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International Regulation of Air Pollution

by James H. Pannabecker*

I. Introduction

Two potentially conflicting concerns have achieved new prominence during the 1970's: the necessity of an improved worldwide environment, and the needs of developing nations for accelerated economic development. The United States Congress began the decade by officially recognizing the gravity of environmental problems in the National Environmental Policy Act.¹ During the next few years, the members of the United Nations devoted a great deal of energy to preparations for the U.N. Conference on the Human Environment at Stockholm,² and ultimately adopted a resolution creating a new international environmental agency, the United Nations Environment Programme (UNEP).³

Concurrently, the influence of the Third World countries has expanded markedly. A number of economists have characterized the 1970's as the "development decade,"⁴ suggesting that the developing countries will finally be liberated from dependence upon the industrialized nations. The accuracy of this prediction has been demonstrated by recent Third World successes, such as the OPEC oil embargo and the ability of the developing countries as a bloc to exercise influence within the United Nations.⁵

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¹ 42 U.S.C. § 4321 (1975).

² U.S. DEP'T OF STATE, SAFEGUARDING OUR WORLD ENVIRONMENT: THE UN CONFERENCE ON THE HUMAN ENVIRONMENT 5-7 (1972). See generally Report of the UN Conference on the Human Environment held at Stockholm, 5-16 June 1972, U.N. Doc. A/CONF.48/14 (1972). The Conference adopted, among other things, a Declaration on the Human Environment and an Action Plan on the Environment. *Id.*

³ G.A. Res. 2997, 27 U.N. GAOR, Annexes (Agenda item 47), U.N. Doc. A/8901 (1973). This resolution also set up the Environment Secretariat, the Environment Fund, and the Environment Co-ordination Board.

⁴ Wheeler, *Ecocatastrophe*, ECOCIDE — AND THOUGHTS TOWARD SURVIVAL 9, 12 (C. Fadiman & J. White eds. 1971).

⁵ For example, the developing nations were able to get the new UNEP headquartered in Nairobi. See Taubenfeld, *International Environmental Law: Air and Outer Space*, 13 NAT. RESOURCES J. 315, 325 (1973).

Many environmentalists in developed nations tend to view environmental quality and development as competing and mutually exclusive objectives. Developing countries are sometimes pictured as recreational reserves on which strict environmental controls must be imposed.⁶ Of course, developing nations regard this attitude with distrust.⁷ To them, there are two types of pollution: (1) that associated with development, and (2) that associated with lack of development — abject poverty, slums and the concomitant social problems.⁸ Because the latter type of pollution can only be eliminated through industrial expansion and higher incomes, the Third World has a very strong interest in development. This interest is reflected in the concept of "ecodevelopment,"⁹ which attempts to balance the two branches of environmental concern and which has gained the support of most developing nations.¹⁰

This note focuses on the problem of international air pollution and the measures available for its control. Throughout the discussion, the dual nature of international environmental concerns must be recognized. The neglect of either form of pollution will certainly destroy any chance for successful international solution of air pollution problems.¹¹

A. Physical Context

Pollution requires no visa to cross international boundaries. This physical law has been dramatically illustrated by nuclear fallout¹² and

⁶ See Tarlack, *Land Use Choice: National Prerogative vs. International Policy*, 13 NAT. RESOURCES J. 343, 350 (1973); Castro, *Environment and Development: The Case of the Developing Countries*, in *WORLD ECO-CRISIS: INTERNATIONAL ORGANIZATIONS IN RESPONSE* 237, 247-48 (D. Kay & E. Skolnikoff eds. 1972).

⁷ See Goldman, *Pollution: International Complications*, 2 ENV'T'L AFF. 1, 8-9 (1972). The developing countries view with hostility any attempt to impose upon them the standards of a developed country. Taubenfeld, *supra* note 5, at 325. See U.S. SECRETARY OF STATE'S ADVISORY COMMITTEE ON THE 1972 U.N. CONFERENCE ON THE HUMAN ENVIRONMENT, STOCKHOLM AND BEYOND 120 (1972).

⁸ Castro, *supra* note 6, at 248; *RESHAPING THE INTERNATIONAL ORDER: A REPORT TO THE CLUB OF ROME* 19 (J. Tinbergen, A. Dolman & J. van Ettinger eds. 1976).

⁹ See the use of the term in UN Environment Programme, Report of the Executive Director 86, U.N. Doc. UNEP/GC/90 (1977).

¹⁰ See generally Report of the UN Conference on the Human Environment held at Stockholm, *supra* note 2; G.A. Res. 2997, 27 U.N. GAOR, Annexes (Agenda item 47), U.N. Doc. A/8901 (1973).

