

ANOTHER *P*RREROGATIVE *P*ROHIBITED: STATE RESPONSIBILITY FOR TRANSNATIONAL *P*OLLUTION

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The protection of our environment has been one of the most pressing issues of the decade. The past several years have seen unprecedented global concern for man's interaction with nature. And yet, since the industrial revolution, man has been interacting with nature on a global scale. While it remains true that the right to utilize national resources is fundamental, norms and customs do evolve. The right to wage war, for example, is now proscribed by treaty as well as customary international law. As humankind now continues to re-evaluate its place in the web of life, we realize that our previous standards of conduct leave room for progress.

This paper explores accepted and emerging international law and interprets these as evidence as to how close the international community is to a recognition of environmental obligations and rights. Due to the immense breadth of the topic, this study will limit itself primarily to parallels drawn from well-developed rules governing transboundary watercourses. It is advanced in this work that these regimes will provide much of the support for future application of the principles of inter-generational equity on a more comprehensive, if not yet global, scale.

Several states have begun to examine the truly global inter-connectedness of natural resources. This paper interprets this as a gradual, yet radical, shift in the conduct of states toward a regime of strict liability for those who would substantially degrade even their own natural resources. In addition, this paper submits that the Philippines has accepted much of these peremptory norms of stewardship and intergenerational equity. A universal consensus, however, remains elusive. Further study on the extent of a sovereign's obligations to those who are ultimately affected by its acts will prove vital to humankind as we trace our stops and starts toward a sustainable future.

INTRODUCTION

The preamble of the 1972 United Nations Conference on the Human Environment calls humankind, "both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral,

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social and spiritual growth.¹ This paradigm shift was inevitable. Over the past five thousand years, man's concerted activities have had their effects on the world he lived in. In giving up a nomadic existence for a more sedentary way of life, communities developed where nature was most bountiful. The river valleys of the Nile, Tigris and Euphrates, the Yang-tze and Yellow River gave birth to cultures that would last to this very day. Until quite recently, rivers offered the most efficient transportation system than any form of carriage over land.

Principal rivers also granted access to the resources of the sea. In Europe, rivers provided areas where the most intensive local development, and consequently trade, could take place. The sites of many European cities testify to this: London on the Thames, Paris on the Seine, Vienna and Budapest on the Danube, Warsaw on the Vistula as well as Copenhagen, Stockholm and Leningrad on the Baltic.

In a constant and inspired drive to improve his living conditions, "thinking man" developed more and more complex ways for achieving much the same tasks. By the nineteenth century, factories were powered by steam engines in great manufacturing cities of the industrial age. Of course, the by-products of his ingenuity may not have always been to his liking. But not until the dawn of the industrial age between 1760 to 1780,² did any of man's effluents qualify as a "pollution problem."

The state of our earth has drawn more attention in the past two decades than at any other time in history. Much of the concern is justified. An increasingly educated public now monitors the state of the environment through an effective collaboration between science and media. It is not surprising, therefore, that news of a threat to nature breaks, environmental movements are galvanized. What is surprising, however, is that the unprecedented growth in environmental regulation has not lessened the collective call for environmental protection.

In the late 1980s, the global human population passed the five billion mark. This figure was double that of the previous fifty years, and of the total, more than half the increase was Asian. In the past half century, the world's production of economically valuable goods increased fivefold.³ Enormous amounts of coal, oil, natural gas, chemicals and a variety of other inputs were consumed in the process. Yet only in relatively recent times have the consequences caused truly international concern. The emissions of industrial nations have raised alarms of ozone depletion and global warming. In Europe, acid rain has visited forests, lakes and rivers with a wanton disregard for political boundaries. These developments confirm that pollution does not confine itself to our neat socio-economic systems. Additionally, evidence has mounted of continued national economic planning with little understanding and

¹ Declaration of the United Nations Conference on the Human Environment (Stockholm), preamble, UN Doc. A/CONF/48/14/REV.1 (1972) [hereinafter Stockholm Declaration].

² J. COLTON & R. PALMER, A HISTORY OF THE MODERN WORLD, 1039 (7th ed., 1993).

³ *Id.* at 257.

even less regard for ecological consequences in both developed (the so-called "northern") nations and developing ("southern") states.

Industrial progress has been so successful in many countries such that many rivers are now little more than open sewers. Nuclear plants generate thermal pollution, not to mention the risk of long term radioactive damage. Despite the growing disfavor among developed nations for nuclear power plants, the rush to develop nuclear programs is trebling in Asia.⁴ The interplay of forces that attend this phenomenon have been daunting. But recent developments in international law, the *Nicaragua vs. United States*⁵ case in particular, have begun to foreshadow a more equitable balance in the law of nations. This indicates a progression that bodes well for the future of international environmental protection.

I. INTERNATIONAL ENVIRONMENTAL LAW

A. Cornerstones of Environmental Law

Environmental concern may not be as recent a phenomenon as it is often thought. The recognition of a certain stewardship of man over the earth is found in the Old Testament. The ancient Hebrews were of the reasoning that the earth's fertility was related to human conduct and Divine benevolence. In Deuteronomy, the Israelites are reminded that the land is cared for both by God and by human action.⁶ Hebrew law also required that the earth lie uncultivated every seventh year.⁷ These early precepts hint at the factors and concerns upon which international environmental law has been, and continues to be, developed.

1. THE PRIMACY OF HUMAN HEALTH

The ancient Greeks relied on Hygeia, from whom the word hygiene comes, for their physical well-being. She was depicted as a beautiful goddess who prescribed a particular lifestyle to achieve good health. But the Greeks also had other gods, promising haleness through medicine and therapy, to whom they could turn if they found Hygeia's personal demands a bit too austere.⁸

Plato had advised the removal of impurities from rivers and streams so that they and the bodies of water they feed may be kept clear.⁹ But the regulation of pollution to

⁴ Peter McKillop, *Asia's Nuclear Affair*, NEWSWEEK, 13 June 1994, at 12.

⁵ *Nicaragua v. U.S. (Merits)* 1986 I.C.J. Rep. 14 at 38.

⁶ *Deuteronomy* 11: 12-18.

⁷ *Exodus* 23: 10-12, *Deuteronomy* 31:10.

⁸ R. HALL, HEALTH AND THE GLOBAL ENVIRONMENT 7 (1990) [hereinafter: Hall, Health].

⁹ V. YANNAKOONE, B. COHEN & S. DAVIESON, ENVIRONMENTAL RIGHTS & REMEDIES, vol. 1-12 (1972).

protect human health arose as a necessity in Europe's urban centers. Early laws naturally focused on essentially local issues. In Rome, there were protests of domestic wastes from homes fouling the city's air and polluting the waters of the Tiber as early as the Fifth Century.¹⁰ In 1306 Edward I of England forbade Londoners' use of coal in open furnaces while Charles VI of France banned foul smoke from Paris.¹¹

After the industrial revolution, a Napoleonic decree dated 15 October 1810 regulated odors from factories and workshops "that were unhealthy, dangerous or emitted disturbing odours."¹² From these early beginnings arose various forms of regulation, often through systems of licensing and municipal authorizations, over installations that produced unfavorable emissions. Such measures were in place in England by 1863 and Italy by 1865.

Self-interest obviously underlies such forms of regulation. The pressures on policy makers of those who feel personally threatened by pollution are undeniably great. People are more likely to demand action when their personal well-being is actually being threatened. Thus, documents that outline the "human health effects of a polluted environment, have far more clout with scientists and policy-makers than those of environmental agencies" that simply advocate ecological protection or the preservation of certain habitats.¹³ Indeed, one of the principal arguments for the preservation of rainforests has been the possibility of discovering a cure for cancer (and recently AIDS) from plants within these ecosystems.

2. COMPELLING COMMERCIAL INTERESTS

Another significant area of concern has been the protection of economically vital natural resources. Some of the earliest decrees with respect to the environment were passed for the sake of wood products. In 1734 Finland passed laws to protect its disappearing pine forests, a critical export. Bohemia had forestry laws dating from the Middle Ages. Switzerland passed laws on the subject at the turn of the century and 1930 saw the establishment of forestry reserves in Romania.¹⁴

International developments have understandably been reflective of the legal regime within states. The 1900 Convention for the Preservation of Wild Animals, Birds and Fish in Africa is often cited as the first multilateral treaty concerning the environment. This was followed, in 1902, by the Paris Convention for the Protection of

¹⁰ A. KISS & D. SHELTON, *MANUAL OF EUROPEAN ENVIRONMENTAL LAW* 9 (1993) [hereinafter Kiss, et al., Manual].

¹¹ *Id.*

¹² *Id.*

¹³ HALL, *HEALTH*, *supra* note 8, at 12.

¹⁴ KISS, et al., *MANUAL*, *supra* note 10, at 10.

Birds Useful to Agriculture,¹⁵ in force since 20 April 1908. Both treaties emphasized the importance of certain species to human commercial interests as the reason for their conservation. This "utilitarian economic approach"¹⁶ actually allowed the extermination of less valuable or competing species.

In 1911, the Treaty for the Preservation and Protection of Fur Seals,¹⁷ valued for their pelts, was done in Washington between the United States and Canada. This instrument was characteristically reflective of the perceived need to prevent over-exploitation in order to maintain profitability. But these treaties had to deal with another important factor which is dealt with in part three of this paper: the simplistic application of the principle of state sovereignty over their territory. This extended, naturally, to all natural resources found within, regardless of whether or not these were living or migratory. "Ownership" was to the exclusion of all other states. The animals themselves had no rights. According to Judge Richard Posner,

Animals count, but only insofar as they enhance wealth. The optimal population of sheep is determined not by speculation on their capacity for contentment relative to people, but by the intersection of the marginal product and marginal cost of keeping sheep.¹⁸

Neither the Greek philosophers nor the Roman doctrine that animals *ferae naturae* could be captured by anyone when found in international areas, gave any specie a status above common property.¹⁹ These views are undergoing a significant degree of evolution in international environmental law.

3. EXTRA-LEGAL IMPETUS

In the early part of this century, people like John Muir, John J. Audubon and Henry David Thoreau brought public attention to both the beauty and plight of North American wildlife. Captain Jacques Yves Cousteau did the same for the marine environment through a series of world renowned books and films. In 1962, a soft-spoken biologist named Rachel Carson wrote *Silent Spring*. Her book on the interaction of man with the food chain polarized a generation into challenging the one cause-one effect model for the environment. Enough public outrage was generated to see the United States Congress ban the use of the pesticide DDT.²⁰

¹⁵ 102 BFSP 969 cited in P.W. BIRNIE & A.E. BOYLE, *INTERNATIONAL LAW AND THE ENVIRONMENT* XVIII (1992) [hereinafter: Birnie & Boyle, International].

¹⁶ Kiss, et al., *Manual*, *supra* note 10, at 10.

¹⁷ 104 BFSP 175, cited in BIRNIE & BOYLE, *INTERNATIONAL LAW*, *supra* note 15.

¹⁸ R.A. POSNER, *THE ECONOMICS OF JUSTICE* 76 (1983) cited in A. D'Amato, *Do We Owe a Duty to Future Generations to Preserve a Global Environment?*, 84 A.J.I.L. 190 at 195 (1990).

¹⁹ BIRNIE & BOYLE, *INTERNATIONAL LAW*, *supra* note 15, at 422.

²⁰ HALL, *supra* note 8, at 12.

This was followed by work such as James Lovelock's Gaia hypothesis which describes the world as a single living organism. The impact of their research and advocacy in sensitizing the world to hitherto unaddressed problems cannot be discounted. Future work in the same fields will considerably swing the lever of environmental awareness further toward enforceable legislation.

4. NOTHING MOTIVATES LIKE FAILURE

Another equally important catalyst of environmental protection has, unfortunately, been the occurrence (and often the repetition) of industrial accidents with disastrous effects on the environment. Several notable examples, as well as their legal consequences, on environmental law in particular, are briefly discussed.

a. SEVESO

In 1976, an accident in an Italian Chemical plant leaked dioxin into the soil around the site. Forty-one barrels of the soil were then secretly shipped out of Italy and covertly trans-shipped all over Europe until they were found in France. Years later, the toxic soil was finally returned to the owner of the Seveso facility, the Hoffman-La Roche Company of Switzerland.²¹ These events fixed the European Community's attention to the need for regulating the transportation of hazardous wastes.

The European Community responded by issuing Council Directive 82/501, known as the Seveso Directive. Article 11 of which provides for the notification by Member States to the "[European] Commission as soon as possible of major accidents which have occurred within their territory and shall provide it with information specified in annex vi as soon as it becomes available."²² Eventually, these same concerns would lead to a global convention on the transboundary movement of hazardous wastes.²³

b. BHOPAL

During the dark hours between 2 and 3 December 1984, a highly toxic gas (methyl isocyanate) leaked out of a chemical plant in Bhopal, India causing over 2,500 deaths and necessitating the evacuation and medical treatment of some 20,000 people.²⁴ The

²¹ Kiss, et al., MANUAL, *supra* note 10, at 421.

²² EUROPEAN ECONOMIC COMMUNITY, *On the Major Accident Hazards of Certain Industrial Activities*, COUNCIL DIRECTIVE 82/501 (1982) [hereinafter: Seveso Directive].

²³ BASEL CONVENTION ON THE TRANSBOUNDARY MOVEMENT OF HAZARDOUS WASTE AND THEIR DISPOSAL, 22 March 1989, UN Doc. UNEP/IG.30/3 (1989), 28 I.L.M. 657 (1989). For an analysis of the Basel Convention, see Katharina Kummer, *The International Regulation of Traffic in Hazardous Wastes: The 1989 Basel Convention*, 41 INT'L. & COMP. L. Q. 530 (1992).

²⁴ H. SMETS, *Borderland Between Domestic and International Law*, in INTERNATIONAL RESPONSIBILITY FOR ENVIRONMENTAL HARM 403 (F. Francioni & T. Scovazzi eds., 1993).

plant belonged to Union Carbide India Limited, an Indian company owned substantially by the Union Carbide Corporation (UCC), established under the laws of New York, U.S.A. Indian public financial institutions and private investors (through the Bombay stock exchange) accounted for the balance of ownership.

Soon after the accident, India passed the *Bhopal Gas Leak Disaster Act* in order to deal with claims "speedily, effectively, equitably and to the best advantage of the claimants."²⁵ But suits were filed both in India and in New York. Adverse parties in both suits expressed preference for the more distant forum. India invoked the doctrine of the "monolithic multinational" to find a substantial link between the dispute and American jurisdiction. UCC argued the principle of *forum non conveniens* in favor of Indian jurisdiction. After much public pressure, the parties finally settled on 14 February 1989, four years after the gas leak. The disaster highlighted the underdeveloped state of applicable civil liability regimes even when no transnational harm is involved.

c. CHERNOBYL

The responses to the 26 April 1986 Chernobyl nuclear plant disaster, however, dramatized a general reluctance of states to establish precedents of liability for the damage caused by transnational pollution. Despite a common classification of nuclear plants as ultra-hazardous facilities, the Soviet Union did not, at the time of the incident, consider itself bound by the prevailing norms of notification of states (the Seveso Directive did not apply to nuclear installations)²⁶ likely to be affected by the accident.

On 26 April 1986, an experiment was carried out in one of the reactors near the Ukrainian town of Chernobyl, north of Kiev. Improperly supervised and conducted with the water cooling system turned off, an uncontrolled reaction resulted in a steam explosion. The reactor's protective covering was blown off releasing approximately one hundred million curies of radionuclides into the atmosphere. Some of the radiation reached as far as the British Isles. The Soviet government confirmed twelve deaths and over one hundred thousand persons had to be evacuated from surrounding areas. These areas were subsequently declared by the government as a "national park".²⁷

The losses caused in the catastrophe's aftermath of the were enormous. Much of European agricultural produce and livestock were rendered unusable. But since many of the affected nations themselves operate nuclear plants, this exacerbated the uncertainties attendant to the incident (the former Soviet Union was not a signatory to any relevant treaties).²⁸ The principles prevention and mitigation of transboundary nuclear damage were quickly updated in two subsequent multilateral conventions:

²⁵ The Bhopal Gas Leak Disaster Processing of Claims Act, 84 I.L.M. 884 (1986).

