

The Evolution and International Acceptance of the Precautionary Principle

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During the past two decades, the precautionary principle has evolved from being a “soft law” “aspirational” goal to its present status as an authoritative norm recognized by governments and international organizations as a firm guide to activities affecting the environment. Although decisionmakers and commentators still disagree about the precise definition of this principle and how it should be applied to the wide variety of situations within its scope, it can no longer be ignored. Indeed, it is frequently the starting point for discussion about how to resolve international disputes and has been characterized as a “seminal moral commitment.”¹

Among the most dramatic international actions recognizing the central role this principle plays are the 1992 Biodiversity Convention,² the 2000 Cartagena

¹ Christopher D. Stone, *Is There a Precautionary Principle?* 31 ENVTL. L. RPTR. 10790 (2001).

² Convention on Biological Diversity, June 5, 1992, preamble, UNEP/Bio. Div/CONF/L.2, S. Treaty Doc. No. 103-20, 31 I.L.M. 818, 822-23 [hereinafter CBD]; see *infra* text accompanying notes 22-23.

Protocol on Biosafety,³ the transformation of what used to be called the London Dumping Convention,⁴ the adoption of the 1995 Straddling and Migratory Species Convention,⁵ the widespread protests against the shipments of ultrahazardous radioactive cargos,⁶ and the global moratorium on the harvesting of whales.⁷ This paper will examine the evolution of the content of the precautionary principle and its current acceptance and utilization by the international community.

I. What Is the Precautionary Principle?

Many scholars have observed that the precautionary principle⁸ has an elusive kaleidoscopic character⁹ and that it is hard to establish a universally applicable definition that is any more meaningful or useful than saying “take care”¹⁰ or “better safe than sorry.”¹¹ Some governments seem more comfortable referring to a “precautionary approach” rather than a “precautionary principle,” hoping, apparently, that this term will allow for more flexibility.¹² But as it has evolved,

³ Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Jan. 29, 2000, 39 I.L.M. 1027, available at <http://www.biodiv.org/biosafety/protocol.asp>; see *infra* text accompanying notes 25-27.

⁴ See *infra* text accompanying notes 48-64.

⁵ See *infra* text accompanying notes 65-70.

⁶ See *infra* text accompanying notes 71-76.

⁷ See *infra* text accompanying notes 77-80.

⁸ For commentary on the content of the precautionary principle, see James E. Hickey, Jr., and Vern R. Walker, *Refining the Precautionary Principle in International Environmental Law*, 14 VA. ENVTL. L.J. 423 (1995); Gregory D. Fullem, Comment, *The Precautionary Principle: Environmental Protection in the Face of Scientific Uncertainty*, 31 WILLAMETTE L. REV. 495 (1995); John M. Macdonald, *Appreciating the Precautionary Principle as an Ethical Evolution in Ocean Management*, 26 OCEAN DEV. & INT'L L. 255 (1995).

⁹ See, e.g., Daniel Bodansky, *Scientific Uncertainty and the Precautionary Principle*, 33 ENVIRONMENT 4 (Sept. 1991) (“Although the precautionary principle provides a general approach to environmental issues, it is too vague to serve as a regulatory standard because it does not specify how much caution should be taken”) and Daniel Bodansky, *Deconstructing the Precautionary Principle*, Chapter 16 of this volume. But see also Daniel Bodansky, Remarks, *New Developments in International Environmental Law*, 85 AM. SOC'Y INT'L L. PROC. 413 (1991) (“Indeed, so frequent is its invocation that some commentators are even beginning to suggest that the precautionary principle is ripening into a norm of customary international law.”).

¹⁰ See Stone, *supra* note 1.

¹¹ Frank Cross, *Paradoxical Perils of the Precautionary Principle*, 53 WASH. & LEE L. REV. 851, 851 (1996).

¹² See Ellen Hey, *The Precautionary Concept in Environmental Policy and Law: Institutionalizing Caution*, 4 GEO. INT'L ENVTL. L. REV. 303, 304 (1992) (“[The] principle implies a general rule adopted as a guide for developing international environmental policy. The same dictionary defines the term ‘approach’ as a ‘way of considering or handling something, especially a problem.’”).

this principle has gained content and dimension. It mandates that studies precede action, and that interdisciplinary environmental impact assessments be written and distributed with public input.¹³ It shifts the burden to those who would undertake a new development or use of an environmental resource, replacing the old approach that had placed the burden on the environmentalists who challenged such an activity.¹⁴ It requires those who want to undertake new developments to engage in scientific studies to determine the effect of their initiatives and also to consider less intrusive alternative approaches. It accords respect to ecosystems and living creatures for their own sake, without requiring that they prove themselves to be useful or to have marketplace value. It rejects the idea that risks and costs can be transferred from one region to another, or from this generation to future ones, and requires that risks and costs be internalized in order to engage in a fair and sober analysis of whether to proceed with a project. And ultimately it requires that we proceed slowly in the face of uncertainty, constantly testing and monitoring the effects of our activities.

When risks are anticipated, the precautionary principle requires those creating the risks to work with potentially-affected nations to prepare for foreseeable emergency contingencies,¹⁵ to create appropriate liability regimes to ensure that injured parties are properly compensated,¹⁶ to notify other countries of situations threatening harmful effects on their environment,¹⁷ and of course to take every appropriate precaution to prevent or limit damage to the environment.¹⁸

Some authors have broken the precautionary principle into component elements, attempting to establish, for instance, the level of risk that triggers precautionary action; the action to be taken in the face of such risks; the amount of balancing of risks, benefits, and costs permissible under the principle; and the level of scientific consensus of safety that will be sufficient to eliminate precautionary duties.¹⁹ These efforts are well worth undertaking, but it is probably im-

¹³ For a listing of international agreements requiring environmental assessments, see DAVID HUNTER, JAMES SALZMAN, AND DURWOOD ZAELKE, *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY* 366-70 (1998).

¹⁴ *Id.* at 360.

¹⁵ See, e.g., United Nations Convention on the Law of the Sea, Dec. 10, 1982, *entered into force* Nov. 16, 1994, art. 199, U.N. Doc. A/CONF.62/122 (1982), 21 I.L.M. 1261.

¹⁶ *Id.* art. 235.

¹⁷ *Id.* art. 198; Rio Declaration on Environment and Development, June 14, 1992, Principle 18, 31 I.L.M. 874, 879.

¹⁸ See 1 PHILIPPE SANDS, *PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW* 194-95 (1995) (citing the Stockholm Declaration Principles 6, 7, 15, 18 and 24, the 1978 UNEP Draft Principles, Principle 1, the 1982 World Charter for Nature, the growing network of specific environmental conventions, the *Trail Smelter Arbitration*, 3 R.INT'L ARB. AWARDS 1905 (1941), and the *Lac Lanoux Arbitration*, 24 I.L.R. 101 (1957)).

¹⁹ See, e.g., James Cameron and Juli Abouchar, *The Status of the Precautionary Principle in International Law*, in *THE PRECAUTIONARY PRINCIPLE AND INTERNATIONAL LAW: THE CHALLENGE OF IMPLEMENTATION* 29, 44-45 (David Freestone & Ellen Hey eds., 1996); Deborah Katz, Note, *The Mismatch Between the Biosafety Protocol and the Precautionary Principle*, 13 GEO. INT'L ENVTL. L. REV. 949, 956-57 (2001).

possible at this early stage to have an all-encompassing formula applicable to all situations. Just as we are slowly learning about our complex environment, we are also slowly learning how to apply the precautionary principle to the situations that require its application.

