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The Necessity of Precaution- The Future of Ecological Necessity and the Precautionary Principle

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THE NECESSITY OF PRECAUTION: THE FUTURE OF ECOLOGICAL NECESSITY AND THE PRECAUTIONARY PRINCIPLE

*Daniel Dobos**

"If we err in our decisions affecting the future of our children and our planet, let us err on the side of caution."¹

INTRODUCTION

One challenge facing international environmental law in the twenty-first century is to implement the rhetoric of the 1990s. The Case Concerning the Gabčíkovo-Nagymaros Project² ("Danube Dam Case") presents one such challenge. A primary issue in this case was whether Hungary was entitled in 1989 to use the defense of ecological necessity to suspend its involvement in a joint investment

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1. James Cameron & Julie Abouchar, *The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Environment*, 14 B.C. INT'L & COMP. L. REV. 1, 1 (1991) (quoting Gro Brundtland, Keynote Speech at Opening Session of Conference on Action for a Common Future in Bergen, Norway (May 8, 1990)).

2. Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 35 (Sept. 25). Generally, International Court of Justice cases are easily accessible at <http://www.I.C.J.-cij.org>.

project with Slovakia to construct a system of locks.³ The Agreement between the two countries describes the locks as a “barrage system . . . designed to attain the broad utilization of the natural resources of the Bratislava-Budapest section of the Danube River for the development of water resources, energy, transport, agriculture and other sectors of the national economy of the Contracting Parties.”⁴ While Hungary ultimately failed in this respect, the International I.L.C. of Justice’s (“I.C.J.”) articulation of the defense of ecological necessity introduced a myriad of new challenges for international environmental law.⁵

This Note explores the defense of ecological necessity, and specifically, whether it can accommodate the precautionary principle. Part I places ecological necessity within a historical framework, tracing the origins of the defense and applying the modern formulation of the defense to a new ecological context. Part II introduces the precautionary principle, observing its unlikely application to ecological necessity in 1989 while recognizing its present potential. This possibility, along with the future direction of the defense is examined in Part III.

I. ECOLOGICAL NECESSITY: PAST AND PRESENT

A. *Historical Origins of Necessity*

Necessity began as a defense for the purpose of self-preservation that could be invoked by a state committing an otherwise unlawful act.⁶ Hugo Grotius, widely considered the “father of international

3. *Id.* at 30, 50.

4. *Id.* at 13 (citations omitted).

5. *See generally id.*

6. *Report of the International Law Commission to the General Assembly on the Work of its Thirty-second Session*, U.N. Doc. A/CN.4/318/ADD. 5–7 (1980) (addendum to the eighth report on state responsibility by Roberto Ago) [hereinafter *Ago Report*], reprinted in [1980] 2 Y.B. Int’l L. Comm’n 16, 16–17, U.N. Doc. A/CN.4/SER.A/1980/Add.1; Roman Boed, *State of Necessity as a Justification for Internationally Wrongful Conduct*, 3 YALE HUM. RTS. & DEV. L.J. 1, 6 (2000). Boed extensively cites the 20th century translation of Hugo Grotius’ *De Jure Belli Ac Pacis, Libre*

law,”⁷ observed in the 17th century that a nation’s right of necessity arose from internal Jewish and Roman law which “forbids us to kill anyone, who has taken our goods, unless for the preservation of our own lives.”⁸ Other 19th century scholars echoed Grotius’ sentiments that in order to protect the right of self-preservation, a state may “violate the territorial sovereignty or international right of another state.”⁹ This right could only be used in a narrow context, and thus Grotius emphasized that “even where the emergency can be plainly proved, nothing can justify . . . taking or applying the property . . . beyond the immediate demands of that emergency.”¹⁰

Since necessity constituted a *right* to self-preservation,¹¹ decision-makers were faced with the vexing question as to which right was superior—the right of a state to have its international obligations upheld, or the competing right of another state to breach the former state’s rights in exercising its own right of self-preservation.¹² Compounded by the vagueness of a “right,”¹³ this conception of necessity inevitably proved to be untenable.¹⁴

Tres (A.C. Campbell trans., 1901). Throughout this Note, parentheticals will be included to distinguish Boed’s citations to Grotius.