¹¹ "Gresham's Law of the Environment" holds that poor pollution control tends to drive out good pollution control. Thus, stringent pollution control in certain countries will put domestic industries at such a competitive disadvantage vis-a-vis producers in countries with lax pollution control, that repeal of the tough laws or passage of less stringent laws is inevitable. Goldman, *supra* note 7, at 3.

¹² The possible impact of nuclear fallout on infant mortality rates is discussed in Sterngalss, *Infant Mortality and Nuclear Tests*, 25 BULL. ATOMIC SCIENTISTS 18 (April 1969). The story of United States nuclear testing in the Marshall Islands is documented in Brownlie, *A Survey of International Customary Rules of Environmental Protection*, 13 NAT. RESOURCES J. 179, 180-82 (1973); Goldie, *International Principles of Responsibility for Pollution*, 9 COLUM. J. TRANSNAT'L L. 283, 307-08 (1970); T. AYLESWORTH, *THIS VITAL AIR, THIS VITAL WATER* 41-42 (1968).

the numerous well-publicized consequences of DDT usage.¹³ Other well-known instances of transboundary pollution include the Scandinavian black snow¹⁴ and acid rain¹⁵ caused by industrial emissions in Great Britain and West Germany, stratospheric changes produced by air traffic and aerosols,¹⁶ and localized particulate emissions such as those involved in the *Trail Smelter* arbitration.¹⁷ Scientists have also debated the consequences of industrial activities and urban expansion on the earth's albedo¹⁸ and climate: for example, the cooling which may result from the blocking of sunlight by thick layers of smog;¹⁹ the "greenhouse effect" of an increase in the atmosphere's carbon dioxide content;²⁰ and the aggravation of air pollution caused by extensive deforestation.²¹ The inherently international nature of these effects suggests the desirability of and need for international cooperation in the control of air pollution.²²

B. Economic Context

Economists perceive air pollution as a "negative externality," a product of industrial development the cost of which falls upon individuals other than those who benefit by allowing pollution to occur.²³ This

¹³ The DDT problem generally originates with air pollution since air is the medium through which most pesticides are applied. For an excellent description of DDT, its properties and its consequences, see Wurster, *DDT and the Environment*, in *AGENDA FOR SURVIVAL* (C. Wurster ed. 1970). Since DDT virtually eliminated malaria from a large part of the developing world, its prohibition has been viewed almost as a form of genocide by certain Third World countries.

¹⁴ The "black snow" phenomenon in Norway is described in *N.Y. Times*, Jan. 11, 1970, § 1, at 24, col. 1.

¹⁵ For a description of Sweden's acid rain problems, see Teclaff, *The Impact of Environmental Concern on the Development of International Law*, 13 *NAT. RESOURCES J.* 357, 376 (1973); *Putting the S in Sweden*, 48 *NEW SCIENTIST* 209 (1970); Reiquam, *Sulfur: Simulated Long-Range Transport in the Atmosphere*, 170 *SCIENCE* 318 (1970). See Generally Ferenbaugh, *Acid Rain: Biological Effects and Implications*, 4 *ENV'TL AFF.* 745 (1975).

¹⁶ See generally Jackson, *The Dimensions of International Pollution*, 50 *ORE. L. REV.* 223, 225-30 (1971).

¹⁷ See text accompanying notes 46-55 *infra*.

¹⁸ The "albedo" is the percentage of incoming solar radiation directly reflected outward.

¹⁹ Ehrlich & Holdren, *An Inventory of Disaster*, in *ECOCIDE*, *supra* note 4, at 21, 42.

²⁰ Passino, *Report on Theme II: Industry*, in *THE MANAGEMENT OF THE ENVIRONMENT IN TOMORROW'S EUROPE* 105, 112 (Council of Europe 1971).

²¹ *Id.*

²² Burhenne & Schoenbaum, in *The European Community and Management of the Environment: A Dilemma*, 13 *NAT. RESOURCES J.* 494 (1973), list four reasons for recent acknowledgment of the need for environmental cooperation at the international level: 1) disparate national measures can disrupt patterns of trade, 2) common resources such as the atmosphere demand common protective action, 3) activities taking place in one state can have an adverse effect on persons and property in another state, and 4) the similarity of the problems in most countries generates a cooperative search for similar solutions.

