SUSTAINABLE DEVELOPMENT: LEGAL ISSUES AND INCENTIVES

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Summary

We examine the ramifications of two critical legal issues affecting the implementation of sustainable development principles: (1) the capacity of the concept of "sustainable development" to generate legal standards applicable across a broad range of uses of land, water, air, and natural resources, and (2) the enforceability of such standards. Legal mechanisms to implement sustainable development at the international and national levels are discussed. Problems in the application of sustainable development principles in developed and developing countries are briefly considered, and the use of economic incentives to encourage adherence to sustainable development principles is examined.

1. Introduction

This chapter examines several significant legal issues concerning implementation of sustainable development principles as well as potential incentives to encourage sustainable development practices. It considers several issues deriving from the ambiguity and complexity inherent in the term with respect to both elements ("sustainable" and "development"), and from the lack of agreement regarding its interpretation. The chapter focuses upon two critical legal issues: (1) the capacity of the concept of "sustainable development" to generate standards applicable across a broad range of uses of land, water, air, and natural resources, and (2) the enforceability of such standards. Mechanisms at the international and national levels to implement sustainable development are also examined. Defining "sustainable development" in terms of "intergenerational equity," probably the most widely used definition, raises several issues worthy of attention, as indicated in Section 3.3. Applying sustainable development principles in developed and developing countries may lead to greatly varying results, and is briefly considered. Finally, the use of appropriate incentives to encourage adherence to sustainable development principles is examined.

2. Background

2.1. The Rio Conference

The watershed event in the history of sustainable development is unquestionably the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in 1992. The Rio Conference (also popularly known as the Earth Summit) articulated a vision of sustainable development as a conceptual and legal framework for environmental, economic, and social policy at all levels of government. Three major agreements were adopted by 172 governments: the Rio Declaration on Environment and Development (the Rio Declaration), Agenda 21, and the Statement of Principles for a Global Consensus on the Management, Conservation, and Sustainable Development of All Types of Forests (the Statement of Forest Principles). Two conventions — the Convention on Biological Diversity (CBD), and the Framework Convention on Climate Change (FCCC) — were also opened for signature.

The Rio Declaration and Agenda 21 provide the guiding principles and a comprehensive blueprint for the development and implementation of sustainable development policies and legal instruments, respectively, and hence are the most important documents with respect to the legal import of sustainable development (see Sections 2.1.1 and 2.2.2). The Statement of Forest Principles is a non-legally binding statement of 15 general principles whose "guiding objective ... is to contribute to the management, conservation and sustainable development of forests and to provide for their multiple and complementary functions and uses" (Statement of Forest Principles, 1992, Preamble(b)). The principles emphasize national sovereignty over forests. The CBD contains 42 legally binding articles focused on three main objectives: "the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources" (UN CBD, Article 1). It obligates countries to develop national biodiversity programs, but provides no specific targets, timetables, or enforcement mechanisms. The FCCC committed industrialized countries to take voluntary measures to reduce their CO₂ emissions to 1990 levels by the year 2000 and required all countries to prepare an inventory of their greenhouse gas emissions and a national climate plan.

2.1.1. The Rio Declaration

The Rio Declaration sets forth 27 non-legally binding principles that define the rights and obligations of states with respect to sustainable development. Among these principles are: the sovereign rights of states "to exploit their own resources pursuant to their own environmental and developmental policies," concomitant with the responsibility to ensure that activities within their jurisdiction do not damage the environments of other states; the principle of intergenerational equity (development must "equitably meet the developmental and environmental needs of present and future generations"); the importance of environmental protection; the need to eradicate poverty; the principle of "common but differentiated responsibilities" of developed and developing countries (due to their different contributions to global environmental degradation); the corollary obligation of developed countries to transfer technology, scientific knowledge, and financial resources to developing countries; the need for public participation in decision-making processes and public access to information; a mandate for states to enact "effective environmental legislation", use environmental impact statements, and to "cooperate ... to develop further international law regarding liability and compensation for adverse effects of environmental damage"; adoption of the precautionary principle ("lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation"); polluters should pay for pollution; and the importance of women, youth, and indigenous people in environmental management and development.

