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INTERNATIONAL ENVIRONMENTAL LAW

Third Edition

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and Dinah Shelton**



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CHAPTER 1

FOUNDATIONS OF INTERNATIONAL ENVIRONMENTAL LAW

International environmental law aims to protect the biosphere from major deterioration that could endanger its present or future functioning. This objective provokes the fundamental questions: Why protect the biosphere and for whose benefit? Who has legal obligations in this field and on what bases do such obligations exist? The present chapter addresses these questions, as well as the characteristics of international environmental law deriving from scientific, economic, political and legal realities. It begins with an overview of the religious, ethical and philosophical foundations of environmental protection.

A. Religion and Philosophy

Religious and philosophical concepts are crucial to understanding the views of nature and humankind's relationship to it that form the bases of environmental law. These views have ranged from exploitive and dominating to holistic and cognizant of the intrinsic value of nature; they are relevant to understanding current law and to creating new approaches to environmental protection.

1. *Religious Sources*

Religious texts provide some conceptual foundations of environmental protection.¹ In Judeo-Christian religious traditions, two contrasting approaches can be found. A view prevalent in the past claimed human supremacy and ownership over all creation based on the "dominion" given humans in the first of the Creation stories in Genesis.² More recent interpretations argue

¹ For an overview of the Judeo-Christian sacred texts, see D. Shelton, *Nature in the Bible, in MAN AND THE ENVIRONMENT: ESSAYS IN HONOR OF ALEXANDRE KISS* 63 (1998).

² "Be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." (Gen. 1:28).

that the relevant passage does not grant ownership to humans,³ but rather establishes human power over other creatures and the right to beneficial use of them, imposing a type of guardianship or a trust. It does not include the right to waste or destroy that which belongs to the Creator.⁴ Certain passages clearly indicate that humans do not own the earth and its resources. The Psalms proclaim, for example, that "the earth is the Lord's and the fullness thereof; the world, and they that dwell therein. For He hath founded it upon the seas, and established it upon the floods."⁵ The Biblical story of the flood includes a command to Noah to save all creatures, "to keep seed alive upon the face of the earth"⁶ and ends with a Covenant between God and man "and every living creature . . . for perpetual generations."⁷ Jewish law provided for conservation of birds,⁸ protection of trees during wartime,⁹ and regulated the disposal of human waste.¹⁰

In the *Summa Theologica*, Thomas Aquinas argues that man's dominion over nature includes a competence to use and manage the world's resources,

³ Cf. "for the earth is the Lord's and the fullness thereof" (I Cor. 10:26). In speaking of the desolation of Egypt, God says "the river is mine and I have made it." (Ezek. 29:9).

⁴ In Revelation, the 24 elders worship God by saying "Thou art worthy, O Lord, to receive glory and honour and power: for thou hast created all things, and for thy pleasure they are and were created." All things being created for God's pleasure, humans err in extinguishing any of them. In Revelation the angels are commanded not to hurt the earth, the sea, the grass of the earth, nor any green thing including any tree. (Rev. 7:3, 9:4) Only humans are marked and judged, at which judgment God will "destroy them which destroy the earth." (Rev. 11:18).

⁵ Psalm 89:11-12. Other Psalms contain similar messages: "The heavens are thine, the earth also is thine; as for the world and the fullness thereof, thou has founded them. The north and the south thou hast created them." (Psalm 24:1-2); "The sea is his, and he made it: and his hands formed the dry land. O come, let us worship and bow down: let us kneel before the Lord our maker." (Psalm 95:5).

⁶ Genesis 7:2-3.

⁷ Genesis 9:10-13.

⁸ "Those coming upon a bird's nest either in a tree or on the ground may not take the mother bird, although the eggs and the young may be taken." (Deut. 22:6-7).

⁹ "When thou shalt besiege a city a long time, in making war against it to take it, thou shalt not destroy the trees thereof by forcing an axe against them: for thou mayest eat of them, and thou shalt not cut them down (for the tree of the field is man's life) to employ them in siege." (Deut. 20:19).

¹⁰ Places outside camps were to be established for human waste. "And thou shalt have a paddle upon thy weapon; and it shall be, when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee." (Deut. 23:13)

not selfishly, but in the interests of all, being ready to help others in case of necessity.¹¹ Individual title is seen as imposing a responsibility and a trust. In an address on January 1, 1990, the World Day of Peace, Pope John Paul II stated: "In our day, there is a growing awareness that world peace is threatened not only by the arms race, regional conflicts and continued injustices among peoples and nations, but also by a lack of due respect for nature, by the plundering of natural resources and by a progressive decline in the quality of life."¹²

In 1983, Muslim experts undertook a study of the relationship between Islam and environmental protection. The results underscored that

Islam presents a way of life that encompasses an overall view of the universe, life, man and the interrelationships existing between them and also combines conviction, belief, legislation and enforcement of this legislation.¹³

Humans are seen as forming part of the universe, whose elements are complementary to one another in an integrated whole, but humankind has a special relationship to the other parts of nature, a relationship of utilization and development. The basic principle of the biosphere is that:

God's wisdom has ordained to grant man inheritance on earth. Therefore, in addition to being part of the earth and part of the universe, man is also the executor of God's injunctions and commands. And as such he is a mere manager of the earth and not a proprietor; a beneficiary and not a disposer or ordainer. Man has been granted inheritance to manage and utilize the earth for his benefit, and for the fulfillment of his interests. He therefore has to keep, maintain and preserve it honestly, and has to act within the limits dictated by honesty.¹⁴

In this perspective, each generation is entitled to use nature to the extent that it does not disrupt or upset the interests of future generations. Islamic

¹¹ THOMAS AQUINAS, 30 SUMMA THEOLOGICA 2a2ae, 66, 2 (Blackfriars, 1975). The commentary notes that this "contains the nub of the teaching that individuals should be only trustees and stewards of the world's resources—and, presumably, on behalf of future generations of the human race as well as of the living." *Id.* at 69, n. f.

¹² Quoted in *Environment and the World of Work*, Report of the Director-General of the ILO, at 4 (1990).

¹³ *Islamic Principles for the Conservation of the Natural Environment*, IUCN Environmental Policy and Law Paper No. 20 at 9 (1983).

¹⁴ *Id.* at 45.

principles thus envisage the protection and the conservation of basic natural elements, making protection, conservation and development of the environment and natural resources a mandatory religious duty of every Muslim.¹⁵ Any deliberate or intentional damage to the natural environment and resources is forbidden. In conclusion the study proposes Islamic legislative rules to serve as the foundation of procedures and measures necessary for the protection and conservation of the environment.

Ancient Buddhist chronicles, dating to the third century B.C. record a sermon on Buddhism in which the son of the Emperor Asoka of India stated that "the birds of the air and the beasts have as equal a right to live and move about in any part of the land as thou. The land belongs to the people and all living beings; thou art only the guardian of it."¹⁶ Subsequently, the Emperor initiated a legal system which continued to exist into the 18th century providing sanctuaries for wild animals.