II. Recognition in International Treaties and Documents

Perhaps the most universal formulation of precautionary duties can be found in Principle 15 of the 1992 Rio Declaration on Environment and Development:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.²⁰

A related document provided somewhat more specific language in the context of activities affecting the marine environment:

States, in accordance with the provisions of the United Nations Convention on the Law of the Sea on protection and preservation of the marine environment, commit themselves, in accordance with their policies, priorities and resources, to prevent, reduce and control degradation of the marine environment so as to maintain and improve its life-support and productive capacities. To this end, it is necessary to:

(a) Apply preventive, precautionary and anticipatory approaches so as to avoid degradation of the marine environment, as well as to reduce the risk of long-term or irreversible adverse effects upon it.²¹

Pursuant to these broad guidelines, precautionary requirements have been included in a wide variety of treaties during the past decade. The Biodiversity Convention²² utilizes what some have called a “purer form”²³ of the precautionary principle, stating in its preamble that “where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat...” Another example can be found in the language in the 1994 Preagreement on the Application of Sanitary and Phytosanitary Measures:

²⁰ Rio Declaration on Environment and Development, June 14, 1992, 31 I.L.M. 874, 879.

²¹ Agenda 21, Chapter 17, 17.22, in *Report of the United Nations Conference on Environment and Development, Rio De Janeiro, June 3-14, 1992*, U.N. Doc. A/CONF.151/26 (Vol. II).

²² CBD, *supra* note 2.

²³ Stephen McCaffrey, *Biotechnology: Some Issues of General International Law*, 14 TRANSNAT'L L 91, 97 (2001).

In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.²⁴

Among the more recent formulations is the complicated language that appears in the Cartagena Biosafety Protocol, which governs living modified organisms:

Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account human risks to human health, shall not prevent that Party from taking a decision, as appropriate, with regard to the import of that living modified organism intended [for direct use as food or feed, or for processing] in order to avoid or minimize such potential adverse effects.²⁵

This language means that countries can prevent the importation of living modified organisms even if a specific harm resulting from such organisms cannot be identified. The Protocol also refers to the “precautionary approach” in its preamble (which reaffirms “the precautionary principle contained in Principle 15 of the Rio Declaration on Environment and Development”²⁶) and “builds it directly into the operative provisions on risk assessment.”²⁷ Even more recently, the Persistent Organic Pollutants Treaty,²⁸ which was signed by more than 90 nations on May 23, 2001, included a reference to Principle 15 of the 1992 Rio

²⁴ Preagreement on the Application of Sanitary and Phytosanitary Measures, art. 5(7), April 15, 1994, 33 I.L.M. 1226.

²⁵ Cartagena Protocol, *supra* note 3, arts. 10(6) and 11(8).

²⁶ *Id.*, preamble.

²⁷ Peter-Tobias Stoll, *Controlling the Risks of Genetically Modified Organisms: The Cartagena Protocol on Biosafety and the SPS Agreement*, [1999] 10 Y.B. INT'L ENVTL. L. 82, 97 (referring to the Biosafety Protocol, arts. 10(6), 11(8)).

²⁸ Stockholm Convention on Implementing International Action on Certain Persistent Organic Pollutants, May 22, 2001, preamble, art. 1 (“Acknowledging that precaution underlies the concerns of all the Parties and is embedded within this Convention,”); art. 8.9 (“The Conference of the Parties, taking due account of the recommendations of the Committee, including any scientific uncertainty, shall decide, in a precautionary manner, whether to list the chemical, and specify its related control measures, in Annexes A, B and/or C.”), UNEP/POPS/CONF/2, available at http://www.chem.unep.ch/pops/POPs_Inc/dipcon/meetingdocs/conf-2/en/conf-2e.doc; see Jane C. Luxton, *POPS Treaty Signed: Attention Turns to Ratification and Implementation*, 17:1 ENVTL. COMPLIANCE & LITIGATION STRATEGY 1 (2001).

Declaration in describing the process by which additional chemicals will be added to the treaty.

Other treaties and agreements recognizing or incorporating the precautionary principle include the 1985 Vienna Ozone Convention,²⁹ 1987 Montreal Ozone Protocol,³⁰ 1989 South Pacific Driftnet Convention,³¹ 1991 Bamako Hazardous Waste Movement Convention,³² the 1991 Declaration of Esbjerg on the Protection of the Wadden Sea,³³ the 1992 Framework Convention on Climate Change,³⁴ the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes,³⁵ the 1992 North-East Atlantic Ma-

²⁹ Vienna Convention for the Protection of the Ozone Layer, March 22, 1985, preamble, 26 I.L.M. 1516, 1529 (“Mindful also of the precautionary measures for the protection of the ozone layer which have already been taken at the national and international levels . . .”).

³⁰ Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, preamble, 26 I.L.M. 1541, 1551.

³¹ Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific (Wellington Convention), Nov. 24, 1989.

³² Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes Within Africa, Jan. 30, 1991, art. 4(3)(f), OAU/CONF/COOR/ENV/MIN/AFRI/CONV.1(1) Rev. 1, 30 I.L.M. 773, 781 (requiring parties to adopt precautionary measures for waste generated in Africa, by “preventing the release into the environment of substances which may cause harm to humans or the environment without waiting for scientific proof regarding such harm”).

³³ Ministerial Declaration of the Sixth Trilateral Governmental Conference on the Protection of the Wadden Sea (Denmark/Germany/Netherlands), ¶ 3(iii) (“The common policies . . . will be further implemented based on . . . the Precautionary Principle, *i.e.* to take action to avoid activities which are assumed to have significant damaging impact on the environment, even when there is no sufficient scientific evidence to prove a causal link between activities and their impact . . .”), *quoted in* Chris W. Backes and Jonathan M. Verschuuren, *The Precautionary Principle in International, European, and Dutch Wildlife Law*, 9 COLO. J. INT’L ENVTL. L & POL’Y 43, 53 (1998).

³⁴ United Nations Framework Convention on Climate Change, May 9, 1992, art. 3(3), U.N. Doc. A/CONF.151/26, 31 I.L.M. 849 (stating that “[t]he parties should take precautionary measures to anticipate, prevent, or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.”).

³⁵ Convention on the Protection and Use of Transboundary Watercourses and International Lakes, March 17, 1992, art. 2(5)(a), 31 I.L.M. 1312, 1316 (“the parties shall be guided by . . . the precautionary principle, by virtue of which action to avoid the potential transboundary impact of the release of hazardous substances shall not be postponed on the ground that scientific research has not fully proved a causal link between those substances, on the one hand, and the potential transboundary impact, on the other hand . . .”).

rine Environment Convention,³⁶ the Amended European Community Treaty,³⁷ the 1992 Convention on the Protection of the Marine Environment of the Baltic Sea Area,³⁸ the 1994 Sulphur Air Pollution Protocol,³⁹ the 1995 Meuse River Agreement,⁴⁰ the 1995 Scheldt River Agreement,⁴¹ the 1996 Cetacean Conservation Agreement,⁴² the 1996 Izmir Protocol on Transfrontier Movement of Hazardous Wastes,⁴³ the 1997 Kyoto Protocol on Climate Change,⁴⁴ the 1998 Con-

³⁶ Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention), Sept. 22, 1992, preamble and art. 2(2)(a), 32 I.L.M. 1069, 1076 (requiring contracting parties to apply “the precautionary principle, by virtue of which preventative measures are to be taken when there are reasonable grounds for concern that substances or energy introduced, directly or indirectly, into the marine environment may bring about hazards to human health, harm to living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea, even when there is no conclusive evidence of a causal relationship between the inputs and the effects. . .”).

³⁷ Article 130R, ¶ 2 of the Amended European Community Treaty requires:

Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventative action should be taken, that environmental damage should be as a priority be rectified at source and that the polluter should pay.

