



DRAFT WORKING PAPER

The Principle of the Precautionary Approach to Human Health, Natural Resources and Ecosystems

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¹ In order to advance academic and policy debates, this Legal Working Paper explores the principle of the precautionary approach to human health, natural resources and ecosystems with respect to recent developments in international law in relation to sustainable development law. This research also seeks to investigate the International Law Association’s 2002 *Principles of International Law Related to Sustainable Development*. This Legal Working Paper is designated as a scholarly legal research initiative, and accordingly, is not intended to be construed as legal advice for any country. Furthermore, the views expressed herein remain those of the author, and as such, do not reflect the official position of the Centre for International Sustainable Development Law (CISDL).

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The Principle of the Precautionary Approach to Human Health, Natural Resources and Ecosystems

By J. Hepburn, with M.-C. Cordonier Segger & M. Gehring²

I Definition of the Precautionary Principle

Precaution responds to an important problem in decision-making, namely, the absence of complete scientific information concerning the environmental consequences of a particular activity. In situations of risk, if decisions are made based only on available information, it is highly likely that they will damage the environment, perhaps severely or irreparably. Mitigation or protective measures, when science is uncertain, could be presumed unnecessary, so the burden of proof falls onto those seeking such measures, rather than the proponents of risky projects. Since the impetus for economic development tends to be strong, health, environment and natural resources would only be protected to the extent of existing scientific information, which does not reflect a balanced approach.³ Consequently, precaution has received widespread support by the international community as a valuable tool to integrate development, both economic and social, with environmental protection.⁴

Simply put, precaution means that the proponent of activities which might lead to either significant, serious or irreversible harm is obliged to take measures (or permit measures to be taken) to prevent this damage (including halting the proposed activities), even if there is a lack of full scientific certainty as to the existence and severity of the risk. In essence, precaution switches the burden of proof necessary for triggering policy responses. It is neither a panacea, nor is it intended for use in all situations. It is, however, a useful tool for a more systematic response to the dilemma of

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³ J.C. Dernbach, "Sustainable Development as a Framework for National Governance" (1998) 49 Case W. Res. 1.

⁴ For a detailed review of the origins and history of precaution, see A. Trouwborst, *Evolution and Status of the Precautionary Principle in International Law* (Kluwer Law International: The Hague, 2002). This section is also based on research which led to several publications by M.-C. Cordonier Segger, including M. Gehring & M.-C. Cordonier Segger, "The WTO Asbestos Cases and Precaution: Sustainable Development Implications of the WTO Asbestos Dispute" (2003) 15J. Env. L. 289; M.-C. Cordonier Segger & M. Gehring, "Precaution, Health and the World Trade Organization: Moving toward Sustainable Development" (2003) 29 Queen's L.J. 133; M.-C. Cordonier Segger, "Precaution, Trade Law & Justice: Global Review of the 'Safe' Level of Risk for the Chilean Asbestos Ban" in J. Wargo, ed., *Regulating Ecologically* (tentative title) (New Haven: Yale University FES, 2006 - forthcoming).

scientific uncertainty in environment and health decision-making. Essential elements include the magnitude, distribution and probability of damage needed to trigger the principle, as well as an aspect of proportionality between the magnitude of potential harm, and its likelihood of occurring.⁵ The distribution of risk is also important, as harms rarely fall equally on those affected. Perhaps most important, due to precaution, the reversal of the burden of proof means that proponents of risky activities need to take potential impacts into account in their planning, without leaving this aspect solely to those who will be most affected.

For precaution to be triggered, the magnitude of damage is usually inversely proportionate to the likelihood of risk. Precaution can be recommended when there is a *high* risk of “possible harm”, or when there is a *lower* risk of “serious and irreversible harm.” They are balanced by proportionality. If the weight of the legal ‘good’ in danger is very high (such as human lives), the correlating potential for its occurrence may be minimal, but could nevertheless surpass the threshold, triggering the need for precaution.⁶

One of the origins of precaution in the Western collective memory can be found in the field of human health, in the traditional motto of the medical profession. Hippocrates’ maxim to “first, do no harm”⁷ expresses an intention that physicians, in the simplest terms, “play it safe” when in doubt about the outcome of a medical procedure.⁸ Yet this is not necessarily an injunction to avoid all risk, as safety is almost never an absolute assurance in any field of endeavour, and the assessment, acceptance and mitigation of risk in individual cases may well be unavoidable, if not itself the primary enabling decision process for the maximisation of benefit overall. Rather, the injunction is best conceived as one that speaks to those scenarios where the risks themselves are uncertain --- in a sense, a risk of risk.

In the context of sustainable development, the precautionary principle is an indication of the need to err on the side of caution when uncertainty arises in the implementation of technological and

⁵ In more detail, these elements include proportionality; non-discrimination; consistency; examination of the benefits and costs of action or lack of action; and examination of scientific developments. Proportionality means that measures are proportional to the desired level of protection. Non-discrimination means that comparable situations should not be treated differently and different situations should not be treated in the same way, unless there are objective grounds for doing so. Consistency means being consistent with measures already adopted in similar circumstances or using similar approaches. Examination of the benefits and costs of action and lack of action means making a comparison between the most likely positive or negative consequences of the envisaged action and those of inaction in terms of the overall cost to proponents, both in the long- and short-term. Examination of scientific developments means maintaining measures adopted for as long as the scientific data are inadequate, imprecise or inconclusive, and as long as the risk is considered too high to be imposed on society. The measures may have to be modified or abolished by a particular deadline, in the light of new scientific findings, but this usually linked development of scientific knowledge not a timing factor. Scientific research is carried out with a view to obtaining a more advanced or more complete scientific assessment. In this context, measures are subjected to regular scientific monitoring, so that they can be re-evaluated in the light of new scientific information.

⁶ See F.X. Perrez, “Precaution from Rio to Johannesburg: An introduction” in *Precaution from Rio to Johannesburg: Proceedings of a Geneva Environment Network roundtable* (Geneva: United Nations Environment Programme: Geneva Environment Network & the Swiss Agency for the Environment, Forests and Landscape, 2002) at 5.

⁷ S.H. Miles, *The Hippocratic Oath and the ethics of medicine* (New York: Oxford University Press, 2004).

⁸ On the origins of precaution, see also J. Cameron and J. Abouchar, “The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment” (1991) 14 *Boston C.I.C.L.R.* 1; N. de Sadeleer, *Les principes du pollueur-payeur, de prévention et de precaution : essai sur la genèse et la portée juridique de quelques principes du droit de l’environnement*, Bruxelles, Bruylant, 1999); D. Freestone & E. Hey, eds., *The Precautionary Principle and International Law: The Challenge of Implementation* (The Hague: Kluwer Law International, 1996).

infrastructural development. It is generally meant to lay the burden of proof on those who may be creating potential risks to the public interest in the broad sense, which is also to say that the intent is to err on the “sustainability” side of the sustainable development equation.

The value of precaution lies primarily in its assumption that natural systems are vulnerable, as opposed to being resilient or invulnerable,⁹ thereby giving the benefit of the doubt to environmental, health and natural resources when there is scientific uncertainty. In its application, then, precaution shifts the burden of proof from those proposing measures that will reduce uncertain risks to these systems, to those supporting development.¹⁰ The principle is premised on the preference that harm, including pollution, be prevented before it occurs, rather than subsequently re-mediated, the relevance of scientific data to governmental decision-making and the obligation to take precautionary measures that are in proportion to the potential damage.¹¹

II International Legal Meaning

One of the major embodiments of precaution in an international legal instrument is Principle 15 of the 1992 *Rio Declaration on Environment and Development (Rio Declaration)*.¹² This statement of precaution takes the principle from Hippocrates’ health domain and places it into the environmental arena:

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.¹³

Since 1992, the language of Principle 15 has been reflected in various other international instruments, and it often represents an authoritative reference point for the principle in international law.

In 2002, the International Law Association’s (ILA) *New Delhi Declaration of Principles of International Law Relating to Sustainable Development Law (New Delhi Principles)*¹⁴ provided a different formulation, broadening the scope of the principle:

⁹ A.M.H. Clayton & N.J. Radcliffe, *Sustainability: A Systems Approach* (London: Earthscan, 1996) at 213.

¹⁰ B. Weintraub, “Science, International Environmental Regulation, and the Precautionary Principle: Setting Standards and Defining Terms” (1992) 1 N.Y.U. Envtl. L.J. 173 at 178-180; D.A. Wirth, “The Rio Declaration on Environment and Development: Two Steps Forward and One Back, or Vice Versa?” (1995) 29 Ga. L. Rev. 599 at 634.

¹¹ J.E. Hickey, Jr., & V.R. Walker, “Refining the Precautionary Principle in International Environmental Law” (1995) 14 Va. Envtl. L.J. 423 at 436. The principle does not answer certain questions, for instance, the level of potential damage, the level of certainty required, and the circumstances under which the government would act (as opposed to the circumstances under which it would refrain from acting).

¹² *Rio Declaration on Environment and Development, Report of the United Nations Conference on Environment and Development*, U.N. Doc. A/CONF.151/6/Rev.1 (1992), 31 I.L.M. 874 (1992) [*Rio Declaration*].

¹³ *Ibid.*, Principle 5.

¹⁴ International Law Association (ILA) *Resolution 3/2002: “New Delhi Declaration of Principles of International Law Relating To Sustainable Development”* in ILA, *Report of the Seventieth Conference*, New Delhi (London: ILA, 2002), available online: <<http://www.ila-hq.org>>.

A precautionary approach is central to sustainable development in that it commits States, international organi[s]ations and civil society, particularly the scientific and business communities, to avoid human activity which may cause significant harm to human health, natural resources or ecosystems, including in the face of scientific uncertainty.¹⁵

Under the *New Delhi Principles*, precaution is applicable in the environmental field but also – returning to Hippocrates – in the human health field. This broadening is one example of a wider trend towards a health formulation that is reflected in various other international instruments, as will be shown below.