7. Boed, *supra* note 6, at 5.

8. *Id.* at 4 (quoting Grotius) (citations omitted); *see also supra* text accompanying note 6.

9. *Id.* at 6 (quoting AMOS HERSHEY, *THE ESSENTIALS OF INTERNATIONAL PUBLIC LAW AND ORGANISATION* 231 (1927)).

10. *Id.* at 5 (quoting Grotius) (citations omitted); *see also supra* text accompanying note 6.

11. *See, e.g., id.* at 4–7 (reviewing the development of the concept of necessity).

12. *See, e.g.,* CHARLES G. FENWICK, *INTERNATIONAL LAW* 142–43 (1924).

13. *Id.* “[T]he conflict of international rights thus resulting is governed by a few general principles of law, which are, however, so vague as to leave it an open question in many cases whether the right of one has justified a breach of the right of the other.” *Id.*

14. *See* Boed, *supra* note 6, at 4–7 (providing a more detailed history of the concept of necessity).

B. *Modern Defense of Necessity*

In the 1970s, the International Law Commission (“I.L.C.”) commissioned a comprehensive study by Professor Robert Ago on the concept of necessity.¹⁵ This study was later relied on in the codification of necessity as embodied in Article 33 of the I.L.C. Draft Articles on State Responsibility.¹⁶ Article 33 was accepted by the I.C.J. in the Danube Dam Case as a reflection of customary international law,¹⁷ and constituted the basis of the I.L.C.’s formulation of the defense of ecological necessity.¹⁸

Most significantly, the modern defense emphatically rejects the notion of a *right* to self-preservation in favor of a broader essential interest of a state, which may *excuse* wrongful conduct.¹⁹ The historical approach, besides frustrating decision-makers, was found to be the “product of pure abstract speculation with no basis in international legal reality, and [had] since become outdated.”²⁰ A state seeking to invoke the defense must now prove: 1) it was

15. *Id.* at 7.

16. For the version endorsed by the I.C.J., see International Law Commission: Draft Articles on State Responsibility, Aug. 4, 1998, 37 I.L.M. 440, art 33 [hereinafter Draft Articles]. For the original version, see [1980] 2 Y.B. Int’l L. Comm’n 49. *But see Report of the International Law Commission on the work of its Fifty-first Session*, U.N. Doc. A/54/10 (1999) (suggesting that the revised version be used [hereinafter *1999 Report*], available at http://www.un.org/law/ilc/reports/1999/english/99rep_fra.htm (last visited May 21, 2002).

17. *Case Concerning the Gabčíkovo-Nagymaros Project* (Hung. v. Slov.), 1997 I.C.J. 33–37 (Sept. 25).

18. *Id.*

19. *See id.*

20. *Ago Report*, *supra* note 6. Ago’s rejection of the concept of a right is supported by Bin Cheng’s analysis of the early decision of *The Neptune*. *Id.* at 34 (citing 4 J. B. MOORE, INTERNATIONAL ADJUDICATIONS 398–99 (1931)). Cheng argued that the decision held that necessity is no longer a right and that its legitimate use is no longer dependent on the existence of a link with self-preservation. BIN CHENG, GENERAL PRINCIPLES OF LAW AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS 71, 74 (George W. Keeton et al. eds., 1953).

pursuing an 'essential interest;' 2) that interest was threatened by a 'grave and imminent peril;' 3) the breach of its international obligation was the 'only means' of safeguarding that interest; 4) the breach did not 'seriously impair an essential interest' of the other state; and 5) it did not 'materially contribute' to the state of necessity and that no other exception applies.²¹