Available at <http://europa.eu.int/abc-en.htm>.

³⁸ Convention on the Protection of the Marine Environment of the Baltic Sea Area, April 9, 1992, art. 3(2), 1992 WL 675165 at 7 (“The contracting parties shall apply the precautionary principle, *i.e.*, to take preventive measures when there is reason to assume that substances or energy introduced, directly or indirectly, into the marine environment may create hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea even when there is no conclusive evidence of a causal relationship between inputs and their alleged effects.”).

³⁹ Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Further Reduction of Sulphur Emissions, June 14, 1994, preamble, 33 I.L.M. 1540, 1542 (“Resolved to take precautionary measures to anticipate, prevent or minimize emissions of air pollutants and mitigate their adverse effects.”).

⁴⁰ Agreement on the Protection of the Meuse, July 4, 1995, art.3(2)(a), 34 I.L.M. 851, 855 (“The Contracting Parties shall be guided by . . . (a) The precautionary principle, according to which action to avoid the release of dangerous substances which could have a significant transboundary impact, shall not be postponed on the grounds that scientific research has not fully proved the existence of a causal link between the discharge of those substances and a possible significant transboundary impact.”)

⁴¹ Agreement on the Protection of the Scheldt, July 4, 1995, art.3(2)(a), 34 I.L.M. 851, 860 (same language as in the Meuse agreement in the footnote above).

⁴² Final Act and Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, Nov. 24, 1996, art. II(1)-(4), 36 I.L.M. 777, 785.

⁴³ Izmir Protocol on the Protection of the Mediterranean Sea Against Pollution Through the Transfrontier Movement of Hazardous Materials, Oct.1, 1996, art. 8(3), 1996 WL 1056819.

⁴⁴ Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, art. 3(3), FCCC/CP/1997/C.7/Add1, 37 I.L.M. 22.

vention on Cooperation for the Protection and Sustainable Use of the Danube River,⁴⁵ 1998 Rhine River Convention,⁴⁶ and the 2000 Seabed Mining Regulations.⁴⁷

A. The Greening of the London Dumping Convention⁴⁸

The transformation of the London Dumping Convention is certainly one of the most impressive success stories of the 1990s. This Convention was drafted shortly after the 1972 Stockholm meeting that launched international environmental consciousness.⁴⁹ As originally written, it contained a “black list” of materials (such as high-level radioactive wastes) that could never be dumped into the ocean and a “gray list” of items (such as low-level radioactive wastes) that could be dumped in appropriate locations if proper governmental permits were obtained. This treaty was a step forward, but it still permitted a substantial amount of dumping, and efforts were made at the annual meetings of its contracting parties to tighten its provisions so that no radioactive materials whatsoever could be dumped⁵⁰ and the dumping of other hazardous materials would similarly be prohibited. Although the developed nations resisted restrictions on their ability to dump low-level radioactive wastes for a number of years,⁵¹ after many debates

⁴⁵ Convention on Cooperation for the Protection and Sustainable Use of the Danube River, *entered into force* Oct. 22, 1998, art. 2.4, at http://158.169.50.70/eur-lex/en/lif/dat/1997/en_297A1212&uscore;03.html.

⁴⁶ Convention on the Protection of the Rhine, Jan. 22, 1998, art. 4(b), at http://www.dundee.ac.uk/cepmlp/water/assets/images/Rhine_Convention.doc.

⁴⁷ International Seabed Authority, Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, July 13, 2000, reg. 31(2), ISBA/6/A/18, at http://www.isa.org.jm/en/whatsnew/Un_mining_code.pdf.

⁴⁸ This section and the one that follows are adapted from Jon M. Van Dyke, *Sharing Ocean Resources—In a Time of Scarcity and Selfishness*, in *THE LAW OF THE SEA: THE COMMON HERITAGE AND EMERGING CHALLENGES* 3, 7-9 (Harry N. Scheiber ed., 2000).

⁴⁹ The London Dumping Convention has the formal name of The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, *reprinted in* 11 I.L.M. 129.

⁵⁰ See, e.g., Jon M. Van Dyke, *Ocean Disposal of Nuclear Wastes*, 12 MARINE POLICY 82 (1988); W. Jackson Davis and Jon M. Van Dyke, *Dumping of Decommissioned Nuclear Submarines at Sea: a Technical and Legal Analysis*, 14 MARINE POLICY 467 (1990).

⁵¹ In February 1983, the contracting parties passed a resolution imposing a moratorium on the dumping of all low-level radioactive wastes, but the Soviet Union, China, Belgium, France, the United Kingdom, and the United States voted against the resolution and a number of other industrialized nations abstained. The dissenting nations did not feel that they were bound by this resolution, and the British government sought to continue its dumping program. But the British unions refused to load the low-level wastes on the British ship in 1985, and thus the British were forced to adhere to the moratorium by their own people. Van Dyke, *Ocean Disposal of Nuclear Wastes*, *supra* note 50, at 82.

and many preliminary meetings a new Protocol was adopted in 1996⁵² that “virtually re-writes the London Convention.”⁵³ In fact, the name of this treaty was even changed, because the contracting parties did not want the public to think that it authorized dumping, and now it is titled simply “London Convention, 1972.”

Under the new Protocol, the presumptions are reversed, and the dumping of all wastes is prohibited unless the item to be dumped is explicitly listed in Annex I.⁵⁴ Even these materials, which include dredged material, sewage sludge, vessels, and ocean platforms,⁵⁵ cannot be dumped without a permit.⁵⁶ Permits can be granted only after assessments are undertaken that evaluate options and describe the potential effects of the dumping.⁵⁷ Incineration at sea⁵⁸ and the dumping of industrial wastes are completely prohibited. This new Protocol is thus based on the precautionary approach⁵⁹ as well as the polluter-pays principle.⁶⁰ The burden has thus shifted “from (1) dumping unless it were proven harmful to (2) no dumping unless it is shown there are no alternatives.”⁶¹

This remarkable makeover of the London Convention illustrates the “greening” of the international community and the new spirit of shared responsibility for the common areas of the planet. More than 70 countries are contracting parties to the London Convention,⁶² and under Article 210(6) of the Law of the Sea Convention,⁶³ parties to the Law of the Sea Convention are also bound by the

⁵² 1996 Protocol to the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Nov. 7, 1996, 36 I.L.M. 1.

⁵³ Hunter, Salzman, and Zaelke, *supra* note 13, at 764.

⁵⁴ 1996 Protocol, *supra* note 51, art. 4(1).

⁵⁵ *Id.*, Annex I.

⁵⁶ *Id.*, art. 4(2).

⁵⁷ *Id.*, Annex II.

⁵⁸ *Id.*, art. 5.

⁵⁹ *Id.*, art 3(1):

In implementing this Protocol, Contracting Parties shall apply a precautionary approach to environmental protection from dumping of wastes or other matter whereby appropriate preventative measures are taken when there is reason to believe that wastes or other matter introduced into the marine environment are likely to cause harm even when there is no conclusive evidence to prove a causal relation between inputs and their effects.

⁶⁰ *Id.*, art. 3(2):

Taking into account the approach that the polluter should, in principle, bear the cost of pollution, each Contracting Party shall endeavor to promote practices whereby those it has authorized to engage in dumping or incineration at sea bear the cost of meeting the pollution prevention and control requirements for the authorized activities, having due regard to the public interest.

⁶¹ Hunter, Salzman, and Zaelke, *supra* note 13, at 765.

⁶² *Id.* at 772.