The *New Delhi Principles* further expanded on the meaning and content of precaution in international law:

Sustainable development requires that a precautionary approach with regard to human health, environmental protection and sustainable utilisation of natural resources should include accountability for harm caused (including, where appropriate, State responsibility), planning based on clear criteria and well-defined goals, consideration of all possible means in an environmental impact assessment to achieve an objective (including, in certain instances, not proceeding with an envisaged activity) and, in respect of activities which may cause serious long-term or irreversible harm, establishing an appropriate burden of proof on the person or persons carrying out (or intending to carry out) the activity. [...] Precautionary measures should be based on up-to-date and independent scientific judgment and be transparent. They should not result in economic protectionism. Transparent structures should be established which involve all interested parties, including non-state actors, in the consultation process. Appropriate review by a judicial body or administrative action should be available.¹⁶

Nevertheless, however clear the concept of precaution may appear in layman's terms, a definition precise enough as to enable consistent application remains a complex and often contentious point of international law. In practice, precaution continues to be formulated with differences, some subtle and others profound, for each legal instrument in which it is found, depending on the context of negotiations at hand. Professor John S. Applegate postulates four elements as common to most or all formulations of precaution,¹⁷ the different terms or emphasis of which can account for overall trends in its legal instances:

1. The *trigger* is the type of risk or danger to public welfare that justifies regulation of a given sector. Triggers can be seen to vary in terms of a *degree*, or seriousness of the potential harm to human health, to the renewability of natural resources, or to the diversity and vitality of an ecosystem. They also vary, pivotally, in terms of *certainty*, which is to say in terms of the quantity and quality of information predicting the harm.
2. The *timing* is the relationship between the *trigger* and *response*, or in other words, the threshold to action. It is the core of the Precautionary Principle, both as its operative device and as the nub of jurisprudential contention. Among the key issues in formulating precautionary timing is the reference paid to the certainty of the trigger, and how the threshold may be constructed to differ for risks that are unknown, as opposed to those that are known. Increasingly common is a mere assurance that certainty is not required for action, or conversely, and in more practical terms, the exclusion of uncertainty about a danger as an after-the-fact excuse for inaction, when it might have been prevented. However, uncertainty may also be presented as actively justifying action or, in stronger versions, actively requiring it on the part of regulators.

¹⁵ *Ibid.* at para. 4(1).

¹⁶ *Ibid.* at paras. 4(2), 4(4).

¹⁷ J.S. Applegate, "The Taming of the Precautionary Principle" (2002) 27 William & Mary Env. L. & Pol'y Rev. (2002) at 3.

3. The *regulatory response* is a set of potential actions to be triggered. Perhaps often thought of as necessarily absolute (e.g. banning a product, activity, etc.), in fact the parameters of that set are greatly variable across different contexts. This is the element that varies, for example, between affirmations compelling positive action (such as use of “best available technology”) and, more classically, negative action including prohibitions.
4. *Iteration* is the post-regulatory effort to improve the original degree of certainty in the trigger on which an application of the principle is premised. It may involve a mandate for continuing research to better identify the risks, or to convert potential harm into known consequences for any given product, activity, such that regulation premised on precaution would eventually be replaced by regulation premised on factual cost-benefit analysis, and geared to those conditions as they may be established [*emphasis mine*].¹⁸

Although a large degree of variation in formulations would be expected, given differing pressures and interests for strong or weak effects from case to case, there is clearly more variation in statements of the principle, and academic restatements thereof, than can be explained by politicisation alone. Some inconsistency is due to a confusion of the principle with approaches to (first order) risk analysis itself, or in other words, a confusion of precaution with mere caution. Other confusion surrounding the interpretation of precaution relates to the distinction between precaution and more traditional preventive standards. Precaution, both at its conceptual core and its practical implications, is preventive. However, not all preventive standards are precautionary. More precisely, any particular preventive standard may be either non-precautionary or precautionary in various degrees. By contrast, any given precautionary standard may be preventive in various degrees, but cannot be non-preventive.¹⁹

For example, according to the terms of the 1990 *International Maritime Organisation International Convention on Oil Pollution Preparedness, Response and Cooperation*,²⁰ Parties to it, “recogni[s]ing the serious threat posed to the marine environment by oil pollution incidents involving ships, offshore units, sea ports and oil handling facilities,” noted that they were “mindful of the importance of the precautionary measures and prevention in avoiding oil pollution in the first instance.”²¹ Despite the presence of precautionary language, there are few precautionary elements within the standards set. The threats posed to the marine environment are clear. Measures are being taken to prevent such known threats from being realised. The certainty of the environmental damage that would result from a failure to adhere to those standards means that the *Convention* is not precautionary, but rather, preventive, in its intention. The terms of the *Convention* may be contrasted with those of the *Conference for the Protection of Coasts and Waters of the North East Atlantic Against Pollution Due to Hydrocarbons or Other Harmful Substances*. The Conference’s *Final Act* declared the need for measures designed to prevent discharges of “[o]ther harmful substances, where the latter were defined as substances the release of which into the marine environment *may* lead to injury to human health, to eco-systems or living resources, or to the coasts or related interests of the Parties.”²² The risks to be reduced in this case are of an unknown nature. It is unclear what environmental damage the release of these “other harmful substances” into the marine environment would cause. The standard set is

¹⁸ *Ibid.* at 3.

¹⁹ J. Cameron, W. Wade-Gery & J. Abouchar, “Precautionary Principle and Future Generations” in E. Agius, ed., *Future Generations and International Law* (London: Earthscan Publications, 1998).

²⁰ *Final Act of the Conference on Oil Pollution Preparedness, Response and Cooperation*, done at London, November 30, 1990, 30 I.L.M. 733 (1991).

²¹ *Ibid.* at 735.

²² *Final Act of the Conference for the Protection of Coasts and Waters of the North East Atlantic Against Pollution Due to HydroCarbons or Other Harmful Substances*, and *Accord of Cooperation*, done at Lisbon, October 17, 1990, 30 I.L.M. 1227 (1991).

obviously preventive in intent, since it clearly seeks to prevent environmental damage, but it is also precautionary, in that the standards set are a response to the uncertainty surrounding the environmental effects of particular discharges. Of crucial importance, of course, is the term “may”. This example provides us with the key element of the conceptual core of precaution.

Ultimately, precaution is not a limitation on the actual progress of new technological or infrastructural development whatsoever, but on the *speed* of such development. In this way, it can be seen that the principle is only understood when all elements are framed together, in an active context of progressive change.

III International Treaties

One study has shown fifty-three legally binding instruments and forty-five non-binding instruments include some formulation of the precautionary principle.²³ The employment of precaution is sometimes complicated by the tendency for it to appear in preambles or in agreements of a goal-setting or priority-declaring nature, rather than in operative text.

In its preamble, the 1992 *United Nations Convention on Biological Diversity*²⁴ expresses a commitment to the sustainable use of biodiversity, and stipulates that “lack of full scientific certainty should not be used as a reason for postponing measures” to avoid or minimise “a threat of significant reduction or loss of biological diversity.”²⁵ The *Convention’s* 2000 *Protocol*, the *Cartagena Protocol on Biosafety*, was entered into force in 2003.²⁶ Discussion of precaution in the *Protocol* was limited in the initial negotiations, but with the support of the European Union (EU), following the BSE and dioxin crises, the principle became “one of the core elements” of the *Protocol*.²⁷ The preamble reaffirms the precautionary approach, and article 1 presents the *Protocol’s* objective “in accordance with the precautionary approach contained in Principle 15 of the *Rio Declaration*.” Articles 10(6) and 11(8) allow countries to take measures to avoid “potential adverse effects” in cases where “lack of scientific certainty due to insufficient scientific information and knowledge” exists, also taking into account “risks to human health.” The use of the phrase “potential adverse effects” sets the *Protocol’s* threshold for triggering precautionary measures much lower than in other instruments, including Principle 15 of the *Rio Declaration*²⁸ and the *Biodiversity Convention* itself. The reference to human health broadens the scope of precaution beyond environmental applications, as noted in the above *New Delhi Principles*. Decisions under the *Protocol* to ban products must be made following a scientifically sound risk assessment,²⁹ and it is noted that a “lack of scientific knowledge or scientific consensus should not necessarily be interpreted as indicating a particular level of risk, an absence of risk, or an acceptable risk.”³⁰

²³ J.S. Applegate, *supra* note 17 at 10. For a similar comprehensive study of international instruments containing precaution, see also A. Trouwborst, *Evolution and Status of the Precautionary Principle in International Law* (Kluwer Law International, 2005)

²⁴ *United Nations Convention on Biological Diversity*, 5 June 1992, 1760 U.N.T.S. 79, 31 I.L.M. 822 (entered into force 29 December 1993) [*Biodiversity Convention*].

²⁵ *Ibid.*

²⁶ *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*, 29 January 2000, 39 I.L.M. 1027, available online: <<http://www.biodiv.org>> (entered into force 11 September 2003) [*Cartagena Protocol*].

²⁷ F.X. Perrez, *supra* note 6 at 19.

²⁸ The *Rio Declaration* sets the threshold at “threats of serious and irreversible damage.”

²⁹ *Cartagena Protocol*, *supra* note 26, arts. 10(1), 15.

³⁰ *Ibid.* at art. 4 (*Annex III*).

