Canadian and U.S. governments.

In short, although this is not the place to discuss comparative national substantive legislation or procedural requirements in environmental cases, it must be noted that municipal law too can be critically important. It is unrealistic to try to make any sharp and fast distinctions between international and national legal responsibilities, as what is involved are multiple interacting and inter-reactive processes of authoritative decision.

VII. Summary

"State responsibility," in the broad sense in which the term is used in the environmental context, encompasses a whole spectrum of active and passive duties of states both looking outward to their capacity as the primary actors in international relations and looking inward to their role as protectors of their own citizens. A range of sanctioning processes has been developed to give force to this state responsibility under international environmental law. Looking first at state responsibility for the prevention of environmental deprivations, national environmental policing systems are being put into operation both in support of national legislation and to provide enforcement for the multiplicity of obligations created pursuant to international environmental prevention prescriptions. A Global Environmental Monitoring System is being inaugurated, and if effective it should enable both evaluation of the efficacy of existing provisions and determination of necessary or desirable preventive measures to be instigated in the future. Secondly, when prevention has not been accomplished for whatever reason and there is grave and imminent threat of environmental harm, under both explicit treaty provisions and customary legal norms, states have the right and the responsibility to abate or minimize injurious effects, even to the extent of drawing on a necessary and proportional degree of force to accomplish these objectives. At times it may seem essential or desirable to avert the very risk of grave harm rather than to wait until an actual threat has materialized, and states are free to seek resort to political pressure, injunctive relief or any other reasonable means that may work to this end. And finally, states are evolving a standard of responsibility for interstate environmental warning and notification, which is a necessary precondition for resort to environmental deterrence measures in many types of situations.

Thirdly, when environmental harm has not been prevented and impending threats have been incompletely deterred, the problem of reparation and compensation for damages arises. International law gives evidence of the emergence of a general standard of strict liability for environmental injury in such cases as Trail Smelter, Gut Dam, Lac Lanoux and Corfu Channel, and it also bears witness of imposition of absolute liability for certain environmentally ultrahazardous activities. Some environmental compensation funds, at least in the area of oil pollution damage, are being created to ensure the actual and prompt payment of compensation to the injured parties. Still and all, as the Stockholm Declaration expressly admitted, there is vast room for improvement and vital need to "develop further" international environmental law in these areas.