⁶³ Law of the Sea Convention, *supra* note 15, art. 210(6).

requirements of the London Convention even if they are not parties to that treaty.⁶⁴

B. The 1995 Straddling and Migratory Fish Stocks Agreement

On December 4, 1995, the nations of the world settled on the text of an important document with the cumbersome title of “Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.”⁶⁵ The goal of this document was to stop the dramatic overfishing that has decimated fish stocks in many parts of the world.⁶⁶ Although it builds on existing provisions in the 1982 United Nations Law of the Sea Convention,⁶⁷ it also introduces a number of new strategies that will require the fishing industry to change its mode of operation in significant ways.

Prominent among these new requirements is precaution. Article 5(c) lists the “precautionary approach” among the principles that govern conservation and management of shared fish stocks, and Article 6 elaborates on this requirement in some detail, focusing on data collection and monitoring. Then, in Annex II, the Agreement identifies a specific procedure that must be used to control exploitation and monitor the effects of the management plan. For each harvested species, a “conservation” or “limit” reference point as well as a “management” or “target” reference must be determined. If stock populations go below the agreed-upon conservation/limit reference point, then “conservation and management action should be initiated to facilitate stock recovery” (Annex II(5)).

⁶⁴ See Brennan van Dyke, *The London Convention, 1972* in THE USE OF TRADE MEASURES IN SELECTED MULTILATERAL ENVIRONMENTAL AGREEMENTS 256-57 ((Houseman et al., eds., UNEP, 1995) (citing a communication to the contracting parties of the London Convention issued by the Division for Ocean Affairs of the United Nations Office of Legal Affairs).

⁶⁵ Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, U.N. Doc. A/CONF.164/37 (1995), 34 I.L.M. 1542.

⁶⁶ David E. Pitt, *Despite Gaps, Data Leave Little Doubt that Fish Are in Peril*, N.Y. TIMES, Aug. 3, 1993, at C4, col. 1 (nat'l ed.). See generally FREEDOM FOR THE SEAS IN THE 21ST CENTURY (Jon M. Van Dyke, Durwood Zaelke, and Grant Hewison eds., 1993). Among the stocks that are now seriously depleted are Atlantic halibut, New Zealand orange roughy, bluefin tuna, rockfish, herring, shrimp, sturgeon, oysters, shark, Atlantic and some Pacific Northwest salmon, American shad, Newfoundland cod, and haddock and yellowtail flounder off of New England. Associated Press, *Steps Must Be Taken to Counter Overfishing, U.S. Panel Warns*, HONOLULU STAR-BULLETIN, Oct. 23, 1998, at A-19, col. 2 (quoting from a study led by Stanford biologist Harold Mooney and funded by the National Research Council, an arm of the National Academy of Sciences.).

⁶⁷ Law of the Sea Convention, *supra* note 15, arts. 56, 61-66, 69-70, 118-20.

Overfished stocks must be managed to ensure that they can recover to the level at which they can produce the maximum sustainable yield (Annex II(7)).

The continued reference to the maximum-sustainable-yield formula indicates that the Agreement has not broken completely free from the approaches that led to the rapid decline in the world's fisheries,⁶⁸ but the hope is that the conservation/limit reference points will lead to early warnings of trouble that will be taken more seriously.⁶⁹ Building on the principles found in the 1995 Agreement, the fishing and coastal countries in the Pacific and in the Southeast Atlantic have promulgated regional fishery management treaties which rely heavily on the precautionary approach as their central foundation.⁷⁰

⁶⁸ Fishing to attain the maximum sustainable yield inevitably means reducing the abundance of a stock, sometimes by one-half or two-thirds. This reduction can threaten the stock in unforeseeable ways and also will impact on other species in the ecosystem.

⁶⁹ One recent report explains the "precautionary approach" in the context of the 1995 Straddling and Migratory Stocks Agreement, *supra* note 63, as follows:

The precautionary approach, in summary, embodies six main elements:

- caution (to be applied widely, to protect resources and preserve the environment); more caution required when uncertainty; absence of adequate information no reason for failing to take measures;
- information and analysis (obtain and share best available information; need to deal with risk and uncertainty);
- reference points (use of limit and target reference points for conservation and management objectives respectively; develop plans as LRPs [limit reference points] are approached or TRPs [target reference points] exceeded);
- non-target species, associated or dependent species and their environment (assess impacts of fishing; ensure conservation of species and protection of habitat);
- new or exploratory fisheries (early adoption of cautious measures or PRPs, remaining in effect until fishery impacts assessed; gradual development; set provisional reference points); and
- natural phenomena (adopt conservation and management measures to ensure fishing does not exacerbate the situation)

Report of the Eleventh Meeting of the Standing Committee on Tuna and Billfish, May 28-June 6, 1998, Honolulu, in Appendix 1 (Record of Discussion of the Workshop on Precautionary Limit Reference Points) at 67.

⁷⁰ The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, Honolulu, 4 September 2000, <<http://www.spc.org.nc/coastfish/Asides/Conventions/>> (26 March 2001); Convention on the Conservation and Management of Fishery Resources in the South-East Atlantic Ocean, fifth preambulatory paragraph, articles 3(b), 6(3)(g), and 7, 20 April 2001, 41 I.L.M. 257 (2002).

C. Shipments of Ultrahazardous Radioactive Materials

The recent regular shipments of ultrahazardous cargoes of plutonium and high-level radioactive wastes from Europe to Japan have caused enormous concern among the coastal and island nations that could be devastated by an accident or terrorist attack involving these cargoes.⁷¹ Many of the protests have specifically cited the precautionary principle as the basis for challenging the legitimacy of these dangerous shipments.⁷² A Chilean naval vessel ordered the 1994-95 shipment to exit Chile's exclusive economic zone (EEZ), citing the precautionary principle as a primary reason for banning the British-flag vessel from its EEZ.⁷³ New Zealand has also taken a lead in protesting these shipments, arguing that they should not be permitted through New Zealand's EEZ because of the "precautionary principle" enshrined in the Rio Declaration," and that "there should be recognition in international law of the right of potentially affected coastal states to prior notification, and, ideally, prior informed consent for shipments of nuclear material."⁷⁴ The countries opposing these shipments also argue that passage of such dangerous cargoes through coastal EEZs violates the standards found in the Law of the Sea Convention, which require countries to prepare environmental impact statements for matters that may cause substantial pollution, to prepare contingency plans for accidents,⁷⁵ to consult with affected states, and to establish appropriate liability regimes for such hazards.⁷⁶

⁷¹ See, e.g., Jon M. Van Dyke, *Sea Transport of Japanese Plutonium Under International Law*, 24 *Ocean Development & Int'l L.* 399 (1993); Jon M. Van Dyke, *Applying the Precautionary Principle to Ocean Shipments of Radioactive Materials*, 27 *OCEAN DEV. & INT'L L.* 379 (1996); Duncan E.J. Currie and Jon M. Van Dyke, *The Shipment of Ultrahazardous Nuclear Materials in International Law*, 8 *REVIEW OF EUROPEAN COMMUNITY & INTERNATIONAL ENVIRONMENTAL LAW (RECIEL)* 113 (1999); Jon M. Van Dyke, *The Legal Regime Governing Sea Transport of Ultrahazardous Radioactive Materials*, 33 *OCEAN DEV. & INT'L L.* 77 (2002).

⁷² See, in particular, Article 23 of the Law of the Sea Convention, *supra* note 15, requiring "[f]oreign nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances . . . when exercising the right of innocent passage through the territorial sea [to] carry documents and observe special *precautionary* measures established for such ships by international agreements (emphasis added)."

⁷³ Transcript of conversation of March 22 1994. Coastal States have the specific right "to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance." Law of the Sea Convention, *supra* note 15, art. 234. This provision could strengthen Chile and Argentina's claim to ban highly radioactive nuclear carriers from their EEZs.