1. An "Essential Interest"

While an essential interest may be protected only in exceptional circumstances,²² the I.L.C. Commentary to the Draft Articles confirms that this interest extends far beyond threats to the existence of a state.²³ Indeed the I.L.C. Commentary, in harmony with Ago's observations,²⁴ further states that "safeguarding the ecological balance has come to be considered an 'essential interest' of all States."²⁵ Thus in the Danube Dam Case, Hungary cited the I.L.C. Commentary,²⁶ along with its endorsement in the Convention on Biodiversity²⁷ and the UN Economic Commission for Europe

21. Draft Articles, *supra* note 16, at 33–52.

22. *See, e.g., Ago Report, supra* note 6, at 19 (noting that "the situation in question would have to be extremely serious, and irrefutably so").

23. *Report of the International Law Commission to the General Assembly on the Work of its Thirty-second Session*, U.N. Doc. A/CN.4/318/ADD. 49 (1980) [hereinafter *I.L.C. Commentary*], reprinted in [1980] 2 Y.B. Int'l L. Comm'n 49, U.N. Doc. A/CN.4/SER.A/1980/Add.1.

24. *Ago Report, supra* note 6, at 14 (stating that an essential interest includes "the preservation of the environment of its territory or a part thereof").

25. *I.L.C. Commentary, supra* note 23, at 39.

26. Letter from James Crawford, to the President and Members of the International Court of Justice, *The Suspension and Termination of Works: The Legal Standards Applied* (Mar. 5, 1997), available at <http://www.mfa.gov.hu/Haga/Day3/10.htm> (last visited May 21, 2002).

27. *See* Letter from Philippe Sands, to the President and Members of the International Court of Justice, *Hungary's Notification of Termination, Arguments* (Mar. 3, 1997) (noting that both Hungary and Slovakia were both parties to the convention), available at

Charter on Groundwater Management²⁸ to successfully argue that a state's ecology constitutes an essential interest.²⁹

2. A "Grave and Imminent Peril"

a. *Peril*

A peril is a danger that "evokes the idea of risk" rather than "material damage."³⁰ However, neither the I.L.C., Ago nor the I.C.J. in the Danube Dam Case identifies any criteria by which to determine the requisite gravity. The I.L.C. merely states that the peril must be "extremely grave,"³¹ which as Roman Boed notes, is a vestige of the Grotian requirement that necessity be "nothing short of extreme exigency" to justify otherwise unlawful conduct.³²

<http://www.mfa.gov.hu/Haga/Day4/17.htm>) (last visited May 20, 2002). Article 22 of the 1992 Convention on Biological Diversity provides that the convention "shall not affect the rights and obligations of any Contracting Party deriving from any existing international agreement, except where the agreement would cause a serious damage or threat to biological diversity." *Id.*

28. *See id.* "The Charter recognizes the unique importance of groundwater as a 'natural resource with economic and ecological value.' It calls for 'special protective measures to aquifers' . . . [a]nd it recommends that where aquifers are 'unique, endangered or already impaired, groundwater protection strategies should carry decisive weight'" *Id.* (quoting *UN Economic Commission for Europe at its Forty-fourth Session Charter on Groundwater Management*, U.N. Doc. E/ECE/1197 (1989), available at http://www.internationalwaterlaw.org/RegionalDocs/Groundwater_Charter.htm) (last visited May 20, 2002).

29. *Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.)*, 1997 I.C.J. 35 (Sept. 25).

30. *Id.*

31. *I.L.C. Commentary*, *supra* note 23, at 49.