2.1.2. Agenda 21

Agenda 21 is a non-legally binding, detailed, and comprehensive account of the actions necessary for states to implement the principles outlined in the Rio Declaration. It includes over 2,500 recommendations for action. Chapter 39, "International Legal Instruments and Mechanisms," generally recognizes the need to further develop, promote, and monitor the development of international law for sustainable development,

and emphasizes the importance of the participation of all countries in this process and the need to take into account special circumstances of developing countries. The chapter does not, however, prescribe any specific international or national legal instruments for sustainable development.

2.2. The Road to Rio

The Rio vision of sustainable development did not arise in a vacuum, of course. Threads of sustainable development principles can be found throughout the history of Western and Eastern thought, in the ethos of at least some preliterate cultures, and in legal instruments as diverse in time and scope as the late 19th century Bering Fur Seal arbitration and the U.S. National Environmental Policy Act of 1969.

However, the following events can be cited as the most substantive, explicit, and influential sustainable development milestones on the road to Rio: the UN Conference on the Human Environment, Stockholm, 1972 (the Stockholm Conference); the 1980 publication of the World Conservation Strategy by the International Union for the Conservation of Nature and Natural Resources (IUCN), subsequently revised and expanded in 1991 as "Caring for the Earth:

A Strategy for Sustainable Living"; the UN's 1982 World Charter for Nature, a statement of 24 "principles of conservation"; and the 1987 report of the UN's World Commission on Environment and Development (the Brundtland Commission), "Our Common Future" (the Brundtland Report).

The Stockholm Conference resulted in the establishment of the UN Environment Programme (UNEP), the Declaration on the Human Environment (the Stockholm Declaration) containing 26 principles for the preservation and enhancement of the human environment, and the 109-point Action Plan for the Human Environment.

The Stockholm Declaration first articulated many of the principles proclaimed 20 years later by the Rio Declaration, including the sovereign right of States to "exploit their own resources pursuant to their own environmental policies," the principle of common but differentiated responsibilities, and the goal of safeguarding the environment "for the benefit of present and future generations," which became the nearly standard phraseology for the principle of intergenerational equity.

The Brundtland Report was the first to use the term "sustainable development" in a legal context and provided the commonly-accepted if ambiguous definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Like the Rio Declaration and Agenda 21, these pre-Rio declarations and instruments are not legally binding; they restrict themselves to calling for, but not requiring, the incorporation of sustainable development principles into national and international law and institutions. They may be seen as the progressive development of the idea or ethic of "sustainable development" toward more specific conceptual and legal frameworks, accompanied by increasing international and national attention.

2.3. After Rio

Since the Rio Conference, the concept of "sustainable development" has fully entered the global lexicon, become the focus of innumerable studies, conferences, workshops, and academic debates, and catalyzed the creation or refocus of numerous governmental and non-governmental organizations (NGOs) to facilitate, promote, monitor, and, in some cases, implement sustainable development policies, instruments, and projects in accord with Agenda 21. As of June 1997, some 150 countries had established national councils (or similar bodies) on sustainable development (such as the U.S. President's Council on Sustainable Development, formed in 1995) and over 1800 cities and towns had developed local Agenda 21 initiatives.

2.3.1. International Institutional Developments

Notable international institutional developments include the establishment of the UN Commission on Sustainable Development (UN CSD) in 1993 and the UN Inter-Agency Committee for Sustainable Development in 1993; the restructuring of the Global Environment Facility (GEF), the funding mechanism for many international environmental regimes, to make it more universal, democratic, and transparent, and the replenishment of the fund in 1994 with over \$ 2 billion and an additional \$ 2.75 billion in 1998; the at least symbolic endorsement of sustainable development by the World Bank and the creation of inspection panels at the World Bank in 1993, the Inter-American Development Bank in 1994, and the Asian Development Bank in 1995 to improve their public accountability and sensitivity to the environment; and the convening of the Earth Summit +5 conference in 1997, a special session of the UN General Assembly to review and appraise the implementation of Agenda 21.