²⁶ SEVESO DIRECTIVE, art. 2 (1), *supra* note 22.

²⁷ *Chernobyl*, in MICROSOFT ENCARTA (1994).

²⁸ BIRNIE & BOYLE, INTERNATIONAL LAW, *supra* note 15, at 369.

the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency under the auspices of the International Atomic Energy Agency (IAEA).²⁹

d. EXXON VALDEZ

While the Seveso tragedy remains relatively obscure, the grounding of the tanker *Exxon Valdez* in Prince William Sound, Alaska in March 1989 has been fixed in the public consciousness. For reasons still unclear, the supertanker hit Bligh Reef during a period of little shipping activity in a well charted waterway. Ten to eleven million gallons of North Slope crude flowed into the Sound over the next few days, destroying the habitats of hundreds of thousands of birds, otters, salmon and other species of wildlife.³⁰ Exxon was scored for mishandling the clean-up operations and it was not helped by either the weather or the natural configuration of the Sound.

Tremendous public pressure was brought to bear on the United States Congress calling for action on the issues of regulation and liability of such occurrences. One of the issues both Congress and the U.S. Courts had to address was the Limitation of Liability Act of 1851. For this outdated law would have done just what its name suggested, and limited any liability to the value of the vessel after the casualty occurred.³¹ In cases where the ship is unrecoverable, the value of a few lifeboats can hardly approximate the damage wrought by its discharged cargo. Yet unlimited liability was just as unworkable. For no company would be willing to risk all its fortunes with every ship that sailed under it. The Oil Pollution Act of 1990 (OPA 90)³² was finally enacted to rationalize oil spill laws. Eventually, Exxon paid a settlement to the human communities affected by the spill.

But liability is itself a crude instrument for affecting behavior. By, itself, making it financially riskier to transport oil does not insure that the proper care will be taken under all relevant circumstances. There were many who said that the environmental damage could have been greatly minimized had the *Exxon Valdez* possessed a double-hull. This was a measure that ship-owners had been seriously resisting for reasons of cost. After the disaster, the polemical argument of whether or not tankers (and if so which tankers) should be required to have double hulls was ended by the U.S. Congress opting for a gradual phase-in.³³ These and other incidents (such as the more devastating

²⁹ Vienna Convention On Early Notification Of A Nuclear Accident, 25 I.L.M. 1370 (1986). See also the Vienna Convention On Assistance In Case Of A Nuclear Accident Or Radiological Emergency, 25 I.L.M. 1377 (1986).

³⁰ M. MOWERY & T. REDMOND, NOT IN OUR BACKYARD, THE PEOPLE AND EVENTS THAT SHAPED AMERICA'S MODERN ENVIRONMENTAL MOVEMENT, at 381 (1993).

³¹ R. PERCIVAL, A. MILLER, C. SCHROEDER, J. LEAPE, ENVIRONMENTAL REGULATION: LAW, SCIENCE AND POLICY 135, (1992) [hereinafter R. PERCIVAL, et al., ENVIRONMENTAL REGULATION].

³² Oil Pollution Prevention, Response, Liability and Compensation Act of 1990, 104 STAT. 484 (1990).

³³ R. PERCIVAL, et al., ENVIRONMENTAL REGULATION, *supra* note 31, at 139.

Cherry Point oil spill and the spills during the Gulf War with Iraq) have contributed greatly to the development of both municipal and international laws protecting the environment. If international environmental law is said to be in its infancy, its childhood has not had many of pleasant memories. The international community has responded in each of these cases by either passing or actively advocating legislation or agreements that would foreclose or at least minimize the threat of future tragedy. But the field of environmental protection possesses complexities which, whether foreseen or unforeseen, play additional parts in determining the state and direction of international environmental law.

B. The Problems of Pollution

1. A MULTI-FACETED FIELD

It is not difficult to appreciate the unique challenges faced by environmental lawyers. For they have to deal with not only the usual issues of inter human relationships but also the rules of nature and the developments of modern technology. Environmental law must consider an interdisciplinary approach as an essential part of addressing any concern. Gro Harlem Brundtland in 1987, wrote:

When the century began, neither human number nor technology had the power radically to alter planetary systems. As the century closes, not only do vastly increased human numbers and their activities have that power, but major, unintended changes are occurring in the atmosphere, in soils, in waters, among plants and animals, and in the relationships among all of these. The rate of change is outstripping the ability of scientific disciplines and our current capabilities to assess and advise. It is frustrating the attempts of political and economic institutions, which evolved in a different, more fragmented world, to adapt and cope. It deeply worries many people who are seeking ways to place those concerns on the political agendas.³⁴

Problems such as global warming, ozone depletion, extinction, exploitation of the sea-bed and outer space require some input from the fields of meteorology, bacteriology, chemistry, physics and mathematics in order to plan appropriate and effective contingency measures. The expertise of biologists and ecologists are also indispensable to the need of continually measuring the impact of any actions on the biosphere. This is of utmost importance if proposed solutions are to be truly effective and not cause new, and perhaps greater problems.³⁵ In fact, several years ago some jurisdictions mandated taller smokestacks to disperse air pollution that was affecting local communities to higher altitudes. It has now been proven that such a solution turned a local problem into a long range threat of acid rain.³⁶

³⁴ THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, *Our Common Future*, at 33, cited in M. DIXON & R. MCCORQUODALE, CASES AND MATERIALS ON INTERNATIONAL LAW (International Student's Ed.) 447 (1991) [hereinafter DIXON & MCCORQUODALE, CASES].

³⁵ KISS & SHELTON, MANUAL, *supra* note 10, at 8.

³⁶ *Id.*

It is also recognized that nature's processes are inter-related. The components of an ecosystem are dependent on each other and their processes. Thus, efforts to clean polluted areas may result in damage to the ecological balance either immediately or in the unseen future.

2. THE DIFFICULTIES OF DEFINITION

It is possible to characterize and define the problem of "pollution" so broadly as to make it virtually unmanageable. The difficulty is more real than apparent. For everyone knows what pollution is and that mankind would be better off with less of it. But for an analysis of the liability regimes that would govern states, value judgments of this sort must be quantified. Law and policy has needed to take generously from science to achieve some measure of progress. Generally, considerations as to

- a) what kind of materials are discharged into the environment, or otherwise are there as a result of human activities;
- b) the effects these additions have on the environment and those that live there;
- c) what implications these effects have for human health, food resources, commercial interests, amenities, wildlife conservation, or ecosystems in general;
- d) what can be done to reduce or remove the damaging or undesirable effects of these additions to the environment and;
- e) given the consequences of both removal and restraint from releasing these materials, the kind of liability regime would be appropriate and effective to insure the continuity of viable ecosystems in the world for the next generation;³⁷

are relevant for the purposes of dealing with a polluting substance or condition.

Defining the environment itself presents significant preliminary difficulties. This is perhaps the reason why no major treaty directly defines the term. Regional arrangements simply define the area within which its provisions are to operate. This seeming deficiency lack should not be necessarily be viewed as a flaw since the task is inherently ambiguous. The New American Heritage Dictionary definition reads, "[t]he totality of circumstances surrounding an organism or a group of organisms, especially: The combination of external physical conditions that affect and influence the growth, development, and survival of organisms."³⁸

The European Community has defined the environment as "water, air and land and their inter-relationship as well as relationships between them and any living organism."³⁹ This comprehensive definition has become the foundation of some of

³⁷ R. CLARK, MARINE POLLUTION 1 (1993).

³⁸ NEW AMERICAN HERITAGE DICTIONARY, (1993).

³⁹ EUROPEAN ECONOMIC COMMUNITY, *Council Directive of 27 June 1967*, O.J. No. L, 1, (1967).

the most forward looking policies in international law as it considers an interdependent relationship between man and his environment.

The OECD's definition of pollution is one of the most widely accepted. The term is applied to:

The introduction by man, directly or indirectly, of substances or energy into the environment resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems, and impair or interfere with amenities and other legitimate uses of the environment.⁴⁰

Aspects of the Organization for Economic Cooperation and Development's (OECD) definition may be found in numerous multilateral treaties and instruments. The Convention on Long-Range Transboundary Air Pollution defines air pollution as

the introduction by man, directly or indirectly, of substances or energy into the air resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment, and "air pollutants" shall be construed accordingly;

(b) "long range transboundary air pollution" means air pollution whose physical origin is situated wholly or in part within the area under the national jurisdiction of one State and which has adverse effects in the area under the jurisdiction of another State at such a distance that it is not generally possible to distinguish the contribution of individual emission sources or groups of sources.⁴¹

Human health (as discussed above) is given as the primary reason for pollution abatement. This rather anthropocentric approach, however, is not prevalent in all instruments. The Helsinki Rules on the Uses of the Waters of International Rivers define water pollution as "any detrimental change resulting from human conduct in the natural composition, content or quality of the waters of an international drainage basin."⁴²

These definitions are broad enough to include most of man's detrimental effects to the environment, including the heat radiated by industrial sites into bodies of nearby water. But still limited in the sense that they all require some sort of human intervention. It would be well to consider what naturally occurring substances could be the subject of international rules on pollution. It is beyond argument that the forces of nature have not paled in significance as man's own capacity to influence his environment have increased.

⁴⁰ OECD, *Council Recommendation C(74) 224*, (1974).

⁴¹ Convention On Long-Range Transboundary Air Pollution, art. 1, 18 I.L.M. 1442 (1979).

⁴² INTERNATIONAL LAW ASSOCIATION, HELSINKI RULES ON THE USES OF THE WATERS OF INTERNATIONAL RIVERS, Report of the 52nd Conference, Helsinki, 1966, art. 9, at 484 (1966) [hereinafter HELSINKI RULES].

But what of the introduction of species of plant and animal life beyond their natural ranges through human intervention? Such incidents have been said to have caused problems from red tides to the fouling of underwater pipes.⁴³ Man has so altered his environment that it is sheer conjecture to propose what the true natural state of any given ecosystem is. And yet there are some very obvious examples of how development accidentally transfers one specie from its natural habitat to alien environments causing substantial environmental changes.⁴⁴ In addition, when states intentionally stock local areas with non-indigenous species for commercial purposes, it is quite difficult to predict the outcome with any degree of certainty.⁴⁵ The ILC's Special Rapporteur, Stephen M. McCaffrey "alluded to but did not explicitly link" the introduction of exotic species to pollution in his report on the Law of the Non-Navigable Uses of International Watercourses.⁴⁶

As environmental law seeks to evaluate its handling of current problems, and its ability respond to potential risks, the breadth of the playing field becomes more apparent. Old conceptions and regimes may prove too inflexible to handle environmental disasters yet to occur. Given the dynamics of nature, the exploration of a myriad of approaches is most important.

However, we do know that by far the greatest volume of discharge into the environment from man's activity is organic material which is subject to bacterial attack. Essentially, this is an oxidative process and ultimately breaks down organic compounds into stable inorganic compounds such as carbon dioxide, water and ammonia. Falling into this category are: a large part of urban sewage; agricultural wastes; paper pulp, and most chemical industry waste; even oil spillages. In principle, these are no different from plant and animal remains which are subject to bacterial decay by the processes of nature.⁴⁷

But if the rate of input exceeds the rate of bacterial degradation, organic materials accumulate. The rate of bacterial action depends on temperature, oxygen availability, and other factors; if these become limiting, the rate of bacterial action falls and the capacity of nature to receive organic waste without accumulation is much reduced. If the input of wastes is large, there is intense bacterial activity until the oxidative process of degradation outruns the supply of oxygen (mostly dissolved in water) leading to anaerobic degradation which is slow and yields end-products such as hydrogen sulphide and methane.

⁴³ D. J. BEDERMAN, *International Control of Marine "Pollution" by Exotic Species*, 18 *Eco. L. Q.* 677 at 687 (1991) [hereinafter: Bederman].

⁴⁴ The Zebra mussel infestation of the Great Lakes is a well-publicized example.

⁴⁵ BEDERMAN, *supra* note 43, at 682.

⁴⁶ *Id.* at 689.

⁴⁷ CLARK, *supra* note 37.

It was for practical considerations such as these that the Basel Convention provides for each party to inform the Secretariat of the wastes considered hazardous under municipal law other than those listed in its Annexes I and II.⁴⁸ Sean Murphy, attorney-adviser for the U.S. Department of State writes that this "makes it difficult to compare coverage. Most countries carve out some exceptions based on their domestic concerns and industries."⁴⁹ United States law, Murphy notes, exempts:

... all household wastes and wastes generated by mining, agriculture, and drilling operations for oil, gas and geothermal energy. Under this approach, the four largest hazardous waste-producing industries— which account for nearly 90 percent of the total estimated hazardous wastes generated in the United States—are the industries that manufacture chemical and allied products, primary metals, fabricated metals, and petroleum products.⁵⁰

Philippine law is more comprehensive. Republic Act 6969 defines (in the context of disposal or trans-shipment) hazardous wastes as

...substances that are without any safe commercial, industrial, agricultural or economic usage and ... by-products, side-products, process residues, spent reaction media, contaminated plant or equipment or other substances from manufacturing operations, and as consumer discards of manufacture products.⁵¹

Thus, the manner in which the problem is defined determines, in a large part, the manner by which states deal with transnational pollution although still often tainted by domestic agenda. Special Rapporteur Robert Rosenstock, Stephen McCaffrey's successor, suggests a clarification of Article 2 of the ILC's Draft Articles on the Law of Non-Navigational Uses of International Watercourses. He recommends the deletion of the phrase "flowing into a common terminus"⁵² that qualifies the rather broad definition of a watercourse as a "system of surface and underground waters constituting by virtue of their physical relationship a unitary whole" to include the significance of underground aquifers.⁵³

⁴⁸ United Nations Environment Programme Conference Of Plenipotentiaries On The Global Convention On The Control Of Transboundary Movements Of Hazardous Wastes: Final Act And Text Of Basel Convention, art. 3, 28 I.L.M. 649 at 661 (1989) [hereinafter BASEL CONVENTION]. The convention was ratified by the Philippine Senate through Resolution 24 on 10 March 1993.

⁴⁹ S.D. MURPHY, *Prospective Liability Regimes for the Transboundary Movement of Hazardous Wastes*, 88 *A.J.I.L.* 24 at 27 (1994).

⁵⁰ D. MAZMANIAN & D. MORELL, *BEYOND SUPERFAILURE: AMERICA'S TOXICS POLICY FOR THE 1990s* 81 (1992) cited in MURPHY, *id.*

⁵¹ An Act To Control Toxic Substances And Hazardous And Nuclear Wastes, Providing Penalties For Violations Thereof, And For Other Purposes, Republic Act 6969 (1990).

⁵² First Report On The Law Of The Non-Navigational Uses Of International Watercourses INTERNATIONAL LAW COMMISSION, A/CN. 4/451 20 Apr. 1993, 5 (1993).

⁵³ Report Of The International Law Commission, UNGA Suppl. 10 A/46/10 162 (1991).

Article 21 of the draft defines the pollution of an international watercourse as "any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct."⁵⁴ These proposed formulations exclude little without the characteristic ambiguity of previous documents.

C. Developmental Issues

Developed nations command enormous amounts of the world's resources. Much of this pre-eminence has been due to third world contributions such as cheap labor and raw materials, plus a growing market for first world exports. Western domination has "forced colonial exports to bow to the dictates of fluctuating world trade pricing and all but wiped out their local crafts and ancillary production which provided supplementary income for hard-pressed farmers."⁵⁵

A continuing reliance on the economic policies that have brought such a dichotomy to the world and created such problems as desertification and ozone depletion have lost favor with the world community, at least on paper. This seductively simple standard is a difficult goal for most developing nations who are hard-pressed to cash-in on their natural resources and fuel the growth of their economies just as their "northern" neighbors did before them. Some nations of the "south" view global environmental concerns of developed nations with a continuing cynicism.

Some forms of "southern" exploitation of their natural resources have had little regard for factors other than economic need. For example, the disposal of PCBs (polychlorinated benzenes/bi-phenols which are linked to cancer) is prohibitive in the United States at US\$3,000 per ton, but disposal in a developing country can cost as low as US\$2.50 per ton.⁵⁶ It is in this context that the formulation of environmental protection policies is increasingly being undertaken in forums with active (although independence is a controversial issue) representatives from both developed and less developed nations whose economic interests are often opposed.