The religious beliefs of indigenous peoples also contain precepts on respect for all life and impose duties on individuals and the community to avoid waste or harm.¹⁷ According to one commentator, "indigenous peoples unanimously emphasize the spiritual nature of their relationship with the land or earth, which is basic to their existence and to their beliefs, customs, traditions, and culture."¹⁸

2. Utilitarianism

Many early treaties had a utilitarian or anthropocentric orientation based on the centrality of human dominance and humankind's unlimited right to exploit nature, found in some religious doctrines and philosophy. Utilitarianism grounds environmental protection on the well-being of humans, seeing nature primarily or only as a means to enhance the quality of human life and the satisfaction of human needs. Some environmental agreements thus stressed the protection of resources "useful" to man and the destruction of non-useful living creatures. Early environmental laws also tended to focus on pollution, because of its impact on human health, and only later addressed issues of endangered species and protection of biological diversity.

¹⁵ *Id.* at 20.

¹⁶ *The Mahavamsa, or the Great Chronicle of Ceylon*, Chap. 14, quoted in I.C.J., Case Concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Sep. Op. of Judge C. Weeramantry, n. 44.

¹⁷ See J. Callicott, *Traditional American Indian and Western European Attitudes Toward Nature: An Overview*, 4 ENVTL. ETHICS 293 (1982); J. HUGHES, AMERICAN INDIAN ECOLOGY (1983).

¹⁸ Hannum, H., *New Developments in Indigenous Rights*, 18 VA. J. INT'L L. 649, 666 (1988).

One of the central texts of international environmental law, the 1992 Rio Declaration on Environment and Development, reflects a utilitarian approach, attempting to merge the goal of economic development with environmental protection. Its first principle proclaims that “[h]uman beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.” This approach was further reinforced by the Political Declaration of the World Summit on Sustainable Development (WSSD) which emphasizes the importance of economic and social development, especially combating poverty.

The healthy life mentioned in the Rio Declaration has long been recognized in international and domestic legal texts and has served as a basis for environmental protection. It has taken on renewed force with the focus, *inter alia* by the WSSD and the World Health Organization, on providing every individual with sufficient water of adequate quality by 2012.

3. Equity

Environmental ethicists construct environmental protection around concepts of equity and justice, as seen in three sets of relationships: among existing persons, between present and future generations, and between humans and other species.¹⁹

a. Intra-Generational Equity

The first ethical requirement is to assure justice among existing human beings. Beyond the fundamental protections of human rights, discussed in Chapter 15, states and the international community must fairly allocate and regulate scarce resources to ensure that the benefits of environmental resources, the costs associated with protecting them, and any degradation that occurs (*i.e.*, all the benefits and burdens) are equitably shared by all members of society. In this regard, environmental justice is an application of the principles of distributive justice as it seeks to reconcile competing social and economic policies in order to obtain equitable sharing of resources.²⁰

¹⁹ See K. BOSSELMAN, *WHEN TWO WORLDS COLLIDE: SOCIETY AND ECOLOGY* (1995); C. STONE, *THE GNAT IS OLDER THAN MAN: GLOBAL ENVIRONMENT AND THE HUMAN AGENDA* (1993); R. NASH, *THE RIGHTS OF NATURE: A HISTORY OF ENVIRONMENTAL ETHICS* (1989).

²⁰ See also the discussions of human rights in Chapter 15, common but differentiated responsibilities in Chapter 3 and sustainable development in Chapter 2.

b. Inter-Generational Equity: Rights of Future Generations

Humanity's concern with long-term human survival underlies legal and social norms and may be grounded in a genetic or biological imperative.²¹ Interest in survival of the human species requires that "humanity" be seen to include not only present but also future generations.²² Concern for future generations can thus be seen as implicit in all that touches environmental protection and the preservation of natural resources, reflected in the requirement that development be sustainable. One of the first expressions of inter-generational equity is found in Jomo Kenyatta's book *Facing Mount Kenya*:

A man is the owner of his land. . . . But insofar as there are other people of his own flesh and blood who depend on that land for their daily bread, he is not the owner, but the partner, or at the most a trustee for the others. Since the land is held in trust for the unborn as well as for the living, and since it represents his partnership in the common life of generations, he will not lightly take it upon himself to dispose of it.

International environmental texts have referred to the need to conserve the natural heritage of humankind for the benefit of present and future generations, at least since the International Convention for the Regulation of Whaling (Dec. 2, 1946). Principle 2 of the 1972 Stockholm Declaration on the Human Environment endorsed a concern with future generations, stating:

The natural resources of the earth, including the air, water, and flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.²³

The same year, the UNESCO World Heritage Convention included a reference to future generations.²⁴ Particularly significant is Article 3 (1) of the

²¹ See M. Gruter, *The Origins of Legal Behavior*, J. SOCIAL BIOL. STRUCT. 43 (1979); SOCIOBIOLOGY AND HUMAN POLITICS (E. WHITE ed., 1981); LAW, BIOLOGY & CULTURE (M. GRUTER & P. BOHANNAN eds., 1983).

²² For further elaboration, see EDITH BROWN WEISS, IN FAIRNESS TO FUTURE GENERATIONS (1988).

²³ Principle 2, Stockholm Declaration on the Human Environment, U.N. Doc. A/CONF.48/14/Rev.1 (U.N. Pub. E.73.II.A.14) (1973); 11 I.L.M. 1416 (1972).

²⁴ Other recent texts mentioning future generations include the 1973

Framework Convention on Climate Change which declares that “[t]he parties should protect the climate system for the benefit of present and future generations of humankind.”²⁵ At the same time, Principle 3 of the Rio Declaration on Environment and Development links concern for future generations with the right to development, declaring: “The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.”

On the basis of these treaty provisions, declarations, and resolutions, it is possible to conclude that each generation may benefit from and develop the natural and cultural patrimony inherited from previous generations, but then must pass it on to future generations in no worse condition than it was received. This is not a completely satisfactory approach, however, over the long term. It is not clear how the same amount of space, wilderness, clean water, and biological diversity can be guaranteed to endless generations of increasingly larger numbers of individuals. It is also impossible to anticipate the preferences of future generations.

Concretely, the rights of future humanity may be encompassed in the concept of sustainable development, deemed to include the attainment of economic, social and cultural rights. The realization of such rights requires the availability of natural resources over an indefinite period of time and includes not only material resources that are essential to the survival of humankind and those that serve to enrich it, but also ecosystems, life-support processes, and biological diversity. The enjoyment of cultural rights necessarily includes the conservation of basic elements of civilization, including wild flora and fauna, landscapes and natural sites. This broad interpretation of economic, social and cultural rights reflects the interests of present and future humanity.