The *Stockholm Convention on Persistent Organic Pollutants (POPs Convention)*³¹ contains a number of references to precaution. The preamble acknowledges: “precaution underlies the concerns of all the Parties and is embedded within this *Convention*.”³² Article 1 is “[m]indful of the precautionary approach as set forth in Principle 15 of the *Rio Declaration*” and presents the objective of the *Convention* to “protect human health and the environment from persistent organic pollutants.” Article 8, making precaution operative, requires Parties to use “a precautionary manner” when deciding which chemicals to list in the Annexes of the *Convention*.³³ A proposal to list a chemical in the Annexes shall proceed if the chemical “is likely as a result of its long-range environmental transport to lead to significant adverse human health and/or environmental effects.”³⁴ Furthermore, the “[l]ack of full scientific certainty shall not prevent the proposal from proceeding.”³⁵ Part V(B) of Annex C specifies that “precaution and prevention” should be considered when determining the best available techniques.

The *POPs Convention* therefore applies jointly to the environmental and human health fields, albeit with a trigger of “significant adverse effects”, which is higher than that set in the *Cartagena Protocol*, for example. The response intended by the *Convention* is either to ban the chemical in question (Annex A) or restrict its use and production (Annex B).

The precautionary principle is outlined in the 1998 *Rotterdam Convention*,³⁶ , which requires exporters of certain hazardous substances to obtain the prior informed consent of importers before proceeding.³⁷

In 1995, fifty-nine countries signed the *Straddling Stocks Agreement*.³⁸ Article 6 of the *Agreement* deals entirely with the application of the precautionary approach:

1. States shall apply the precautionary approach widely to conservation, management and exploitation of straddling fish stocks and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment.
2. States shall be more cautious when information is uncertain, unreliable, or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.³⁹

Article 6 thus includes explicitly the affirmative requirement to be “more cautious” in the face of uncertainty, though no specific trigger is given. The “absence of adequate scientific information” is mentioned here, rather than a “lack of scientific certainty”.

³¹ *Stockholm Convention on Persistent Organic Pollutants*, 22 May 2001 (entered into force 17 May 2004) [*POPs Convention*].

³² *Ibid.*, Preamble.

³³ *Ibid.*, art. 8(9).

³⁴ *Ibid.*

³⁵ *Ibid.*, art. 8(7).

³⁶ *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* (entered into force 24 February 2004).

³⁷ *Ibid.*

³⁸ *Agreement for the Implementation of the Provisions of the U.N. 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*, 4 August 1995, UN Doc. A/CONF.164/38, (1995) 34 I.L.M. 1542, art. 5(c) [*Straddling Stocks Agreement*].

³⁹ *Ibid.*, arts. 6(1)(2).

Article 6(7) implements a more positive requirement:

States shall also adopt such measures on an emergency basis where fishing activity presents a serious threat to the sustainability of such stocks. Measures taken on an emergency basis shall be temporary and shall be based on the best scientific evidence available.⁴⁰

Here, precautionary measures are triggered by a “serious threat” and, impliedly, must be implemented even when the “best scientific evidence available” is uncertain.

Under the 1992 *UN Framework Convention on Climate Change (UNFCCC)*,⁴¹ States Parties “should take precautionary measures to anticipate, prevent or minimi[s]e the causes of climate change and mitigate its adverse effects.”⁴² The high threshold of “threats of serious or irreversible damage” must be crossed before measures are required, but when such threats exist, the “lack of full scientific certainty should not be used as a reason for postponing such measures.”⁴³ A further requirement imposed is that policies and measures taken “should be cost-effective so as to ensure global benefits at the lowest possible cost,”⁴⁴ which implies that countries are permitted to postpone *non*-cost-effective measures to combat climate change in light of uncertainty. This formulation privileges economics in determining cost-effectiveness as the arbiter of States’ actions.

Precaution has also appeared in international trade law. The World Trade Organisation’s *Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)*⁴⁵ provides that Members may “provisionally” adopt SPS measures “where relevant scientific evidence is insufficient.”⁴⁶ In such cases, under article 5(7), measures may be adopted “on the basis of available pertinent information, including that from the relevant international organi[s]ations 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.”⁴⁷ While SPS measures include those necessary to protect “human, animal or plant life or health,”⁴⁸ there is no requirement for such measures to be cost-effective, as under the *UNFCCC*. The only trigger specified is that the measures implemented must be “necessary”.

In the *Hormones* case⁴⁹ the Appellate Body explicitly discussed the relationship of the precautionary principle to the *SPS Agreement*, and noted: “the precautionary principle finds reflection in [a]rticle 5[(7)].”⁵⁰ It also found that the principle is reflected in the sixth paragraph of the preamble and in article 3(3), which both “explicitly recogni[s]e the right of Members to establish their own appropriate level of sanitary protection, which level may be higher (i.e., more cautious) than that implied in existing

⁴⁰ *Ibid.*, art. 6(7).

⁴¹ *United Nations Framework Convention on Climate Change*, 9 May 1992, 31 I.L.M. 849, art. 3(3) [*Climate Change Convention*].

⁴² *Ibid.*

⁴³ *Ibid.*

⁴⁴ *Ibid.*

⁴⁵ World Trade Organisation, *Agreement on the Application of Sanitary and Phytosanitary Measures* [*SPS Agreement*].

⁴⁶ *Ibid.*, art. 5(7).

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*, art. 2(1).

⁴⁹ *EC – Measures Concerning Meat and Meat Products (Hormones) (Compliance USA and Canada)* (13 February 1998), WTO Doc. WT/DS26/AB/R, WT/DS48/AB/R (Appellate Body Report) [*EC Hormones*].

⁵⁰ *Ibid.* at para. 124.

international standards, guidelines and recommendations.”⁵¹ Moreover, while the *Agreement on Technical Barriers to Trade (TBT Agreement)*⁵² does not explicitly incorporate a precautionary approach in its text, in its preamble, it provides that:

no country should be prevented from taking measures [...] for the protection of human, animal or plant life or health [or] of the environment, [...] at the levels it considers appropriate, subject to the requirement that they are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade, and are otherwise in accordance with the provisions of this *Agreement*.⁵³

This statement, acknowledging the right of a WTO Member to set the level of protection “at the level it considers appropriate”, parallels that in the *SPS Preamble* and article 3(3), which the Appellate Body has stated are reflections of the precautionary principle.

Although the text of the 1973 *Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES)* does not explicitly invoke the principle, in 1994, the Conference of the Parties (COP) clearly endorsed it. At the Ninth Meeting of the COP to *CITES*, States Parties adopted a resolution to incorporate the precautionary principle in the procedure for listing species in need of protection. The resolution provides that:

the Parties shall, by virtue of the precautionary approach and in case of uncertainty either as regards the status of a species or the impact of trade on the conservation of a species, act in the best interest of the conservation of the species concerned and adopt measures that are proportionate to the anticipated risks to the species.⁵⁴

Various regional treaties, mostly in the environmental domain, refer to precaution. In 1993, the EU officially adopted the precautionary principle as a basis for all community environmental policy. According to article 130r(2) of the *Treaty Establishing the European Economic Community (EEC)*, as amended by the *Treaty on European Union (the Maastricht Treaty)*:⁵⁵

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 preventive action should be taken, that environmental damage should as a priority be rectified at the source and that the polluter should pay.⁵⁶

Apart from the above entry, the treaty neither defines the principle nor imposes any specific obligations on Members of the EEC. Still, as a “constitutional” document of the EU, the *Maastricht Treaty* will guide future adoption of EU environmental policy.

⁵¹ *Ibid.*

⁵² *Agreement on Technical Barriers to Trade [TBT Agreement]*.

⁵³ *Ibid.*

⁵⁴ *Resolution of the Conference of the Parties, Criteria for Amendment of Appendices I and II, Ninth Meeting of the Conference of the Parties*, Fort Lauderdale (USA), November 7-18, 1994, Com.9.24. See also J. Cameron & J. Abouchar, “The Status of the Precautionary Principle in International Law” in D. Freestone & E. Hey, *supra* note 8 at 46.

⁵⁵ *Treaty on European Union (Maastricht Treaty)*, 7 February 1992, 1992 O.J. (C 191) 1, 31 I.L.M. 253 [*Maastricht Treaty*].

⁵⁶ *Ibid.*

The conferences that led to the *Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)*⁵⁷ included the first explicit mention of the principle in international negotiations. As early as 1980, the German Council of Experts in Environmental Matters found that the principle was a “requirement for a successful environmental policy for the North Sea ecosystem.”⁵⁸ In 1987, the principle was included in the *Final Declaration of the Second International North Sea Conference*,⁵⁹ where the ministers accepted that:

in order to protect the North Sea from possibly damaging effects of the most dangerous substances, a precautionary approach is necessary which may require action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence.⁶⁰

Precaution was repeated at the third *North Sea Conference* in 1990, where the participants agreed to: “continue to apply the Precautionary Principle, that is to take action to avoid potentially damaging impacts of substances that are persistent, toxic, and liable to bioaccumulate even where there is no scientific evidence to prove a causal link between emissions and effects.”⁶¹

The *OSPAR Convention* itself expresses the precautionary principle in the following language:

The Contracting Parties shall apply the precautionary principle, by virtue of which preventive 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 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.⁶²

The preventive measures to be taken might include the use of best available techniques, best environmental practice, and clean technology. This does not require Parties to prohibit the discharge of substances over which there are reasonable grounds for concern (but no conclusive evidence), although article 2(4) allows Parties to take this additional step if they wish. The *European Water Convention* provides at article 2(5)(a) that:

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.⁶³

This language does not require a prohibition on the release of hazardous substances, but simply action to avoid the potential “transboundary impact”, a phrase meaning “any significant adverse effect on [...] human health and safety, flora, fauna, soil, air, water, climate, landscape and historical

⁵⁷ *Convention for the Protection of the Marine Environment of the North-East Atlantic*, 22 September 1992, reprinted in 32 I.L.M. 1069 (1993) (entered into force 25 March 1998) [*OSPAR Convention*].

⁵⁸ See generally D. Freestone & E. Hey, eds., *supra* note 8. See also P.L. Gundling, “The Status in International Law of the Principle of Precautionary Action” (1990) 5 Int’l J. of Estuarine & Coastal L. 23 at 24.