²³ E.g., Loehman & Conner, *Introduction: Economic Perspectives on Environmental Decisions*, in *ECONOMICS AND DECISION MAKING FOR ENVIRONMENTAL QUALITY* 1, 4 (J. CONNER & E. LOEHMAN eds. 1974). For a discussion of possible solutions for externality problems, see Randall, *Can We Trust the Market to Solve Externality Problems?*, *id.* at 47.

characterization of air pollution has largely resulted from the traditional view of the atmosphere as an essentially infinite resource. Because of its supposed infinity, no price has been placed upon use of the air. Air pollution catastrophes have demonstrated, however, that the air is not an infinite resource, that the failure of product prices to reflect air pollution costs is essentially a subsidy to development,²⁴ and that prices should be placed upon air use. Prices in the United States, for example, have taken the form of criminal fines, civil penalties, and forced expenditures on pollution control devices such as electrostatic precipitators (which are indirectly required by air quality standards). Because these prices raise the cost of production, product prices increase and the externalities (or at least part of them) are "internalized."

A number of international trade consequences may arise from these and other domestic attempts to impose polluting costs upon producers. Measures taken by one country may place its own producers at a competitive disadvantage with respect to producers in other countries. As a protective device, the "clean" country may then decide to impose import tariffs on articles imported from countries which have not adopted identical or similar environmental measures.²⁵ The tariff mechanism, however, introduces a number of additional international trade complications, one of which derives from the fact that the atmospheric environments of different countries are likely to have different assimilative capacities.²⁶ For example, a flat, low-lying country may find it unnecessary to adopt measures as strict as those used by a country with mountain ranges and valleys in which air temperature inversions are common.²⁷ Tariff barriers set up by the mountainous country would obstruct the efficient allocation of the world's resources. Were the market allowed to operate freely, the likely result would be the allocation of high-pollution industries to the country with the greater atmospheric assimilative capacity and a net increase in world output.²⁸

²⁴ Taubenfeld, *supra* note 5, at 325.

²⁵ A distinction should be drawn between extractive or manufacturing activities and consumptive activities. The external costs (negative externalities) associated with consumptive activities are the same whether the product is of foreign or domestic manufacture. The costs occur where the product is consumed in either case. But with respect to extractive or manufacturing industries, the external costs occur where the goods are produced or extracted. Thus, measures taken to impose external costs upon consumptive activities should not affect the competitive position of domestic producers, (*e.g.*, both foreign and domestic products should be subject to the same surcharge); and tariffs on foreign products (which are not applicable to similar domestic goods) could be appropriate only if a similar good were not produced domestically and if it were not possible to tax or otherwise restrict the externality-generating activity itself. See D'Arge & Kneese, *Environmental Quality and International Trade*, in *WORLD ECO-CRISIS*, *supra* note 6, at 255, 266-72.

²⁶ See, *e.g.*, MacDonald, *International Institutions for Environmental Management*, *id.* at 207, 219.

²⁷ A short description of temperature inversion is contained in R. DASMANN, *ENVIRONMENTAL CONSERVATION* 353 (3d ed. 1972).

²⁸ D'Arge & Kneese, *supra* note 25, at 266-67.

A number of more subtle international trade consequences may result from domestic environmental efforts. A law passed by West Germany in the early 1970's limited the lead content of gasoline to .15 grams per liter.²⁹ Since many foreign cars could not then be adjusted to low lead gasoline, this law had the effect of restricting the sales of foreign automobiles in West Germany.³⁰ The United States nonleaded gasoline rules have had a different impact: they discourage some U.S. tourists from traveling in Mexico where unleaded gasoline may not be available.³¹ In the industrial sector, sulfur dioxide emissions standards may require the use of equipment which removes sulfur from stack gases. Such standards not only increase the international demand for low sulfur fuels, but also result in increased sulfur recovery. The recovered sulfur is marketable and therefore is likely to diminish the demand for imported sulfur.³² A similar reduction in international trade is likely to result from other recycling measures. The ongoing Concorde controversy also demonstrates the serious international trade consequences that can result from seemingly inoffensive domestic efforts to protect environmental quality.³³

II. International Environmental Law

A. General Principles of International Law

The goal of air pollution control mechanisms should be the prevention of pollution,³⁴ because prevention is likely to be less expensive than post-pollution cleanup,³⁵ and because complete restoration of the atmosphere to its original condition is often impossible. The existing principles of state responsibility which seek to compensate persons injured by polluting activities do, in some cases, encourage pollution prevention.³⁶ However, these principles are not based on a philosophy of prevention. Since imposition of liability depends on the bargaining position of the injured party, existing international law often does not provide the incentive necessary to promote pollution prevention.³⁷

²⁹ See Sterling, *Depolluting Autos Is Complex Issue*, *Washington Post*, Nov. 9, 1971, at A18, Col. 5.