Convention on International Trade in Endangered Species of Wild Fauna and Flora; 1976 Convention for the Mediterranean Sea; 1976 Convention on the Conservation of Nature in the South Pacific; 1976 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques; 1978 Kuwait Regional Convention; 1979 Convention on the Conservation of European Wildlife and Natural Habitats; 1979 Convention on the Conservation of Migratory Species of Wild Animals; 1983 Convention for the Wider Caribbean Region; 1985 ASEAN Agreement on the Conservation of Nature and Natural Resources; 1992 Convention on Biological Diversity; 1992 U.N. Framework Convention on Climate Change; 1994 U.N. Convention to Combat Desertification; and 1997 United Nations Convention on the Law of the Non-Navigable Uses of International Watercourses. The same concept appears in United Nations General Assembly resolutions. *See, e.g.*, Protection of global climate for present and future generations of mankind, G.A. Res. 43/53, Dec. 6, 1988, U.N. Doc. A/Res/43/53, Jan. 27, 1989.

²⁵ EMuT 992:42.

A recognition of the rights of future generations also raises the problems of defining a generation and means of implementing such rights. The concept of a generation is not clear. Based on average life expectancy and reproductive patterns, the time-span of a human generation has been taken to be 30 years, but there are significant differences in both of these elements between individuals and between industrialized and developing countries. In fact, there are no distinct generations, because at each moment hundreds of human beings are born and die, with the result that some six billion people of all ages co-exist. In law, therefore, it is perhaps more logical to speak of future humanity, rather than future generations, as the holder of rights, and to recognize humanity, including its present and future members, as a collective legal person. National and international law already recognize various entities as legal persons, from the state and other levels of government to corporations. The same capacity could be afforded humanity as a whole, although this does raise the problem of who might represent it.

International instruments provide little guidance on representation and implementation of the rights of future humanity, but domestic legal systems offer some guidance, notably in the Philippine Supreme Court decision *Minors Oposa v. Secretary of the Department of Environment and Natural Resources*.²⁶ Thirty-five minors, represented by their parents and an association, sought an order requiring the government to discontinue existing timber licenses and restraining it from issuing new licenses. Their petition was based on the allegation that deforestation was causing environmental damage. The Court ruled that the plaintiffs had standing to represent their as yet unborn progeny and that they had adequately asserted a right to a balanced and healthy ecology. It also declared that "the minors' assertion of their right to a sound environment constitutes, at the same time, the performance of their obligation to ensure the protection of that right for the generations to come." The decision provides an example of how rights of future generations might be enforced in practice. Internationally, the task of ensuring the rights of future humanity could be conferred upon an independent international authority, such as an international environmental agency or ombudsman.

c. Inter-Species Equity

Inter-species equity emerges from and enhances respect for the intrinsic value of nature independently of its utility to humans. It posits a non-hierarchical view of human relations with other species. Precursors of this concept can be seen in those constitutions, laws, and international instruments that require the humane treatment of living creatures.²⁷ At the beginning

²⁶ 33 I.L.M. 168 (1994).

²⁷ See, e.g., Art. 32 of the Constitution of the German Land of Thuringen,

of the 1970s, some theorists suggested that the legal personality of certain components of the environment, such as trees or animals, could be recognized.²⁸ However, legal systems have difficulty integrating such solutions because the systems are created by humans to serve human interests. Movements for recognition of "animal or biotic rights" are increasingly evident, however, motivated by ethical considerations and concern about the continued decline of biological diversity at an alarming rate.²⁹ The comprehensive philosophical world views encompassed by the "deep ecology" and the animal rights movements could imply profound changes in law and policy.

The preamble of the 1979 Bern Convention on the Conservation of European Wildlife and Natural Habitats was one of the first to express a basis of environmental protection in the intrinsic value of nature:

Recognizing that wild flora and fauna constitute a natural heritage of aesthetic, scientific, cultural, recreational, economic, and intrinsic value that needs to be preserved and handed on to future generations.³⁰

The text demonstrates an integrated approach: the natural heritage presents a certain number of qualities important for humanity, but these do not diminish nature's inherent value. The contracting parties to the 1992 Convention on Biological Diversity similarly profess that they are "[c]onscious of the intrinsic value of biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components."³¹ Given the

"Animals are to be respected as living beings and fellow creatures. They will be protected from treatment inappropriate to the species and from avoidable suffering." International and national legal texts have long protected species from inhumane treatment. See the 1968 European Convention on the Protection of Animals during International Transport, EmuT 968:92 and the 1979 Convention on the Conservation of European Wildlife and Natural Habitats, E.T.S. 104.

²⁸ C. Stone, *Should Trees Have Standing? Towards Legal Rights for Natural Objects*, 45 S. CAL. L. REV. (1974); C. Stone, *Should Trees Have Standing Revisited: How Far Will Law and Morals Reach? A Pluralist Perspective*, 59 S. CAL. L. REV. 1 (1985).

²⁹ See D. Favre, *Wildlife Rights: The Ever-Widening Circle*, 9 ENVTL. L. 279 (1979); A. D'Amato & S. Chopra, *Whales: Their Emerging Right to Life*, 85 AJIL 21 (1991).

³⁰ Preamble, para. 3, Convention on the Conservation of European Wildlife and Natural Habitats (Bern, Sept. 19, 1979).

³¹ Preamble, para. 1, Convention on Biological Diversity (Rio de Janeiro, June 5, 1992). Other international treaties that take into account the intrinsic value of nature include the 1980 Convention for the Conservation of Antarctic Marine Living Resources, the 1991 Protocol to the Antarctic Treaty on

lack of legal status for components of the environment despite recognition of their intrinsic and independent value, an integrated approach best creates a foundation for environmental protection. The first phrases of the preamble of the World Charter for Nature set out such an approach:

Mankind is a part of nature and life depends on the uninterrupted functioning of natural systems which ensure the supply of energy and nutrients[.]

The intrinsic value of the biosphere is not rejected but is integrated with an understanding that humans make up part of the universe and cannot exist without conservation of the biosphere and the ecosystems comprising it. In this perspective all components of the environment have a value not only in their short-term utility to humans, as the earlier exclusively utilitarian approach would have it, but also as indispensable elements of an interrelated system which must be protected.³² While the aim of human survival remains anthropocentric, humans are not viewed as apart from or above the natural universe, but as a linked and interdependent part of it. It follows that because all parts of the natural web are linked, they must all be protected and conserved. It is in this sense that "intrinsic value" may be understood.³³

In conclusion, it may be noted that the religious and philosophical conceptions upon which environmental protection may be based imply individual responsibility, whether for the benefit of other persons, of future generations, of other species, or of the processes and life-support systems of the biosphere. Principle 1 of the Stockholm Declaration expresses this duty, proclaiming that "man bears a solemn responsibility to protect and improve the environment for present and future generations."