32. Boed, *supra* note 6, at 16 (quoting Grotius).

b. *Imminence*

The imminence requirement dictates that there must be “a threat to the interest at the actual time.”³³ According to the Danube Dam Case, imminence is “synonymous with ‘immediacy or ‘proximity’ and goes far beyond the concept of ‘possibility.’”³⁴ The I.L.C. also accepts that a peril appearing in the long term might be held to be “imminent” as soon as it is established at the relevant point in time that the realization of that peril, however far off it might be, is not thereby any less *certain and inevitable*.³⁵ According to this reasoning, it appears that a peril must be unavoidable (100% probable) for it to satisfy the imminence requirement.³⁶ However, the I.L.C. failed to address the degree of scientific certainty, if any, that is permissible.³⁷ At this early stage, it is important to define the difference between risk and certainty. Risk refers to the probability that an outcome will occur,³⁸ whereas uncertainty refers to the fact that the probability of this outcome cannot be predicted with complete accuracy and indeed, sometimes the range of outcomes is unknown.³⁹

33. *I.L.C. Commentary*, *supra* note 23, at 19 (describing the requirement as a “present danger to the threatened interest”).

34. *Gabcikovo-Nagymaros Project*, 1997 I.C.J. at 35.

35. *Id.* (emphasis added).

36. *Id.* The “not thereby any less” is used to mean that a long-term peril cannot be any different to a short-term peril which must be “certain and inevitable.” *Id.* See, e.g., Erika L. Preiss, *The International Obligation to Conduct an Environmental Impact Assessment: The I.C.J. Case Concerning the Gabcikovo-Nagymaros Project*, 7 N.Y.U. ENVTL. L.J. 307, 336 (1999).

37. See discussion *infra* Part III.A.

38. MICHAEL YOUNG, FOR OUR CHILDREN’S CHILDREN: SOME PRACTICAL IMPLICATIONS OF INTER-GENERATIONAL EQUITY AND THE PRECAUTIONARY PRINCIPLE 13 (1993).

39. *Id.* Sources of uncertainty include: lack of knowledge about ecosystem behavior; difficulties in predicting the likely size, needs and preferences of future but not present human populations; difficulties in predicting the technical ingenuity of future generations; and, incorrect assumptions about the functioning of ecosystems. *Id.*

Applying these definitions to the I.L.C.'s reasoning, Figure 1 serves as a useful clarification tool.⁴⁰ Since the I.L.C. accepts that a peril is sufficiently imminent when it is "far beyond the concept of 'possibility,'"⁴¹ and because scientific evidence is never 100% certain,⁴² it may be inferred that the I.L.C. will allow for the small degree of uncertainty over the interval *CD*. This diagram will be revisited *infra* Part III.

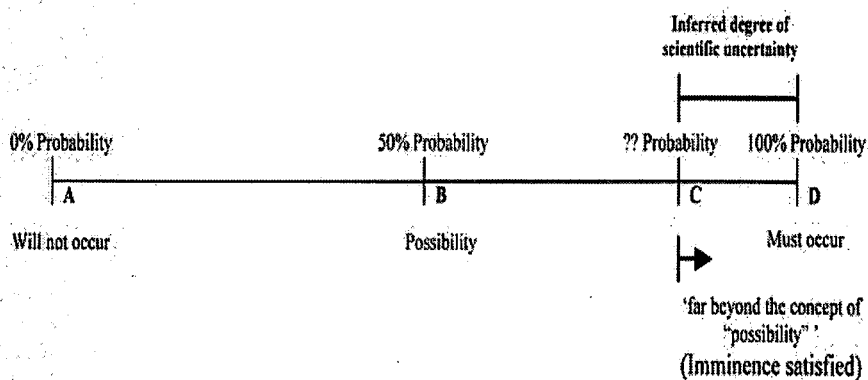


Figure 1

3. "Only Means"

The peril must not have been escapable by any other means, "even a more costly one, that could be adopted in compliance with international obligations."⁴³ The I.C.J. confirmed that cost is not a determinative factor in evaluating whether a state could engage in unlawful conduct.⁴⁴ It may be argued, however, that necessity may

40. This diagram, along with the others *infra* Part III, do not imply that the determination of ecological necessity is a mathematical exercise. Rather, they serve to illustrate the seemingly abstract ideas discussed.

41. Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 35 (Sept. 25).

42. See *infra* note 125 and accompanying text.

43. *I.L.C. Commentary*, *supra* note 23, at 49.

44. Gabčíkovo-Nagymaros Project, 1997 I.C.J. at 36.

still be allowed if the magnitude of the cost to mitigate it would in itself constitute a threat to an essential interest.⁴⁵

4. The Balancing Requirement

Although not explicitly mentioned in the I.L.C. Draft Articles, the balancing requirement has existed since the time of Grotius.⁴⁶ It leaves judicial discretion to ensure that “the interest [arising from the obligation] sacrificed on the altar of ‘necessity’ must obviously be less important than the [essential] interest it is thereby sought to save.”⁴⁷ Prior to the amendment of Article 33 of the I.L.C. Draft Articles in 1999,⁴⁸ the test arguably existed in a bilateral paradigm in that it balanced the essential interest of one state against the interest arising from the obligation of the other.⁴⁹ While the 1999 amendment has recognized that the interest arising from the obligation can include “some common or general interest,”⁵⁰ this same recognition has yet to be afforded to the essential interest of the state.⁵¹

5. Exceptions to Necessity

According to Article 33, a state cannot invoke necessity where: 1) other means of safeguarding the interest still exist;⁵² 2) the act impairs an essential interest of the state towards which the obligation

45. Boed, *supra* note 6, at 17–18.

46. *See id.* at 18.

47. *I.L.C. Commentary*, *supra* note 23, at 50. Disappointingly, the Danube Dam Case did not address this element.

48. *1999 Report*, *supra* note 16, at pt. 2.5.B.39 n.218. This amendment clarified that the obligation applied directly to the “protection of some common or general interest,” in contrast to an indirect interest a state may have. *Id.*; *see also* James Crawford, *Revising the Draft Articles on State Responsibility*, 10 ENVTL. J. INT’L L. 435, 459 (1999).

49. *See* Boed, *supra* note 6, at 19.

50. *1999 Report*, *supra* note 16, at pt. 2.5.B.39 n.218.

51. *See* discussion *infra* Part III. It will be argued in Part III that similar recognition should be afforded to the essential interest.

52. *I.L.C. Commentary*, *supra* note 23, at 33–52 (citing Article 33).

existed;⁵³ 3) the international obligation in question arises from a peremptory norm of general international law;⁵⁴ 4) the international obligation in question explicitly or implicitly excludes the possibility of invoking necessity;⁵⁵ or 5) the state invoking necessity has contributed to the situation of necessity occurring.⁵⁶ Having outlined the defense of ecological necessity, its potential application to the precautionary principle will now be considered.

II. ECOLOGICAL NECESSITY AND THE PRECAUTIONARY PRINCIPLE

Originating in West German domestic law, the precautionary principle emerged in international legal instruments in the mid-1980s.⁵⁷ While some find it “difficult to speak of a single precautionary principle at all,”⁵⁸ labeling it a “variable, vague and

53. *Id.* at art. 33(1)(b).

54. *Id.* at art. 33(2)(a).

55. *Id.* at art. 33(2)(b).

56. *Id.* at art. 33(2)(c). Note the new provision proposed requires the state to have “materially” contributed to the state of necessity. *1999 Report, supra* note 16, at pt. 2.5.B.39 n.218.

57. See generally Sonja Boehmer-Christiansen, *The Precautionary Principle in Germany—Enabling Government*, in *INTERPRETING THE PRECAUTIONARY PRINCIPLE* 31 (Timothy O’Riordan et al. eds, 1994). *Vorsorge* (German for “precautionary principle”) was an important concept in environmental protection during the drafting of air pollution legislation in Germany 1970. *Id.* at 35. *Inter alia*, it legitimated action by the state to prevent environmental damage in advance of proof of damage. *Id.* at 36–37. Some of the instruments that incorporated the precautionary principle in the 1980s include principles of the 1982 UN General Assembly Resolution on the World Charter for Nature, the Convention for the Protection of the Marine Environment of the North East Atlantic (“OSPAR Convention”), and Article A7 of the 1984 Bremen Declaration, art A7; London Declaration of the Second International North Sea Conference (1987). See *infra* note 72.