³⁰ D'Arge & Kneese, *supra* note 25, at 274.

³¹ MacDonald, *supra* note 26, at 220.

³² *Id.* at 224-25.

³³ See *British Airways Bd. v. Port Auth. of N.Y.*, 558 F.2d 75 (2d Cir. 1977); *Legal and Environmental Ramifications of the Concorde*, 42 J. AIR L. 433 (1976).

³⁴ Bloomfield, *The Pollution Problem*, 21 U. TORONTO L. J. 175 (1971); Tarlock, *supra* note 6, at 348-49; Bleicher, *An Overview of International Environmental Regulation*, 2 ECOLOGY L.Q. 1, 5 (1972); Kiss, *Efforts to Control Air Pollution at International Level*, in LEGAL ASPECTS OF AIR POLLUTION CONTROL 16, 45 (Council of Europe, Committee of Experts on Air Pollution 1972).

³⁵ Goldman, *supra* note 7, at 9.

³⁶ See text accompanying notes 55-58, *infra*.

³⁷ An injured plaintiff must, for example, have the financial resources to bring his claim. Moreover, for everyone there is a threshold injury cost below which it is not worthwhile to bring suit.

Although there are no principles of international law explicitly relating to air pollution, several sets of rules are relevant. First, territorial sovereignty recognizes that a state generally has free rein with respect to the use and enjoyment of resources located within its territory.³⁸ This freedom is limited, however, by a state's responsibility to see that activities within its territory do not cause injury to other states.³⁹ Second, the concept of the freedom of the seas⁴⁰ and its equivalent with respect to outer space⁴¹ may be viewed as precedents for the application of a similar set of rules to the use of the atmosphere, at least to the atmosphere above the open seas. Such an application would not be environmentally sound in all respects, since it would permit reasonable use of the atmosphere by each state.⁴² Differing opinions on the meaning of "reasonable use" are inevitable and would make effective enforcement impossible. These principles have meaning, of course, only in relation to the rules governing state responsibility⁴³ and, unfortunately, the law of state responsibility has not developed much beyond the protection of aliens and their property.⁴⁴

Three prominent international cases have involved the transboundary environmental implications of particular domestic activities.⁴⁵ Of these cases, only the earliest of them, the *Trail Smelter* arbitration,⁴⁶ dealt specifically with air pollution issues. *Trail Smelter* was resolved pursuant to the 1909 Boundary Waters Treaty⁴⁷ between the United States and Canada, which created the International Joint Commission to deal with Canadian-American disputes over boundary waters. At the time of *Trail*

³⁸ Brownlie, *supra* note 12, at 179; Handl, *Territorial Sovereignty and the Problem of Transnational Pollution*, 69 AM. J. INT'L L. 50, 54 (1975).

³⁹ *Id.* at 55-58; Brownlie, *supra* note 12, at 179, 183; Kiss, *supra* note 34, at 18.

⁴⁰ Brownlie, *supra* note 12, at 179. See Legault, *The Freedom of the Seas: A License to Pollute?*, 21 U. TORONTO L.J. 211 (1971).

⁴¹ Brownlie, *supra* note 12, at 179.

⁴² *Id.* at 180. Cf. Bourne, *International Law and Pollution of International Rivers and Lakes*, 21 U. TORONTO L.J. 193, 195-96 (1971).

⁴³ See generally Hoffman, *State Responsibility in International Law and Transboundary Pollution Injuries*, 25 INT'L & COMP. L.Q. 509 (1976).

⁴⁴ *Id.* at 510. It should be noted that we are speaking here of public international law. Parties injured by foreign sources of transboundary pollution can, of course, pursue their claims in the domestic courts.

⁴⁵ Lake Lanoux Arbitration, 12 R. INT'L Arb. Awards 281 (1963); Corfu Channel, [1949] I.C.J. 4; Trail Smelter Arbitration, 3 R. INT'L Arb. Awards 1905 (1941), 35 AM. J. INT'L L. 684 (1941). In *Handelswekerij Bier v. Mines de Potasse d'Alsace* (Mar. 12, 1975), the Rotterdam Court found itself jurisdictionally incompetent to decide the substantive issues because it found that the injurious event had occurred in France and not in the Netherlands. The case dealt with pollution of the Rhine by a French potash mining works, and is discussed in Rest, *Transfrontier Environmental Damages*, 1 ENV'TL POL'Y L. 127 (1975). A case concerning the legality of French atmospheric nuclear testing in the South Pacific is apparently still pending before the International Court of Justice. The issues raised by the parties are examined in Handl, *supra* note 38.