Environmental Protection, and the 1973 CITES Convention. The Draft IUCN Covenant on Environment and Development declares as a fundamental principle (Art. 2) that "[n]ature as a whole warrants respect; every form of life is unique and is to be safeguarded independent of its value to humanity."

³² See L. Tribe, *Ways not to Think About Plastic Trees: New Foundations for Environmental Law*, 83 *YALE L.J.* 1315 (1974).

³³ There are no doubt other philosophical and ethical foundations to the conservation movement, some of which may lead to conflicting approaches. Similar problems exist in other areas of the law. During the drafting of the Universal Declaration of Human Rights, Jacques Maritain confessed that agreement could be reached on a catalogue of human rights so long as no attempt was made to agree on *why* human rights should be protected.

B. Science

Environmental law has several characteristics deriving from the need to take into consideration the “laws of nature” basic to biology, chemistry and physics. Few legal disciplines require the same consideration of scientific knowledge. Most areas of law attempt to regulate variable and often unpredictable human interrelationships. In contrast, environmental law uses science to predict and regulate the consequences of human behavior on natural phenomena.

The need for environmental law to take into consideration the “laws of nature” inevitably leads to an interdisciplinary approach to environmental problems. Law-makers and jurists must rely upon and utilize scientific expertise. Scientists themselves must share knowledge. In efforts to understand global climate change, for example, atmospheric scientists trained in meteorology and chemistry produce climate change models, but biologists and ecologists are needed to analyze the impact of these changes on biotopes and ecological systems.

Environmental law and policy also must take into account the interdependence of different sectors of the environment. Ocean pollution taints the shore, as recognized in the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and a number of regional instruments.³⁴ In turn, a large proportion of marine pollution derives from land-based sources. Atmospheric pollution also can affect the earth and imperil forests and buildings. The 1992 UN Framework Convention on Climate Change recognizes that climate change due to emissions of certain gases into the air can have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems, on the operation of socio-economic systems, and on human health and welfare.³⁵ Freshwaters receive a large part of their pollution from the soil, whose pollutants may seep into the underground water table. Obviously, all pollutants endanger biodiversity. Such interrelationships necessarily have international consequences, because the transfer of pollution from one milieu to another will frequently result in transboundary impacts. International instruments, notably UNCLOS, stress the need to avoid substituting injury or risk to one sector of the environment with injury to another and of replacing one type of pollution with another.³⁶

³⁴ United Nations Convention on the Law of the Sea (Montego Bay, Dec. 10, 1982), Art. 211 (hereinafter UNCLOS). The regional seas conventions are discussed in Chapter 11.

³⁵ New York, May 9, 1992, Art. 1(1).

³⁶ UNCLOS, Art. 195.

Another scientific reality with which environmental law and policy must grapple is the lack of scientific certainty about many aspects of the physical world. Although there is unprecedented scientific knowledge available today, no one knows the ecological processes over the five billion year history of the earth with sufficient detail and understanding to be able to predict all the consequences and causal relationships of various human interventions and activities. Debates over the impact of anthropogenic greenhouse gases on global warming are but one aspect of this uncertainty.³⁷ Even the concept of "balance of nature," *i.e.*, that nature generally remains in a state of stable equilibrium, has been challenged by some studies which see nature ruled by flux and perpetual disturbances.³⁸

Scientific uncertainty thus often attends issues of the nature and scope of the adverse environmental impacts of human activities. Exacerbating the uncertainty, damage often is measurable only years after the causative actions have occurred. Given this situation, questions arise over how to develop environmental policy and how to allocate risk between the present and the future. Many decisions cannot await scientific certainty, assuming something approaching certainty can ever be achieved. Therefore, debate centers on whether a policy should be adopted to assume harmful consequences will occur unless activities or products are proven safe or whether to take a less cautious approach, knowing that many environmental processes and changes may be irreversible and ultimately life-threatening.³⁹ The technique of risk assessment, discussed in Chapter 6D, attempts to evaluate the probability and magnitude of harm from a given activity or substance.

³⁷ While most scientists predict severe ecological disruption from global warming attributable to unchecked pollution, others reach different conclusions or find that the data are insufficient to reach any conclusions. One study concluded that more than half the global temperature increases of recent years are due to warm ocean currents known as El Nino, but acknowledged that it is not known whether the currents themselves are affected by the rise in carbon dioxide, methane, and other heat-trapping gases. See generally D. Bazelon, *Science and Uncertainty: A Jurist's View*, 5 HARV. ENVTL. L. REV. 209 (1981).

³⁸ William K. Stevens, *Scientists Rethinking Balance of Nature*, *San Francisco Chronicle*, July 31, 1990, A5.

³⁹ On occasion, scientific uncertainty has been invoked as a reason for refusing to take costly environmental action. One author notes that the United States as a recipient of acid rain exported from Mexico does not debate the scientific certainty of the causal link between pollutants and acid rain damage. However, when the United States is exporting similar pollutants towards Canada, scientific uncertainty is cited as a reason to delay adopting measures. See Jutta Brunnee, *ACID RAIN AND OZONE LAYER DEPLETION: LAW AND REGULATION* (1988). The United States government has also refused to ratify the 1997 Kyoto Protocol on Climate Change based upon its claims of scientific uncertainty about anthropogenic global climate change.

In addition to uncertainty and irreversibility, environmental law must recognize the fact that the environment is dynamic and constantly evolving. This characteristic requires flexible laws and policies that are capable of rapid alteration in response to new circumstances. At the same time, and perhaps paradoxically, the legal framework must look long term in its efforts to maintain life and the ecological balance in an unseeable future.

Finally, as early as 1962 Rachel Carson demonstrated that the combined effect of substances can be very different than the environmental impact of each substance released separately.⁴⁰ A chemical innocuous in isolation may be polluting or even highly toxic when combined with other substances in the environment. Industrial emissions, for example, change their characteristics in the atmosphere, creating acid rain. Synergistic interactions have been observed in mixtures of up to 20 or more chemicals, with some effects 10,000 times more harmful than would be expected from adding the toxicities of the individual chemicals.⁴¹ The need for precaution and an integrated or holistic approach thus emerges from the science of ecology.

C. Economics

The current economic system presents numerous challenges to environmental protection. First, if the earth's resource base is considered as a whole, the structure and functioning of the marketplace can produce what has long been referred to as the "tragedy of the commons."⁴² In addition, the emphasis on free trade in goods and services in the international economic system raises problems of competitive disadvantage and opposition to trade barriers resulting from regulations to protect the environment. Finally, the North-South disparity in economic development and resources creates difficulties for the traditional legal technique of imposing uniform norms and standards through international agreements.

The tragedy of the commons is a consequence of the market of supply and demand, a fundamental principle of liberal economic theory. In an open market, the pressure of demand leads to higher prices as goods become scarce. Prices that are too high deter further purchasers leading to a fall in demand. For many environmental amenities, however, the market system does not work because such resources are considered "public goods"

⁴⁰ RACHEL CARSON, *SILENT SPRING* 195–196 (1962).