⁵⁹ *Final Declaration of the Second International North Sea Conference: Ministerial Declaration Calling for Reduction of Pollution*, 25 Nov. 1987, 27 I.L.M. 835 (1988).

⁶⁰ *Ibid.*, art. VII.

⁶¹ *Declaration of the Third International Conference on Protection of the North Sea*, 7-8 March 1990, reprinted at 1 Y.B. I.E.L. 658 at 662-73.

⁶² *OSPAR Convention*, *supra* note 58, art. 2(2)(a).

⁶³ *Convention on the Protection and Use of Transboundary Watercourses and International Lakes*, 17 March 1992, 31 I.L.M. 1312, art. 2(5)(a) [*Water Convention*].

monuments or other physical structures.”⁶⁴ The trigger here, which can be constructed as a “potential significant adverse effect”, is below the *UNFCCC* and *Rio Declaration* triggers of “threats of serious or irreversible damage.”

Article 3(2) of the 1992 *Baltic Sea Convention*⁶⁵ invokes the precautionary principle in almost identical language as that of the *OSPAR Convention*:

[t]he 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.⁶⁶

Both human health and environmental damage encompass the *Baltic Sea Convention* (including the previously noted regional treaties, namely, the *OSPAR Convention* and the *Water Convention*), and precaution is triggered by a fairly low threshold of reason to assume a hazard.

The 2003 *Antigua Convention*⁶⁷ requires the application of the “precautionary approach [...] for the conservation, management and sustainable use of fish stocks.”⁶⁸ It uses similar language to the *Straddling Stocks Convention*, obliging members of the Commission that administers the *Convention* to be “more cautious when information is uncertain, unreliable or inadequate.” Further, “[t]he absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.”⁶⁹ As with the *Straddling Stocks Convention*, there is no specific trigger but a requirement simply to be more cautious when faced with uncertainty. The Commission must also “undertake to obtain the scientific information necessary” in cases where it is inadequate.⁷⁰ However, the *Convention* is not yet in force with only two current ratifications.

In early 1991, over fifty African countries negotiated the *Bamako Convention*,⁷¹ which provides that:

[e]ach Party shall strive to adopt and implement the preventive, precautionary approach to pollution problems which entails, *inter alia*, 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. The parties shall cooperate with each other in taking the appropriate measures to implement the precautionary principle to pollution through the application of clean production methods, rather than the pursuit of a permissible emissions approach based on assimilative capacity assumptions.⁷²

It should be noted that the only main requirement is that Parties “strive to adopt” precaution, which lessens the normative power of the Convention. However, the threshold is low, that is, only “harm

⁶⁴ *Ibid.*, art. 1(2).

⁶⁵ *Convention on the Protection of the Marine Environment of the Baltic Sea Area*, 9 April 1992 (entered into force 17 January 2000), art. 3(2) [*Baltic Sea Convention*].

⁶⁶ *Ibid.*

⁶⁷ *Convention for the Strengthening of the Inter-American Tropical Tuna Commission Established by the 1949 Convention Between the United States of America and the Republic of Costa Rica*, art. IV(1) [*Antigua Convention*].

⁶⁸ *Ibid.*

⁶⁹ *Ibid.*, art. IV(2).

⁷⁰ *Ibid.*, art. VII(1)(m).

⁷¹ *Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa*, 29 January 1991, 30 I.L.M. 775 (1991), art. 4(3)(f) [*Bamako Convention*].

⁷² *Ibid.*

to humans or the environment” is required to trigger precaution, and [P]arties are obliged to take “appropriate measures” to implement clean production methods.

Numerous protocols to the 1979 ECE *Convention on Long Range Transboundary Air Pollution* (LRTAP)⁷³ also specifically invoke the precautionary principle.⁷⁴ In its preamble, the *Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Further Reduction of Sulphur Emissions*⁷⁵ provides that Parties are “[r]esolved to take precautionary measures to anticipate, prevent or minimi[s]e emissions of air pollutants and mitigate their adverse effects.”⁷⁶ The preamble to the *Protocol on Heavy Metals*⁷⁷ notes that Parties are:

[r]esolved to take measures to anticipate, prevent or minimi[s]e emissions of certain heavy metals and their related compounds, taking into account the application of the precautionary approach, as set forth in principle 15 of the *Rio Declaration on Environment and Development*.⁷⁸

Various other international accords, agreements and treaties also include formulations of the precautionary principle. As per the 1985 *Vienna Convention for the Protection of the Ozone Layer* (*Vienna Convention*)⁷⁹ and 1987 *Montreal Protocol on Substances that Deplete the Ozone Layer* (*Montreal Protocol*),⁸⁰ State signatories agreed to take “precautionary measures” with respect to emissions from ozone depleting substances.⁸¹ The text of the *Montreal Protocol* reads accordingly:

[States P]arties [... are] determined to protect the ozone layer by taking precautionary measures to control equitably total global emissions of substances that deplete it, with the ultimate objective of their elimination on the basis of developments in scientific knowledge, taking into account technical and economic considerations.⁸²

Here, the trigger is the emission of the substances that deplete the ozone layer. The timing or threshold is any substance that depletes the ozone layer. The regulatory response is the total phase-out of such substances, and the iteration involves the technical and economic considerations that may today be a hindrance for action, but with more research may dissipate.

⁷³ *Convention on Long Range Transboundary Air Pollution*, 13 November 1979, 1302 U.N.T.S. 217 (entered into force 16 March 1983) [LRTAP]. See *Protocol to the 1979 Convention on long-range transboundary air pollution concerning the control of emissions of nitrogen oxides or their transboundary fluxes*, 31 October 1988, UN Doc. C.N.252.1985. Treaties.1 of December 1988 (entered into force 14 February 1991), available online: United Nations Economic Commission for Europe <<http://www.unece.org/env/lrtap/full%20text/1979.CLRTAP.e.pdf>>.

⁷⁴ See e.g. *Protocol to the Convention on Long-Range Transboundary Air Pollution on Persistent Organic Pollutants*, 24 June 1998, UN Doc. EB.AIR/1998/2 (entered into force 23 October 2003), Preamble.

⁷⁵ I.e. *Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Further Reduction of Sulphur Emissions*, 14 June 1994, UN Doc. EB.AIR/R.84; 33 I.L.M. 1542 (entered into force 5 August 1998), Preamble.

⁷⁶ *Ibid.*

⁷⁷ *Protocol to the Convention on Long-Range Transboundary Air Pollution on Heavy Metals*, June 25, 1998, UN Doc. EB.AIR/1998/1.

⁷⁸ *Ibid.*, Preamble.

⁷⁹ *Vienna Convention for the Protection of the Ozone Layer*, 22 March 1985, 1513 U.N.T.S. 293, 26 I.L.M. 1529 (entered into force 22 September 1988) [*Vienna Convention*].

⁸⁰ *Montreal Protocol on Substances that Deplete the Ozone Layer*, 17 September 1987, 1522 U.N.T.S. 3, 26 I.L.M. 154 (entered into force 1 January 1989) [*Montreal Protocol*].

⁸¹ J.E. Hickey, Jr. & V.R. Walker, *supra* note 11.

⁸² *Montreal Protocol*, *supra* note 81 at #.

IV International Case Law and Acts of Inter-Governmental Organisations (IGOs)

In 1999, the International Tribunal on the Law of the Sea (ITLOS) considered the precautionary principle in the *Southern Bluefin Tuna* cases.⁸³ The case revolved around an experimental fishing programme (EFP) launched in 1998 by Japan. The EFP meant that Japan's annual catch of southern bluefin tuna was higher than its catch allowed under a limit set in 1994 by the *Convention for the Conservation of Southern Bluefin Tuna*. Australia and New Zealand protested the EFP, claiming that the scientific evidence showed that the EFP could endanger the existence of tuna stocks and thus that Japan had failed to comply with obligations under UNCLOS to conserve and manage tuna stocks. They sought urgent provisional measures from the ITLOS, requesting *inter alia* that the parties (that is, Australia, New Zealand and Japan) act in accordance with the precautionary principle pending a final arbitral settlement of the matter.⁸⁴ In practical terms, precaution according to Australia and New Zealand meant a cessation of Japan's EFP and a restriction of its tuna catch to its allowed limit reduced by the amount taken during the EFP. Japan argued in response that, firstly, the scientific evidence in fact showed that the EFP posed no further threat to tuna stocks but rather was necessary to determine the stock's potential to recover from fishing, and secondly, no provisional measures were required.⁸⁵

The ITLOS noted the severe depletion of southern bluefin tuna stocks and stated, "this is a cause for serious biological concern."⁸⁶ It recognised that:

there is scientific uncertainty regarding measures to be taken to conserve the stock of southern bluefin tuna and that there is no agreement among the parties as to whether the conservation measures taken so far have led to the improvement in the stock of southern bluefin tuna.⁸⁷

It went on to find that the parties "should in the circumstances act with prudence and caution to ensure that effective conservation measures are taken to prevent serious harm to the stock."⁸⁸ Effectively relying on the precautionary principle, the Tribunal granted the provisional measures sought by Australia and New Zealand in order to "avert further deterioration" of the tuna stocks, despite the fact that "the Tribunal [could not] conclusively assess the scientific evidence presented by the parties."⁸⁹ Thus, although couched in terms of prevention, to "avert further deterioration" and "prevent serious harm", it is clear that precaution guided the Tribunal to prohibit Japan's activity in the face of uncertain science, with the marine environment as the beneficiary.

Several judges in the case gave separate opinions and made comments relating to precaution. Judge Laing, in his opinion, referred to the Tribunal's discussion above as "pregnant with meaning" for the precautionary principle.⁹⁰ His own definition of precaution was as follows:

⁸³ *Southern Bluefin Tuna Cases (New Zealand v. Japan; Australia v. Japan)*, [1999] ITLOS, 117 I.L.R. 148.