58. Daniel Bodansky, *Scientific Uncertainty and the Precautionary Principle*, 33 *ENV’T* 4, 5 (1991).

confusing 'principle,'"⁵⁹ the essence of the precautionary principle is aptly reflected in Principle 15 of the 1992 Rio Declaration on Environment and Development. "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."⁶⁰ The question, therefore, is can this principle be applied to the determination of ecological necessity?

A. *The Situation in 1989*

In the Danube Dam Case, Hungary argued that a precautionary approach should be adopted by the I.L.C. in determining whether its suspension of the treaty in 1989 was due to a grave and imminent peril.⁶¹ Although Hungary put forward six principal ways in which the construction of the System of Locks would inflict unjustifiable harm on the ecology of the Danube River and its surrounding wetlands,⁶² the I.L.C., without examining the scientific evidence,⁶³

59. James E. Hickey, Jr & Vern R. Walker, *Refining the Precautionary Principle in International Environmental Law*, 14 VA. ENVTL. L.J. 423, 431 (1995).

60. Rio Declaration on Environment and Development, Aug. 12, 1992, 31 I.L.M. 874 [hereinafter Rio Declaration].

61. Memorial of the Republic of Hungary (Hung. v. Slov.), 1994 I.C.J. Pleadings 198–203 (Case Concerning the Gabčíkovo-Nagymaros Project) (CD on file with author).

62. Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 30 (Sept. 25). First, the groundwater level would fall in the Danube river. *Id.* Second, the residual discharge would increase the risk of eutrophication of surface water, particularly in the reservoir of the Danube River. *Id.* Third, the decrease in the groundwater level could cause the Danube River to be "choked with sand," resulting in the network of side-arms to be "cut off from the principal bed." *Id.* The side-arms would then dry up, causing mass extinction of the fluvial flora and fauna therein. *Id.* Fourth, the "significant daily variations in the water level" resulting from the operation of the Gabčíkovo power plant would threaten aquatic habitats. *Id.* Fifth, the construction of locks at Nagymaros could silt-up the bed of the Danube River upstream of Nagymaros, impairing the quality of water in the bank-filtered wells. *Id.* Sixth, Hungary feared that construction of the Nagymaros dam would

held that the environmental risks were both long-term and too uncertain.⁶⁴ Thus, the imminence requirement was not satisfied.⁶⁵

Since the I.L.C. came to this conclusion without distinguishing between the probability of an environmental risk and the uncertainty of scientific evidence, it is unclear whether, if the precautionary principle would have applied, if it would have acquired status of a legal doctrine.⁶⁶ Indeed, if there was no scientific uncertainty—that is, the I.L.C. merely meant that the environmental risks were just insufficiently probable—there would be no reason to apply the precautionary principle. Notwithstanding, had the precautionary principle acquired legal status in 1989, one would expect mention of it from the I.L.C., especially since Hungary referred to it extensively

erode the riverbed downstream of Nagymaros causing the water level to fall in that sector, which provides two-thirds of Budapest's water supply. *Id.* There was also concern that any water that was supplied would be diminished in quality as a result of increases in fine sediments, which would strain the filtration of the water supply. *Id.*

63. *Id.* at 36. For further discussion, see *infra* Part III.A.

64. *Id.* at 37. In relation to the potential damage to the environment of Nagymaros (upstream), “the dangers ascribed to the upstream reservoir were mostly of a long-term nature and, above all, that they remained uncertain”; thus they were not imminent in 1989.