⁴¹ D. HUNTER, J. SALZMAN, & D. ZAELEKE, *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY* 22 (2d ed. 2002).

⁴² See Garrett Hardin, *Tragedy of the Commons*, 168 *SCIENCE* 243 (1968). The article describes a common pasture in which everyone in a village has unlimited grazing rights for sheep. It is to each person's advantage in the short run to maximize the grazing of her or his own sheep. Within a short time, the pasture is destroyed through over-grazing.

that are free and in principle shared by all. No one legally can prevent another from using air. The lack of a market for public goods means that no price rise signals scarcity due to, *inter alia*, environmental degradation. Each consumer continues to maximize use until the resource is exhausted. The consequences of this system are perhaps most apparent in regard to exhaustible living resources, such as fish. Unregulated fishing on the high seas leads each vessel to try to obtain the maximum possible catch, leading fisheries to "crash."⁴³

The same profit motivation likewise produces environmental degradation from pollution. The harmful introduction of substances into the environment results from each person deciding that her or his short-term advantage involves discharging pollutants into the commons rather than bearing the cost of purifying emissions before release. If the sole objective of the market is to maximize the wealth of each individual, a system of open and non-regulated access to the commons will invariably result in environmental degradation. The environmental law response has been to formulate the "polluter pays" principle that converts the economic externalities of commons degradation into costs for the polluter.⁴⁴

The second economic issue is competitive disadvantage: a state taking measures to protect the environment must count the increased costs which are borne by its economy. Distortions are especially felt in an interstate system founded on free trade. The former European Economic Community, now incorporated in the European Union, initially based its environmental protection measures on Article 100 of the Treaty of Rome, which promoted the approximation of national legislation that has a direct effect on

⁴³ See FAO, THE STATE OF WORLD FISHERIES AND AQUACULTURE 2002 (stating that about 47 percent of the main stocks or species groups are fully exploited and are therefore producing catches that have reached, or are very close to, their maximum sustainable limits. Thus, nearly half of world marine stocks offer no reasonable expectations for further expansion. Another 18 percent of stocks or species groups are reported as overexploited. Prospects for expansion or increased production from these stocks are negligible, and there is an increasing likelihood that stocks will decline further and catches will decrease, unless remedial management action is taken to reduce overfishing conditions. The remaining 10 percent of stocks have become significantly depleted, or are recovering from depletion and are far less productive than they used to be, or than they could be if management can return them to the higher abundance levels commensurate with their pre-depletion catch levels.)

⁴⁴ According to Principle 16 of the Rio Declaration on Environment and Development, "[n]ational authorities should endeavor to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach 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."

the establishment or functioning of the common market. The purpose of approximation is "to eliminate disparities between the legislative or administrative provisions of the Member States which distort the conditions of competition in the Common Market."⁴⁵ The preoccupation with conditions of competition is evident also in the work of the Organization of Economic Cooperation and Development (OECD)⁴⁶ and the environmental side agreement to the North American Free Trade Agreement (NAFTA). The latter calls for cooperation to better conserve, protect, and enhance the environment, while avoiding the creation of trade distortions or new trade barriers.⁴⁷ Chapter 17 describes the current efforts to protect the environment in the context of the international market.

Thirdly, the solidarity imposed by global problems necessitates better cooperation between industrialized and developing countries, North and South. The collaboration of both groups is required to safeguard the planet's environment. Full collaboration involves assisting poor countries to face the burden of implementing environmental measures that serve to safeguard the biosphere as a whole. In addition, it is now understood that global poverty threatens human existence through its impact on the environment. The result is an increased emphasis on partnership and mutuality in multilateral environmental protection, as well as on the interrelationship of environmental protection and development.⁴⁸

While these economic challenges are complex and difficult, the field of economics offers possible means to quantify the value of the environment to society, important when decisions are based on a cost-benefit analysis. Direct valuation can compute the revenues generated by products extracted from nature, including food, medicine, petroleum and minerals. Indirect methods of estimating substitute markets may measure ecosystem services, which are probably of even greater value. These include the value of coral reefs in protecting shorelines from storm surges and mangroves services in slowing erosion and preventing siltation of coastal waters. Soil provides important ecological services by purifying groundwater and supporting agriculture, honeybees contribute through pollination. Harder to measure are the life-supporting services provided by the ozone layer, for example, or Antarctica's contribution to regulating the global climate. Even less quantifiable are such aspects as the aesthetic enjoyment of landscapes

⁴⁵ Art. 101(1), Treaty Establishing the European Economic Community (Rome, Mar. 25, 1957). For further discussion see *infra*, Chapter 4.

⁴⁶ See Chapter 4.

⁴⁷ North American Agreement on Environmental Cooperation (Sept. 13, 1993), Art. 1.

⁴⁸ See, e.g., the results of the World Summit on Sustainable Development, discussed in Chapter 2F.

and the inherent contribution of each species to the ecosystem in which it lives.⁴⁹ Nonetheless, various initiatives are attempting to provide better valuation of the environment. The United Nations Statistical Office released a handbook in 1993 setting forth a System of Environmental and Economic Accounting (SEEA). It includes environmental functions and natural resources as assets of production and records depletion of a resource as capital depreciation. The World Bank uses SEEA in its economic analyses. Some economists suggest an alternative method to directly value the ecological functions that serve to meet human needs from subsistence to identity and freedom, rather than measuring production and consumption.⁵⁰ Finally, the development of an Environmental Sustainability Index provides a basis for assessing the ability of states to meet the environmental needs of their society in a sustainable manner. The ESI looks at core indicators based on a larger set of underlying variables. It measures five key components of environmental sustainability: natural systems; environmental stresses and risks; human exposure and risks (vulnerability to harm); societal capacity to respond to environmental challenges; and transboundary equity issues (contributions to harm and to solutions of environmental problems).

D. International Law

International law, as traditionally defined, governed relations among juridically equal states, once considered the sole subjects of international law. International law has regulated interstate relations through rules based on the consent of states reflected in the adoption of treaties and the development of customary international law through state practice viewed as obligatory (*opinio juris*). While the contours of this classic system remain intact, it has undergone fundamental changes in the past half century. International environmental law is both a product of and in part a cause of this transformation that affects the processes of law-making and the role of consent as well concepts of sovereignty. Many aspects of modern international environmental law are linked to the concepts of the common concern of humanity and common heritage of mankind.

⁴⁹ For discussions about valuing ecological services, see G. DALY ed., *NATURE'S SERVICES: SOCIETAL DEPENDENCE ON NATURAL ECOSYSTEMS* (1997); D. CLARK & D. DOWNES, *WHAT PRICE BIODIVERSITY?* (CIEL, 1995); ROBERT COSTANZA et al., *AN INTRODUCTION TO ECOLOGICAL ECONOMICS* (1997).