⁸⁴ *Ibid.* at paras. 31, 32.

⁸⁵ *Ibid.* at paras. 66,73. Of note, though not relevant to this working paper, an argument ensued over the ITLOS' jurisdiction to hear the case.

⁸⁶ *Ibid.* at para. 71.

⁸⁷ *Ibid.* at para. 79.

⁸⁸ *Ibid.* at para. 77.

⁸⁹ *Ibid.* at para. 80.

⁹⁰ *Ibid.*, Separate Opinion of Judge Laing, at para. 13.

[I]n the face of serious risk to or grounds (as appropriately qualified) for concern about the environment, scientific uncertainty or the absence of complete proof should not stand in the way of positive action to minimi[s]e risks or take actions of a conservatory, preventative or curative nature.⁹¹

Judge Laing was keen to make a distinction between the precautionary principle and a precautionary *approach*, with the latter having “a certain degree of flexibility” and showing (in Judge Laing’s view) an appropriate “reticence about making premature pronouncements about desirable normative structures.”⁹²

Judge Laing noted that Australia and New Zealand, in their claims, considered precaution as an obligation under general international law, but his own conclusion was that “it is not possible [...] to determine whether [...] customary international law recogni[s]es a precautionary principle.”⁹³ This conclusion was based on the variety of language used in international instruments to express precaution, a stated lack of authoritative, unequivocal judicial support, and indecisive national laws and doctrine.⁹⁴

For Judge Treves, a precautionary approach was inherent in the Tribunal’s power to grant the provisional measures sought by Australia and New Zealand. It arose simply from the need to ensure that the factual situation would not change before later arbitration between the parties. Thus, regardless of whether precaution is part of customary international law (with Judge Treves stating that he “fully understand[s] the reluctance of the Tribunal in taking a position”), it may be used in this instance to prescribe the provisional measures.⁹⁵

Judge *ad hoc* Shearer preferred the language of a precautionary “approach” in the context of fisheries management. Suggesting that a “principle” is more normative and mandatory than simply an “approach”, he commented that the precautionary principle applied to fisheries would lead to paralysis, since “scientific uncertainty is normally the rule” in that field and all marine fisheries activities would therefore be prohibited.⁹⁶ Judge *ad hoc* Shearer thus indicated that precaution is best left as an idea to be used in appropriate cases (such as the one at hand in granting the provisional measures to prohibit Japan’s EFP) rather than a concrete principle of international law.

The *MOX Case* of 2001 presented the ITLOS with another occasion to consider precaution.⁹⁷ Ireland had accused the UK of failing to properly examine the consequences of commissioning a MOX (Metal Oxide) plant on the marine environment in the Irish Sea. Ireland sought provisional measures to shut down the MOX plant and prevent radioactive materials from entering Irish waters. It also argued that “the precautionary principle places the burden on the United Kingdom to demonstrate that no harm would arise” from the operation of the MOX plant.⁹⁸ The UK responded that, effectively, there was no trigger for precaution since the risk of pollution was, in its view, “infinitesimally small”.⁹⁹ The Tribunal did not pronounce on precaution nor grant the provisional

⁹¹ *Ibid.* at para. 14.

⁹² *Ibid.* at para. 19.

⁹³ *Ibid.*

⁹⁴ *Ibid.* at para. 16, note 5.

⁹⁵ *Ibid.*, Separate Opinion of Judge Treves, para. 9.

⁹⁶ *Ibid.*, Separate Opinion of Judge *ad hoc* Shearer at 5.

⁹⁷ *The MOX Plant Case (Ireland v. U.K.)*, (ITLOS 2001), 41 I.L.M. 405 (2002).

⁹⁸ *Ibid.* at para. 71.

⁹⁹ *Ibid.* at para. 72.

measures requested by Ireland, but ordered the parties to cooperate further and share information on the potential risks of the plant, as required by “prudence and caution”. It also ordered the Parties to consult to “devise, as appropriate, measures to prevent pollution of the marine environment which might result from the operation of the MOX plant.”¹⁰⁰ As with *Southern Bluefin Tuna*, this is not an explicitly precautionary approach, although in light of the clear disagreement over the science (at least between the parties), the measures ordered are precautionary in nature. Judge Székely recognised this in a separate opinion, claiming that the Tribunal:

should have been responsive, in the face of such uncertainty, to the Irish demands regarding the application of the precautionary principle [...] It is regrettable that it did not do so, since had it done this would have led to the granting of the provisional measure requested by Ireland regarding the suspension of the commissioning of the plant.¹⁰¹

The Appellate Body of the WTO has considered precaution on a number of occasions. In the *EC Hormones* case,¹⁰² the European Community sought to ban U.S. and Canadian beef products that had been treated with a growth hormone, on the grounds that the scientific evidence of their effects on human health were inconclusive. The EC attempted to rely on the precautionary principle to justify its ban, and it claimed that the principle was “a general customary rule of international law or at least a general principle of law.”¹⁰³ The U.S. denied this, arguing that precaution was merely an “approach” that varied from context to context.¹⁰⁴ Canada took the middle ground, claiming that a precautionary approach was an “emerging” principle of international law, but may “in the future crystalli[s]e into one of the ‘general principles of law recogni[s]ed by civili[s]ed nations.’”¹⁰⁵

In its decision, the Appellate Body was reluctant to express any definite opinion on the status of precaution in international law, saying that it would be “unnecessary, and probably imprudent” to do so when that status is “less than clear”.¹⁰⁶ It did, however, speak about precaution’s relationship to the *SPS Agreement*, as noted earlier. The Appellate Body found that precaution was incorporated into article 5(7) of the *SPS Agreement* but agreed with the EC that it may be relevant beyond that article. It further held, though, that the precautionary principle does not override article 5(1),¹⁰⁷ and because the EC was found not to have conducted a proper risk assessment as required by that article, its ban on U.S. and Canadian beef could not be justified.

In the *Asbestos* case,¹⁰⁸ the WTO Appellate Body used precautionary reasoning, though not explicitly, to uphold a French ban on chrysotile asbestos due to its carcinogenic effects, though the science was uncertain whether the substitutes could be used safely, or whether a ‘controlled use’ was not an option.¹⁰⁹ The Appellate Body noted that countries are “not obliged, in setting health policy,

¹⁰⁰ *Ibid.* at para. 89.

¹⁰¹ *Ibid.*, Separate Opinion of Judge Székely.

¹⁰² *EC – Measures Concerning Meat and Meat Products (Hormones)* *supra* note 50.

¹⁰³ *Ibid.* at para. 16.

¹⁰⁴ *Ibid.* at para. 43.

¹⁰⁵ *Ibid.* at para. 60.

¹⁰⁶ *Ibid.*, para. 123.

¹⁰⁷ *Ibid.*, para. 125.

¹⁰⁸ *European Communities—Measures Affecting Asbestos and Asbestos-Containing Products* (2001), WTO Doc. WT/DS135/R (Panel Report) [*EC Asbestos*].

¹⁰⁹ The Appellate Body took toxicity and health risks into account in like-product analysis, reversing the burden of proof from Canada to France in demonstrating comparative health risks of substitutes versus asbestos itself, and including an element of proportionality in their analysis. See M. Gehring & M.-C. Cordonier Segger, “The WTO Asbestos Cases and

automatically to follow what, at a given time, may constitute a majority scientific opinion.”¹¹⁰ This clearly envisages health policies coexisting with scientific uncertainty, a position supported by the Panel in the same case who pointed out that “to make the adoption of health measures concerning a definite risk depend upon establishing with certainty a risk [...] would have the effect of preventing any possibility of legislating in the field of public health.”¹¹¹

While the ICJ has had less to say about precaution, some references have been made thereto which merit attention here. In his dissent in the *Nuclear Weapons* case,¹¹² Judge Weeramantry counts the precautionary principle amongst general principles of environmental law, to be recognised and used by the ICJ in reaching its decisions.¹¹³ In the 1995 *Nuclear Tests* case,¹¹⁴ New Zealand referred frequently to the principle, calling it “a very widely accepted and operative principle of international law.”¹¹⁵ For New Zealand, it was relevant to the burden of proof, meaning that France would be required to prove that the Pacific nuclear tests would not cause environmental damage. The majority of the Court did not refer to these arguments, but Judge Weeramantry again supported the principle for its practical effect on the burden of proof in such cases. He pointed to the difficulty for claimants in establishing risks or threats of environmental damage when the relevant information is often “in the hands of the [P]arty causing or threatening the damage.” The precautionary principle then serves simply to alleviate this “evidentiary difficulty”.¹¹⁶

Lastly, it could perhaps be said that certain IMF and World Bank policies, for instance, loan conditionality, are based on precaution. Risks to an economic system are arguably as difficult to precisely determine as risks to a natural system or human health. Accordingly, measures recommended by the Fund or the Bank, which in their view aim to prevent serious or irreversible harm to a country’s economy, even in the face of uncertainty as to whether such harm would ever arise, can be said to be precautionary. Under loan conditionality, “the Fund encourages members to adopt sound economic and financial policies as a precaution against the emergence of balance of payments difficulties.”¹¹⁷ Thus precaution may even have economic applications, apart from its recognition in the environmental and, increasingly, health fields.

V ‘Soft Law’ Declarations, Guidelines and Resolutions

As a result mainly of State sovereignty concerns, early international efforts on ecological conservation failed to refer to the precautionary principle. The 1972 *Stockholm Declaration of the United Nations Conference on the Human Environment (UNCHE)*¹¹⁸ represented the first of several

Precaution: Sustainable Development Implications of the WTO Asbestos Dispute” (2003) 15:3 J. Env’tl L. 289-321. See also M.-C. Cordonier Segger & M. Gehring, “Precaution, Health and the World Trade Organization: Moving toward Sustainable Development” (2003) 29:1 *Queen’s Law Journal* 133.