⁴⁶ 3 R. INT'L Arb. Awards 1905 (1941).

⁴⁷ 36 Stat. 2448 (1910), T. S. No. 548.

Smelter, the Commission had no specific authority to handle air pollution disputes⁴⁸ but the two countries gave the Commission ad hoc authority to hear the dispute. The case involved damage from air pollution to persons in the State of Washington caused by sulfur dioxide emitted by a privately owned Canadian smelter plant.⁴⁹ In giving the Commission authority the parties in effect agreed to "transmute"⁵⁰ the claims against the smelter, into international obligations and to waive the provisions of international law on exhaustion of domestic remedies.⁵¹ These factors limit the otherwise expansive reach of the tribunal's holding,⁵² which boldly asserts that, as a matter of international law, (1) a state may not use or permit the use of its territory in such a manner as to cause serious transnational injury⁵³ and (2) state responsibility is imposed even when the source of injury is private.⁵⁴

The philosophical basis of the *Trail Smelter* decision and of other international law principles is clearly not preventive in nature; the various rules permit activities that create pollution to continue if resulting damages are compensated.⁵⁵ Another shortcoming of the general rules of law is their inadequacy to deal with non-catastrophic environmental injury, *i.e.*, that caused by pollution accumulation.⁵⁶ In the case of this kind of injury, the damage done by particular sources may be infinitesimal, yet the total injury may be considerable.⁵⁷ These factors demonstrate that, even though general principles of international law offer some remedy to parties injured by pollution, international agreements are needed to establish affirmative environmental policies.⁵⁸

⁴⁸ The Commission's jurisdiction has been extended to air pollution disputes. Rempe, *International Air Pollution - United States and Canada - A Joint Approach*, 10 ARIZ. L. REV. 138, 143 (1968); Kiss, *supra* note 34, at 19.

⁴⁹ 3 R. Int'l Arb. Awards at 1917.

⁵⁰ Hoffman, *supra* note 43, at 512, 516; Bleicher, *supra* note 34, at 21-22. A state is ordinarily responsible only for its own actions, not for those of private individuals (who are classically not subjects of international law). In this case, the states agreed to waive this limitation, thereby transmuting the private claim into a public international law claim. *Id.*

⁵¹ Hoffman, *supra* note 43, at 516-17, 523-41; Bleicher, *supra* note 34, at 22.

⁵² It has been stated, for example, that the Commission "transformed itself wholly from the creature of a rather restrictive *compromis* to an international court." Rubin, *Pollution by Analogy: The Trail Smelter Arbitration*, 50 ORE. L. REV. 259, 264 (1971).

⁵³ 3 R. Int'l Arb. Awards at 1973-74.

⁵⁴ *Id.*

⁵⁵ *Id.*, Bleicher, *supra* note 34, at 25.

⁵⁶ Yates, *Unilateral and Multilateral Approaches to Environmental Problems*, 21 U. TORONTO L.J. 182, 183-86 (1971).

⁵⁷ Mattes, *Liability for Harm to the Environment*, 1 ENV'TL POL'Y L. 17, 18 (1975). International law requires proof of material damage as a precondition to imposition of state responsibility. Handl, *supra* note 38, at 75. To these shortcomings, add the jurisdictional *locus delicti* problem brought out by the Rotterdam Court, *supra* note 45.

⁵⁸ See, *e.g.*, Kiss, *supra* note 34, at 20. Cf. Yates, *supra* note 56, at 189. In Hoffman, *supra* note 43, at 542, the author argues that "[a] legal framework does indeed exist for the development of a world environmental order and that framework will only be strengthened through use."

B. Conventional International Law

International conventions can deal with air pollution in three ways. First, treaties may be drafted that impose obligations directly on the parties to create institutions empowered to issue binding regulations.⁵⁹ Second, conventionally-created institutions may be given the power to issue binding directives.⁶⁰ Third, international organizations can prepare and adopt resolutions and recommendations whose purpose is to encourage states to adopt uniform domestic legislation.⁶¹ The potential effectiveness of the third method should not be underestimated; national self-interest provides a strong incentive for compliance with internationally drafted rules.⁶²

The UNEP's Register of International Conventions and Protocols in the Field of the Environment⁶³ is conspicuously devoid of any agreements specifically dealing with air pollution, except for the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water.⁶⁴ Perhaps the most active international air pollution activities have been undertaken by the European Community.⁶⁵ The treaty establishing the European Economic Community (EEC) nowhere refers to environmental protection, but Article 235 provides:

If action by the Community should prove necessary to attain, in the course of the operation of the Common Market, one of the objectives of the Community and this Treaty has not provided the necessary powers, the Council shall, acting unanimously on a proposal from the Commission and after consulting the Assembly, take the appropriate measures.⁶⁶

The Preamble states as one of the EEC's objectives the "constant improvement of the living and working conditions of their peoples," while Article Two adds "an accelerated raising of the standard of living." These provisions have been suggested as a basis for Community action in the environmental area.⁶⁷

⁵⁹ See, e.g., Article 54(1) of the Chicago Convention on International Civil Aviation, 15 U.N.T.S. 295 (1953), which gives the International Civil Aviation Organization (ICAO) authority to adopt Standards, Recommending Practices and Procedures (SARPS); Brown, *The Conventional Law of the Environment*, 13 NAT. RESOURCES J. 203, 215 (1973).

⁶⁰ See, e.g., note 66 *infra*; Burhenne & Schoenbaum, *supra* note 22, at 495.

⁶¹ *Id.*; Brown, *supra* note 59, at 209.

⁶² E. SKOLNIKOFF, *THE INTERNATIONAL IMPERATIVES OF TECHNOLOGY* 129-30 (1972).

⁶³ U.N. Doc. UNEP/GC/INFORMATION/5 (1977).

⁶⁴ [1963] 2 U.S.T. 1313, T.I.A.S. No. 5433. To this could be added the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, *opened for signature* April 10, 1972, [1975] 1 U.S.T. 583, T.I.A.S. No. 8062.

⁶⁵ See note 60 *supra*.

⁶⁶ Treaty Establishing the European Economic Community, Mar. 25, 1957, art. 235, 298 U.N.T.S. 11.

⁶⁷ Commission of the European Communities, First Communication on Community Policy Concerning the Environment, Doc. SEC (71), 2616 final, *adopted* July 22, 1971.

The potential influence of the EEC on environmental problems is increased by its power to make non-binding recommendations and to issue directives that bind member states.⁶⁸ Under Article 189 of the Treaty, the directives specify the result to be achieved; the means are left to the discretion of the national authorities.⁶⁹ A Directive issued in 1970, for example, detailed uniform emissions standards for vehicles equipped with positive-ignition engines.⁷⁰

Although few agreements specifically dealing with air pollution exist, a large number of international agreements have been signed relating to environmental concerns.⁷¹ Most of the conventions include sections: (1) establishing liability on the part of the operators of specified activities, (2) requiring state regulation of private operations, (3) proposing minimum standards or guidelines, (4) requiring operators to provide and demonstrate financial capacity to compensate potential losses, (5) setting up procedures to dispose of claims, and (6) permitting protective measures to be undertaken by potential victim states whereby the total injury to all can be minimized.⁷² It has been suggested that one broad-ranging agreement applying to all forms of transnational environmental injury would not be impossible to draft and would provide a far more effective solution to the currently existing uncertainties of general international law.⁷³

C. International Organizations

Numerous UN agencies have undertaken a small amount of activity in the environmental field, but the non-environmental focus of the agencies involved has affected most of these efforts.⁷⁴ The World Meteorological Organization (WMO) is concerned with the atmosphere and atmospheric processes, and particularly with weather and climate.⁷⁵ In 1969, WMO approved a plan for measuring a number of atmospheric pollutants — the Global Atmospheric Research Program (GARP).⁷⁶ The World Weather Watch,⁷⁷ another activity of the WMO, provided the logical framework and background experience for the establishment of

⁶⁸ See Brown, *supra* note 59, at 207.

⁶⁹ European Economic Community Treaty, *supra* note 66, at art. 189.

⁷⁰ EEC Directive 70/220/CEE, Mar. 20, 1970; J.O. No. L76, April 6, 1970.

⁷¹ Some of these deal with specific environmental problems while others deal with general environmental concerns. See the listing provided in the UNEP's Register of International Conventions, *supra* note 63.

⁷² Bleicher, *supra* note 34, at 50-51.

⁷³ *Id.* at 51.

⁷⁴ See, e.g., T. WILSON, INTERNATIONAL ENVIRONMENTAL ACTION: A GLOBAL SURVEY 47 (1971); Bleicher, *supra* note 34, at 3.

⁷⁵ See Davies, *The Role of the WMO in Environmental Issues*, in WORLD ECO-CRISIS, *supra* note 6, at 161, 165.

⁷⁶ UNEP, Report of the Executive Director, U.N. Doc. UNEP/GC/90 (1977).