⁵⁰ See ROBERT COSTANZA ed., *ECOLOGICAL ECONOMICS* (1991).

1. Sovereignty

State sovereignty, one of the oldest principles of international law, means that each state has exclusive jurisdiction within its territory to adopt laws and enforce them, administer the territory, and judge disputes that arise therein. The sovereign rights of states include exclusive jurisdiction over their resources.⁵¹ Principle 21 of the Stockholm Declaration explicitly applies this principle to environmental matters by affirming that “[s]tates 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. . . .” The same formulation has been reproduced in other binding and non-binding international instruments. Principle 2 of the Rio Declaration uses the same wording, but enlarges its scope by referring to “environmental *and developmental* policies,” reflecting the focus of the Rio Conference on both environment and development.

A tension between traditional notions of state sovereignty and environmental concerns can be seen in the evolution of legal texts regarding permanent sovereignty over natural resources. Early formulations mainly focused on rights of states over these resources, responding to concerns about neo-colonialism and economic development. The Stockholm Declaration was the first international document to balance state sovereignty with “the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.” The formulation is repeated in the Rio Declaration and in the Convention on Biological Diversity and other international texts. Repetition of the principle, its invocation in state practice and its widespread acceptance, led the International Court of Justice to declare that “the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment.”⁵² More expansively, Article 192 of the 1982 Convention on the Law of the Sea provides: “States have the obligation to protect and preserve the marine environment.” This formulation clearly includes areas within national jurisdiction even where harm has no impact outside those limits.

Some environmental issues raise serious problems for the application of state sovereignty, since the environment knows no boundary. Migratory species of wild animals, birds, and fish as well as pollution of oceans, rivers,

⁵¹ A. Kiss & D. Shelton, *Systems Analysis of International Law: A Methodological Inquiry*, 1986 NETH. Y.B. INT'L L. 45.

⁵² *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 1996 I.C.J. Rep. 241-42, para. 29.

lakes and the air, do not stop at the limits of territorial jurisdiction. Such situations can lead to conflicts between sovereign rights which can only be solved by international law. Treaties to which a state becomes a contracting party limit its sovereignty, but such limitations are self-imposed. Each state is now involved in a large web of international treaty obligations concerning environmental protection that must be executed on its territory, including agreements to protect species of wild fauna and flora, prohibit the dumping of harmful substances into rivers, lakes or the sea, and prevent atmospheric pollution by constraints imposed upon industries. The general trend toward integrated protection of the environment requires that states exercise broad control over activities which can harm the environment and this necessarily limits their freedom of action.

2. Cooperation

An obligation to cooperate with other states derives from the very essence of general international law, and finds reflection in the existence and proliferation of international institutions. In the field of environmental protection, international cooperation is necessary to conserve the environment in its totality, as much for states within their territorial jurisdiction as for areas outside territorial limits. The general need to cooperate to conserve the environment is expressed in several texts, starting with Principle 24 of the Stockholm Declaration:

International matters concerning the protection and improvement of the environment should be handled in a cooperative spirit by all countries, big and small, on an equal footing. Cooperation through multilateral or bilateral arrangements or other appropriate means is essential to effectively control, prevent, reduce and eliminate adverse environmental effects resulting from activities conducted in all spheres, in such a way that due account is taken of the sovereignty and interests of all states.

The UN General Assembly reaffirmed the same principle in Resolution 2995 (XXVII) of December 15, 1972, and in the 1982 World Charter for Nature. According to the latter instrument, states shall cooperate in the conservation of nature through common activities and other relevant actions, including information exchanges and consultations. They must also establish standards for products and manufacturing processes that may have adverse effects on the environment, as well as methods to assess these effects. The Rio Declaration on Environment and Development is also largely based on the principle of cooperation, in particular between industrialized and developing countries.

The principle of cooperation underlies most treaty obligations. Nevertheless, several texts make it explicit, such as Article 197 of the 1982 Convention on the Law of the Sea:

States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.

An example of regional cooperation is provided by the Memorandum of Understanding between Kenya, Tanzania and Uganda for Co-operation on Environment Management.⁵³ Its aim is the development and harmonization of national framework environmental laws on environmental impact assessment, management of non-hazardous and hazardous wastes, toxic and hazardous chemicals, wildlife and forest resources, laws for the management of the Lake Victoria ecosystem and formulation of environmental standards. Cooperation shall include continued consultations, capacity building and networking on environmental policies, laws and strategies, undertaking joint programs and the development and implementation of environmentally sound principles, agreements, instruments and strategies for environment and natural resources management. The MOU provides for the establishment of an Interim Sectoral Committee for the three states as well as interim national focal points.

Different legal instruments specify the fields of international cooperation. According to Principle 5 of the Rio Declaration all states and peoples shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development. In 1995, during the World Summit for Social Development, 117 Heads of State agreed to an integrated approach to poverty eradication based on the concept of partnership, within societies as well as between developed and developing countries.

The concept of partnership emerged during preparations for the Rio Conference as an expression of closer and more systematic cooperation. Principle 27 of the Rio Declaration adds that cooperation shall be conducted in good faith and shall include further development of international law in the field of sustainable development. The 2002 World Summit on Sustainable Development extended the concept of partnership to encompass non-state actors as well as states. The Johannesburg Declaration on Sustainable Development recognizes that sustainable development requires a long-term perspective and "stable partnerships with all major groups"

⁵³ Nairobi, Oct. 22, 1998.

(Para. 23). The Johannesburg Plan of Implementation also calls for enhanced partnerships between governmental and non-governmental actors, including all major groups.

The Rio Declaration also insists on cooperation to strengthen endogenous capacity-building for sustainable development, by improving scientific understanding through exchange of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies (Principle 9). Similar clauses related to the transfer of knowledge, information, and technology form an important part of most global environmental treaties. Article 4(5) of the 1992 Framework Convention on Climate Change, for example, provides that the developed country parties shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how, in particular to developing countries. They also are to support the development and enhancement of endogenous capacities and technologies of developing countries.

Another designated area of international cooperation in the Rio Declaration is in regard to the relocation and transfer to other states of any activities and substances that cause severe environmental degradation or are found to be harmful to human health. Principle 14 requires, *inter alia*, that if a state chooses to ban or restrict the importation of hazardous substances or the relocation of hazardous activities, the ban or restriction should be respected by other states. The 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal⁵⁴ supports this principle.

Cooperation also is needed for the rational and equitable use of shared resources, such as transboundary watercourses and international lakes. Another essential part of cooperation is providing financial assistance to countries to enable them to comply with their obligations, especially in the relations between industrialized and developing countries. Article 20(2) of the 1992 Convention on Biological Diversity and Articles 20 and 21 of the Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa⁵⁵ provide that the developed country parties shall provide new and additional financial resources to developing or affected country parties.