2.3.2. International Legal Developments

Post-Rio developments more directly related to legal issues include the convening in 1995 of the UN Expert Group Workshop in International Law Aiming at Sustainable Development and the UN Expert Group on the Identification of Principles of International Law for Sustainable Development, the IUCN submission in 1995 of a Draft International Covenant on Environment and Development — a comprehensive set of legally-binding rights and obligations for sustainable development, which expanded and elaborated the principles set forth in the Rio Declaration and Agenda 21 — to the UN Congress on Public International Law as a possible negotiating document for an international treaty and the creation or revision of several international legal instruments which ostensibly embrace sustainable development principles as set forth by the Rio Declaration and Agenda 21. Brief descriptions of post-Rio developments of these instruments follow.

Climate Change

The FCCC, opened for signature at the Rio Conference, entered into force in 1994 and as of December 1999 had been ratified by 181 countries. A 1998 review of compliance found that greenhouse gas emissions in the richest countries had risen by 3.5 per cent since 1990, whereas emissions in economies in transition (Central/Eastern Europe and

the former Soviet Union) declined 28 per cent. However, these declines were primarily due to economic upheaval rather than emissions reductions policies.

With the adoption of the Kyoto Protocol in 1997, the Convention moved significantly beyond its original mandates. The Kyoto Protocol legally bound developed countries to reduce their greenhouse gas emissions by at least 5 per cent of 1990 levels by the period 2008 to 2012 and embraced a number of innovative, if contentious, mechanisms for implementation, including the trading of emissions permits, receiving credit for planting forests and debits for deforestation, "joint implementation" between developed countries, and a Clean Development Mechanism, which allows developed countries to receive credit for investing in emissions reductions projects in developing countries. The Protocol entered into force in Feb 2005, following ratification by Russia in Nov 2004. Currently, 163 countries have ratified the Protocol, representing over 61.6 per cent of total CO2 emissions by developed countries. The United States and Australia have signed the Protocol but have so far declined to ratify it.

Biodiversity

The Convention on Biological Diversity, opened for signature at the Rio Conference, came into force in 1993 and as of November 1999 had been ratified by 176 countries. More than 20 nations have developed Biodiversity Strategies or Actions Plans, as called for Article 6 of the Convention, although the success and effectiveness of many of these plans has been questioned.

Forests

The Rio Statement of Forest Principles was followed by the establishment of the Intergovernmental Panel on Forests (IPF) in 1995 and its successor body, the Intergovernmental Forum on Forests (IFF), in 1997. Both operate under the aegis of the UN CSD. The intergovernmental dialogue has been dominated by the hotly contested issue of whether to create a legally binding international agreement on forests, often referred to as the "missing Rio Convention," a final decision on which has been postponed until at least 2000.

Convention to Combat Desertification

In response to a Rio request to prepare a legally binding instrument concerning desertification, the UN General Assembly successfully negotiated the Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa. The Convention was opened for signature in 1994, came into force 1996, and as of November 1999 has been ratified by 159 countries. Noted for its "bottom-up" approach, the Convention requires national governments to develop national and regional action programs in cooperation with donors, NGOs, and local populations and to use traditional and local technology, knowledge, and practices in combating desertification.