⁷⁷ G.A. Res. 1721 C., 16 U.N. GAOR (Dec. 20, 1961).

the global environmental monitoring system (GEMS), created by the 1975 Conference on the Human Environment.⁷⁸

The World Health Organization (WHO) has shown an interest in the health aspects of air pollution,⁷⁹ having established a Working Group on Atmospheric Pollution and an international network of air pollution information centers.⁸⁰ WHO and the Food and Agriculture Organization (FAO) have started a joint Codex Alimentarius Commission, which has done some work in the area of pesticides and other chemical pollutants.⁸¹

A resolution of the International Civil Aviation Organization (ICAO)⁸² recognized that the agency was "conscious of the adverse environmental impacts that may be related to aircraft activity and of its responsibility and that of its Member States to achieve maximum compatibility between the safe and orderly development of civil aviation and the quality of the human environment."⁸³ This concern is displayed in ICAO's Aircraft Master Planning Manual which stresses the need for long term airport planning to include an assessment of the plan's potential impact on the airport's environment.⁸⁴ The ICAO is in the unique position of having the authority to create rules (SARPS) that are binding on its members.⁸⁵ NATO's Committee on the Challenges of Modern Society has established an Air Quality Criteria Panel.⁸⁶

The UN Conference on the Environment,⁸⁷ held in Stockholm in 1972, did not produce any specific air pollution standards or agreements, but it did provide the momentum for several atmosphere-related activities. Among these is the Earthwatch Programme with its components: the Global Environmental Monitoring System (GEMS) and the International Referral System (IRS).⁸⁸ The most significant result of the Conference was, of course, the creation of a new UN Agency (UNEP) with a focus on environmental concerns and with the responsibility for coordinating all UN activities relating to the environment.⁸⁹

⁷⁸ See note 88 *infra*.

⁷⁹ See, e.g., WHO, Problems of the Environment, Report by the Director-General, U.N. Doc. A24/A/3 (1971); Kiss, *supra* note 34, at 21, 26.

⁸⁰ UNEP, Report of the Executive Director, U.N. Doc. UNEP/GC/90 (1977); Kiss, *supra* note 34, at 27.

⁸¹ Kiss, *supra* note 34, at 27.

⁸² 15 U.N.T.S. 295 (1953).

⁸³ ICAO Res. A18-11.

⁸⁴ ICAO, AIRPORT MASTER PLANNING MANUAL (1969).

⁸⁵ Brown, *supra* note 59, at 214-15.

⁸⁶ Kiss, *supra* note 34, at 24. See generally Sudarskis, *NATO and the Environment: A Challenge for a Challenger*, 2 ENV'TL POL'Y & L. 69 (1976).

⁸⁷ See notes 2-3 *supra*.

⁸⁸ Mattes, *The U.N. Environment Programme*, 1 ENV'TL POL'Y & L. 53,54 (1975). GEMS is concerned with global environmental monitoring, while the task of IRS is information referral.

⁸⁹ See note 3 *supra*, and accompanying text.

The World Bank,⁹⁰ the Swedish International Development Authority, the United States Agency for International Development, and the United Nations Development Program⁹¹ also have environment-related concerns. These organizations have indicated their intention to include environmental considerations in the planning and appraisal of projects prepared by or submitted to them for financing. Developing nations view these policies with skepticism⁹² and are quick to characterize them as "cultural imperialism."⁹³

III. Proposals and Prospects

International air pollution would be controlled best by a comprehensive program of world resource management, an unattainable ideal.⁹⁴ In light of the failure of developed countries to effectively manage their natural resources,⁹⁵ the expectancy or hope that all nations could combine to do better is unrealistic.

Many proposals for international pollution control contemplate the division of pollution problems into at least three categories: (1) those that are almost completely localized in nature and therefore should be handled by domestic legislation; (2) those that involved a limited number of national jurisdictions, *i.e.*, those that are regional in nature; and (3) those that necessarily impact on the resources that all nations share in common, or that require international cooperation for control.⁹⁶ However, existing notions of national sovereignty and the seemingly insurmountable barrier existing between the developed and developing nations dictate that to be successful, action must be taken by national governments.⁹⁷ Ad hoc regional arrangements would be established to

⁹⁰ Lee, *Environmental Considerations in Development Finance*, in *WORLD ECO-CRISIS*, *supra* note 6, at 171, 177-78.