⁷⁴ Letter from Don McKinnon, New Zealand Minister of Foreign Affairs and Trade, to Michael Szabo (July 7, 1999) (on file with author).

⁷⁵ The consequences of an accident involving a ship carrying ultrahazardous radioactive materials would be so grave that emergency procedures must be in place to address possible fires, collisions, and sinkings. These procedures must include access to appropri-

D. Whales

The world-wide moratorium on whale harvesting established by the International Whaling Commission (IWC)⁷⁷ represents another example of the precautionary principle in action. The special status and treatment of whales is recognized in Article 65 of the Law of the Sea Convention, which requires states to “work through the appropriate international organizations for [the] conservation, management and study” of cetaceans (whales and dolphins). Since 1986, the IWC has maintained a moratorium on all harvesting of whales, except for limited kills allocated to indigenous people, mostly in the Arctic region.⁷⁸ Although Norway, Iceland, Denmark, and Japan continue to harvest some whales in defiance of this moratorium, it has been accepted by most countries as a necessary precaution to protect whale species because of the gross overharvesting that has occurred in the past and the inability to be sure how best to protect these grand creatures after their depletion, especially in light of the overt dishonesty of many whaling countries, even in recent years.⁷⁹ Among the many documented abuses is the recent information that the Soviet Union harvested 48,477 humpback whales from 1948 to 1973, instead of the 2,710 it officially reported to the International Whaling Commission, and the discovery that whales recently harvested by Japan, ostensibly pursuant to its “scientific” whaling for Antarctic minke whales, included humpback whales, fin whales, and Arctic minke.⁸⁰

ate ports, availability of tugboats and firefighting equipment, and plans for retrieval in the event of a sinking.

⁷⁶ See generally articles cited *supra* in note 71.

⁷⁷ The International Whaling Commission (IWC) was created by the International Convention for the Regulation of Whaling, Dec. 2, 1946, 161 U.N.T.S. 72.

⁷⁸ See generally Harry N. Scheiber, *Historical Memory, Cultural Claims, and Environmental Ethics in the Jurisprudence of Whaling Regulation*, 38 OCEAN & COASTAL MGMT 5 (1998), and in LAW OF THE SEA: THE COMMON HERITAGE AND EMERGING CHALLENGES 127 (Harry N. Scheiber ed., 2000).

⁷⁹ See, e.g., William C. Burns, *The International Whaling Commission and the Future of Cetaceans: Problems and Prospects*, 8 COLO. J. INT'L ENVTL. L. & POL'Y 31, 86 (1997) (“Given the inherent unreliability of statistical models that seek to estimate ‘safe’ catch levels for whales and the perilous state of the stocks of most of the great whales, it can be argued that whaling nations can no longer ensure that their actions can be harmonized with the aspirations of the rest of the world.”).

⁸⁰ David D. Caron, *The International Whaling Commission and the North Atlantic Marine Mammal Commission: The Institutional Risks of Coercion in Consensual Structures*, 89 AM. J. INT'L L. 154, 171-73 (1995) (citing Natalie Angier, *DNA Tests Find Meat of Endangered Whales for Sale in Japan*, N.Y. TIMES, Sept. 13, 1994, at C4, and Michael Szabo, *DNA Test Traps Whale Tenders*, NEW SCIENTIST, May 28, 1994, at 4).

III. Recognition in International Judicial Decisions

A. The Gabcikovo-Nagymaros Decision

The International Court of Justice acknowledged the importance of precaution in its 1997 decision adjudicating the dispute between Hungary and Slovakia over water regulation on the Danube.⁸¹ Hungary had suspended in 1989, and then in 1992 had unilaterally terminated, a 1977 treaty governing a hydroelectric dam and navigation improvement project that had been negotiated by Hungary and Czechoslovakia during the Soviet dominance of Eastern Europe. After it broke away from the Soviet Union in the late 1980s, Hungary argued that the treaty was a “mistake,” and that it was entitled to terminate the treaty on the basis of an “ecological state of necessity.” Hungary pointed to possible ecological risks that included “the replacement of Danube groundwater flow with stagnant upstream reservoir water, the silting of the Danube, eutrophication, and the threat to aquatic habitats from peaking power releases.”⁸² Based on these threats, Hungary argued that the precautionary principle imposed “an *erga omnes* obligation of prevention of damage . . .” and invoked Article 33 of the International Law Commission Draft Articles on the International Responsibility of States, which permits countries to avoid an international duty if necessary to “safeguard an essential interest of the State against a grave and imminent peril.”

The International Court of Justice agreed that Article 33 incorporated concepts of precaution, but interpreted this doctrine narrowly, finding that a country could invoke the principle as a basis for terminating a treaty only if it could demonstrate “by credible scientific evidence that a real risk will materialize in the near future and is thus more than a possibility.”⁸³ The Court then ruled that Hungary’s evidence of potential environmental damage had failed to meet this standard and thus that Hungary remained bound by the treaty, pursuant to the principle of *pacta sunt servanda*, requiring countries to adhere to their treaty commitments. But the Court also stated that “new knowledge of ecological risk does impose a duty on parties to a complex river basin development treaty to take the information into consideration in the ongoing implementation of the treaty and management of the river.”⁸⁴ The Court thus gave Hungary a partial victory by ordering the two countries “to undertake good faith negotiations consistent with both international environmental norms such as sustainable devel-

⁸¹ Case Concerning the Gabcikovo-Nagymaros Project (Hung. v. Slovak.), 1997 I.C.J. 7 (Sept. 25).

⁸² A. DAN TARLOCK, LAW OF WATER RIGHTS AND RESOURCES, sec.11:9 (2001).

⁸³ One author has explained that the Court’s reluctance to embrace the precautionary principle more fully in its decision may be because “the case arose in relation to actions taken by Hungary in 1989, and the ICJ was clear in applying the law as it was at the time. As a result, the court’s statements and holdings only reflect the law as it had stood eight years earlier and not the status of the precautionary principle in 1997.” Russell Unger, *Brandishing the Precautionary Principle Through the Alien Tort Claims Act*, 9 N.Y.U. ENVTL. L.J. 638, 655 (2001).

⁸⁴ Tarlock, *supra* note 82.

opment and the law of international water courses to come up with a new management scheme”⁸⁵ for the dam project.

Judge Weeramantry wrote a separate opinion emphasizing that the interrelated principles of environmentally sustainable development and cautionary environmental assessment are *erga omnes* rules of customary international law. This opinion says that the precautionary principle includes a requirement to prepare environmental assessments and to monitor all large water development projects: “EIA, being a specific application of the larger principle of caution, embodies the larger obligation of continuing watchfulness and anticipation.”⁸⁶

In the earlier 1995 *Nuclear Tests Case*,⁸⁷ although the Court failed to reach the merits, two judges mentioned the precautionary principle as an emerging feature of international environmental law.⁸⁸ One of these judges also referred to the precautionary principle in the 1996 *Nuclear Weapons Case*.⁸⁹

B. The Southern Bluefin Tuna Case.

This case⁹⁰ had a promising beginning, with the International Tribunal for the Law of the Sea (ITLOS) issuing strong provisional measures designed to protect an overfished species, but its ending was unfortunate, when an *ad hoc* arbitral tribunal declared that both it and ITLOS lacked jurisdiction over the case because of conflicting dispute-resolution provisions in the relevant treaties. Despite the inconclusive ending of this case, the provisional measures issued by ITLOS may still be important for future disputes. The Tribunal tried to freeze the status quo, and ordered Japan to stop its unilateral “experimental fishing” in order to give the bluefin tuna a chance to recover while the countries developed new management arrangements. In its Order, the Tribunal used the following language:

⁸⁵ *Id.*

⁸⁶ Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slovak.), 1997 I.C.J. 7 (Sept. 25) (separate opinion of Vice President Weeramantry at 18).