¹¹⁰ *EC Asbestos* (Appellate Body Report), *supra* note 108 at para. 178.

¹¹¹ *Ibid.* (Panel Report) at para. 8.221.

¹¹² *Advisory Opinion on the Legality of the Use by a State of Nuclear Weapons in Armed Conflict*, Advisory Opinion, [1996] ICJ Rep. 226 at 888.

¹¹³ *Ibid.* (dissenting opinion of Judge Weeramantry), Section 10(e).

¹¹⁴ *Case Concerning Nuclear Tests (New Zealand and Australia v. France)*, [1974] I.C.J. Rep. 457.

¹¹⁵ F.X. Perrez, *supra* note 6 at 31.

¹¹⁶ *Case Concerning Nuclear Tests (New Zealand and Australia v. France)* *supra* note 115 at 342.

¹¹⁷ International Monetary Fund, *Guidelines on Conditionality* (Washington: Legal and Policy Development and Review Departments, 2002) at para. 2.

¹¹⁸ *Stockholm Declaration of the United Nations Conference on the Human Environment*, 16 June 1972, U.N. Doc. A/CONF.48/14/Rev.1, 11 I.L.M. 1461 (1972), reprinted in 11 I.L.M. 1416 (1972) [*Stockholm Declaration*]. For further

international conferences on the environment. The *UNCHE* stopped short of enshrining the precautionary principle, stipulating that that substances emitted into seas had to “result in deleterious effects” before they would be defined as pollution.¹¹⁹ Such after-the-fact thinking is the antithesis of the prudent, forward-looking caution that the precautionary principle enshrines.

As environmental issues gained prominence in international discourse, the precautionary principle was increasingly discussed, leading to its frequent recognition in soft law.¹²⁰ Even before the 1992 *UN Conference on Environment and Development* (UNCED),¹²¹ several regional declarations and conferences had invoked formulations of precaution. The 1990 *Bergen Ministerial Declaration on Sustainable Development* of the Economic Commission for Europe Regions stated:

In order to achieve sustainable development, policies must be based on the precautionary principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation where there are threats of serious or irreversible damage. Lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.¹²²

In Asia, the 1991 *Ministerial Conference on the Environment of the United Nations Economic and Social Commission for Asia and the Pacific* invoked the precautionary principle: “[I]n order to achieve sustainable development, policies must be based on the precautionary principle.”¹²³

The most well-known formulation of precaution, however, is in the 1992 *Rio Declaration* of the UN Conference on Environment and Development (*Rio Declaration*).¹²⁴ The *Declaration* incorporates the precautionary principle in its Principle 15, using the following phrasing:

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.¹²⁵

The *Rio Declaration* marked something of a milestone in that it can be seen as the date of the principle’s establishment as a pillar of mainstream legal thought and language, if not its debut as an article of conventional wisdom. The above-noted text contains the four common elements of precaution outlined earlier in this working paper. Principle 15 denotes that precaution is triggered

information on the development of international environment law, see e.g. P. Sands, *Principles of International Environmental Law: Frameworks, Standards and Implementation*, vol. 1 (Cambridge: Cambridge University Press, 2003). See also A. Timoshenko, “From Stockholm to Rio: The Institutionalization of Sustainable Development” in W. Lang, ed., *Sustainable Development and International Law* (London: Graham and Trotman/Martinus Nijhoff, 1995). And see D. Hunter, J. Salzman & D. Zaelke, *International Environmental Law and Policy* (New York: Foundation Press, 2002).

¹¹⁹ J.E. Walker, Jr. & V.R. Hickey, *supra* note 11.

¹²⁰ For a discussion of the meaning of “soft law”, see P. Dupuy, “Soft Law and the International Law of the Environment” (1991) 12 *Mich. J. Int’l L.* 420; and F.V. Kratochwil, *Rules, Norms and Decisions: On the Conditions of Practical and Legal Reasoning in International Relations and Domestic Affairs* (Cambridge: Cambridge University Press, 1989) at 201.

¹²¹ *Report of the United Nations Conference on Environment and Development*, UN Doc. A/CONF.151/6/Rev. 1 (1992), 31 *I.L.M.* 874 (1992).

¹²² *Bergen Declaration on Sustainable Development in the ECE Region*, 16 May 1990, UN Doc. A/CONF. 151/PC/10), reprinted at 1 *Y.B. Int’l Env. L.* 424 (1990) at para. 7.

¹²³ *Report of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) Ministerial Meeting in the Environment, Bangkok, Declaration on Environmentally Sound and Sustainable Development in Asia and the Pacific* (1990) at para. 19

¹²⁴ *Rio Declaration on Environment and Development, Report of the United Nations Conference on Environment and Development*, UN Doc. A/CONF.151/6/Rev.1, (1992), 31 *I.L.M.* 874 (1992) [*Rio Declaration*].

¹²⁵ *Ibid.*, Principle 15.

by “threats of serious or irreversible damage”; hence, a higher threshold than many other formulations of precaution in international legal instruments. The timing means that a “lack of full scientific certainty shall not be used as a reason for postponing” measures. The intended response is the implementation of “cost-effective measures to prevent environmental degradation”, which does not necessarily include ceasing the activities that threaten the damage. Iteration is implied in the idea of “full scientific certainty”. Note that this relatively early formulation of precaution only addresses it in the environmental field, and only “cost-effective” measures against environmental degradation are prevented from being postponed.

Agenda 21,¹²⁶ which also evolved from the 1992 *UN Conference on Environment and Development*, contains many references to the use of “the precautionary approach” for environmental protection, albeit in more general terms than the *Rio Declaration*. In some instances it refers to uncertainty, for instance, paragraphs 17.96 and 17.97 note the “high degree of uncertainty in present information” and point to the “many uncertainties about climate change” before calling for “precautionary measures”. However, a definitive response is not suggested. Paragraph 18.40 calls on States to introduce “the precautionary approach in water-quality management, where appropriate,” and also seeks the “application of precautionary measures derived from a broad-based life-cycle analysis” to control industrial waste discharges. In Chapter 35, it is suggested that precaution can be a useful policy tool where complex systems “are not yet fully understood”, and countries are called on to improve the interaction between the sciences and decision-making “using the precautionary approach, where appropriate [...] to gain time for reducing uncertainty.”¹²⁷

The OECD *Ministerial Declaration* of 2001, *Towards a Sustainable Future*,¹²⁸ calls on Member States to “apply precaution as appropriate in situations where there is a lack of scientific certainty.”¹²⁹ Moreover, “[i]n cases where the scientific evidence is insufficient and precaution is applied to address risks to food safety, measures taken should be subject to review and on-going risk analysis.”¹³⁰ These references do not specify a trigger for the application of precaution, nor do they specify exactly what response is required. In the specific case of food security, however, a requirement for iteration (“on-going risk analysis”) is imposed. The general encouragement to “apply precaution” is also broad enough to cover application in environmental, health and any other fields.

The *Rio Declaration’s* formulation of precaution is reaffirmed in the *Johannesburg Plan of Implementation (JPOI)*¹³¹ arising from the 2002 *World Summit on Social Development (WSSD)*. In Chapter X on *Means of Implementation*, States make a commitment to improve “policy and decision-making at all levels through, *inter alia*, improved collaboration between natural and social scientists, and between scientists and policy makers.”¹³² There is a call for urgent action at all levels to promote and

¹²⁶ *Agenda 21, Report of the UNCED*, 1 (1992) UN Doc. A/CONF.151/26/Rev.1, (1992) 31 I.L.M. 874 [*Agenda 21*].

¹²⁷ *Ibid.* at paras. 35(3), 35(6).

¹²⁸ OECD, *2001 Ministerial Declaration* (Paris: OECD, May 2001).

¹²⁹ *Ibid.* at para. 14.

¹³⁰ *Ibid.* at para 41.

¹³¹ *Johannesburg Plan of Implementation, Report of the World Summit on Sustainable Development*, Johannesburg, South Africa, 4 September 2002, UN Doc. A/CONF.199/20 [JPOI], online: Johannesburg Summit <http://www.johannesburgsummit.org/html/documents/summit_docs.html> [JPOI].

¹³² *Ibid.* at c. X.

“improve science-based decision-making and reaffirm the precautionary approach as set out in Principle 15 of the *Rio Declaration*.”¹³³

Precaution is also raised in the *JPOI* in regard to the *Agenda 21* commitment to sound management of chemicals and hazardous wastes. This commitment aims to achieve, by 2020, “that chemicals are used and produced in ways that lead to the minimi[s]ation of significant adverse effects on human health and the environment.” In order to do this, States agree to use “transparent science-based risk assessment procedures and science-based risk management procedures, taking into account the precautionary approach, as set out in Principle 15 of the [*Rio Declaration*].”¹³⁴ Precaution here complements the use of science-based procedures. In addition, this reference provides another instance where significant adverse effects on human health can be a trigger for the principle. This growing concern for human health, coupled with a commitment to provide support for developing countries, gives a clearer social and development side to the concept of precaution.

In 2000, the European Commission released a Communication¹³⁵ to the WTO, extensively discussing the precautionary principle and providing guidelines for the application of the principle. In its view, the scope of precaution is “far wider” than the environmental field alone, also including “human, animal [and] plant health”.¹³⁶ After reviewing the international legal instruments incorporating precaution, including those discussed above, the Commission’s conclusion is that precaution “has been progressively consolidated in international environmental law, and so it has since become a full-fledged and general principle of international law.”¹³⁷

VI Status of the Norm?