Finally, the order on provisional measures issued December 3, 2001, by the International Tribunal on the Law of the Sea in the *Mox Case* (Ireland v. United Kingdom) makes concrete the duty of states to consult and cooperate. Ireland invoked Article 123 of the United Nations Convention on the Law of the Sea (UNCLOS), concerning enclosed or semi-enclosed seas,

⁵⁴ Mar. 22, 1989.

⁵⁵ June 17, 1994.

which requires states to cooperate in exercising their rights and performing their duties. Ireland also relied upon Article 206 which requires assessment of the potential effects of planned activities that may cause substantial pollution or significant and harmful changes to the environment. The Court enunciated in paragraph 82 of its order that the duty to cooperate is a fundamental principle in the prevention of pollution of the marine environment, according UNCLOS Part XII, and in general international law and that rights arise therefrom which the tribunal may consider appropriate to preserve under Article 290 of the Convention (on provisional measures). Judge Wolfrum's separate opinion questioned whether the customary international obligation to cooperate for environmental protection creates corresponding legal rights but he did find that UNCLOS creates a legally protected right to cooperation for its contracting parties.

3. Common Concern of Humanity

The cohesion of every society and community is based upon and maintained by a value system such as a common religion, philosophy, ideology or ethics. The system may demand respect for the human person, propriety, patriotism, respect for cultural values, or adherence to a particular social order. The protection of such fundamental values is generally recognized as a common concern of the community and is ensured through law, especially constitutional law.

The common concern of a society thus leads to the creation of a legal system whose rules impose duties on society as a whole and on each individual member of the community. Almost all national constitutions proclaim fundamental human rights and freedoms and require the government to respect and ensure those rights. Increasingly, similar provisions are included to secure environmental protection. Article 66 of the 1976 Portuguese Constitution is illustrative. It proclaims an obligation on the state through its agencies to prevent and control pollution and its effects and harmful forms of erosion, to organize territorial space so as to establish biologically balanced landscapes and to create and develop natural parks and reserves. As a counterpart, the Constitution recognizes that all persons have the right to a human, healthy and ecologically-balanced environment and the duty to protect it. The national regulatory system is built upon this foundation.

International law lacks a constitutional text and central authority to determine the common concern of all humanity because states individually and jointly draft and adopt legal regulations governing international relations. During the second half of the 20th century states aimed to create a universal political organization to maintain international peace and security and improve the well-being of all humanity. This ambitious effort could only proceed by defining domains of common concern. The international

recognition of human rights and fundamental freedoms constituted a first step of paramount importance in developing the concept of an international community built upon the fundamental values of humanity. Similarly, knowledge that the biosphere is the only known place in the universe where life is possible led to the emergence of another universal value, protection of the human environment as a common concern of humanity. The global environment, an interdependent ecological system, can only be protected at the global level, making it a common concern for all humanity. Transboundary and domestic environmental issues that cannot be managed effectively by national or regional efforts also are common concerns. The modalities of protection and preservation are formulated in law and policy and enforced by national and international institutions.

A large number of international instruments recognize the common concern of humanity. The term "common interest" appeared early in international treaties concerning the exploitation of natural resources. The 1946 International Convention for the Regulation of Whaling recognizes in its preamble the "interest of the world in safeguarding for future generations the great natural resources represented by the whale stocks" and that it is in the common interest to achieve the optimum level of whale stocks as rapidly as possible.⁵⁶ The depletion of fish resources, which began as a local problem, took on much larger dimensions in the second half of the 20th century. States then recognized that it was in their common interest to take conservation measures. The 1952 Tokyo Convention for the High Seas Fisheries of the North Pacific Ocean expresses the conviction of the parties that it will best serve the common interest of mankind, as well as the interests of the contracting parties, to ensure the maximum sustained productivity of the fishery resources of the North Pacific Ocean⁵⁷

A major step in international recognition of the common concern of humanity was conclusion of the 1959 Antarctic Treaty.⁵⁸ Its preamble affirms that "it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes." Article IX authorizes the adoption of measures for the preservation and conservation of living resources in Antarctica "in furtherance of the principles and objectives of the Treaty." The Antarctic Treaty system further developed with adoption of the Canberra Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) which made express reference to the "interest of all mankind to preserve the waters surrounding the Antarctic continent for peaceful purposes only."⁵⁹ The most recent addition to the Antarctic Treaty

⁵⁶ Washington, Dec. 2, 1946.

⁵⁷ May 9, 1952.

⁵⁸ Washington, Dec. 1, 1959.

⁵⁹ May 20, 1980, preamble. See also Daniel Vignes, *Protection of the Antarctic Marine Fauna and Flora, The Canberra Convention and the Commission Set up by It,*

system, the 1991 Madrid Protocol on Environmental Protection to the Antarctic Treaty⁶⁰ achieved full recognition of the common interest. Its preamble expresses the conviction that the development of a comprehensive regime for the protection of the Antarctic environment and dependent and associated ecosystems is in the interest of mankind as a whole and for this purpose it denominates Antarctica a nature reserve, devoted to peace and science.⁶¹

Such evolution must be seen as reflecting awareness of the general depletion of natural resources and of the threats to the environment, awareness that is increasing the pressure to adopt broad measures in the interest of present and future generations. Even before the 1972 Stockholm Conference, the 1968 African Convention on the Conservation of Nature and Natural Resources had expressed the desire of the contracting states to undertake individual and joint action for the conservation, utilization and development of natural resources by establishing and maintaining their rational utilization for the present and future welfare of mankind.⁶² With the words "future welfare" the temporal dimension of the common interest of humanity has appeared.

Other international environmental treaties similarly recognize the common concern of mankind. The 1979 Bonn Convention on the Conservation of Migratory Species of Wild Animals recognizes in its preamble that "wild animals in their innumerable forms are an irreplaceable part of the earth's natural system which must be conserved for the good of mankind. . . . [E]ach generation of man holds the resources of the earth for future generations and has an obligation to ensure that this legacy is conserved and, where utilized, is used wisely."⁶³ The Convention on the Conservation of European Wildlife and Natural Habitats, adopted several months after the Bonn Convention joins the concepts of general interest and future humanity by recognizing that wild flora and fauna constitute a natural heritage that "needs to be handed on to future generations."⁶⁴ Similarly, the World Charter for Nature states that the preservation of species and of ecosystems

in INTERNATIONAL LAW FOR ANTARCTICA 159 (F. FRANCONI & T. SCOVAZZI eds., 1996).

⁶⁰ Oct. 4, 1991. See also Laura Pineschi, *The Madrid Protocol on the Protection of the Antarctic Environment and its Effectiveness*, in FRANCONI & SCOVAZZI *op. cit.*, 261.

⁶¹ See also the U.N. General Assembly Resolution on the Question of Antarctica, Dec. 6, 1991, G.A. Res. 46/41, U.N. GAOR, 46th Sess. Supp. No 49, at 83, U.N. Doc. A/46/49 (1992) which implicitly expresses that Antarctica constitutes a common concern for all the states.