⁹¹ See generally *id.*

⁹² Castro, *supra* note 6, at 248. The developing nations have also viewed unconditional grants of aid for anti-pollution efforts with skepticism. Among other reasons, they fear that the money spent in this fashion will reduce the amount of financial aid available for development activities. NATIONAL ACADEMY OF SCIENCES, *INSTITUTIONAL ARRANGEMENTS FOR INTERNATIONAL ENVIRONMENTAL COOPERATION* 10-11 (1972).

Of course, the environmental concerns of the developed nations may have beneficial effects on developing nations. The concern for global pollution may create a "one world" feeling that could lead to efforts to alleviate poverty throughout the world. Criticism of the pollution effects from making synthetics may increase the demand for the natural resource products of developing countries. Strict environmental controls in developed countries may encourage high residuals industries to locate in the Third World. See D'Arge & Kneese, *supra* note 25, at 259-60.

⁹³ Taubenfeld, *supra* note 5, at 325; See *STOCKHOLM AND BEYOND*, *supra* note 7, at 120.

⁹⁴ *E.g.*, Yates, *supra* note 56, at 186.

⁹⁵ *STOCKHOLM AND BEYOND*, *supra* note 7, at 120.

⁹⁶ See, *e.g.*, Yates, *supra* note 56, at 186-89; Johnson, *The United Nations' Institutional Response to Stockholm*, in *WORLD ECO-CRISIS*, *supra* note 6, at 115-21; MacDonald, *supra* note 26, at 209-10. Cf. Tarlock, *supra* note 6, at 348.

⁹⁷ See, *e.g.*, Jackson, *The Dimensions of International Pollution*, 50 *ORE. L. REV.* 223, 231 (1971); Gardner, *The Role of the UN in Environmental Problems*, in *WORLD ECO-CRISIS*, *supra* note 6, at 70-73.

deal with particular pollution problems,⁹⁸ and international agencies would be used for those level three problems that cannot be handled adequately on a regional or domestic basis.⁹⁹

More radical proposals have insisted that mere "tinkering" with existing institutions is not enough¹⁰⁰ and that basic attitudes must be changed,¹⁰¹ e.g., the earth must be viewed as a closed world ("Space-ship Earth").¹⁰² Optimists, however, argue that the existing system based upon national self interest can adequately guarantee adherence to international rules.¹⁰³

A recent proposal has suggested the establishment of a World Habeas Ecologicus (WHE).¹⁰⁴ This would consist of an International Tribunal and a number of international and national commissions with panels situated throughout the globe. Whenever a government made a decision, to act or not to act, that endangered the international environment, the Commission would be authorized to invoke a writ of WHE before municipal authorities to seek injunctive relief. After exhausting municipal remedies, the Commission could appeal to the International Tribunal.

IV. Conclusion

The international control of air pollution remains a frontier topic in the field of international law. The responsibility of states for pollution beyond their borders has not yet been fully developed.¹⁰⁵ Few treaties and conventions have directly confronted the problems posed by air pollution. Air pollution-related efforts by international organizations have proceeded on a relatively piecemeal basis. Moreover, until the developed countries have sincerely demonstrated their concern for the environment, it is unreasonable to expect any substantial progress to be made in the area of air pollution, except perhaps with respect to particular transboundary problems or where a great deal of economic integration exists.

⁹⁸ See, e.g., MacDonald, *supra* note 26, at 226-28; Kiss, *supra* note 34, at 45; Johnson, *supra* note 96, at 117.

⁹⁹ See generally Lee, *supra* note 90; Bleicher, *supra* note 34, at 7-8.

¹⁰⁰ Murdoch & Connell, *The Ecologist's Role and the Nonsolution of Technology*, in ECOCIDE, *supra* note 4, at 47, 58-60; J. Tinbergen et al., eds., *supra* note 8, at 11 (1976).

¹⁰¹ See, e.g., Wandesforde-Smith, *National Policy for the Environment: Politics and the Concept of Stewardship*, in R. COOLEY & G. WANDESFORDE-SMITH, CONGRESS AND THE ENVIRONMENT 205 (1970); King, *The Environmental Bandwagon*, in ECOCIDE, *supra* note 4, at 189, 195-96.

¹⁰² D. MEADOWS, THE LIMITS TO GROWTH 124, 127 (1972); B. WARD & R. DUBOS, ONLY ONE EARTH: THE CARE AND MAINTENANCE OF A SMALL PLANET 191-95 (1972).

¹⁰³ See text accompanying note 62 *supra*.

¹⁰⁴ Kutner, *The Control and Prevention of Transnational Pollution: A Case for World Habeas Ecologicus*, 9 LAW. AM. 257 (1977).

¹⁰⁵ See, e.g., Handl, *supra* note 38, at 69.