Toxic Chemicals and Hazardous Waste

Partly in response to Chapters 19 and 20 of Agenda 21, which identified several areas for national and international action related to the management of toxic chemicals and hazardous wastes, several key developments have occurred in this area:

- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (adopted 1989, entered into force 1992) was amended in 1995 to ban the export of hazardous wastes from developed to developing countries and to levy criminal penalties for violators. As of January 2000, 17 countries had ratified the amendments; 62 are required for the Convention to enter into force.
- The Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1999. The Protocol establishes a comprehensive regime for liability and compensation for damages caused by accidental spills of and illegal traffic in hazardous wastes during their transboundary movement.
- The Stockholm Convention on Persistent Organic Pollutants (POPs) was adopted in May 2001 and entered into force in May 2004. The Convention seeks to protect human health and the environment from POPs by governments' taking measures to eliminate or reduce their release. The United States and Russia have signed but so far have declined to ratify the Convention..
- The Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade was negotiated and opened for signature in 1998. The legally binding agreement prohibits the export of hazardous pesticides and industrial chemicals that have been banned or severely restricted in at least two countries without the prior informed consent (PIC) of the importing country.
- Two new international bodies to foster cooperation and coordination among other chemical safety organizations have been established: the Intergovernmental Forum on Chemical Safety and the Inter-Organization Programme for the Sound Management of Chemicals.

High Seas Fishing

Partly in response to a Rio agreement and problems identified in Chapter 17 of Agenda 21, a legally binding, 50-article, intergovernmental UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks was negotiated and opened for signature in 1995. As of January 2000 the agreement had not yet entered into force. The agreement establishes a basis for the sustainable management and conservation of highly migratory fish species and fish populations that straddle the boundaries of countries' 200-mile exclusive economic zones.

It includes procedures for ensuring compliance, including the right to board and inspect vessels belonging to other States, and obligates countries to legally-binding peaceful settlement of disputes. The agreement has been criticized for requiring the use of selective fishing equipment (to avoid the catch and destruction of unwanted fish species) "only to the extent practicable" and concern has been expressed that several of the world's largest fishing nations have not signed the agreement and several key countries that have signed have not yet ratified.

European Union

In 1993 the Treaty on European Union (the Maastricht Treaty) (1992 O.J. (C 191) 1) came into effect and the European Union's Fifth Environmental Action Programme (1993 O.J. (C 138) 1), entitled the "European Community Programme of Policy and Action in Relation to the Environment and Sustainable Development / Towards Sustainability," was enacted. Both embrace environmental protection and "sustainable" economic growth and social progress as among their principle objectives. The Treaty calls for "sustainable and non-inflationary growth respecting the environment" and a "high level of protection" of the environment, states that "environmental protection requirements must be integrated into the definition and implementation of other [European] Community policies," and strengthens the role of the traditionally "green" European Parliament. The Fifth Environmental Action Programme, as one of its seven themes, calls for the protection of nature and biodiversity through "sustainable development and management in and around natural habitats of European and global value."

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Bibliography

Daily G.C. and Ehrlich P.R. (1992). Population, Sustainability, and Earth's Carrying Capacity. Bioscience 42, 761-771. Reprinted in Samson F.B. and Knopf F.L. (eds.), *Ecosystem Management: Selected Readings* (1996), pp. 435-450, New York: Springer-Verlag. [A seminal article linking the ecological concepts of carrying capacity and sustainability with human population levels].

Field B.C. (1997). *Environmental Economics: An Introduction*, Second Ed, 490 pp. Boston, MA, USA: McGraw-Hill. [A basic and widely-known text in environmental economics].

Haas P.M. and Knecht R.W. (1995). The Global Environmental Management Regime. In Archer J.H. (ed.), A Study of the Emerging International Environmental Management System. Amherst, MA, USA: The International Environmental Business and Technology Institute, Inc. [An in-depth review and assessment of national environmental management laws and programs, available through Dr. P.M. Haas, University of Massachusetts, Amherst, MA].

International Union for the Conservation of Nature and Natural Resources (IUCN) et al. (1991). *Caring for the Earth: A Strategy for Sustainable Living*, 228 pp. Gland, Switzerland: in partnership by IUCN, United Nations Environment Programme, and World Wildlife Federation. [An important statement of approaches to sustainability of natural resources].