⁸⁷ Nuclear Tests (N.Z. v. Fr.), 1995 I.C.J. 288 (Sept. 22).

⁸⁸ Judge Palmer wrote that “the norm involved in the precautionary principle has developed rapidly and may now be a principle of customary international law relating to the environment,” 1995 I.C.J. at 412 (dissenting opinion), and Judge Weeramantry stated that the precautionary principle is “gaining increasing support as part of the international law of the environment.” *Id.* at 342 (dissenting opinion).

⁸⁹ Judge Weeramantry said that “principles of environmental law, which this Request enables the Court to recognize and use in reaching its conclusions, [include] the precautionary principle.” Legality of the Threat or Use of Nuclear Weapons (UNGA Advisory Opinion), 1996 I.C.J. 240, 502 (July 8) (dissenting opinion).

⁹⁰ Southern Bluefin Tuna Case (Austl. and N.Z. v. Japan), Provisional Measures Order (ITLOS), Aug. 27, 1999, at <http://www.un.org/Depts/los/ITLOS/Order-tuna34.htm>; Award on Jurisdiction and Admissibility, Aug. 4, 2000, at <http://www.worldbank.org/icsid/bluefintuna/award080400.pdf>.

[P]arties should in the circumstances act with prudence and caution to ensure that effective conservation measures are taken to prevent serious harm to the stock of southern bluefin tuna. . . .

. . . [Although there is] scientific uncertainty regarding measures to be taken to conserve the stock of southern bluefin tuna and . . . although the Tribunal cannot conclusively assess the scientific evidence presented by the parties, it finds that measures should be taken as a matter of urgency to preserve the rights of the parties and to avert further deterioration.⁹¹

Judge Alexander Yankov, referring to this language, wrote later that “there are some statements of the Tribunal in the Order which appear to reveal its stand in favor of essential elements of the precautionary approach.”⁹² Judge Tullio Treves added in his concurring opinion that, although he “understood the reluctance of the Tribunal in taking a position as to whether the precautionary approach is a binding principle of customary international law,” nonetheless “a precautionary approach seems to me inherent in the very notions of provisional measures.”⁹³

C. The MOX Plant Case

In the *MOX Plant Case*,⁹⁴ the Tribunal issued another important provisional-measures ruling, stating that the duty to cooperate required Ireland and the United Kingdom to exchange information concerning the risks created by the expansion of the Sellafield nuclear facility in the United Kingdom, to monitor the effects of this plant on the marine environment in the Irish Sea, and to work together to reduce these risks. This case was then transferred to an arbitral panel, which again found procedural obstacles that blocked its ability to reach the merits of the dispute.⁹⁵ But the filings of the two parties show agreement that the

⁹¹ *Id.*, ITLOS Provisional Order, ¶¶ 77, 79, 80; *see also* Separate Opinion of Judge Treves, ¶ 9 (“a precautionary approach seems to me inherent in the very notion of provisional measures); Separate Opinion of Judge Shearer (“the measures ordered by the Tribunal are rightly based upon considerations deriving from a precautionary approach”).

⁹² Alexander Yankov, *Irregularities in Fishing Activities and the Role of the International Tribunal for the Law of the Sea*, in I LIBER AMICORUM JUDGE SHIGERU ODA 773, 780 (Nisuke Ando, Edward McWhinney, and Rudiger Wolfrum, eds. 2002).

⁹³ *Id.*, Separate Opinion of Judge Treves, para. 9; *see also* Separate Opinion of Judge Shearer (“the measures ordered by the Tribunal are rightly based upon considerations deriving from a precautionary approach”). *See also* Leah Sturtz, *Southern Bluefin Tuna Case: Australia and New Zealand v. Japan*, 28 *ECOLOGICAL L. Q.* 455, 459 (2001)(reporting that: “These provisional measures remained in place for one year, yielding great benefits in environmental protection.”).

⁹⁴ *The MOX Plant Case (Ireland v. U.K.)*, (ITLOS 2001), 41 *I.L.M.* 405 (2002).

⁹⁵ *The MOX Plant Case (Ireland v. U.K.)*, (Perm. Ct. Arbitration), Order No. 3 (24 June 2003), *available at* website of Permanent Court of Arbitration (suspending the proceeding pending a resolution of issues related to the possibly conflicting jurisdiction of

precautionary principle is a central norm applicable to the dispute. Ireland's Memorial⁹⁶ quoted Article 2(2)(a) of the 1992 OSPAR Convention⁹⁷ as defining the duties of countries under the precautionary principle and as reflecting "a rule of general international law amongst European States." Ireland also submitted that "[t]he precautionary principle has been recognised as being inherent in the approach adopted by UNCLOS",⁹⁸ and that "the United Kingdom did not challenge Ireland's characterisation of the precautionary principle as having the status of customary international law."⁹⁹ The United Kingdom responded in its Rejoinder by saying that "the United Kingdom was, and is today, guided by the precautionary principle as elaborated in European Community law in the context of its *Strategy 2001-2020*,"¹⁰⁰ and that "the United Kingdom's practice in respect of the MOX Plant was entirely consistent with a precautionary approach."

D. European Decisions

The most significant precautionary principle decision by the European Court of Justice occurred in 1998, when the Court upheld the European Commission's decision to ban all bovine animals and all beef and veal products from the United Kingdom, based on the EC's judgment that all risks of transmission from bovine spongiform encephalopathy (mad cow disease) could not be excluded.¹⁰¹ In response to the argument of the English National Farmers' Union that this decision violated the principle of proportionality, the Court acknowledged that the principle of proportionality required that the least onerous alternative be chosen, but ruled also that "[w]here there is uncertainty as to the existence or extent of risks to human health, the institutions may take protective measures without having to wait until the reality and seriousness of the risks become fully apparent."¹⁰²

In another important decision, the Court of First Instance in Europe rejected a challenge to a decision removing an antibiotic from the list of authorized animal feeds by quoting from the statement above, referring to the precautionary

the European Court of Justice, but also calling for more formalized arrangements to ensure cooperation and consultation between the two countries).

⁹⁶ *Id.*, Memorial of Ireland, paras. 6.22-6.23 (26 July 2002), available at website of Permanent Court of Arbitration.

⁹⁷ Article 2(2)(a) of the 1992 Convention on the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) is quoted *supra* in note 36.

⁹⁸ *The MOX Plant Case (Ireland v. U.K.)*, (Perm. Ct. Arbitration), Memorial of Ireland, para. 6.25 (26 July 2002).

⁹⁹ *Id.*, para. 6.26.

¹⁰⁰ *The MOX Plant Case (Ireland v. U.K.)*, (Perm. Ct. Arbitration), Rejoinder of the United Kingdom, para. 8.34 (24 April 2003).

¹⁰¹ Case C-147-96, *The Queen v. Ministry of Agriculture, Fisheries and Food, Commissioners of Customs & Excise, ex parte National Farmer's Union, David Burnett and Sons Ltd.*, R.S., 1998 E.C.R. I-2211.