On the basis of the evidence presented above, some commentators claim that there is sufficient State practice to justify the conclusion that the principle of the precautionary approach, as elaborated mainly in the *Rio Declaration*, the *Climate Change Convention* and the *Biodiversity Convention*, is receiving sufficiently broad support to allow a good argument to be made that it reflects an emerging principle of customary international law.¹³⁸ Certainly, in Europe, precaution is considered by States to be “a general principle of international law,”¹³⁹ as noted in the Communication of the European Commission cited above. Several countries have also recognised the precautionary principle in their domestic law,¹⁴⁰ with some national courts expressing support for the emerging customary law status of precaution.¹⁴¹ The Appellate Body of the World Trade Organisation has suggested that the principle forms part of international law relating to the environment. In its view:

¹³³ *Rio Declaration*, *supra* note 12, Principle 15.

¹³⁴ *Ibid.* at para. 23.

¹³⁵ *Communication from the European Commission on the Precautionary Principle*, EC COM 1 (2000). WTO Doc. WT/CTE/W/147, G/TBT/W/137, 27 June 2000 [*EC Communication*].

¹³⁶ *Ibid.* at 8.

¹³⁷ *Ibid.*

¹³⁸ P. Sands, *Principles of International Environmental Law: Frameworks, Standards and Implementation*, vol. 1 (Manchester: Manchester University Press, 1996) at 112.

¹³⁹ *EC Communication*, *supra* note 91 at 8.

¹⁴⁰ C. Barton, “The Status of the Precautionary Principle in Australia: Its Emergence in Legislation and as a Common Law Doctrine” (1998) 22 Harv. Env’t. L. Rev. 509; D.L. Vanderzwaag, S.D. Fuller & R.A. Myers, “Canada and the Precautionary Principle/Approach in Ocean and Coastal Management” (2002) 34 Ottawa L. Rev. 117.

¹⁴¹ See e.g. *114957 Canada Ltée (Spraytech, Société d’arrosage) v. Hudson (Town of)*, [2001] 2 S.C.R. 241, 200 D.L.R. (4th) 419 (*per* L’Heureux-Dubé J.).

[t]he status of the precautionary principle in international law continues to be the subject of debate among academics, law practitioners, regulators and judges. The precautionary principle is regarded by some as having crystalli[s]ed into a general principle of customary international environmental law. Whether it has been widely accepted by Members as a principle of general or customary international law appears less than clear. We consider, however, that it is unnecessary, and probably imprudent, for the Appellate Body in this appeal to take a position on this important, but abstract, question. We note that the Panel itself did not make any definitive finding with regard to the status of the precautionary principle in international law and that the precautionary principle, at least outside the field of international environmental law, still awaits authoritative formulation.¹⁴²

It should be noted that the WTO Appellate Body's position has been criticised for suggesting the fragmentation of international law, that is, that there could be a norm of customary international environmental law which is not recognised as a norm of customary international law. Considering its recognition that trade law "is not to be read in clinical isolation from public international law,"¹⁴³ a more precise interpretation of the Appellate Body's view in the *Hormones* case could be that precaution may be a principle of customary international law of specific application to international environmental matters, rather than a customary legal principle that should be broadly applied in all matters related to trade, development, etc.

As such, the scope of application for precaution remains an issue for debate. Emerging initially from the health domain via traditional societal conceptions such as the oath of Hippocrates, precaution began its embodiment in international law in the environmental domain. It is arguable that the treaties, case law and soft law over the last 15 years have now expanded the scope from this environmental domain back towards a broader application in health and social law. This is reflected in the *Cartagena Protocol*, the *POPs Convention*, the WTO's *SPS Agreement* as interpreted by the *EC Hormones* case, the OECD's *Ministerial Declaration* of 2001, the ILA's *New Delhi Principles*, the European Commission's Communication on precaution, and several regional conventions including the *Water Convention*, the *Baltic Sea Convention* and the *Bamako Convention*, all discussed above. This debate over the meaning and content of precaution contributes to keeping the status of the norm in flux. If it can indeed be considered customary international law, it may currently only be so when applied to certain international concerns in law for sustainable development, such as straddling fish stocks or international chemicals management.

A sound argument can be made that precaution has reached the status of a customary norm of international law related to sustainable development. While precaution is not clearly alien to the United States legal system,¹⁴⁴ it was clear that the U.S. was very reluctant to accept the precautionary principle at all in the preparations for the World Summit for Sustainable Development, especially negotiations on the Johannesburg Plan of Implementation. However, if the principle is emerging as an international customary norm, the U.S. and Australia might be best described as 'persistent

¹⁴² *EC Hormones*, *supra* note 50 at para. 123.

¹⁴³ *United States – Standards for Reformulated and Conventional Gasoline* (29 April 1996), WTO Doc. WT/DS2/AB/R (Appellate Body Report) at 11.

¹⁴⁴ There are numerous domestic environmental laws with a *precautionary purpose*, recognised by U.S. courts, including the *Endangered Species Act*, *National Environmental Policy Act*, the *Clean Air Act*, the *Federal Food, Drug and Cosmetic Act*, *Clean Water Act*, *Safe Drinking Water Act*, *Resource Conservation and Recovery Act*, *Comprehensive Environmental Response Compensation and Liability Act*, and the *Oil Pollution Act*. See *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 178-88 (1978); *Reserve Mining Co. v. EPA*, 514 F.2d 492, 528 (8th Cir.1975); *Ethyl Corp. v. EPA*, 541 F.2d 1, 24-25 (D.C. Cir. 1976), *cert. denied*, 426 U.S. 941 (1976); *Lead Indus. Ass'n, Inc. v. EPA*, 647 F.2d 1130, 1152-58 (D.C. Cir. 1980), *cert. denied*, 449 U.S. 1042 (1980); *United States v. A&N Cleaners & Launderers*, 854 F. Supp. 229, 237-39 (S.D.N.Y. 1994); but see *Industrial Union Dept., AFL-CIO v. American Petroleum Institution*, 448 U.S. 607 (1980).

objectors'. Developing countries also showed hesitation about references to precaution in the area of international trade law during the WSSD debates. But this was mainly due to a perceived danger that precaution could justify unilateral trade barriers (especially if it were applied by developed countries to block developing country exports). In the past decade, developing countries have often fought hard for precaution, in order to cope with lack of full scientific knowledge and certainty about environmental and social impacts, as well as other related issues. They have also deliberately incorporated precaution into domestic laws, acknowledging it as a useful legal tool.

Precaution can foster useful and legitimate environmental law and policy, it has legitimate application in social (especially health) law, and certain formulations are increasingly recognised in their application to economic (trade) law. This demonstrates the characteristic of integration noted in the *Johannesburg Plan of Implementation (JPOI)*, and holds the potential to reconcile occasional clashing interests for constructive, long-term solutions to challenging policy dilemmas.

Governments could have gone further than what was agreed in Johannesburg. Developments since Rio could have been underlined, and more specific guidelines for the application of precaution could have been detailed. However, it is positive that the WSSD reaffirmed the importance of precaution, even in its limited 1992 *Rio Declaration* formulation at Principle 15. In further applications, including where issues of environmental law intersect with international economic or social development law, the principle may be considered at best *lex ferenda*, a principle in the process of becoming international customary law, with persistent objectors properly on record.¹⁴⁵ Essentially, at the 2002 Johannesburg Summit, the question of the legal validity of the precautionary principle *per se* became less relevant internationally and discussions focused more specifically on the scope and nature of precaution. These discussions may well foster and enhance implementation because instead of focusing on an abstract legal concept, debates focused on how the principle actually works and can be applied in a transparent and fair way. In the future, the manner of application and implementation will be crucial to both its acceptance and utili[s]ation.

¹⁴⁵ For further information about the process, see J. Cameron, "International Law and the Precautionary Principle" in T.O' Riordan, J. Cameron, and A. Jordan, eds., *Reinterpreting the Precautionary Principle* (London: Cameron May, 2001), 123. See also M.-C. Cordonier Segger, A. Khalfan, M. Gehring & M. Toering, "Prospects for Principles of International Sustainable Development Law after Johannesburg: Common but Differentiated Responsibilities, Precaution and Participation" (2003) 12 *Review of European Community and International Environmental Law* 54–68, upon which this section is partly based.

Annex I: Table of Treaties

Year	Treaty
1945	<i>Charter of the United Nations</i> , 26 June 1945, Can. T.S. 1945 No. 7, available online: UN < http://www.un.org/aboutun/charter/index.html > [<i>Charter</i>].
1946	<i>International Convention for the Regulation of Whaling</i> , 2 December 1946, 62 Stat. 1716, 161 U.N.T.S. 72, online: IWCO: < http://www.iwcoffice.org/commission/convention.htm#convention >.
1950	<i>European Convention for the Protection of Human Rights and Fundamental Freedoms</i> , 11 November 1950, (ETS No. 5), 213 U.N.T.S. 222 (entered into force 3 September 1953), as amended by Protocols Nos. 3, 5, 8, and 11 (entered into force on 21 September 1970, 20 December 1971, 1 January 1990, and 1 November 1998, respectively), online: Council of Europe < http://conventions.coe.int/treaty/en/Treaties/Html/005.htm >.
1961	<i>European Social Charter</i> , 18 October 1961, (ETS No. 35) 529 U.N.T.S. 89 (entered into force 26 February 1965), online: Council of Europe < http://conventions.coe.int/Treaty/en/Treaties/Html/163.htm >.
1966	<i>International Covenant on Economic, Social and Cultural Rights</i> , 19 December 1966, 999 U.N.T.S. 3, (entered into force 3 January 1976), available online at UNHCHR < http://www.unhchr.ch/html/menu3/b/a_cescr.htm > [<i>ICESCR</i>].
1966	<i>International Covenant on Civil and Political Rights</i> , 19 December 1966, 999 U.N.T.S. 171 (entered into force 23 March 1976), available online: UNHCHR < http://www.unhchr.ch/html/menu3/b/a_ccpr.htm > [<i>ICCPR</i>].
1967	<i>Charter of the Organization of American States</i> , 27 February 1967, 119 U.N.T.S. 3 (entered into force 13 December 1951) [<i>OAS Charter</i>].
1968	<i>African Convention on the Conservation of Nature and Natural Resources</i> , 15 September 1968, 1001 U.N.T.S. 3 (entered into force 16 June 1969), online: SEDAC < http://sedac.ciesin.org/entri/texts/african.conv.conserva.1969.html > [<i>African Convention</i>].
1972	<i>Convention Concerning Protection of World Cultural Property and Natural Heritage</i> , 23 November 1972, 1037 U.N.T.S. 151, 11, I.L.M. 1358, online: UNESCO < http://whc.unesco.org/world_he.htm > [<i>World Heritage Convention</i>].
1973	<i>Convention on International Trade of Endangered Species and Wild Fauna and Flora</i> , 3 March 1973, 993 U.N.T.S. 243, T.I.A.S. No. 8249, 12 I.L.M. 1085 (1973) [<i>CITES</i>], online: CITES < http://www.cites.org/eng/disc/text.shtml >.