Sometimes this cynicism surfaces in discussions among states as to what conduct is in accordance with applicable international law. India and China, for example, proposed a clause be added to the preambular paragraph of the Framework Convention on Climate Change⁵⁷ that would have read "...environmental considerations should not be used as a pretext for interference in the internal affairs of developing countries." This, Marc Pallemerts wrote,

⁵⁴ *Id.* at 168.

⁵⁵ R.K.L. Panjabi, *Idealism and Self-Interest in International Environmental Law: The Rio Dilemma*, 23 C.W.I.L.J. 177, 182 (1992).

⁵⁶ C. HILZ, *THE INTERNATIONAL TOXIC WASTE TRADE*, 21 (1992).

⁵⁷ UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT: FRAMEWORK CONVENTION ON CLIMATE CHANGE, 9 May 1992, 31 I.L.M. 849 (1992).

shows little concern for preserving even the appearance of logical consistency and formal legal reasoning. Inferring a right to ecological non-interference from the principle of responsibility of States for transfrontier ecological damage is, in fact, the negation of the very essence of that principle, which logically and necessarily implies the existence of certain limits to national sovereignty.⁵⁸

But perhaps even more often, the undertow comes from the other side. The United States, for example, is not a party to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes⁵⁹ and the United Nations Convention on Biological Diversity.⁶⁰ A persistent objector to the Law of the Sea Treaty, the world's largest consumer nation was also the only member of the United Nations General Assembly to vote against the World Charter for Nature on 28 October 1982.⁶¹

Given all these political, economic and social constraints, the writer agrees with Birnie and Boyle who observe that,

International law cannot provide answers to this dilemma but it can, in its constitutional role, provide mechanisms for negotiating the necessary accommodations, settling disputes, and supervising implementation of treaties and customs, and in its regulatory, prescriptive role can embody the necessary protective measures and techniques in conventions, codes, and standards, and provide flexible procedures for amending and updating these as required, in the light of technological developments and advances in scientific and other information.⁶²

D. Objective and Scope of the Study

It is the author's purpose, in this work, to study and analyze the established rules and, with more emphasis, the emerging norms of international law as these apply to transboundary pollution. He advances that global liability regimes may take much from the relatively well-developed rules governing transboundary watercourses. This work endeavors to discuss the significance of international legal developments in two aspects: first, the expanded liability of states for conduct within their territory that

⁵⁸ M. Pallemerts, *International Environmental Law From Stockholm to Rio: Back to the Future?* in P. SANDS, *GREENING INTERNATIONAL LAW* 1 at 6 (1993) [hereinafter: Pallemerts].

⁵⁹ As of 18 Sept. 1992, 25 States and the European Economic Community are signatories, 31 I.L.M. 1599 (1992).

⁶⁰ Convention On Biodiversity, 31 I.L.M. 1004 (1992). As of 29 June 1992, 158 States are signatories, the Philippines signing on 12 June 1992.

⁶¹ UNGA RES. 37/7 9 Nov. 1982, 22 I.L.M. 455 (1983). There were 18 abstentions namely: Algeria, Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Ghana, Guyana, Lebanon, Mexico, Paraguay, Peru, Philippines, Surinam, Trinidad and Tobago, and Valenzuela—later Mexico informed the U.N. Secretariat that it had intended to vote in favor of the Charter.

⁶² BIRNIE & BOYLE, *INTERNATIONAL LAW*, *supra* note 15, at 4.

may harm the environment (or any of its components under a global hydrosphere model—not just neighboring States); second, these behests are seen as a duty owed not merely to an injured or potentially injured state, but increasingly to future, yet unborn, generations. There exists an international standard for the allowable appropriation of a transboundary watercourse: equitable utilization. This standard seems likely to form much of the basis for future environmental protection even outside the regime of international rivers and aquifers. Developments in this direction however, while essentially moving in a constant direction toward equitable utilization, the rate of progress has varied considerably over the years. Recent developments have been marked by increasing differences of opinion as to how the burden of caring for the environment and refraining from unbridled exploitation is to be shared. These factors are as important as the urgency of the problem itself. In that regard this work does not gloss-over the various constraints facing the development of international law in the proposed direction. In fact, it is submitted that the international community's stops and starts affirm a general direction, if not a stout conviction to eventually arrive at such binding norms *erga omnes*.

E. Limitations

The United Nations' Conference on Environment and Development's (UNCED) program of action for sustainable development, often called Agenda 21, spans over eight hundred pages. The document covers such topics as combating poverty, protection of the atmosphere, technology transfers and the roles of different sectors in sustainable development. Given the constraints, it is simply not possible here to give each of the issues relevant to the development of international law on pollution the discussion they deserve.

With the natural breadth of environmental issues, the writer focuses on historical developments as sources of international law and as catalysts of gradual yet revolutionary change in the behavior and consciousness of states. Given the limited time in which to complete this thesis, the writer has addressed recent developments in treaty law in general and the rules governing transboundary watercourses in particular. The writer is not a scholar of international law. But he shares with many a puissant concern for our environment. As a scuba diver, the author has witnessed how quickly the generosity of nature can be wiped-out by the avarice of man, directly or indirectly. As a student of international law, he has found how imperative change must be effected by all nations, individually and collectively, if our children are to see the world in a healthier light.

F. Overview

The thesis is divided into five parts. The first lays the foundation for an understanding of the factors which determine both the speed and direction of developments in environmental law. The second chapter applies these to the peculiar regime of legal relations among sovereign States. It explains the framework for developments in international law and the interplay between traditional and non-

traditional sources of law. The environmental rights and duties of states are discussed in the third part with particular focus on the interaction of obligations of states in customary international law. The interplay of state practice and treaty law is explained in this section. The fourth and fifth parts contain the author's conclusions and interpretations of emerging international environmental law and the development of obligations to future generations. The final chapter, in particular, discusses why intergenerational equity shall provide the standard for future conduct.

II. THE SOURCES DOCTRINE AND INTERNATIONAL ENVIRONMENTAL LAW

A. Traditional Sources

Although it is universally recognized that States have obligations to abide by rules of international law, this duty does not directly determine whether rules may be established that are binding on all States, whether or not they dissent.

International Environmental Law, in particular, is built around a relatively new legal framework. It is still developing and must continue to do so within the context of the positivism attendant to the sources doctrine. But the revolutionary rate of its evolution along the same path is difficult and cannot be over-emphasized. For the "present requirement of international environmental law is to create a presumption in favour of protecting the environment,"⁶³ often against more time honored principles such as state sovereignty.

Article 38 of the Statute of the International Court of Justice is the traditional enumeration of the sources of international law:

1. The Court, whose function is to decide in accordance with international law such disputes as are submitted to it shall apply:
 - (a) international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
 - (b) international custom, as evidence of a general practice accepted as law;
 - (c) the general principles of law recognized by civilized nations;
 - (d) subject to the provisions of Article 59, judicial decisions and the teaching of the most highly qualified publicists of the various nations, as subsidiary means for the determination of the rules of law.

2. This provision shall not prejudice the power of the Court to decide a case *ex aequo et bono*, if the parties agree thereto.

⁶³ DIXON & McCORQUODALE, CASES, *supra* note 34, at 447.

There is some debate as to whether the running order of Article 38 suggests a certain hierarchy but this has almost always been resolved in favor of a complimentary approach.⁶⁴

Various theories since Grotius may be divided into four groups: natural law theories, positivist theories, sociological theories and mixed theories. When the globe was divided by the cold war, the Soviet theory of sources of international law is that while considering the process of creating norms of international law as a specific social phenomenon, it does not divorce it from the social environment (the so-called "co-ordination of wills" which, in their view, exercised decisive influence on this process.⁶⁵

In the opinion of authors such as Fitzmaurice and Brownlie, (a) and (b) [of the Article 38 above] are obviously important sources and a certain priority is accorded to (a) due to the fact that it refers to a source of mutual obligations of the parties.⁶⁶ But the interpretation of a treaty may invoke the application of a general principle of international law. Often, the treaty obligations themselves may be considered altered by subsequent custom, where the conduct of the parties themselves so indicate.⁶⁷

1. TREATIES

Treaties are currently the most favored means of creating norms relating to the environment, something especially satisfactory to socialist and developing countries.⁶⁸ This seems so because the alternative of digging through the customary norms of a consumer-oriented society for rules protecting the environment is understandably bleak. They come in a variety of forms with equally diverse nomenclatures without rules prescribing their form. Treaties are, strictly speaking, a source of obligation rather than law. Such instruments, signed by states as private parties would a commercial contract, create obligations and rights, not law. It can only be held that as a source of international law, treaties derive their capacity to "create" norms is the antecedent principle that obligations must be carried out—*pacta sunt seroanda*. This principle is the true source of State obligation, rather than consent.⁶⁹ For the legal duties thus created, continue regardless of whether the government of a State changes or if it is currently not disposed to fulfill the requirements of the treaty.

⁶⁴ *Nicaragua v. U.S. (Merits)* 1986 I.C.J. Rep. 14

⁶⁵ *Id.* at 13.

⁶⁶ I. BROWNIE, *PRINCIPLES OF PUBLIC INTERNATIONAL LAW* 4 (4th ed., 1990) [hereinafter BROWNIE, *PRINCIPLES*].

⁶⁷ *Id.*

⁶⁸ BERNIE & BOYLE, *INTERNATIONAL LAW*, *supra* note 15, at 11.

⁶⁹ Jonathan I. Charney, *Universal International Law*, 87 A.J.I.L. 529, 534 (1993).

Where a treaty is, or as Fitzmaurice puts it, "becomes" a material source of law, it is because it contains rules that are regarded as applicable.⁷⁰ Of course this inference is stronger for general multi-lateral treaties than agreements between a few states regarding matters such as extradition or the formation of alliances. Treaties may be said not so much as to "make" law but rather to "photograph"⁷¹ the current state of international affairs. It is in this sense that the conventions on environmental law gain much of their significance.

2. CUSTOM

The practice of states should, more than anything else, be the barometer for what can internationally be regarded as law. Akehurst is of the school, however, that declarations *in abstracto* as well as the practice of international organization can also create customary norms.⁷² The elements of persistence, uniformity and generality are the standards traditionally used to arrive at some determination of an often slippery issue. The number of states engaging in a particular practice is of more utility than the frequency or the duration of the custom, for even if there are only a few nations observing a norm over a short period of time on sporadic occasions can create customary norms provided there is no conflicting practice.⁷³ Major inconsistencies in the observance of a norm are difficult obstacles for the formation of customary rules for it is a nebulous matter to suggest which one is more important. Doing so would in fact be counter to the very positivist tendencies of the sources doctrine.

A state, however, may be relieved from customary law for the reason that it had consistently objected to the rule from its inception. However, a newly independent state may be bound by customary law among nations if such a norm had long been established. Although several writers on international law accede that states are not required to have expressly consented to be bound, it is widely held that a state which objects to an emerging rule of general customary international law can be exempted from its obligations.⁷⁴ *The Anglo-Norwegian Fisheries* case is often cited to support this formulation. In that case, the International Court of Justice found that the coastline

⁷⁰ G. FITZMAURICE, *SOME PROBLEMS REGARDING THE FORMAL SOURCES OF INTERNATIONAL LAW* 153 (1958) *cited in* M. DIXON & R. MCCORQUODALE, *CASES AND MATERIALS ON INTERNATIONAL LAW* (International Student's Ed.) 18 (1991).

⁷¹ R. Baxter, *Multilateral Treaties as Evidence of Customary International Law* 275 *BRIT. Y.B. INT'L L.* at 298 (1965) *cited in* M. DIXON & R. MCCORQUODALE, *CASES AND MATERIALS ON INTERNATIONAL LAW* (International Student's Ed.) 30 (1991).

⁷² M. Akehurst, *Custom as a Source of International Law*, 47 *BRIT. Y.B. INT'L L.* at 53 (1974-75) *cited in* M. DIXON & R. MCCORQUODALE, *CASES AND MATERIALS ON INTERNATIONAL LAW* (International Student's Ed.) 20 (1991).

⁷³ *Id.*

⁷⁴ J. Charney, *The Persistent Objector Rule and the Development of Customary International Law*, 56 *BRIT. Y.B. INT'L L.* at 1 (1985) *cited in* M. DIXON & R. MCCORQUODALE, *CASES AND MATERIALS ON INTERNATIONAL LAW* (International Student's Ed.) 27 (1991).

delimitation rule advanced by the United Kingdom was not applicable to Norway "as she had always opposed any attempt to apply it to the Norwegian coast."⁷⁵

Treaties may dovetail with and create customary rules if the treaty reflects *opinio juris* that certain norms are reflective of current international law. That is, the obligations undertaken are, of and by themselves, compelling for states to accept as law even apart from the treaty norms. States view them as necessary rules of conduct to which they, as Canada did in the *Trail Smelter*⁷⁶ ruling, recognize liability.

Lammers suggests that the statements made by states with regard to transnational pollution and the reactions of various states of origin with respect to the complaints raised by the affected, or potentially affected nations are not merely tokens of "benevolence or for reasons of political expediency" but have sprung from the acceptance that such responses are required by international law.⁷⁷ What is necessary in such a case is "that the statements are not challenged by other states" for such to create customary rules.⁷⁸

3. THE RELATIONSHIP OF CUSTOM AND TREATY LAW⁷⁹

A treaty that purports to codify international law carries strong evidentiary value early in its life. But in time, should States fail to ratify the treaty, this value wanes and ambiguity, as to the causes of the non-ratification or non-accession by states, increases. According to Baxter, humanitarian treaties are said to be an important exception to the rule.⁸⁰ For the acceptance of a majority of States may in itself impose such a treaty's standards to non-parties. But Baxter also places a *caveat* in observing that such a concept is premised on the shaky notion that there is true international legislation that may bind dissenting or passive parties as municipal laws do.⁸¹

⁷⁵ *The Anglo-Norwegian Fisheries* 1951 ICJ Rep 116, the United Kingdom claimed that it was a customary rule of international law that closing lines along the mouths of bays could be no longer than ten nautical miles.

⁷⁶ *Decision of the Trail Smelter Arbitral Tribunal*, 3 RIAA 1905 (1941).

⁷⁷ J.G. LAMMERS, *POLLUTION OF INTERNATIONAL WATERCOURSES* 357 (1984) [hereinafter LAMMERS, *POLLUTION*].

⁷⁸ M. Akehurst, *Custom As A Source Of International Law*, 47 BRIT. Y.B. INT'L L. at 53 (1974-75) cited in M. DIXON & R. MCCORQUODALE, *CASES AND MATERIALS ON INTERNATIONAL LAW* (International Student's Ed.) 20 (1991).

⁷⁹ For a concise discussion on the role of treaties and custom in International Law, see A.L. Castañeda, *From Prerogative To Prohibition: Article 2(4) As Customary International Law In NICARAGUA V. U.S.* 28 ATENEO L.J. 1 at 16 (1993).

⁸⁰ R. Baxter, *Multilateral Treaties as Evidence of Customary International Law* 275 BRIT. Y.B. INT'L L. at 298 (1965) cited in M. DIXON & R. MCCORQUODALE, *CASES AND MATERIALS ON INTERNATIONAL LAW* 30 (International Student's ed. 1991).

⁸¹ *Id.*

4. GENERALLY ACCEPTED PRINCIPLES

There are two theories as to what principles the sources doctrine refers. The one is that these are the rules that "pervade domestic jurisprudence and can be applied to international legal questions."⁸² The other is that these refer to natural law principles acceptable to all civilized nations.

The former view prevails today. It seems that the latter has been found much to unwieldy to serve the positivist and *realpolitik* bents of those who drafted the Statute of the International Court of Justice.⁸³ In the *Chorzow Factory Case*,⁸⁴ the court observed that the breach of an international law, even a general conception of law involves an obligation to make reparation. But many writers see generally principles as secondary sources which may occasionally help to illuminate but are far from determinative of the issues. The work of the ILA and in particular, the codificatory efforts of the ILC in its numerous draft articles are said to be strongly indicative of accepted norms of international law.