¹⁰² *Id.* at ¶ 63. The Court repeated this statement in Case C-180/96, *United Kingdom v. Commission of the European Communities*, 1998 E.C.R. I-2265, ¶ 99.

principle, and adding, that “[t]here can be no question but that the requirements of the protection of public health must take precedence over economic considerations.”¹⁰³ Also, without explicitly referring to the precautionary principle, the European Court of Justice seemed to rely upon it in cases where it refused to allow an extension of the hunting season for certain birds unless scientific proof established that the extension would not impair the full protection of the affected bird species.¹⁰⁴

Eight of the 20 judges on the European Court of Human Rights issued a strong dissent in the case of *Balmer-Schafroth v. Switzerland*,¹⁰⁵ arguing that the precautionary principle is an important element of international environmental law that the majority had ignored. The majority had rejected the claim, ruling essentially that the concerned citizens attempting to challenge the extension of a nuclear power plant’s operating lease had not suffered a sufficient actual injury to give them standing to challenge the administrative decision, concluding that “the harm complained of was not imminent and there was not a sufficient link between the applicant’s right to protection of physical integrity and the operating conditions of the nuclear plant.”¹⁰⁶

E. World Trade Organization

In the case entitled *EC Measures Concerning Meat and Meat Products*,¹⁰⁷ the Appellate Body of the World Trade Organization noted that the precautionary principle “continues to be the subject of debate” and that its status is “less than clear,”¹⁰⁸ but also stated that the principle is regarded by “some” judges and commentators “as having crystallized into a general principle of customary international environmental law.”¹⁰⁹ In its conclusion, the Appellate Body followed a precautionary approach by ruling that panels evaluating scientific data should accept that “responsible, representative governments commonly act from perspectives of prudence and precaution where risks of irreversible, *e.g.* life-terminating, damage to human health are concerned.”¹¹⁰

¹⁰³ Case T-70/99 R, *Alpharma, Inc. v. Council of the European Union* 1999 E.C.R. II-2027, ¶ 3.

¹⁰⁴ See Backes and Verschuuren, *supra* note 33, at 49 (citing Case C-157/89, *Commission v Italy*, 1991 E.C.R. I-57, I-87; Case C-435/92, *Association pour la Protection des Animaux Sauvages and Others v. Prefet de Maine-et-Loire and Prefet de la Loire-Atlantique*, 1994 E.C.R. I-67, I-95).

¹⁰⁵ *Balmer-Schafroth v. Switzerland*, 25 Eur. H.R.Rep. 598 (Eur. Ct. H.R. 1997).

¹⁰⁶ Unger, *supra* note 83, at 658-59.

¹⁰⁷ *EC Measures Concerning Meat and Meat Products (Hormones)*, Report of Appellate Body, Adjusted Basis 1997-4, WT/DS26/AB/R (Jan. 16, 1998), 1998 WL 25520 (W.T.O.), ¶ 60.

¹⁰⁸ *Id.* ¶ 123 n.92.

¹⁰⁹ *Id.* ¶ 123.

¹¹⁰ *Id.* ¶ 124.

IV. Recognition in State Practice

Countries engage in a wide range of cautionary actions to protect their environments, and the burgeoning examples of such practices provide support for the conclusion that many countries recognize an international-law obligation to adhere to the precautionary principle. Among the many examples of national actions are:

- Numerous nations from all parts of the globe have enacted national legislation recognizing the precautionary principle as a guiding principle of national environmental law.¹¹¹
- Several national courts have applied the precautionary principle in domestic disputes, including the Supreme Courts of Pakistan and India and courts in Australia and the Netherlands.¹¹²

¹¹¹ For a long list of such enactments, see Unger, *supra* note 83, at 660-63.

¹¹² See references in Unger, *supra* note 83, at 664 (citing *Zia v. WAPDA*, Human Rights Case No. 15-K (Pakistan S.C. 1992), at http://www.elaw.org/custom/custompages/resourceDetail.asp?profile_ID=280; *Vellore Citizens Welfare Forum v. Union of India & Ors.*, (1995) 5 S.C.C. 647, 703, at http://www.elaw.org/custom/custompages/resourceDetail.asp?profile_ID=199; *A.P. Pollution Control Board v. Prof. M.V. Nayudu (Retd.)*, (1999) 2 S.C.C. 718, at <http://www.supremecourtsonline.com/>; *Leatch v. National Parks & Wildlife Service*, (1993) 81 L.G.E.R.A. 270; *Simpson v. Ballina Shire Council*, (1994) 82 L.G.E.R. 392; *Greenpeace Australia Ltd. v. Redbank Power Co.*, (1995) 86 L.G.E.R.A. 143).

Of particular significance is *Van der Endt-Louwerse B.V. et al. v. State Secretary of Transport, Public Works and Water Management*, JM 2001/99 (Netherlands Administrative Law Division of the Council of State, 26 April 2001), where the court annulled a permit allowing shell extraction from the Wadden Sea, based on the precautionary principle, because uncertainties about the impact of the extraction on the ecosystem existed after the best available information was analyzed, and the benefit of the doubt should result in protecting the Wadden Sea. *NILOS Newsletter*, Feb. 2002, No. 19, at 5. Similarly, Australia's courts have interpreted Australia's Fisheries Management Act to require adherence to the precautionary principle to conserve resources and avoid serious or irreversible damage to the environment. See, for instance, *Latitude Fisheries Pty, Ltd. v. Australian Fisheries Management Authority*, [2002] FCA 416, 2002 WL 536814 (Fed. Ct. Australia, 2002).

U.S. courts have not discussed the precautionary principle with any frequency yet. In *Beanal v. Freepport-McMoran, Inc.*, 197 F.3d 161, 167 (5th Cir. 1999), the court ruled that a claim based in part on the precautionary principle did not present a cognizable claim as a violation of customary international law under the Alien Tort Claims Act, 28 U.S.C. § 1350, because the claimants had not shown that the principle enjoyed "universal acceptance in the international community" or had "articulable and discernable standards" sufficient to "constitute international environmental abuses or torts." On the other hand, the Hawai'i Supreme Court ruled in *In the Matter of Water Use Permit Applications, Waiahole Ditch Combined Contested Case Hearing*, 9 P.3d 409, 466-67 (Hawai'i 2000), that "the precautionary principle simply restates the [Water] Commission's duties under the [Hawai'i] constitution and [Hawai'i's Water] Code. Indeed, the lack of full scientific certainty does not extinguish the presumption in favor of public trust purposes or vitiate the Commission's affirmative duty to protect such purposes wherever feasible."

- The United States enacted the Sustainable Fisheries Act¹¹³ in 1996, which “takes a step towards precautionary actions”¹¹⁴ by requiring a “proactive” response to a determination that a fishery is “overfished.”¹¹⁵ The appropriate regional fishery management council must within one year develop a new fishery management plan to stop the overfishing and rebuild the stock.
- The United States took action in late 1999 committing the government to conduct environmental reviews of its trade agreements.¹¹⁶
- The Western Pacific Regional Fishery Management Council (of the United States) established “a precautionary management approach to fishery conservation and management” as evidenced by its establishment of a moratorium and then a limited-entry program “in response to the rapid entry of longline vessels into the Hawaii-based fleet.”¹¹⁷
- The 1990 British White Paper entitled “This Common Inheritance: Britain’s Environmental Strategy”¹¹⁸ provides the following guide to all British governmental activities:

“We must analyze the possible benefits and costs both of action and of inaction. Where there are significant risks of damage to the environment, the Government will be prepared to take precautionary action to limit the use of potentially dangerous pollutants, even where scientific knowledge is not conclusive, if the balance of the likely costs and benefits justifies it. This

The Hawai’i Supreme Court cited, as evidence that “[t]he precautionary principle’ appears in diverse forms throughout the field of environmental law,” the cases of *Ethyl Corp. v. EPA*, 541 F.2d 1, 20-29 (D.C. Cir. 1976), *cert. denied*, 426 U.S. 941 (1976); *Lead Industries v. EPA*, 647 F.2d 1130, 1154-55 (D.C. Cir. 1980), *cert. denied*, 449 U.S. 1042 (1980); and *Les v. Reilly*, 968 F.2d 985 (9th Cir. 1992), *cert. denied*, 507 U.S. 950 (1993). “As with any general principle, its meaning must vary according to the situation and can only develop over time. In this case, we believe the [Water] Commission describes the [precautionary] principle in its quintessential form: at minimum, the absence of firm scientific proof should not tie the Commission’s hands in adopting reasonable measures designed to further the public interest.” 9 P.3d at 467.