IUCN Commission on Environmental Law (1995). *Draft International Covenant on Environment and Development*, 200 pp. Gland, Switzerland: IUCN. [An influential draft international legal instrument on the interactions between environmental protection and development].

Long, B.L. (1997). *Environmental Regulation: The Third Generation*. The OECD Observer, No. 206, 14-18. [An examination of the maturing of environmental regulation and management, utilizing both regulatory and economic approaches].

Rees W.E. (1996). Revisiting Carrying Capacity: Area-Based Indicators of Sustainability. Population and Environment: A *Journal of Interdisciplinary Studies* Vol. 17, No. 3. [A refinement of the original statement of the principles of carrying capacity].

Robinson N. A. (ed.) (1992). *Agenda 21 & the UNCED Proceedings*. New York: Oceana Publications. [Source material on Agenda 21, together with records of the UNCED proceedings].

Treaty on European Union [Maastricht Treaty], 1992 O.J. (C 191) 1.

United Nations, Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989). Reprinted in 28 I.L.M. 657 (1989). [This document and the following documents originating from or published by the United Nations are primary source materials for international legal instruments or records of proceedings sponsored by the United Nations].

United Nations Basel Convention Secretariat (1999). National Enforcement Requirements to Implement the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. http://www.unep.ch/basel/pub/enforcementreqs.html (part of the Official Website of the Secretariat of the Basel Convention).

United Nations Commission on Sustainable Development (1997). Overall Progress Achieved Since the United Nations Conference on Environment and Development, Report of the Secretary General, Addendum, International Legal Instruments and Mechanisms. UN Doc. E/CN.17/1997/2/Add.29.

United Nations Conference on Environment and Development (1992), Agenda 21. UN Doc. A/CONF.151/26 (Vol I-III).

United Nations Conference on Environment and Development (1992). *Rio Declaration on Environment and Development*, 5 pp. UN Doc. A/CONF.151/26 (Vol I). Reprinted in 31 I.L.M. 874 (1992).

United Nations Conference on Environment and Development (1992). *United Nations Convention on Biological Diversity*. Reprinted in 31 I.L.M. 818 (1992).

United Nations Conference on Environment and Development (1992). *United Nations Framework Convention on Climate Change*. UN Doc. A/AC.237/18. Reprinted in 31 I.L.M. 848 (1992).

United Nations Conference on the Human Environment (1972). *Declaration of the United Nations Conference on the Human Environment*. UN Doc. A/CONF.48/14. Reprinted in 11 I.L.M. 1416 (1972). [Also known as the Stockholm Declaration.]

United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks (1995). UN Doc. A/CONF.164/33.

United Nations Convention on Biological Diversity (1992). Reprinted in 31 I.L.M. 818 (1992).

United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (1996).

United Nations Department of Public Information (1997b). UN Doc. DPI/1916/SD - June 1997. Online at http://www.un.org/ecosocdev/geninfo/sustdev/es5final.htm.

United Nations Development Programme (1999). *Human Development Report 1999*, 240 pp. Cary, NC, USA: Oxford University Press.

United Nations Environment Programme (1999). *Global Environment Outlook 2000*, 398 pp. London: Earthscan Publications Ltd.

United Nations General Assembly (1982). World Charter for Nature. UN GA RES 37/7. Reprinted in 22 I.L.M. 455 (1983).

United Nations, *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (1997). UN Doc. FCCC/CP/1997/7/Add.1.

United Nations World Commission on Environment and Development (1987). *Our Common Future*, 383 pp. Oxford; New York: Oxford University Press. [Also known as the Brundtland Report.] [The

Brundtland Report is the single most important document in the modern, international effort to balance environmental protection and preservation with the need for development and use of the world's resources].

World Resources Institute et al. (1998). World Resources 1998-99: A Guide to the Global Environment, 384 pp. Oxford; New York: Oxford University Press. [This document is part of a series assessing the state of the global environmental periodically].

Biographical Sketches

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