5. JUDICIAL DECISIONS

As it is with treaties, because of the innovation often applied by the International Court of Justice (ICJ) and other national tribunals in resolving environmental issues, there is some controversy about using these decisions as "subsidiary means" for determining international law. There is no doctrine of *stare decisis* in the ICJ or the arbitral tribunals.⁸⁵ But it is submitted that these bodies will not likely disregard their previous pronouncements especially as a body of jurisprudence accumulates.

Important ICJ judgments on issues such as transnational pollution and state liability as well as other general principles have shaped international environmental law in a significant degree. The decisions of international bodies have not been without some reference to national tribunals. In the *Trail Smelter*⁸⁶ case between the United States and Canada, the International Joint Commission looked for guidance from the laws of both countries concerning transboundary pollution. An influential U.S. precedent that helped convince the Commission to rule in favor of the United States was the Supreme Court of Georgia's decision in *Georgia v. Tennessee Copper Company and Ducktown Sulphur, Copper and Iron Company*,⁸⁷ This was a common-law

⁸² G. VON GLAHN, *LAW AMONG NATIONS* 22 (6th ed. 1986) cited in M. DIXON & R. MCCORQUODALE, *CASES AND MATERIALS ON INTERNATIONAL LAW* (International Student's Ed.) 37 (1991).

⁸³ A.L. Castañeda, *From Prerogative To Prohibition: Article 2(4) As Customary International Law In NICARAGUA V. U.S.*, 28 ATENEO L.J. 1 (1993) at 9.

⁸⁴ *Chorzow Factory Case* (Merits) PCIJ Rep. Ser. A No. 17 (1928).

⁸⁵ *STATUTE OF THE INTERNATIONAL COURT OF JUSTICE*, art. 59.

⁸⁶ *Decision of the Trail Smelter Arbitral Tribunal* 3 RIAA 1905 (1941).

⁸⁷ 206 U.S. 230 (1907).

nuisance action. Justice Holmes, writing for the Court, issued an injunction against further emissions. In that case, the Court further ruled that no more than twenty tons of sulfur per day could be emitted during the period from April to October and no more than 40 tons per day during the rest of the year.⁸⁸ It is this writer's opinion that decisions of international tribunals can contribute much to the development of international environmental law if only that potential were realized through formal action by affected States. The 1982 Law of the Sea established "a new International Tribunal on the Law of the Sea and panels of experts" to consider cases concerning pollution and other matters.⁸⁹

The relevant jurisprudence, particularly the *Trail Smelter* and the *Corfu Channel* cases will be discussed in Part III of this work. These decisions are well known and are continually discussed in contemporary work.

6. HIGHLY QUALIFIED PUBLICISTS

The relevance of the writings of legal experts, not just individuals but particularly the reports of international organizations such as the International Law Association (ILA) or the International Law Commission (ILC),⁹⁰ can never quite be quantitatively known. Writers such as Rousseau and Guggenheim have earned international reputations which carry appreciable weight.⁹¹ As sources of law, however, these tend to be considered as far from decisive. Judge Huber in the *Spanish Zone of Morocco Claims* put it, the doctrines of publicist "are frequently politically inspired and represent a natural reaction against unjustified intervention in the affairs of certain nations."⁹² Still, the truth remains that these works are often invoked, for there is much to be gained by way of expertise in doing so, however strong the *caveats*. This work in itself relies, in substantial part, on such publicists as Lammers, Berber, Handl, McCaffrey and Schwebel as adepts in the field of transnational pollution. Hardly any modern authoritative work on the responsibility to future generations does not reflect the influences of Edith Brown-Weiss or Anthony D'Amato. Some United Nations reports and some drafts of the ILC such as the Draft Articles on State Responsibility can be used, as they are in this work, in support of existing as well as emerging international law.

⁸⁸ R. PERCIVAL, et al., ENVIRONMENTAL REGULATION, *supra* note 31, at 101.

⁸⁹ BIRNIE & BOYLE, INTERNATIONAL LAW, *supra* note 15, at 25.

⁹⁰ Generally published in their respective yearbooks.

⁹¹ BROWNLIE, PRINCIPLES, *supra* note 66, at 25.

⁹² 2 IRLA 615 (1925) cited in P. W. BIRNIE & A. E. BOYLE, INTERNATIONAL LAW AND THE ENVIRONMENT 44 (1992).

B. Non-Traditional Sources

1. A SOFT-LAW APPROACH

Many of the international organizations discussed below are neither empowered to create binding resolutions nor impose such obligations on the states which supported these resolutions.⁹³ Thus, the use of recommendatory language is prevalent, especially when such declarations begin to break new ground in what is still, in the details, a very conservative regime governing transboundary pollution.

The advantage of soft law over its binding counterpart is the flexibility accorded to the parties to it. It is also often immediately effective. As occasion demands, it allows states to comfortably venture into new ground and take on obligations they otherwise would not, or stretch the sometimes ambiguous soft law provisions.⁹⁴ The EEC Council Directive requiring member nations to implement Environmental Impact Assessment (discussed here in part IV) is a notable example. Before the deadline, most EEC nations had complied as well as several non-members. Soft law's advantage is paradoxically, also its disadvantage over hard law. For the difficult aspects of enforcing liability and seeking redress for wrongs considered so under soft-law regimes are indeed daunting, not to mention the often differing significance and interpretations given by various nations.

2. AN ANALYSIS OF ENVIRONMENTAL SOFT-LAW

The UNEP has been a prolific soft-law promulgator, having issued numerous guidelines and declarations. But the most influential developments in this sphere have been United Nations Conferences. Of these the most significant have been the Stockholm and Rio Declarations. Both use soft language, such as "States shall take all possible steps..."⁹⁵ and "States should..."⁹⁶ Unconditional compliance seems unrequired. This, however, is not proof that the states supporting these resolutions were of the belief that general principles of international law did not require such conduct with regard to the issues of transnational pollution regardless of the phraseology.⁹⁷

Article 194 of the 1982 Law of the Sea Convention (UNCLOS) provided that states take all measures to prevent, reduce and control pollution of the marine environment using "the best practicable means at their disposal and in accordance

⁹³ *Id.* at 358.

⁹⁴ BIRNIE & BOYLE, INTERNATIONAL LAW, *supra* note 15, at 27.

⁹⁵ Stockholm Declaration, princ. 7.

⁹⁶ United Nations Conference On Environment And Development, princ. 12, 31 I.L.M. 874 (1992)[hereinafter Rio Declaration].

⁹⁷ LAMMERS, POLLUTION, *supra* note 77, at 358.

with their capabilities.⁹⁸ While provisions such as these seem aimed primarily at developing nations, it is by no means confined to such states exclusively.⁹⁹

Soft law treaties reflect the fact that its parties are not prepared to accept a definite commitment to counteract pollution causing some or even substantial damage. A factor that helps explain the soft character of part of their provisions is that the waters covered by those provisions are already seriously polluted.¹⁰⁰ Two of the most important multi-lateral declarations are discussed in this section. They have and continue to serve as barometers of what States regard as a desirable state of affairs. Twenty years separated Rio from Stockholm. Whether, in those twenty years, the legal protection of the environment gathered dust or momentum is studied below.

a. FROM THE FIRST STEPS AT STOCKHOLM

Modern milestones for the protection of the environment and international cooperation may be said to have been set at the United Nations Conference on the Human Environment (UNCHE) held at Stockholm from 5 to 16 June 1972. The conference can be said to have aided the acceptance of certain pre-existing principles of ecological protection although its declaration of principles is non-binding. The Declaration begins stating that "Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth."¹⁰¹ This underlying philosophy of the place of man is central to the principles of the Declaration.

In particular, Principle 21 has become preeminently significant. It reads:

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 or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.¹⁰²

⁹⁸ United Nations Convention on the Law of the Sea, UN SALES No. E.83.V.5 (1983). The Convention entered into force in November 1994.

⁹⁹ A. NOLLKAEMPER, THE LEGAL REGIME FOR TRANSBOUNDARY WATER POLLUTION: BETWEEN DISCRETION AND CONSTRAINT 47 (1993) [hereinafter NOLLKAEMPER, THE LEGAL REGIME].

¹⁰⁰ See The Ganges Waters Treaty, 17 I.L.M. 103 (1978) embodying the principle of equitable utilization and the Franco-Swiss Convention concerning the Protection of the Waters of Lake Geneva Against Pollution, 16 Nov. 1962 UNTS vol. 922 at 50, providing an example for the principles of *bon voisinage* at work as well as the Agreement on the Dephosphorization of the Waters of Lake Geneva where the parties departed from the traditional notion that the costs in abating transnational pollution are to be borne by the municipal entities in which the pollution originates.

¹⁰¹ Stockholm Declaration, preamble.

¹⁰² Stockholm Declaration, princ. 21, *supra* note 1.

This has been regarded by most writers as having achieved the status of customary international law.¹⁰³ Going beyond the duty of states to make reparation for environmental damage, its main importance lies in the recognition of the duty to take preventive measures to prevent ecological harm. This rule of prevention can now be found in the Law of the Sea viz.:

Article 192 States have the obligation to protect and preserve the marine environment.

Article 194 In taking measures to prevent, reduce and control pollution of the marine environment, States shall so act as not to transfer, directly or indirectly, damage or hazards from one area to another or to transform one type of pollution into another.¹⁰⁴

The World Charter for Nature provides that the

Discharge of pollutants into natural systems shall be avoided and:

- a) Where this is not feasible, such pollutants shall be treated at source, using the best practicable means available.
- b) Special precautions shall be taken to prevent discharge of radioactive or toxic waste.¹⁰⁵

The ILC's Draft Articles on the Law of the Non-Navigational Uses of International Watercourses provisionally adopted by the Commission on first reading provide in Article 7 for an obligation "not to cause appreciable harm to other watercourse States."¹⁰⁶ This is especially significant in the light of the ILC's Draft Articles on State Responsibility, Article 23 of which provides for state responsibility, albeit in the negative, stating: "there is no breach by a State of an international obligation requiring it to prevent a given event unless, following a lack of prevention on the part of the State, the event occurs."¹⁰⁷

b. RE-ROUTED AT RIO

Twenty years after the Stockholm Declaration, the United Nations Conference on Environment and Development (UNCED) was held from 3 June to 14 June 1992 in Rio de Janeiro, Brazil. The culmination of almost two years of negotiations by numerous committees, the UNCED produced three agreements on international environmental issues: The Framework Convention on Climate Change, The Convention on Biodiversity and the Treaty on Forest Principles. These in addition to Agenda 21 and the Rio Declaration, two wide-ranging statements on the relationship

¹⁰³ L. B. Sohn, *The Stockholm Declaration on the Human Environment*, 14 H.I.L.J. 491 (1973).

¹⁰⁴ United Nations Convention on the Law of the Sea, *supra* note 98.

¹⁰⁵ UNGA RES. 37/7 9 Nov. 1982, 22 I.L.M. 455 (1983).

¹⁰⁶ Report of the International Law Commission, UNGA SUPPL. No. 10 A/46/10 (1991).

¹⁰⁷ Yearbook of the International Law Commission vol. 1 at 5 (1978).

between sustainable environmental practices and the pursuit of social and socio-economic development.

The principles of the Rio Declaration, unlike the Stockholm principles, invoke both development and environmental protection.

Principle 3. The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

Principle 4. In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.¹⁰⁸

Alexander Kiss explains this composite character by citing several factors. First, Rio sought to build on the mandate of Principle 22 of the Stockholm Declaration to "develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by [transboundary harm]."¹⁰⁹ Second, while some of the Stockholm principles possess a legal character, many are still well within the realm of soft law.¹¹⁰ Thus, the obligations of states to build-up rules on liability and compensation were stressed in Rio.¹¹¹

Pallemaerts, however, is concerned that Rio has actually qualified and weakened the principle of State responsibility for transboundary environmental harm.¹¹² He recalls that Stockholm's Principle 22 referred to "international law" in the hope of developing binding norms of state conduct as envisioned by Maurice Strong, then Chairman of the UNCHE Preparatory Committee.¹¹³

The Rio principles are also scored for being permeated with the undercurrents of development. Principles 11 and 12 in particular are cited by Pallemaerts as a sign of regression that puts an undue premium on production by inserting the notion of economic growth, tainting the notion of sustainable development. They read,

Principle 11. States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. *Standards applied by some countries may be inappropriate and of unwarranted social and economic cost to other countries, in particular developing countries.* [emphasis supplied.]

¹⁰⁸ Rio Declaration, *supra* note 96.

¹⁰⁹ UNGA RES. 37/7 9 Nov. 1982, 22 I.L.M. 455 (1983).

¹¹⁰ A. Kiss, *The Rio Declaration on Environment and Development*, in *THE ENVIRONMENT AFTER RIO—INTERNATIONAL LAW AND ECONOMICS*, 55 at 56 (L. Campiglio et al, eds. 1993).

¹¹¹ *Id.*

¹¹² Pallemaerts, *supra* note 58, at 8.

¹¹³ *Id.* at 2.

Principle 12. States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. *Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.*¹¹⁴ (emphasis supplied)

Principle 11 can validly be said to have excused the application of the stringent rules on such things such as the management of hazardous material, to developing countries to avoid "unwarranted economic and social costs." In fact, Pallemaerts goes a step further in stating that this may even work to limit the freedom of developed nations to set strict national environmental standards by having to take into consideration if this may cause "unwarranted economic and social costs to other countries...."

Principle 12 does seem to narrow the field of environmental protection and given the recent affirmations by agreements and state practice of emerging standards of care for nature. Even in such agreements as the World Charter for Nature, the United States stood against one hundred and eleven other states in voting against the UNGA resolution.¹¹⁵ Thus, the direction that international environmental law takes at this turnpike is a serious question. The Rio principles will without doubt be given much deference by international lawyers and policy-makers. To all who are concerned about the global environment, the momentum of environmental protection should not be taken for granted. We will continue to look to bodies such as the United Nations for focus.

C. The Role of International Organizations

1. THE UNITED NATIONS

The rather hard lessons of World War Two greatly shaped the United Nations Charter. The statesmen of the post-war world believed that the massive atrocities and human rights violations of powerful States had to be curbed. Concepts such as international crimes (the Nuremberg Trials proceeded on the principle that universal rules of conduct may be established from which no deviation is lawful) and *jus cogens* became widely accepted by the international community.

¹¹⁴ Rio Declaration, princ. 11 & 12, *supra* note 96.

¹¹⁵ See list of signatories, *supra* note 61.

The aims of the United Nations (UN), apart from harmonizing the actions of nations in the attainment of peace and security¹¹⁶, include securing the sovereign equality of states and requiring them to fulfill their Charter obligations in good faith. To these ends, the UN acts in and through a wide range of organs, only a few of which will be discussed in this work. It may be argued that these ends may be possible only by the near-universal assent given by States to the UN Charter. This consent based theory is more acceptable to some than the doctrine of sources discussed above. But the authority of the UN, through the General Assembly, to establish universally binding international law, regardless of membership in the UN, is still limited by the rather jealous desire of States to maximize local autonomy.

The powers of its decision making bodies are also more flexible and far-reaching than their counterparts in the failed League of Nations.¹¹⁷ Also as held by the ICJ in the *Reparation for Injuries Case*,¹¹⁸ the UN has international personality and capacity to act in its own name in spite of the absence of an explicit provision to that effect in the UN Charter.

a. THE UNEP

On the basis of the United Nations Conference on the Environment held in Stockholm in 1972, the United Nations Environment Programme (UNEP) was established by the General Assembly of the United Nations through Resolution 2997. It has established its role in world affairs as a catalyst, coordinator and advocate of environmental causes within the larger structure of the United Nations. The UNEP is active in environmental assessment, monitoring and management of varied ecological systems from deserts to oceans. Other measures include environmental education and training, developmental planning of the machineries of environmental law. The UNEP is composed of a Governing Council, composed of 58 elected Member States, which reports to the General Assembly through the Economic and Social Council; and the Secretariat, with an Executive Director, coordinates elements of the Programme and administers an environmental fund.¹¹⁹

Although the UNEP has been criticized for lacking even the ability to receive and comment on environmental complaints of member nations, it has played a unifying role in the previously fragmented approaches to dealing with international environmental matters.¹²⁰ Much of the pioneering work on truly global problems such as the prevention of global warming and the prevention of ozone depletion has been spearheaded by the UNEP.