¹¹³ Sustainable Fisheries Act, Pub. L. No. 104-297, 110 Stat. 3559 (1996) (amending the Magnuson Act, 16 U.S.C. §§ 1801-82 (1976)).

¹¹⁴ Michele Territo, *The Precautionary Principle in Marine Fisheries Conservation and the U.S. Sustainable Fisheries Act of 1996*, 24 VT. L. REV. 1351, 1371 (2000).

¹¹⁵ *Id.* at 1372. See also *City of Charleston, S.C. v. A Fisherman’s Best, Inc.*, 310 F.3d 155, 172 (4th Cir. 2002)(quoting *Final Fishery Management Plan for Atlantic Tunny, Swordfish, and Sharks* viii (April 1999) for the proposition that when “the United States Congress reauthorized the Magnuson-Stevens Act[. t]his authorization included a new emphasis on the precautionary approach in U.S. fishery management policy”).

¹¹⁶ Executive Order 13,141, Environmental Review of Trade Agreements, 64 Fed. Reg. 63, 169 (1999); see generally James Salzman, *Executive Order 13, 141 and the Environmental Review of Trade Agreements*, 95 AM. J. INT’L L. 366 (2001).

¹¹⁷ Western Pacific Regional Fishery Management Council, *A 20-Year Report* 26 (1998).

¹¹⁸ This Common Inheritance: Britain’s Environmental Strategy, Sept. 1990, Cm 1200.

precautionary principle applies particularly where there are good grounds for judging either that action taken promptly at comparatively low cost may avoid more costly damage later, or that irreversible effects may follow if action is delayed.”

- The European Community (EC) has been promoting reliance upon the precautionary principle “in the international arena, in general, and in the WTO [World Trade Organization], in particular.”¹¹⁹ The EC issued a “Communication” in 2000 stating that the precautionary principle is “a full-fledged and general principle of international law.”¹²⁰

V. Is the Precautionary Principle a Rejection of the Scientific Method and a Formula for Doing Nothing?

No. The precautionary principle does not reject science, but it does rest on the recognition that the physical sciences do not always provide all the answers, that social sciences and even the humanities are also valid sources of information and decisionmaking, and that concerns based on common fears are also relevant. Proportionality is always relevant, but grave harm—“the worst-case scenario”—must be considered, even if the likelihood of its occurrence seems relatively remote.

Adherence to the precautionary principle does, in a sense, bias decision-making against innovation by slowing down the process of introducing new technologies, but this go-slow approach is justified by the realization that new development does not always deliver all that it promises and that change is frequently irreversible. If new technologies and new activities will, in fact, offer benefits, they can be introduced after meeting the burdens of proof required by the precautionary principle.

Utilization of the precautionary principle will alter the “factual trigger” that requires precautions to be taken.¹²¹ Without this principle, those challenging a

¹¹⁹ Hans-Joachim Priess and Christian Pitschas, *Protection of Public Health and the Role of the Precautionary Principle Under WTO Law: A Trojan Horse Before Geneva’s Walls?* 24 *FORDHAM INT’L L. J.* 519, 520 (2000) (adding that “The EC relied on this principle in EC Measures Concerning Meat and Meat Products (Hormones), and it recently submitted a communication on the very same principle to the WTO Committee on Sanitary and Phytosanitary Measures. The Commission also published a communication on the precautionary principle . . . at the beginning of this year, and the Council issued a resolution on the precautionary principle at the Nice summit.”).

¹²⁰ Communication on the Precautionary Principle, Communication from the Commission of the European Communities, COM (2000) 1 final (Feb. 2, 2000), at http://europa.eu.int/comm/off/health_consumer/precaution.htm; see Mark Geistfeld, *Reconciling Cost-Benefit Analysis with the Principle that Safety Matters More than Money*, 76 *N.Y.U. L. REV.* 114, 176-78 (2001).

¹²¹ See, e.g., Vern R. Walker, *Some Dangers of Taking Precautions Without Adopting the Precautionary Principle: A Critique of Food Safety Regulation in the United States*, 31 *ENVTL. L. REP.* 10040 (2001).

food additive, for instance, would have to prove that it is toxic, those challenging a new fishing activity would have to prove that it would have a negative impact on a species or ecosystem, and those challenging a shipment of a hazardous cargo or the construction of a nuclear power plant would have to prove that it is likely to cause actual pollution to the environment. But when the precautionary principle is utilized, the fears that affected human populations have about such activities become sufficient to induce caution and to require those wishing to undertake these initiatives to establish that the activities are safe, or, in appropriate cases, that the benefits outweigh the risks. Science is not ignored, but its role has changed, and the burden of persuasion is shifted.¹²² In fact, the precautionary principle promotes more science, because it requires continuous monitoring as well as research into less-polluting alternatives. Some have said that the precautionary principle masks irrational fears of technology. But if the fears are irrational, then good science disseminated by those who are developing the technology can calm those fears and persuade the public that the project is sound.

VI. Summary and Conclusion

It is easy and commonplace for commentators to criticize the precautionary principle as an aspiration without content, or as a feel-good “‘sound bite’ rather than a principle rooted in law.”¹²³ But these criticisms fail to recognize the important shift in perspective that the precautionary principle exemplifies. It was not long ago that environmentalists were on the outside looking in, trying to warn governments and international organizations of the dangers facing our fragile ecosystems. But now these warnings—and the caution required to protect our depleted natural resources—are incorporated in international and national decisionmaking at the outset.

How exactly these cautions translate into action varies with each problem, and we are still experimenting with the assessments and evaluations needed to ensure that changes are introduced with the required prudence. But it is still highly significant that in less than two decades, the perspective of our global community has changed from allowing developments to proceed automatically to requiring careful evaluation before the green light is given. At its core, the precautionary principle means that decisionmakers “must take precautionary measures (or avoid certain conduct and projects) when there is an expectation that a relevant activity may create adverse environmental interference, even in the absence of conclusive evidence displaying a relationship between cause and

¹²² *Id.* (“The burden of proof should always be on those who would relax precautions in order to obtain benefits. Moreover, lawmaking procedures affecting safety should place a high priority on transparency and public participation.”).

¹²³ Deborah Katz, Note, *The Mismatch Between the Biosafety Protocol and the Precautionary Principle*, 13 *GEO. INT’L ENVTL. L. REV.* 949, 951 (2001).

alleged effects.”¹²⁴ It requires “an anticipatory response . . . in situations of uncertainty where a violation has not yet occurred and no harm has been done, but where a strong risk of such a violation exists.”¹²⁵ With time and experience, the details of the precautionary principle will come into clearer focus. But already it has transformed the process of decisionmaking, by recognizing the validity of environmental concerns and by requiring some level of clarity and certainty before risky activities are begun.

¹²⁴ Territo, *supra* note 114, at 1352 (citing JONAS EBBESSON, COMPATIBILITY OF INTERNATIONAL AND NATIONAL ENVIRONMENTAL LAW 119-20 (1996)).

¹²⁵ John Lee, *The Underlying Legal Theory to Support a Well-Defined Human Right to a Healthy Environment as a Principle of Customary International Law*, 25 COLUM. J. ENVTL. L. 283, 337 (2000).