Year	Treaty
1976	<i>Convention on Conservation of Nature in the South Pacific</i> , adopted 12 June 1976, Preamble [<i>South Pacific Nature Convention</i>], online: INTFISH < http://www.intfish.net/treaties/southpacific1976.htm >.
1979	<i>Convention on the Elimination of All Forms of Discrimination Against Women</i> , 18 December 1979, 1249 U.N.T.S. 13 (entered into force 3 September 1981) [<i>CEDAW</i>], online: UN < http://www.un.org/womenwatch/daw/cedaw/text/econvention.htm >.
1979	<i>Convention on the Conservation of Migratory Species of Wild Animals</i> , 23 June 1979, 19 I.L.M. 15 (1980).
1980	<i>Convention on the Conservation of Migratory Species of Wild Animals</i> , 23 June 1979, 19 I.L.M. 15 (1980).
1981	<i>African [Banjul] Charter on Human and Peoples' Rights</i> , 27 June 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (entered into force 21 October 1986), online: University of Minnesota < http://www1.umn.edu/humanrts/instreet/z1afchar.htm >.
1982	<i>United Nations Convention on the Law of the Sea</i> , 10 December 1982, 1833 U.N.T.S. 3, 21 I.L.M. 1245 (entered into force 16 November 1994) [<i>UNCLOS</i>].
1985	<i>Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment</i> adopted 14 February 1982 (entered into force 20 August 1985) [<i>Jeddah Convention</i>], online: INTFISH< http://www.intfish.net/treaties/redsea.htm >.
1985	<i>Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region</i> , 21 June 1985, 985 I.E.L.M.T. 46 [<i>Nairobi Convention</i>].
1985	<i>Agreement on the Conservation of Nature and Natural Resources</i> , 9 July 1985, 15 Env't'l Pol'y & L. at 64, 68, Preamble (treaty not yet in force).
1988	<i>Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights (Protocol of San Salvador)</i> , 17 November 1988, O.A.S. TS No 69 (1988) rep. Basic Documents Pertaining to Human Rights in the Inter-American System, OEA/Ser LV/II.82 Doc.
1989	<i>Convention on the Rights of the Child</i> , 20 November 1989, 1577 U.N.T.S. 3 (entered into force 2 September 1990), online: UNICEF < http://www.unicef.org/crc/fulltext.htm >.

Year	Treaty
1990	<i>African Charter on the Rights and Welfare of the Child</i> , O.A.U. Doc. CAB/LEG./24.9/49 (1990) (entered into force 29 November 1999), online: University of Minnesota < http://www1.umn.edu/humanrts/africa/afchild.htm >.
1992	<i>United Nations Framework Convention on Climate Change</i> , 9 May 1992, 31 I.L.M. 849, art. 3(1) [<i>Climate Change Convention</i>], online: UNFCCC < http://unfccc.int/essential_background/convention/background/items/1349.php > [<i>Climate Change Convention</i>].
1992	<i>Convention on the Protection and Use of Transboundary Watercourses and International Lakes</i> , 17 March 1992, UN Doc. ENVWA/R.53 and Add.1, 31 I.L.M. 1312 (entered into force 6 October 1996), art. 2 at para. 6(c), online: UNECE < http://www.unece.org/env/water/pdf/watercon.pdf >.
1992	<i>United Nations Convention on Biological Diversity</i> , 5 June 1992, 1760 U.N.T.S. 79, 31 I.L.M. 822 (entered into force 29 December 1992), online: Biodiversity < http://www.biodiv.org/convention/articles.asp >.
1994	<i>North American Agreement on Environmental Cooperation</i> , 14 September 1993, 32 I.L.M. 1480 (entered into force 1 January 1994).
1994	<i>Marrakesh Agreement Establishing the World Trade Organisation</i> , 15 April 1994, 1867 U.N.T.S. 154 (entered into force 1 January 1994) in WTO, <i>The Legal Texts: The Results of the Uruguay Round of Multilateral Trade Negotiations</i> 4 (1999) [<i>The Legal Texts</i>]. The WTO texts and dispute settlement reports are available online at < http://www.wto.org >. See generally < http://www.wto.org/english/docs_e/legal_e/04-wto_e.htm >
1994	<i>United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa</i> , 17 June 1994, 33 I.L.M. 1328 [<i>Desertification Convention</i>].
1998	<i>Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters</i> , 25 June 1998, 2161 U.N.T.S. 447 (entered into force 30 October 2001).
2003	<i>Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa</i> (adopted 11 July 2003), arts. 12(2), 14(2), 15, 16, online: University of Minnesota < http://www1.umn.edu/humanrts/africa/protocol-women2003.html >.

Annex II: Table of Declarations

Year	Declaration
1945	<i>Universal Declaration of Human Rights</i> , 10 December 1948, G.A. Res. 217 A, UN GAOR, 3d Sess., UN Doc. A/810 (1948), available online: UN < http://www.un.org/Overview/rights.html > [UDHR].
1970	<i>United Nations Declaration of Principles on International Law Concerning Friendly Relations and Cooperation Among States in Accordance with the Charter of the United Nations</i> , 24 October 1970, 9 I.L.M. 1292.
1972	<i>Stockholm Declaration on the Human Environment</i> , 16 June 1972, U.N. Doc. A/CONF.48/14/Rev.1, 11 I.L.M. 1461 (1972) [<i>Stockholm Declaration</i>].
1972	<i>Development and Environment</i> , GA Res. 2849(XXVI), UN GAOR, 26 th Sess., UN Doc. A/RES/2849 (1972).
1974	<i>Universal Declaration on the Eradication of Hunger and Malnutrition</i> , adopted on 16 November 1974 by the World Food Conference and endorsed by G.A. Res. 3348 (XXIX), UN GAOR, 1974.
1986	<i>Declaration on the Right to Development</i> , GA Res. 41/128, UN GAOR, 1986 Supp. No. 53, U.N. Doc. A/41/53, 186 (1986).
1989	<i>Protection of Global Climate for Present and Future Generations of Mankind</i> , GA Res. 43/53, UN GAOR, 43 rd Sess., Agenda Item 148, UN Doc. A/RES/43/53 (1989); 28 I.L.M. 1326.
1992	<i>Agenda 21, Report of the UNCED</i> , I (1992) UN Doc. A/CONF.151/26/Rev.1, (1992) 31 I.L.M. 874 [<i>Agenda 21</i>].
1992	<i>Rio Declaration on Environment and Development</i> , Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/6/Rev.1 (1992), 31 I.L.M. 874 (1992) [<i>Rio Declaration</i>].
1993	<i>Vienna Declaration and Programme of Action</i> , adopted at the World Conference on Human Rights, 12 July 1993, UN Doc. A/CONF.157/23 [<i>Vienna Declaration</i>].
1994	<i>Tunis Declaration on Population and Development in Africa</i> , O.A.U. Doc. AHG/DECL.4(XXX) (1994).
1994	Draft Declaration of Principles on Human Rights and the Environment, 16 May 1994, online: < http://fletcher.tufts.edu/multi/www/1994-decl.html >.
1995	IUCN, <i>Draft International Covenant on Environment and Development</i> (Gland, Switzerland: IUCN, 1995), online: IUCN < http://www.iucn.org/themes/law >.

Year	Declaration
1995	<i>Copenhagen Declaration on Social Development and the Programme of Action of the World Summit for Social Development</i> , 12 March 1995, UN Doc. A/CONF.166/9 (1995).
1998	<i>International Labour Organisation Declaration on Fundamental Principles and Rights at Work</i> , 19 June 1998, 37 I.L.M. 1237 (1998).
2000	<i>Millennium Declaration</i> , GA Res. 55/2, UN GAOR, 55 th Sess., UN Doc. A/Res/55/2 (2000).
2002	<i>Declaration of the World Food Summit</i> , adopted at the World Food Summit at the FAO Headquarters in Rome, June 2002, online: Food and Agriculture Organisation < http://www.fao.org >.
2002	<i>Johannesburg Declaration on Sustainable Development, in Report of the World Summit on Sustainable Development</i> , 26 August to 4 September 2002, UN Doc. A/CONF.199/20 [<i>Johannesburg Declaration</i>].
2002	<i>Johannesburg Plan of Implementation, Report of the World Summit on Sustainable Development</i> , 4 September 2002, UN Doc. A/CONF.199/20 [<i>JPOI</i>].
2002	<i>Monterrey Consensus on Financing for Development</i> , 22 March 2002, U.N. Doc. A/AC.257/32.
2002	International Law Association, 2002 <i>New Delhi Declaration on Principles of International Law Relating to Sustainable Development</i> , <i>ILA Resolution 3/2002 in ILA, Report of the Seventieth Conference</i> , New Delhi (London: ILA, 2002), Principle 2, available online: ILA < http://www.ila-hq.org > [<i>New Delhi Declaration</i>].