⁶² Algiers, Sept. 15, 1968.

⁶³ June 23, 1979.

⁶⁴ Bern, Sept. 19, 1979.

should be ensured "for the benefit of present and future generations."⁶⁵ The World Charter opened the door for the 1992 Convention on Biological Diversity which explicitly proclaims the principle of common concern of humanity⁶⁶ by stating "the importance of biological diversity for evolution and for maintaining life sustaining systems in the biosphere," and by "affirming that the conservation of biological diversity is a common concern of humankind. . . ." The Framework Convention on Climate Change similarly affirms in the first paragraph of its preamble that "change in the Earth's climate and its adverse effects are a common concern of humankind."

The inclusion of smaller areas in the common concern is seen in the Paris Convention for the Protection of the Marine Environment of the North-East Atlantic, adopted several months after the Convention on Biological Diversity. It recognizes that "the marine environment and the fauna and flora which it supports are of vital importance to all nations."⁶⁷ More recently, the UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa refers to "the urgent concern of the international community, including states and international organizations, about the adverse impacts of desertification and drought," although only some parts of the world are directly concerned.⁶⁸

As within states, the common concern, *l'intérêt général*, is a general concept which does not connote specific rules and obligations, but establishes the general basis for the concerned community to act. The conventions cited imply a global responsibility to conserve disappearing or diminishing wild fauna and flora, ecosystems, and natural resources in general in danger. Language to this effect can be found in the October 30, 1980 resolution of the UN General Assembly on the draft World Charter for Nature, which asserts the "supreme importance of protecting natural systems, maintaining the balance and quality of nature and conserving natural resources, in the interests of present and future generations."⁶⁹

The right and duty of the international community to act in matters of common concern must be balanced with respect for national sovereignty. States retain sovereignty subject to the requirements of international law developed to ensure the common interest. Other domains of international law, including trade and diplomatic relations, are instrumental to achiev-

⁶⁵ Oct. 28, 1982; Res. 37/7, U.N. Doc. A/37/51.

⁶⁶ See on the replacement of the concept of "common heritage of mankind" by "common concern," N. SCHRIJVER, SOVEREIGNTY OVER NATURAL RESOURCES, BALANCING RIGHTS AND DUTIES 246, 389 (1997).

⁶⁷ Sept. 22, 1992.

⁶⁸ Paris, June 17, 1994.

⁶⁹ G.A. Res. 35/7 on the Draft World Charter for Nature, U.N. GAOR, 35th Sess., Supp. No. 48 at 15; U.N. Doc. A/35/7, Nov. 5, 1980; 20 I.L.M. 462 (1981).

ing this common interest of humanity. They do not constitute in themselves the ultimate goals of international society but are means to improve the social and economic well-being of humanity as a whole. The terms of the United Nations Charter indicate that international peace and security must be coupled with economic and social advancement of all peoples and individuals in order to ensure overall advancement of humanity. Respect for human rights, economic development and environmental protection have been unified in the concept of sustainable development as a common concern of humanity.

4. *Common Heritage of Mankind*

The common heritage of mankind is a concept that emerged at the end of the 1960s to challenge older concepts of *res nullius* and *res communis* in legal approaches to common resources. *Res nullius*, which in most systems included wild animals and plants, belong to no one and can be freely used and appropriated when taken or captured. The concept of *res communis* implies the reverse, common ownership that precludes individual appropriation but allows common use of the resources, e.g., navigation on the high seas. The concept of common heritage of mankind is distinct from both earlier concepts, in part because of its inclusion of the word "heritage," connoting a temporal aspect in the communal safeguarding of areas incapable of national appropriation. Special legal regimes have been created for the deep seabed and its subsoil,⁷⁰ Antarctica, the Moon, the geostationary orbit of satellites, and areas, sites and monuments that form essential parts of the cultural heritage of humanity.

The nature of the common heritage is a form of trust whose principal aims are exclusive use for peaceful purposes, rational utilization in a spirit of conservation, good management or wise use, and transmission to future generations. Benefits of the common heritage may be shared in the present through equitable allocation of revenue, but this is not the essential feature of the concept. Benefit-sharing can also mean sharing scientific knowledge acquired in common heritage areas, like Antarctica or the Moon, or sharing use, as with cultural heritage or the orbit of geostationary satellites.

Whether the trustee is the international community through the intermediary of an international body or one or more states acting on the community's behalf is a policy decision. The common heritage of mankind can be administered by a special authority, like the International Seabed Authority created by the 1982 Convention on the Law of the Sea, amended by agreement in 1994. It also can be administered in common by a group

⁷⁰ See U.N. DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA, THE LAW OF THE SEA, CONCEPT OF THE COMMON HERITAGE OF MANKIND (1996).

of states, as in Antarctica. Finally, it can remain under state sovereignty and be administered by individual states under the supervision of an international body, as with the cultural and natural heritage designated by the 1972 UNESCO Convention for the Protection of the World's Cultural and Natural Heritage. The last example shows that, in contrast to the concept of *res communis*, the common heritage of mankind can remain under national sovereignty, like protected cultural areas in Egypt or nature reserves in Kenya, and even can be owned by private persons.

During the drafting of the Convention on Biological Diversity, some states criticized the concept of common heritage of mankind. States having rich biological diversity opposed considering such resources as parts of the common heritage of mankind, the benefit of which should be shared with others. These views demonstrated a lack of understanding of the concept of common heritage, which does not necessarily include the present sharing of material benefit. The Convention on Biological Diversity, by entrusting the contracting states with the conservation and sustainable use of biological diversity on their territories (Arts. 6–10), incorporates the main elements of the concept of common heritage.

E. Conclusions

The foundations of international environmental law presented here can be summarized by highlighting several key characteristics. Policies emerge from religious and philosophical beliefs but also must be based on scientific and economic realities that require an integrated and interdisciplinary approach. At the international level, the emergence of environmental protection as a common interest of humanity alters the traditional role of state sovereignty. A lack of reciprocity in most environmental obligations necessitates new forms of law-making, compliance techniques and enforcement. Other consequences, to be discussed further, include the importance of participation by non-state actors and management of environmental resources at all levels of governance. One approach that brings together many of these ideas is the notion of subsidiarity. Subsidiarity means making decisions and implementing them at the lowest effective level of government or other organization. Each higher level of governance is subsidiary to the level below it, serving as a safety net when problems cannot be resolved. In addition to EU use of this as a fundamental principle, the European Landscape Convention (Florence, October 20, 2000) includes the principle in Article 4: "Each Party shall implement this Convention, in particular Articles 5 and 6, according to its own division of powers, in conformity with its constitutional principles and administrative arrangements, and respecting the principle of subsidiarity, taking into account the European Charter of Local Self-government. Without derogating from the provisions of this Convention,

each Party shall harmonize the implementation of this Convention with its own policies." This idea also seems woven throughout the entire United Nations Desertification Convention.

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