¹¹⁶ CHARTER OF THE UNITED NATIONS, art. 1, 59 Stat. 1031, U.N.T.S. 993 (1945) [hereinafter UN CHARTER].

¹¹⁷ BIRNIE & BOYLE, INTERNATIONAL LAW, *supra* note 15, at 34.

¹¹⁸ *Reparations for Injuries Suffered in the Service of the United Nations*, 1949 I.C.J. Rep. 174.

¹¹⁹ BIRNIE & BOYLE, INTERNATIONAL LAW, *supra* note 15, at 41.

¹²⁰ A. SPRINGER, THE INTERNATIONAL LAW OF POLLUTION—PROTECTING THE GLOBAL ENVIRONMENT IN A WORLD OF SOVEREIGN STATES 33 (1983) [hereinafter SPRINGER, INTERNATIONAL LAW].

b. OTHER SPECIALIZED AGENCIES

One of the most relevant agencies in the development of international law has been the International Maritime Organization (IMO). The Convention on the International Maritime Organization was adopted on 6 March 1948 by the United Nations Maritime Conference which was held in Geneva. The IMO which was originally named, until 1975, the "Inter-Governmental Maritime Consultative Organization",¹²¹ developed treaties such as the 1954 Convention for the Prevention of Pollution of the Sea by Oil.

The Assembly is the policy-making arm of the IMO. The Assembly meets once every two years and is made up of all its members. There is a Council of 32 elected members performing the tasks of the IMO except that of recommending and adopting regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships. Other organs of the IMO are the legal committee, Maritime Environment Protection Committee, the Technical Co-operation Committee and the Facilitation Committee. There are currently one hundred and thirty five Member States and two Associate Members.

The objectives of the IMO are to encourage and facilitate the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships. The 1973 International Convention for the Prevention of Pollution by Ships¹²² (MARPOL) and its 1978 Protocol¹²³ are some of the organization's notable achievements. The IMO also is active in the cooperation among governments in regulating technical matters of all kinds related to shipping engaged in international trade. The organization continues to be a significant force in formulating rules of international law.

The World Health Organization (WHO) acts both on a regional and sub-regional level to achieve the aim of Article 1 of its constitution: the attainment of all peoples of the world the highest possible level of health.¹²⁴ It has a great interest, therefore, in seeing that much of the development work in poorer countries do not adversely affect the health of its citizens.

Most of the funding for large infrastructure projects come from international lending institutions such as the International Monetary Fund and the International Bank for Reconstruction and Development. These projects are primarily concerned

¹²¹ J. BARROS & D. M. JOHNSTON, THE INTERNATIONAL LAW OF POLLUTION 72 (1974) [hereinafter BARROS & JOHNSTON, INTERNATIONAL LAW].

¹²² International Convention for the Prevention of Pollution by Ships, UKTS 27 (1983), Cmnd. 8924, 12 I.L.M. 1319 (1973).

¹²³ Protocol Relating to the Convention for the Prevention of Pollution from Ships, 17 I.L.M. 546 (1978).

¹²⁴ BIRNIE & BOYLE, INTERNATIONAL LAW, *supra* note 15, at 61.

with the development and exploitation of natural resources, i.e. the construction of dams and power generating facilities. Invariably, given the massive scales attendant to these projects, these have had a significant impact on the environment. The Bank has now prepared Environmental Issues Papers for almost all of the projects it aims to fund which aim at insuring the environmental soundness of any undertaking financed by it. It has been criticized for not having institutionalized the practice until 1987. And there are still significant gaps, for instance, the World Bank may approve a given project even before the EIA is completed.¹²⁵

2. INTERGOVERNMENTAL ORGANIZATIONS

a. THE EUROPEAN UNION

The European Community we know today owes its legal existence to a series of treaties which, taken together, provide for the formation of organizations and the establishment of normative regimes. In 1951 The Paris treaty instituted the European Coal and Steel Community. In 1975 the European Atomic Energy Community agreement and the Treaty of Rome (creating the European Economic Community or EEC) were signed. Periodic inter-governmental conferences resulted in the Single European act in 1986 and what is now known as the Maastricht Treaty on European Union in 1991.¹²⁶

Community standards are adopted in the form of regulations, directives and recommendations.¹²⁷ As their names suggest, only the first two are binding. The Commission has the sole prerogative to initiate norms, but their adoption requires a decision of the Council after consultations. Regulations are community law in the true sense of the term, establishing direct rights and duties applicable in all member states without interference of national law. Along another vein, directives bind every member to achieve a given result, however, member states are left to their own devices within their borders. The Council of Ministers usually adopts Directives upon proposal by the Commission including a specified period in which to implement the directive. For example Directive 85/337 of 27 June 1985 obliged member states to have Environmental Impact Assessment (EIA) legislation by July 1988. What is significant is not so much the fact of compliance by the European Community's own members, but the fact that other non-member states "complied" by enacting their own EIA laws soon after the Directive.

The environmental programs of the Community have been set-out in a series of action programs that are meant to pilot its policies. The principles set forth in the first of such programs in 1973 established a policy to prevent, mitigate and ameliorate pollution and nuisances; ensure sound management of and avoid any exploitation of

¹²⁵ BIRNIE & BOYLE, *INTERNATIONAL LAW*, *supra* note 15, at 62.

¹²⁶ KISS & SHELTON., *MANUAL*, *supra* note 10, at 18.

¹²⁷ Treaty Establishing The European Economic Community, 298 U.N.T.S. 167; 18.

resources or nature which cause significant damage to the ecological balance; guide developments in accordance with quality requirements, especially by improving working conditions and settings of life; seek common solutions to environmental problems with states outside the community and in particular, with international organizations.¹²⁸ Geographical considerations have spurred much of the legal developments among European states. Whether born of necessity or progressive thinking, however, the international law of the community may well indicate the bounds (or the lack of them) of future international environmental law.

b. THE OECD

The Organization for Economic Co-operation and Development (OECD), is an international body in a continuous effort to develop and coordinate their policies. This interaction began in April 1948 with an original group of sixteen European nations founding what was then known as the Organization for European Economic Cooperation (OEEC), to administer the Marshall Plan. The OECD was established on 10 September 1961 in order to broaden the scope of cooperation. The Organization currently has twenty-four members that meet throughout the year.¹²⁹ The OECD, recognizing that industrial and developing nations are interdependent, also promotes economic growth worldwide. Its principal objectives are the promotion of first, employment, economic growth and a rising standard of living in member countries; second, sound economic expansion of both developed and developing nations; third, world trade on a multilateral, non-discriminatory basis in accord with international obligations.¹³⁰

From the organization's headquarters in Paris, it acts through a Council, an Executive Committee, a Secretariat and several committees. The Environmental Committee was established in 1970 in which member states discuss various challenges that face each member. The OECD analyzes the environmental policies of its members and their economic implications. The organization has subsidiary committees dealing with virtually all aspects of governmental activity except war, religion and sports.¹³¹

Thus, the OECD has emphasized both preventive and curative solutions to transnational pollution issues, developing the so-called "polluter pays" principle in 1972 governing liability discussed below. The OECD provides seminars that scientifically study the economic consequences of pollution. Such studies have been

¹²⁸ KISS & SHELTON, *MANUAL*, *supra* note 10, at 21.

¹²⁹ The charter members of the OECD are: Austria, Belgium, Canada, Denmark, France, Great Britain, Greece, Iceland, Ireland, Italy, Belgium, Canada, Denmark, France, Great Britain, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United States, Germany, Japan, Finland, Australia, and New Zealand.

¹³⁰ OECD, *Organization for Economic Cooperation and Development*, in MICROSOFT ENCARTA (1994).

¹³¹ *Id.*

significant in the development of assessment and compensation methods.¹³² The OECD's Nuclear Energy Agency promotes the adoption of uniform standards and contingency measures aimed at protecting public health. The organization, however, has no independent means of compelling compliance with any of its standards.¹³³

III. THE INTERNATIONAL REGIME OF TRANSBOUNDARY WATERCOURSES

Water is one of the most precious substances on earth.¹³⁴ Practically all man's activities from mining to power generation rely on the planet's water resources. These go through a hydrologic cycle that affect the soil, the oceans and our atmosphere. As freshwater is such a crucial resource, its protection cannot be divorced from international environmental law. The proper or improper use of one of the natural resources within a basin influences the value of other uses. Water is the principal, although not the only vehicle, of this interaction.¹³⁵

It is submitted by this writer that the relatively well-developed norms (dating to the nineteenth century) governing transboundary water resources will provide much of the light for future global legislation on the environment. This is due to the fact that no other regime, excepting the recent Law of the Sea Convention (in force since November 1994), superintends such a dynamicsystem. The Law of the Sea is a relatively new development. Additionally, the UNCLOS had, until quite recently, been subject to much criticism by the United States. The multilateral arrangements of riparian states (European in particular) have understandably evolved quite rapidly. The great chemical plants of industrial Great Britain and the Continent are sources of particular concern. Thus, the treatment of transboundary watercourses in international law form much of the basis for the analysis of law in this work.

¹³² BIRNIE & BOYLE INTERNATIONAL LAW, *supra* note, 15 at 7.

¹³³ *Id.* at 357.

¹³⁴ See the Introduction of Chapter 18, Protection of the Quality and Supply of Freshwater Resources: Application of Integrated Approaches to the Development, Management and Use of Water Resources of Agenda 21, A/CONF. 151/26 (Vol. II).

¹³⁵ G. Cano, J. Barberis & L. Teclaff, *International Water Resources Law: Part III - Relationship of International Water Resources with other Natural Resources and Environmental Elements*, I.L.A. Report of the 59th Conference, Belgrade 380 (1980).

A. The Right to Development

1. A QUESTION OF SOVEREIGNTY

a. THE HARMON DOCTRINE

In October 1895, Mexico protested to the United States government against irrigation work which had raised the level of salinity of the Rio Grande which had caused harm to areas within Mexico. Mr. Judson Harmon, Attorney General of the United States, declared:

The fundamental principle of international law is the absolute sovereignty of every nation, as against all others, within its own territory... in my opinion, the rules, principles, and precedents of international law impose no liability or obligation upon the United States.¹³⁶

According to this principle, a state is entitled to the use, without restriction, of the resources of all kinds found within its territory. Berber calls the Harmon Doctrine the principle of "absolute territorial sovereignty".¹³⁷ This is an extreme formulation that, interestingly, even the United States did not invoke in its subsequent river negotiations with Mexico and Canada. This theory has never won widespread favor among nations especially among lower riparian states. Lammers calls the concept highly egoistic and legally self-contradictory.¹³⁸ It is indeed of limited utility to States which are upper riparians with regard to certain watercourses, and at the same time, lower riparians with regard to others. This is the case of Middle East countries such as Israel. It has in fact been theorized that the next great international conflict in the area will not be about oil, territory or religion, but the right to freshwater.

b. ABSOLUTE TERRITORIAL INTEGRITY

This principle is said to be the opposite of the Harmon Doctrine. It holds that an upper riparian may not alter the rate of flow or the quality of the water that flows into the territory of another state. This operates practically in favor of only the lower riparian. This concept imposes great restraints on the use of transboundary watercourses and has been deemed by writers as "unwarranted from both an economic and social point of view."¹³⁹

¹³⁶ 21 Ops. Att'y Gen., at 281, 283 cited in J. BARBERIS, *International Rivers*, ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 213 (19—).

¹³⁷ BERBER, *RIVERS IN INTERNATIONAL LAW* 14 (1959).

¹³⁸ LAMMERS, *POLLUTION*, *supra* note 77, at 557.

¹³⁹ *Id.* at 562.

The *Lake Lanoux* arbitration case¹⁴⁰ upheld the right of the upper riparian (France) to divert the waters of a river, without need for the approval of the lower riparian (Spain), so long as the water's normal rate of flow would be restored. In that case, no change in the water quality was alleged by Spain, the lower riparian state. Thus, Spain was not threatened with damage for after the hydraulic works were completed, France returned the diverted waters to their original course. But the arbitral tribunal nonetheless ventured to declare:

It could have been argued that the works would bring about a definitive pollution of the waters of the Carol or that the returned waters would have a chemical composition or a temperature or some other characteristic which could injure Spanish interests.¹⁴¹

c. DROIT INTERNATIONAL DE VOISINAGE

The oft-invoked Principle 21 of the Stockholm Declaration of the United Nations Conference on the Human Environment provides that:

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 or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.¹⁴²

In a system of equal states, "order and logic of sovereignty demand that the freedom or independence of each state should be restrained"¹⁴³ at the point where it interferes with the exercise by other states of that same freedom. Even in the early part of this century, unlimited sovereignty either to cause or be free from any inconvenience was deemed "incompatible with the necessary organization of humanity, with the independence of other states, and with the ties that bind states together."¹⁴⁴ Certain writers recognize that the relationship between riparian states is to a considerable extent, analogous to the rights and duties between owners of adjoining parcels of land. Caratheodory asks,

¹⁴⁰ *Lake Lanoux Arbitration* (France v. Spain) Arbitral Tribunal (1957) 12 R.I.A.A. 281; 53 A.J.I.L. 156 (1959). It is to be noted, however, that the arbitral tribunal was asked to interpret treaty provisions. The award denied Spanish claims since the water had been returned to the river which it normally drained into and no injury to Spanish water use had been established.

¹⁴¹ *Id.*

¹⁴² Stockholm Declaration, princ. 21.

¹⁴³ B.D. SMITH, *STATE RESPONSIBILITY AND THE MARINE ENVIRONMENT* 69 (1988) [hereinafter: SMITH, *STATE RESPONSIBILITY*].

¹⁴⁴ *El Salvador v. Nicaragua* (Central American Court of Justice) 11 AM. J. INT'L L. 718 (1917) cited in B. D. SMITH, *STATE RESPONSIBILITY AND THE MARINE ENVIRONMENT* 69 (1988).

"But what are these rights if they are not those resulting from the very obligations imposed on this same nation by the fact of neighbourship on the same watercourse? It is sufficient to reflect for a moment on this truth to become convinced that a nation which has not created the river has no exclusive right to it and that it would be the height of injustice if it dared to appeal to unjustifiable theories in order to deprive other nations of a natural right which cannot cause any prejudice to itself."¹⁴⁵

Thus, it may be said that the principle of good neighbourliness prohibits conduct which causes injury to another state. It purports to enable neighbouring states to co-exist by setting certain limits to the exercise of their territorial sovereignty and encourages cooperation among them by including a duty to tolerate *de minimis* harm caused by their neighbors.¹⁴⁶

This concept takes in to consideration the river system as a whole, with each state balancing its interests against the other with no state claiming use or a prohibition on the use of the waters in such a way as to cause material injury. It is the writer's interpretation of current developments in the field that this formulation proffers the most viable approach to the emerging norms of international law.

2. THE QUESTION OF SUSTAINABLE DEVELOPMENT

The concept of sustainable development had its beginnings in the formulation of "optimal sustainable yields" that were being sought for hunting and fishing reserves.¹⁴⁷ The World Charter for Nature, adopted by the United Nations General Assembly in 1982 provided for optimal sustainable productivity, the precursor of the commonly invoked "sustainable development" principle.¹⁴⁸ Sustainable development has been defined (although not invented) by the World Committee on Environment and Development (WCED) as "development that meets the needs of the present without compromising the liability of future generations to meet their own needs."¹⁴⁹

As noted above, the Brundtland Report cited two key concepts to sustainable development. The concept of needs, which accords an overriding priority to the world's poor and the concept of limitations imposed by the state of technology and social organization.¹⁵⁰ Thus, sustainability is a flexible standard which always operates in context. This aspect of the principle has been extensively criticized as being dilutive

¹⁴⁵ CARATHEODORY, *DU DROIT INTERNATIONAL CONCERNANT LES GRANDS COURS D'EAU* 32 (1861) cited in BERBER, *RIVERS IN INTERNATIONAL LAW* 26 (1959).

¹⁴⁶ LAMMERS, *POLLUTION*, *supra* note 77, at 368.

¹⁴⁷ KISS, & SHELTON, *MANUAL*, *supra* note 10, at 36.

¹⁴⁸ UNGA RES. 37/7 9 November 1982, 22 I.L.M. 455 (1983). Popularly known as the World Charter for Nature.

¹⁴⁹ BIRNIE & BOYLE *INTERNATIONAL LAW*, *supra* note 15, at 4.

¹⁵⁰ UNGA Res. 37/7 9 Nov. 1982, 22 I.L.M. 455 (1983).

at best and counter-productive at worst. Birnie and Boyle believe that the principle is far from conservatory and views the environment as subject to the greater good of human economic development. But apart from its seeming qualification for affirmative action toward the environment, sustainable development remains a limitation on the sovereign right of States and their citizens to economic self-determination.

3. THE PRECAUTIONARY PRINCIPLE

In the light of the Stockholm and Rio Conferences discussed above, the state of environmental law requires States to take certain precautions. This inevitably must be dealt with through national legislation. The subsequent sections analyze the interplay of municipal legislation and the emerging international law on the prevention of ecological damage.

a. THE DUTY TO PREVENT TRANSBOUNDARY HARM

The principle most frequently invoked in international environmental law is still *sic utere tuo ut alienum non laedas*, one should not use one's property in a way that damages others.¹⁵¹ This concept has been invariably traced to one of the most famous international environmental law precedents, the Trail Smelter Arbitration between the United States and Canada.¹⁵²

The Trail Smelter case involved a dispute between the United States and Canada over emissions from a lead and zinc smelter in Trail, British Columbia. The installation began operation in 1896 and from 1925 to (at least) 1937 the smelter discharged 300 tons of sulphur per day into the air ten miles from the U.S. border. The United States claimed that the pollution was causing severe damage in the state of Washington. After the United States complained to Canada, the two countries agreed to submit the dispute to an International Joint Commission (composed of representatives from the United States, Canada and Belgium) convened under procedures that had been established by the two countries in the Boundary Waters Treaty of 1909. Importantly, Canada did not dispute the fact of liability.¹⁵³ A *compromis* was signed in 1935 and the dispute was submitted for arbitration to determine the amount of damage, its manner of payment and applicable norms for future conduct.

The tribunal applied international law and the laws of the United States and declared:

... no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the

¹⁵¹ NOLLKÄMPER, *THE LEGAL REGIME*, *supra* note 99, at 27.

¹⁵² *Decision of the Trail Smelter Arbitral Tribunal* (US v. Canada) 3 RIAA 1905 (1941).

¹⁵³ DIXON & MCCORQUODALE, *CASES*, *supra* note 34, at 453.

properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.

Considering the circumstances of the case, the Tribunal holds that the Dominion of Canada is responsible in international law for the conduct of Trail Smelter. Apart from the undertakings of the Convention, it is, therefore, the duty of the government of the Dominion of Canada to see to it that this conduct should be in conformity with the obligation of the Dominion under international law as herein determined.

... So long as the present conditions in the Columbia River Valley prevail, the Trail Smelter shall be required to refrain from causing any damage through fumes in the State of Washington; the damage herein referred to and its extent being such as would be recoverable under the decisions of the courts of the United States in suits between private individuals. The indemnity for such damage should be fixed in such manner as the Governments, acting under Article XI of the Convention, should agree upon.¹⁵⁴

The award was an important precedent in two respects: First, it recognized the existence of a rule in international law that forbids transnational pollution. This is often one of the bases for claims that Principle 21 of the 1972 Stockholm declaration has evolved into a rule of customary international law.¹⁵⁵ Second, it recognized state liability for acts of pollution having their origin from within their territory.

It would not be significant if under municipal laws and regulations, the operation of the polluting installation was within accepted limits. Although the environmental danger lay hidden within territorial limits, the state would be held responsible in international law when the danger becomes apparent and indeed, if it causes injury beyond the borders of the state of origin.¹⁵⁶

Such an obligation however, is contextual, not absolute. The legal nature of this duty to prevent and abate substantial transboundary injury is defined by the circumstances present and the limits of practicality.¹⁵⁷ Unless the activity producing the danger is an ultra-hazardous facility, international law has recognized a regime of fault as distinguished from strict liability.¹⁵⁸ Current international instruments make it clear that the duty to prevent, control and reduce transboundary harm is still a due

¹⁵⁴ *Decision of the Trail Smelter Arbitral Tribunal* (US v. Canada) 3 RIAA 1905 (1941).

¹⁵⁵ NOLLKÄMPER, *THE LEGAL REGIME*, *supra* note 99, at 29.

¹⁵⁶ BARROS & JOHNSTON, *INTERNATIONAL LAW*, *supra* note 121, at 74.

¹⁵⁷ § 601(1), American Law Institute, *Restatement of Foreign Relations Law of the United States* (Third) Vol. 2, 103 (1987).

¹⁵⁸ G. Handl, *State Liability for Accidental Transnational Environmental Damage by Private Persons*, 74 A.J.I.L. 525, 554 (1980).

diligence obligation.¹⁵⁹ The standard of diligence, therefore, in international law should reflect what is appropriate given, *inter alia*, the activity involved, the extent of foreseeable danger and the best available technology.¹⁶⁰

b. THE DUTY TO WARN POTENTIALLY AFFECTED STATES

The International Law Commission's work on the Non-Navigational Uses of International Watercourses defines an "emergency situation" as one "that causes, or poses an imminent threat of causing, serious harm to watercourse States or other States and that results suddenly from natural causes."¹⁶¹ The duty to make such a "critical situation" known to States which might be affected is therefore dependent upon the warning State's knowledge of "a situation threatening to cause immediate [and] serious damage"¹⁶²

The *Corfu Channel*¹⁶³ Case introduced a variation on the *sic utere tuo* theme as well as developing the doctrine of state responsibility although it deals with damage caused by something quite different from environmental pollution.

On 22 October 1946, while navigating the Corfu Channel, two British warships were damaged by explosions from mines within Albania's territorial sea. The British, who later swept the area clear of mines, claimed that Albania was responsible under international law for the damage to its warships and the loss of life of British sailors.¹⁶⁴ Although there was no direct evidence of Albania's knowledge of the minefield's existence, the ICJ gave the British a procedural advantage.

It is clear that knowledge of the minelaying cannot be imputed to the Albanian Government by reason merely of the fact that a minefield discovered in Albanian territorial waters caused the explosions of which the British warships were the victims. It is true, as international practice shows, that a state on whose territory or in whose waters an act contrary to international law has occurred, may be called upon to give an explanation. It is also true that that State cannot evade such a request by limiting itself to a reply that is ignorant of

¹⁵⁹ Convention on the Transboundary Effects of Industrial Accidents, art. 6, 31 I.L.M. 1336 (1992). See also Convention on the Protection and Use of Transboundary Watercourses and International Lakes, art. 2 & 3, 31 I.L.M. 1315 (1992); Convention on Long-Range Transboundary Air Pollution, art. 2, 18 I.L.M. 1442 (1979); Law of the Sea Convention, art. 194(1), 21 I.L.M. 1261 (1982); Vienna Convention for the Protection of the Ozone Layer, art. 2, 26 I.L.M. 1516 (1987).

¹⁶⁰ For a definition of "best available technology" see Appendix I Convention on the Protection and Use of Transboundary Watercourses and International Lakes 31 I.L.M. 1315 (1992).

¹⁶¹ Second Report on the Law of the Non-Navigational Uses of International Watercourses, (Mr. R. Rosenstock) INT'L L. COMM'N UN Doc. A/CN.4/462/17 (1994).

¹⁶² SPRINGER, INTERNATIONAL LAW, *supra* note 120, at 143-144.

¹⁶³ *Corfu Channel Case* (U.K. v. Albania) (Merits) I.C.J. Rep. 4, (1949).

¹⁶⁴ DIXON & McCORQUODALE, CASES, *supra* note 34, at 407.

the circumstances of the act and of its authors. The State may, up to a certain point, be bound to supply particulars of the use made by it of the means of information and inquiry at its disposal. But it cannot be concluded from the mere fact of the control exercised by a State over its territory and waters that that State necessarily knew, or ought to have known, of any unlawful act perpetrated therein, nor that it necessarily knew, or ought to have known, the authors. This fact, by itself and apart from other circumstances, neither involves *prima facie* responsibility nor shifts the burden of proof.

On the other hand, the fact of this exclusive territorial control exercised by a State within its frontiers has a bearing upon the methods of proof available to establish the knowledge of that State as to such events. By reason of this exclusive control, the other State, the victim of a breach of international law, is often unable to furnish direct proof of facts giving rise to responsibility. *Such a State should be allowed a more liberal recourse to inferences of fact and circumstantial evidence.* This indirect evidence is admitted in all systems of law, and its use is recognized by international decisions. It must be regarded as of special weight when it is based on a series of facts linked together logically to a single conclusion. (emphasis supplied)

Two antecedent conditions are necessary to engage the duty to warn other States who may be potentially harmed by activities from within the warning State's territory. First, the warning State must possess knowledge of a situation's occurrence. Second, the warning State must possess information that such a situation is causing or will imminently cause serious damage to the environment. From all the facts and evidence, the Court came to the conclusion that Albania could not but have known of the existence of the mines in its waters. The distances of the minefield from the coast, and the position of coastal watch stations were such that the laying of the mines could not have possibly been accomplished without the knowledge of Albania.

The obligations incumbent upon the Albanian authorities consisted in notifying, for the benefit of shipping in general, the existence of a minefield in Albanian territorial waters and in warning the approaching British warships of the imminent danger to which the minefield exposed them. Such obligations are based, not on the Hague Convention of 1907, No. VIII, which is applicable in time of war, but on certain general and well-recognized principles, namely; the principle of freedom of maritime communication; and *every State's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States.*¹⁶⁵ (emphasis supplied)

The Court did declare, however that the situation did not excuse the violation of Albanian territory when the British swept the channel of mines as there was no longer a state of innocent passage. The court went on to say that in gathering this evidence, liberal recourse never calls for the violation of a state's territory.

¹⁶⁵ *Corfu Channel Case* (U.K. v. Albania) (Merits) 1949 I.C.J. Rep. 4.

Albania was found to have violated the obligation, as it appears in Principle 21 of the Stockholm Declaration,¹⁶⁶ that states must not allow activities within their jurisdiction to cause damage to other states. The obligation was breached through Albania's failure to give notice, as the Court had ruled that it was not possible for Albania to have been ignorant of the danger in this particular case, of the existence of mines in its territory. Absent a strict liability regime, it is generally accepted that a State cannot be internationally responsible for environmental risks of which it was not and could not have been aware. It is therefore the fact of knowledge or availability of knowledge of an impending danger that activates this duty to warn.¹⁶⁷

The giving of notice of danger would seem to have relieved Albania of liability under international law. But that this must be taken in the light of the harm there involved. The hazards posed to shipping by the mines were well known. In that context, notification of the danger was required of Albania because a warning, without more, would of itself have been sufficient to avert the disaster.

The obligation to provide potentially affected States with information is not, in any case, absolute.¹⁶⁸ The International Law Commissions work on International Liability for Injurious Consequences Arising Out of Acts Not Prohibited by International Law provides that reasons of national security or the protection of industrial secrets may be invoked in order not to reveal information that the State of origin would have otherwise had to provide affected States.

There is no question that the mines, just as pollution, pose a threat of some injury to other states. But there are ways of completely avoiding and negating the threat of damage from the collision of a ship with a mine. It is not so straightforward in the case of pollution, especially the pollution of a shared resource.

For even if any mechanisms for the raising of the alarm of potential transboundary pollution function properly, hence giving potentially affected states the required notice, there would often be no practicable or equally efficient way to avoid the harm to a lower riparian state as the deployment of minesweepers in the *Corfu Channel* case. This is not to limit the utility of the *Corfu Channel* decision in the field of international environmental law, the case must be understood in the light of the peculiar circumstances in which it was decided.

¹⁶⁶ Stockholm Declaration, *supra* note 1.

¹⁶⁷ *Fourth Report on International Liability for Injurious Consequences Arising Out of Acts Not Prohibited by International Law*, by Mr. Julio Barboza, *Special Rapporteur*, 61-70, U.N. Doc. A/CN.4/413, (1988) II Y.B. Int'l L. Comm'n, (Part 1). See also art. 13(1), Convention on the Control of Transboundary Movement of Hazardous Wastes, art 13(1) (Basel), 28 I.L.M. 669 (1989).

¹⁶⁸ Convention on the Protection of the Rhine Against Chemical Pollution, art. 11, 16 I.L.M. 249 (1977).

c. INTERNATIONAL STANDARD SETTING

Many treaty provisions use more or less general indications of what should be regulated; such as waste water, waste products, effluents, sewage, harmful substances, physical, chemical and biological impurities and contain a general description of sources of pollution such as factories, agricultural enterprises. This order is often used to designate the type of substances which may not be discharged into a watercourse.

Stringent treaties are those that contain definite commitments to counteract (in principle) any pollution, that is, regardless of the extent of damage, small or substantial, caused by it. Such provisions are almost exclusively confined to agreements concerning nuclear energy.¹⁶⁹ "Not stringent" are those treaties whose provisions have a definite commitment for the parties to counteract pollution only when it causes substantial damage.

Under what conditions then, can states be held liable for the breach of such customary law obligations as the duty to prevent transboundary environmental harm? Special Rapporteur Ago proposes twin conditions: First, the event required under international law to be prevented must have occurred. Second, it must have occurred due to the State's failure to prevent it.¹⁷⁰ Even this formulation, from the ILC's draft Articles on State Responsibility,¹⁷¹ indicates that the obligation is one of due diligence, subject to contextual application.

4. INTERNATIONAL COOPERATION: REGIONAL ARRANGEMENTS REFLECTIVE OF PROSPECTIVE NORMS

The truly multi-lateral law making treaties are few. In the field of international environmental law, much of existing treaty law is fragmentary and unsystematic. This is not the case on the regional level, however. Common circumstances and mutual interests have developed environmental law, especially with regard to shared resources, to a relative degree of sophistication. The Kuwait Conference on the Protection of the Marine Environment is one such treaty. It provides for the

"...assessment of present and future development activities and their major environmental impact in order to evaluate the degree of their influence

¹⁶⁹ Examples of "Stringent" treaties include: Treaty Establishing the European Atomic Energy Community (EURATOM); art. 30 et seq., Belgium, France; 22 Sept. 1966; Agreement on Radiological Protection concerning Nuclear Power, 7 Nov. 1929; Agreement concerning the Common Frontier, arts. 60-62, Belgium, Bundesrepublik Deutschland; 24 Sept. 1956; arts. 7 and 8; Treaty concerning the Rectification of the Belgian-German Frontier, and the Settlement of Various Problems concerning the Two Countries,

¹⁷⁰ Ago, *Proceedings of the 14476th Meeting*, Y.B. of the International Law Commission, Vol. 15 (1978).

¹⁷¹ See 88 A. J. I. L. 137 (1994) for an update of current developments in the work of the I.L.C.

on the environment and to find appropriate measures to either eliminate or reduce any damaging effects which they may have.¹⁷²

A similar and even more exacting treaty is in force (since 11 October 1986) among nations in the Caribbean Region. Article 12 of which provides that for any developmental undertaking,

2. Each Contracting Party shall assess within its capabilities, or ensure the assessment of, the potential effects of such projects on the marine environment particularly the coastal area, so that appropriate measures may be taken to prevent any substantial pollution of, or significant and harmful changes to, the convention area.

3. With respect to the assessments referred to in paragraph 2, each Contracting Party shall, with the assistance of the Organization when requested, develop procedures for the dissemination of information and may, where appropriate, invite other Contracting Parties which may be affected to consult with it and to submit comments.¹⁷³

The management of international watercourses through regional cooperation provides one of the most comprehensive formulations for environmental protection and pollution abatement.¹⁷⁴ Usually, the river commissions provide a forum where consultation, negotiation, notification and coordination of responses to emergency situations may take place.¹⁷⁵ Such an arrangement governed the waters of the Rhine prior to the Sandoz accident but failed miserably.

The November 1986 accident near Basel, Switzerland caused large amounts of toxic substances to be washed into the Rhine causing great transnational damage. On the night of 31 October 1986, warehouse 956 of Sandoz S. A. at Schweizerhalle on the banks of the Rhine erupted in flame.¹⁷⁶ The fire was extinguished the old fashioned way and, due to the lack of a catchment area, 30 tons of chemicals flowed into the river with the water used by fire fighters to battle the blaze.

¹⁷² Regional Convention For Cooperation On The Protection Of The Marine Environment From Pollution, 11 UN.T.S. 133, 18 I.L.M. 501 (1989). See also 17 I.L.M. 511 (1978). Signatories are: Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates.

¹⁷³ Final Act Of The Conference Of Plenipotentiaries On The Protection And Development Of The Marine Environment Of The Wider Caribbean Region, 22 I.L.M. 221 (1983). Signatories are: Colombia, France, Grenada, Honduras, Jamaica, Mexico, Nicaragua, Netherlands Antilles, Panama, St. Luisa, United Kingdom, United States, Venezuela, and the European Economic Community.

¹⁷⁴ BIRNIE & BOYLE INTERNATIONAL LAW, *supra* note 15, at 241.

¹⁷⁵ Convention For The Protection Of The Rhine Against Chemical Pollution (BONN), 16 I.L.M. 242 (1976).

¹⁷⁶ H. D'OLIVEIRA, *The Sandoz Blaze: The Damage and Public and Private Liabilities*, in INTERNATIONAL RESPONSIBILITY FOR ENVIRONMENTAL HARM 429 (F. Francioni & T. Scovazzi ed. 1993).

The damage to the environment was severe. The river turned deep red in certain places, and all the river eels in the path of the toxic run-off perished.¹⁷⁷ Despite two treaties governing the quality of the Rhine's waters, Switzerland's neighbors were notified too late to prevent widespread damage to the Rhine's ecosystem.¹⁷⁸ The agreements were subsequently revised and improved although Sandoz paid a substantial settlement fee, no claim against Switzerland was ever brought by another State.¹⁷⁹ Switzerland subsequently admitted that it had been negligent in enforcing certain municipal safety measures at the site.

As the Sandoz case illustrates, regional arrangements may not always operate in the manner they had been intended and strong common interests may keep affected States from seeking international diplomatic redress. This may militate against the utility of such regional treaties, but it is submitted that to dismiss these instruments would be defeatist. The ease at which these bodies are able to take measures to address any weaknesses add a distinct facet to their true effectivity. It is the writer's opinion that the proliferation of regional arrangements such as these will precede and usher even more progressive standards of State conduct with regard to the protection of the environment.

B. Toward Intergenerational Equity

Principle 3 of the Rio Declaration states the right to development "must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations."¹⁸⁰ The 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) provides that the living resources it protects are an "irreplaceable part of the natural systems of the earth which must be protected for this and future generations." The Convention on Biological Diversity in its preambular paragraphs states that the treaty aims to "conserve and sustainably use biological diversity for the benefit of present and future generations."¹⁸¹

¹⁷⁷ The damage is detailed in the International Commission for the Protection of the Rhine report of 1 June 1988 in *Die Auswirkungen des Brandunfalls am 1 November 1986 in Schweizerhalle auf den biologischen Zustand des Rheines*.

¹⁷⁸ See Convention For The Protection Of The Rhine Against Chemical Pollution (BONN), 16 I.L.M. 242 (1976).

¹⁷⁹ KISS & SHELTON, MANUAL, *supra* note 10, at 406. The Council of the OECD adopted a decision stating, *inter alia*, that Member countries concerned shall exchange information and consult one another, on a reciprocal basis if so desired, with the objective of preventing accidents capable of causing trans-frontier damage and reducing damage should such an accident occur.

¹⁸⁰ Rio Declaration, princ. 3, *supra* note 96.

¹⁸¹ Convention On Biodiversity, 31 I.L.M. 1004 (1992). As of 29 June 1992, 158 States are signatories, the Philippines signing on 12 June 1992.

The object of environmental protection seems no longer the useful and valuable,¹⁸² as noted earlier, but rather the entire biosphere. This seems to be the case in increasing the breadth of protection.¹⁸³ Also, recent developments have led to integrated solutions that take into consideration the interdependence of air, soil, water, flora and fauna.¹⁸⁴

A bilateral treaty to protect migratory birds that travel between the United States and Canada was the focus of an important decision by the U.S. Supreme Court in 1920. In *Missouri v. Holland*,¹⁸⁵ a state challenged the federal government's authority to enforce regulations adopted by the Secretary of Agriculture to enforce the Migratory Bird Treaty of 1916. The treaty had pledged the United States and Canada to restrict the killing, capturing or selling of certain migratory birds. Missouri argued that federal regulations enforcing the treaty were an infringement of its rights under the tenth amendment to regulate property within its borders.¹⁸⁶

Justice Holmes, writing for the Court, noted that the power to make treaties is expressly delegated to the president by Article II, § 2 of the United States Constitution and that laws enacted by Congress to implement treaties are the supreme law of the land under the Supremacy Clause of Article VI. While noting that but for the treaty the state would be free to regulate the killing of birds within its territory. Justice Holmes rejected the state's claim that it owned the birds. "Wild birds are not in the possession of anyone; and possession is the beginning of ownership. The whole foundation of the State's rights is the presence within their jurisdiction of birds that yesterday had not arrived, tomorrow may be in another State and in a week a thousand miles away."¹⁸⁷

This precedent is, *per se*, far and away inadequate to establish a recognition of the rights of future generations. However, it was a giant leap toward the current principle in international law that migratory living resources are held in common. The 1979 Migratory Animals Convention noted that even if only one country in the migratory range does not afford adequately protection, the conservation of that specie becomes illusory.¹⁸⁸ Thus, no state may invoke its sovereignty to either exclude others from using them or worse, by exploiting that resource to extinction.¹⁸⁹

¹⁸² See the comments on the 1902 Paris Convention for the Protection of Birds Useful to Agriculture, *supra* note 15.

¹⁸³ M. J. Glennon, *Has International Law Failed the Elephant?*, 84 A.J.I.L. 1 (1990).

¹⁸⁴ KISS & SHELTON, MANUAL, *supra* note 10, at 34.

¹⁸⁵ 252 U.S. 416 (1920).

¹⁸⁶ PERCIVAL, ET. AL., ENVIRONMENTAL REGULATION, *supra* note 31, at 24.

¹⁸⁷ *Id.* at 434.

¹⁸⁸ Bonn Convention On The Conservation Of Migratory Species Of Wild Animals, 19 I.L.M. 15 (1980).

¹⁸⁹ BIRNIE & BOYLE, INTERNATIONAL LAW, *supra* note 15, at 117.

Edith Brown-Weiss posits that there are two relationships that must shape any theory of intergenerational equity: "our relationship to the other generations of our species and our relationship to the natural system of which we are a part."¹⁹⁰ For if intergenerational equity calls for equality between the present generation and generations yet unborn, the next generation must necessarily have a right to receive the resources of the planet in at least as good condition as they had been for the previous generation.¹⁹¹ The concept of equity among generations provides for that "minimum floor for all generations" and ensures that later generations would not be worse off for having been born later.

Although the case dealt with the issue of standing, the Philippine Supreme Court decision in *Minors Oposa vs. Secretary of the Department of Environment and Natural Resources* established the rights of future generations to a healthful and balanced ecology under its constitution.¹⁹² These trends gather greater significance when the principles of long-term conservation and amelioration are pressed.

IV. SIGNIFICANCE OF EMERGING INTERNATIONAL LAW

A. Assessing the Future

First introduced in the United States in 1969, Environmental Impact Assessment is a "procedure to ensure that adequate and early information is obtained on likely environmental consequences of development projects and on possible alternatives and measures to mitigate harm."¹⁹³ It is generally a pre-requisite to decisions to undertake or to authorize developmental projects. It is a procedural requirement that a developer or business owner submit a written document to the Environmental Protection Agency describing the future environmental impact of any intended action.

In the European Economic Community, states were obliged to have national Environmental Impact Assessment legislation by July 1988.¹⁹⁴ Most have complied and other non-member states have followed.¹⁹⁵ Assessment of both direct and indirect effects of a project on 1) humans and flora and fauna; 2) soil, water, air, climate and landscape; 3) interaction between factors 1 and 2; 4) material assets and the cultural heritage. Member states have power to exempt specific projects in extreme cases but must inform the European Economic Commission.

¹⁹⁰ E. Brown-Weiss, *Our Rights And Obligations To Future Generations For The Environment*, 84 A.J.I.L. 199 (1990)[hereinafter: Brown-Weiss, *Future Generations*].

¹⁹¹ *Id.*

¹⁹² *Oposa v. Factoran*, 30 July 1993, 33 I.L.M. 173 (1994).

¹⁹³ KISS & SHELTON, MANUAL, *supra* note 10, at 58.

¹⁹⁴ EEC DIRECTIVE 85/337/EEC 27 June 1985.

¹⁹⁵ KISS & SHELTON, MANUAL, *supra* note 10, at 58.

On a global level, the United Nations Convention on Environmental Impact Assessment in a Transboundary Context was held as Espoo, Finland in 25 February 1991. The preamble states that the treaty was entered into to "minimize transboundary pollution through the application of environmental impact assessments" and "commending ongoing activities of states requiring environmental impact assessments."¹⁹⁶

The treaty provides that the party where the pollution originates shall ensure that an environmental impact assessment is undertaken prior to a decision to authorize or undertake a proposed activity (listed in the treaty's appendixes) that is likely to cause a significant adverse transboundary impact. The acts listed include crude oil refining, large dams, major mining, deforestation and even the construction of motorways, lines for long distance rail and airports with a basic runway length of 2,100 meters or more.¹⁹⁷

The duty of States to prevent transboundary harm from sources within its territory is well established customary international law.¹⁹⁸ The *Trail Smelter* case not only awarded damages to a State affected by transboundary pollution but also required the polluting State to refrain from causing any more damage.¹⁹⁹ Such a preventive obligation applies not only to incidents but also the prevention of harm. Special Rapporteur Barboza notes that instruments such as the Law of the Sea use the phrase "prevent, reduce and control" quite broadly.²⁰⁰ Principle 17 of the 1992 Rio Declaration explicitly calls for environmental impact assessments for activities that are likely to have a significant adverse impact on the environment.²⁰¹ Regional agreements have recognized the norm of requiring an impact assessment prior to authorizing a proposed activity that is likely to cause "harmful impacts" in the treaty areas.²⁰² Agenda 21 notes that water demands are rising, with the better part going to irrigation and industry, only a fraction (six percent) is given to domestic consumption. Thus, Agenda 21 calls for:

¹⁹⁶ Convention On Environmental Impact Assessment In A Transboundary Context, 30 I.L.M. 800 (1991).

¹⁹⁷ Art. 2, no. 3.

¹⁹⁸ BIRNIE & BOYLE, *INTERNATIONAL LAW*, *supra* note 15, at 89.

¹⁹⁹ *Decision of the Trail Smelter Arbitral Tribunal* (U.S. v. Canada) 3 RIAA 1905 (1941).

²⁰⁰ UN Doc. A/CN. 4/459 7 (1994).

²⁰¹ Rio Declaration, princ. 1, *supra* note 96.

²⁰² Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, art. 16, 26, I.L.M. 39 (1987). See also the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution, 18 I.L.M. 501 (1989); and the Final Act for the Conference of Plenipotentiaries on the Protection and Development of the Marine Environment of the Wider Caribbean Region, 22 I.L.M. 221 (1976). See also OECD Recommendation Concerning an Environmental Checklist for Development Assistance, 28 I.L.M. 1318 (1989).

Mandatory environmental impact assessment of all major water resource development projects potentially impairing water quality and aquatic ecosystems, combined with the delineation of appropriate remedial measures and a strengthened control of new industrial installations, solid waste landfills and infrastructure development projects;²⁰³

This is surprisingly strong language for a non-binding program of action. But if these principles are to form the foundations of future environmental protection, they must be able to overcome the inertia of all our cumulative years of neglect.

B. *The Polluter Pays: Deterrent and Remedy*

The Polluter Pays Principle is well recognized international law. There is much to evidence its acceptance by States as a binding norm.²⁰⁴ This principle as applied, *inter alia*, by the Organization for Economic Cooperation and Development,²⁰⁵ the Maastricht Treaty,²⁰⁶ the Convention on the Protection and Use of Transboundary Watercourses and International Lakes²⁰⁷ and the Convention on the Transboundary Effects of Industrial Accidents,²⁰⁸ provides that "the costs for pollution prevention, control and reduction shall be borne by the polluter."²⁰⁹

The 1992 Rio Declaration likewise indicates "that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."²¹⁰ Further, recent agreements continue to affirm the widespread acceptance of this principle in international law.²¹¹

The duty to prevent transboundary pollution, as has been established, is a customary norm of international law.²¹² Should States violate this international obligation, they are responsible for such a violation under applicable international law.

²⁰³ 18.40(b)(v), Agenda 21, U.N. Doc. A/CONF.151/26 Vol. 2 (1992).

²⁰⁴ Henri Smets, *The Polluter Pays Principle in the Early 1990s* in *THE ENVIRONMENT AFTER RIO*, 143 (L. Campiglio, et al., ed. 1993).

²⁰⁵ OECD, Recommendation on the Implementation of the Polluter-Pays Principle, C(74) 223, 1974.

²⁰⁶ Treaty on European Union and Final Act, art. 130r, 31 I.L.M. 285 (1992).

²⁰⁷ Convention on the Protection and Use of Transboundary Watercourses and International Lakes, art. 2(5), 31 I.L.M. 1316 (1992).

²⁰⁸ CONVENTION ON THE TRANSBOUNDARY EFFECTS OF INDUSTRIAL ACCIDENTS, preamble, 31 I.L.M. 1333 (1992).

²⁰⁹ Art. 2.2 (b), Convention for the Protection of the Marine Environment of the North Atlantic, art. 2.2(b) 32 I.L.M. 1076 (1993).

²¹⁰ Rio Declaration, princ. 16, *supra* note 96.

²¹¹ KISS & SHELTON, *MANUAL*, *supra* note 10, at 75.

²¹² Alexandre Kiss, *The Rio Declaration on Environment and Development*, in *THE ENVIRONMENT AFTER RIO*, 57 (L. Campiglio, et al., eds. 1993).

Applying the Polluter Pays Principle, States from whose territory a polluting event occurs should bear the expenses of measures undertaken by affected States to prevent, control or reduce the harm caused. This principle primarily calls for the State of origin to internalize the costs of measures undertaken to prevent such a breach of the obligation not to cause environmental damage.²¹³ In the event, however that transboundary pollution is caused, the transgressor is also liable under the Polluter Pays Principle. There exists a consensus among States that the costs that a polluting State should bear include the expenses incurred by the affected States in restoring the polluted areas of their territory to their previous ecological condition.²¹⁴ Accordingly, the Forum on international environmental law advocates, 'the application of the Polluter Pays Principle for chronic as well as for accidental damage to the environment.'²¹⁵ This duty to compensate is without prejudice to the duty of the State of origin to cease pollution should it be an internationally wrongful act of a continuing character.²¹⁶

The Polluter Pays Principle, however, has been called an economic and not a legally binding principle for the allocation of costs of pollution²¹⁷ as it merely seeks to avoid distortions in international trade and investment by having the polluting State carry-out certain environmental protection measures. These measures are decided upon by public authorities to "ensure that the environment is in an acceptable state."²¹⁸ Support for such criticism is lent by the fact that the principle is not binding even among OECD member States who are left free to determine the bounds of its implementation.²¹⁹ Outside of the developed world, there is even less evidence of State practice either in support or adoption of the OECD principle.²²⁰

The 1972 Stockholm Conference on the Human Environment does not refer to it. In fact it suggested that developed States should help developing States bear the costs of environmental protection measures.²²¹ The 1992 Rio Declaration emphasizes the

²¹³ European Economic Commission, (COM (74) 233 Final of 5 Mar. 1974) reprinted in 14 I.L.M. 139 (1974).

²¹⁴ Smets, *supra* note 204, at 143.

²¹⁵ *Id.* at 140.

²¹⁶ ILC Draft Articles on State Responsibility, art. 6, Yearbook of the International Law Commission, A/CN.4/SER.A/1989/ADD.1 (1989).

²¹⁷ OECD, *Council Recommendation on the Implementation of the Polluter-Pays Principle*, C (74) 223, 14 I.L.M. 234 (1974).

²¹⁸ OECD, *Guiding Principles Concerning the International Economic Aspects of Environmental Policies*, C (72) 128, 14 I.L.M. 236 (1974).

²¹⁹ Alan E. Boyle, *Making the Polluter Pay? Alternatives to State Responsibility in the Allocation of Transboundary Environmental Costs*, in INTERNATIONAL RESPONSIBILITY FOR ENVIRONMENTAL HARM, 363, 369 (F. Francioni & T. Scovazzi eds. 1991).

²²⁰ BIRNIE & BOYLE, INTERNATIONAL LAW, *supra* note 15, at 110.

²²¹ Stockholm Declaration, princ. 12.

promotion of internalizing environmental costs as a soft law principle.²²² The declaration accepts that "the polluter may not bear the cost of pollution provided that such exceptions are in the public interest and do not lead to distortion in international trade and investment."²²³ Thus, although the impetus exists, more international acceptance is indispensable.

C. Diluted Anthropocentricity

Interestingly, Principle 1 of the Rio Declaration puts human beings "at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature."²²⁴ This stands in rather stark contrast to the emerging framework for international environmental law of an interconnected system, where it would be difficult to place anything at the center.²²⁵ A singularly anthropocentric approach runs the risk of ignoring the natural processes of ecosystems. History has given many examples of how dams, constructed for irrigation and power generation, have exterminated migratory fish, inundated forests, dried out wetlands and accelerated desertification. "Even from a purely anthropocentric perspective this is shooting oneself in the foot."²²⁶

Increasingly, multilateral instruments have shown evidence of intentions not only to protect human life and well-being, but even those that do not even contribute to human welfare in the direct sense. Treaties over endangered species, the integrity of certain ecosystems, and even instruments with aesthetic overtones are beginning to appear.²²⁷

But neither is it of any utility to say that humans should "sacrifice themselves on the altar of nature" so that nature may remain undisturbed.²²⁸ We have already seen the strong and positive value of human health considerations. These have spurred the environmental movement since its inception and will continue to do so with increasing vigor as nations struggle collectively against threats like ozone depletion and global warming. But an anthropocentric approach cannot stress the uniqueness of every form of life, "warranting respect regardless of its worth to man."²²⁹ The Stockholm

²²² Rio Declaration, princ. 16, *supra* note 96.

²²³ Smets, *supra* note 204, at 134.

²²⁴ Rio Declaration, princ. 1, *supra* note 96.

²²⁵ SPRINGER, INTERNATIONAL LAW, *supra* note 120, at 77.

²²⁶ S. McCaffrey, *The Management of Water Resources in THE ENVIRONMENT AFTER RIO—INTERNATIONAL LAW AND ECONOMICS*, 149 at 157 (L. Campiglio et al, eds. 1993).

²²⁷ Convention Relative to the Preservation of Fauna and Flora in their Natural State, 172 L.N.T.S.; Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, 161 U.N.T.S. 193.

²²⁸ S. McCaffrey, *The Management of Water Resources in THE ENVIRONMENT AFTER RIO—INTERNATIONAL LAW AND ECONOMICS*, 149 at 157 (L. Campiglio et al, eds. 1993).

²²⁹ Pallemaerts, *supra* note 58, at 12.

Declaration struck a careful balance that deserves to be maintained and to underpin future developments. Environmental lawyers and policy makers would do well to remember that "man is both creature and moulder of his environment."²³⁰

V. PROSPECTS OF A COMMON FUTURE

A. A Critical Path

Our earth's resources repeat continuous cycles of varying time frames. Water vapor in the atmosphere falls to the earth as rain, hail or snow. Seeking the lowest level, it finds its way under ground or to rivers and streams which eventually discharge it into the sea. Water also transpires through plants returns to our atmosphere. Seawater evaporates to continue the process. This hydrologic cycle and the pollutants carried by it does not respect State the juridical territorial delimitations drawn by States. State sovereignty is, however, just as much a part of the equation as the hydrologic cycle. Neither can it be ignored by the politician, the lawyer and scientist involved in the development of international rules on pollution.²³¹ The environment is no longer validly divided into discrete units along juridical frontiers; it exists as a single indivisible system that encompasses the whole planet.²³² We now realize that nature is not a bottomless resource. Its character as a complex interconnected life-support system is as apparent now as never before. But what the international community needs is an unequivocal recognition of the duty to protect the biosphere for future generations of whatever nationality.

Sheer necessity may soon establish new rules of conduct in such a direction. These may take unconventional forms which are binding on all nations, perhaps a particular form of *jus cogens*. Treaty-based law will be unable to serve the international legal requirements of environmental protection. This is due to three main factors: first, treaty making takes a considerable amount of time to be negotiated, adopted and brought into force; second, it is simply impossible to have treaties on every equally essential component of the environment; and third, States' adherence to such treaties has hardly been universal. In addition, there are a myriad of domestic requirements before treaties are accepted as binding.²³³ These indicate a necessity for environmental law's reliance on less formal yet equally binding legal frameworks. Multilateral forums such as the OECD and the UNEP, the ILC and the ILA shall continue to develop, interpret and codify customary norms. It is believed that even the persistent objector rule will be looked upon with disfavor and will be sparingly resorted to by States to

²³⁰ Stockholm Declaration, preamble.

²³¹ LAMMERS, POLLUTION, *supra* note 77, at 18.

²³² G. Handl, *Territorial Sovereignty and the Problem of Transnational Pollution*, 69 A.J.I.L. 53. See also J. LOVELOCK, *Gaia: The World as a Living Organism*, NEW SCIENTIST 18 December 1986 25 (1986).

²³³ J. Charney, *Universal International Law*, 87 A.J.I.L. 529, 551 (1993).

oppose evolving customary rules. For even among those that hold fast to the view that international law is based purely on consent, there are exceptions, particularly relevant in the case of environmental law that undermine their position. They do not advocate that no rule of international law can be imposed on a state that objects to it before it becomes law. Newly established and recognized States cannot exempt themselves from pre-existing *jus cogens* norms. Laws prohibiting "genocide, slavery, war crimes and crimes against humanity are binding on all States regardless of their timely objections."²³⁴ The scope of the problem dictates that this must necessarily be so. Recalcitrant States could undermine the entire effort to protect the earth's resources for the benefit of future generations. States without pollution controls could become havens for unsafe but highly profitable industries. The costs of environmental safeguards of other nations will undermine their capacity to compete in world markets. This state of affairs would defeat environmental law's very purpose and encourage others, especially those in the developing world, not to participate. As Charney writes, "one state that serves as a safe haven for terrorists can threaten all."²³⁵

The work of the International Law Commission on the Draft Articles of State Responsibility and the Non-Navigational Uses of Transboundary Watercourses embody advanced theories of law such as strict liability for environmental harm and responsibility of states for the acts of private persons. These instruments contain well crafted, progressive and acceptable norms. Once the regime of responsibility for acts or omissions is settled, the subsequent focus of international environmental law will be, in the opinion of the writer, the issue as to whom the obligation to prevent damage to the environment is owed. Such a perusal would necessarily include intragenerational as well as intergenerational rights and obligations.

B. A Sense of Direction

Compared to previous debates over boundaries and fishing rights, the focus of current international rule-making reflects modern concerns. The nature of the issues themselves: the protection of habitats and migratory species, the reduction of greenhouse gas emissions and ozone depleting substances; are increasingly global. States acknowledge that a balance between development and the protection of earth's resources must be struck. But between States, the distribution of the burden is a far from settled issue.

The standard of equitable utilization is well established in transboundary watercourse law. No one riparian State may appropriate or pollute the watercourse to a degree that it deprives other States of a reasonable share of the river system's benefits. In addition to the treaty-based factors that play in a determination of what uses are equitable, the general guidelines formulated in the Helsinki Rules of 1966 is instructive. The standards, in the light of the Chernobyl and Seveso accidents have grown more

²³⁴ Charney, *supra* note 233, at 541.

²³⁵ *Id.* at 530.

stringent through agreements forged in response to these tragedies. International cooperation in both disaster prevention and mitigation has increasingly been given special emphasis. Major events, such as those discussed in the first chapter of this work, accelerate the development of international law. That in itself is not particularly novel. The spate of hijacking incidents during the early seventies precipitated widespread international agreements over a new genre of crime. What international environmental law draws from this illustration is a parallel both with regard to the subject and scope of standard setting. Coercion, in various forms, had certainly existed and was criminally punished prior to international airline travel. Hijacking, in itself is simply a form of coercion. The international community, however responded to a situation that was inadequately addressed by municipal laws. It may be said that the rules on hijacking achieved the status of "instant custom" much as the norms regarding the treatment of prisoners of war had half a century before.

It is apparent that countries have learned much about the planet we all share. The fact that pollution itself is a "bad thing" was never seriously in dispute. But the enormity of the problem and the complexity of possible solutions have only recently come into focus. But States, like individuals, constantly adapt approaches and procedures in order to continue what has proven effective and avoid past mistakes. The extent that the burden of pollution is shared is an issue where much debate remains. International instruments calling for the reduction of chemical emissions and effluents are objected to by developing nations as unfairly limiting their capacity for economic growth and parity. They argue that industrialized nations achieved their status in an era of unbridled economic expansionism, often at the expense of developing States. The cities with the strictest emission standards are almost always at industrial centers of the first world. Naturally, less developed nations do not feel bound by the stringent pollution benchmarks of industrialized nations, at least not at the moment. It is perceived by some that environmental protectionism is western self-interest in disguise. Edith Brown Weiss notes that the practice has meant: industrialize first, and set pollution levels later.²³⁶

As international law is fundamentally based on consent, agreements among nations provide the clearest route for the future of environmental law. One of the most comprehensive treaties in recent years has been the Law of the Sea. The convention requires States to ensure that activities within their jurisdiction and control do not cause environmental harm to other States and the marine environment. The Convention is additionally significant insofar as it allocates environmental duties along with economic rights within a system of compulsory arbitration. Valuable lessons on pollution prevention, containment, rehabilitation and liability were learned and implemented after the Exxon Valdez tragedy. Of course there are many who were disappointed by the Law of the Sea. "[T]hey might have preferred a more strongly worded duty to enforce international standards to control land-based sources of marine

²³⁶ Edith Brown-Weiss, *International Environmental Law: Contemporary Issues and the Emergence of a New World Order*, 81 GEORGETOWN LAW JOURNAL 675, 704 (1993).

pollution."²³⁷ This is where the work of such multi-lateral fora is critically important. The gaps are filled as they appear, and standards are continually upgraded in context.

It would seem that ecological disasters are necessary for international environmental law to develop binding obligations. But this concern is more apparent than real. The Framework Convention on Climate Change²³⁸ and the Convention on Biological Diversity²³⁹ were both signed in the absence of a runaway greenhouse effect or a genetic disaster. There are factors, notably scientific advancement, consumer demands and political will, which effectively establish international standards even in the absence of a clear and present danger. Future solutions to environmental concern shall likely focus on making industrial processes ecologically sound. Environmental Impact Assessments shall become mandatory in an increasing number of nations. Environmental law shall also proceed in the same direction by granting favorable treatment to those that minimize pollution and, to a less definitive extent, provide for liability regimes when damages are suffered. The Polluter Pays Principle will increasingly characterize the practice of States with regard to responsibility for the environment.

C. A Future Orientation

Equity has always been a source of State rights and obligations. Recent developments have re-focused the balance between the sovereign right of States to exploit their own resources and the rights of others. The latter set of rights includes not only the right to exploit resources in the global commons but also the right to be reasonably safeguarded from the detrimental effects of another's developmental activities. The content as well as extent of both these rights has seen significant evolution. First, what was once regarded as *res nullius* (such as the high seas and polar regions) and subject to appropriation on a first-come, first-served basis is being accorded protection as part of the common heritage of mankind.²⁴⁰ Second, the issue of who is entitled to protection from the effects of pollution is also coming into its own.

The purpose of every state's existence must be to enhance and protect the welfare of its citizens. Consideration as to whom this obligation is owed should include those yet unborn as well as persons already living. Thus, states have a duty to pass on the world's resources in no worse condition than their existing citizens enjoy. This behest requires that all states protect the life-support systems of the planet, and charges every nation with the preservation of the ecological processes necessary for a healthy and decent human future.

²³⁷ John R. Stevenson & Bernard H. Oxman, *The Future of the United Nations Convention on the Law of the Sea*, 88 A.J.I.L. 483, 495 (1994).

²³⁸ 31 I.L.M. 849 (1992).

²³⁹ 31 I.L.M. 818 (1992).

²⁴⁰ Edith Brown-Weiss, *International Environmental Law: Contemporary Issues and the Emergence of a New World Order*, 81 GEO. L. J. 675, 704 (1993).

Professor Brown-Weiss finds support for intergenerational equity in the Preamble of the Universal Declaration of Human Rights' "recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom justice and peace in the world."²⁴¹ Lothar Gündling is of the view that there must be a responsibility to future generations. For it is axiomatic for the will of humankind be that it survive. And as it is indeed so, nations must work, individually and collectively, on what these obligations to future generations actually entail.²⁴²

Brown-Weiss adds that intergenerational equity demands more than simple conservation and a preservation of the *status quo*.

It also carries with it an intragenerational dimension. When future generations become living generations, they have certain rights and obligations to use and care for the planet that they can enforce against one another. Were it otherwise, members of one generation could allocate the benefits of the world's resources to some communities and the burdens of caring for it to others and still potentially claim on balance to have satisfied the principle of equity among generations.²⁴³

Less developed nations must gain access to the conditons for making environmental concern possible. Poverty must be alleviated as an indispensable requisite to sustainable development.²⁴⁴ Minimum standards of living must be met before States contemplate large scale conservation. An overriding concern for the environment is something many less developed nations cannot afford. This is a challenge to the world community as much as it is to every individual. The members of the present generation must be given a chance to pass on a legacy. The routes may take the form of access to markets, access to credit or relief from debt and a conscientous effort at connecting environmental and developmental concerns. Only then can the most serious environmental degradation be halted: that which is poverty-based.

This duty has a significant effect on the pursuit of the sovereign right to exploit their own resources. For a charge to pass the earth's resources to the next generation, in no worse condition than it was received, necessarily limits the extent to which a resource may be exploited as well as the diligence required for lawful exploitation. No State should proceed with industrial projects within that State's jurisdiction without environmental impact statements. No State should threaten a specie of wildlife with extinction, even if that specie was found only within that State's territory. That would preclude future generations from finding beneficial uses for that specie apart from the still controversial notion of animal rights. But there are scant developments in the area of legal liability for such acts. For example, should State X, a developing

²⁴¹ UN CHARTER, preamble.

²⁴² L. Gündling, *Our Responsibility to Future Generations*, 84 A.J.I. L. 211 (1990).

²⁴³ Brown-Weiss, *Future Generations*, *supra* note 190, at 201.

²⁴⁴ Rio Declaration, princ. 5, *supra* note 96.

nation already with substantial external debt and a balance of payments deficit, wantonly cause environmental damage? The avenues for redress are narrow and limited. In case of transboundary harm, the prospect of monetary reparation is dim. *Restitudo in integrum* is equally likely to be beyond State X's capabilities. An international superfund, as envisioned by some instruments, such as the Basel Convention, would only go so far and would travel even less afield if the extent of the environmental damage was limited to areas within the borders of State X. Future generations of its citizens would therefore pay for the damage. Should the harm be of a long-term character, the number of these generations proportionately increases.

There is still no regime that addresses such a situation. The Rio Conference called for poverty alleviation and expressly linked environmental and developmental concerns. It is in this context that future developments in international environmental law will crystalize. International law certainly does not regard the manner of any State's exploitation of it's resources as completely within its own discretion. But absent a new international legal framework, the international community must still rely on restraint. As the interconnectedness of the ecosystem is explored, the global dimensions of environmental protection must establish a new regime. This new world order will necessarily concretize the notion of equity, especially for generations yet unborn, in order to find effective solutions to pollution. International environmental rules must be practical, technically sound and extensive, in every sense of the word, in order to secure a common future for all mankind.

In the interplay of health concerns, economic needs and technological and social issues, it shall remain difficult to draft declarations on duties *erga omnes* with universal consensus. Devising specific obligations and responsibilities to persons who do not yet exist still seems an incredibly daunting task. But as states contemplate the avenues for the evolution of international environmental law, a road map of sorts is available. Previous developments have not been wholly inadequate.