Id. at 36. In relation to the downstream part of the project, the quality of surface water in the Dunakiliti reservoir, with its effects on the quality of ground water in the region and . . . to the level, movement and quality of both the surface water and the groundwater in the whole of Szigetkoz, with their effects on the fauna and flora in the alluvial plain of the dam to be both long-term and uncertain.

Id. at 36–37. Also, the downstream peril had “already materialized to a large extent for a number of years [prior to 1989], so that it could not . . . represent a peril arising entirely out of the project.” *Id.* at 36. Further, “Hungary had means available to it, other than” suspension and termination, to ameliorate the situation. *Id.* at 36.

65. See *supra* notes 29–36 and accompanying text.

66. Gabcikovo-Nagymaros Project, 1997 I.C.J. at 33–35.

in its pleadings.⁶⁷ Yet as Philippe Sands aptly observes, when the I.L.C. prepared its Draft Articles in 1980, the precautionary principle “had not yet hit the international stage” and by 1989 it was “only emerging as an international principle,”⁶⁸ not nearly a norm of customary international law. Thus, irrespective of the court’s lack of clarity, given the limited recognition of the precautionary principle in 1989,⁶⁹ it was likely absent from ecological necessity at that stage.

B. Can Ecological Necessity Include the Precautionary Principle Today?

While there are numerous vexing issues as to whether the precautionary principle *should* exist as part of ecological necessity, Part II.B will determine whether the Danube Dam Case contemplated that this legal possibility does exist. It will be argued that the evolutionary character of international environmental law, combined with the court’s emphasis on the importance of

67. Memorial of the Republic of Hungary (Hung. v. Slov.), *supra* note 61, at 198–203.

68. Philippe Sands, *Environmental Protection in the Twenty-first Century: Sustainable Development and International Law*, in ENVIRONMENTAL LAW: THE ECONOMY AND SUSTAINABLE DEVELOPMENT 369, 384 (Richard L. Revesz et al. eds., 2000).

69. Early indications of a precautionary approach are evident in *inter alia*, the 1972 Stockholm Declaration on the Human and Environment, available at <http://www.unep.org/Documents/?DocumentID=97&ArticleID=1503> (last visited May 20, 2002). See generally Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 12 I.L.M. 1085; 1982 UN General Assembly Resolution on the World Charter for Nature, princ. 11, available at www.un.org/documents/ga/res/37/a37r007.htm (last visited May 20, 2002); Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR Convention), Sept. 22, 1992, 32 I.L.M. 1076; 1984 Bremen Declaration, at art. A7, available at <http://odin.dep.no/nsc/ecosyst/bremen.html> (last visited May 20, 2002). However, its first explicit mention in an international agreement was in the 1987 London Declaration of the Second International North Sea Conference (1987), available at <http://odin.dep.no/md/nsc/declaration/022001-990245/index-dok000-b-n-a.html> (last visited May 20, 2002).

environmental concerns, leads to the conclusion that this in fact is a very real possibility. This possibility may be realized in the present day based on the endorsement of the precautionary principle in both numerous international instruments and recent case law.⁷⁰

While the precautionary principle may not have applied to the enquiry in 1989, we are faced with an entirely different scenario today. Indeed the I.L.C. recognized that international environmental law has an evolutionary character by stating that what “might have been a correct application of the law in 1989 or 1992 could be a miscarriage of justice if prescribed in 1997.”⁷¹ The I.L.C. went on to emphasize the importance of the environment, that it is “not an abstraction but represents the living space, the quality of life and the very health of human beings,”⁷² and that “actual and *potential* risks”⁷³ need to be considered but stopped short of mentioning the precautionary principle as a means of protecting these risks. Most significantly, the I.L.C. stated that “new norms” have developed,⁷⁴ and that “in the field of environmental protection, vigilance and *prevention* are required on account of the often irreversible character of damage to the environment and of the limitations inherent in the very mechanism of reparation of this type of damage.”⁷⁵

This discourse arguably constitutes an implicit endorsement of the precautionary principle⁷⁶ and is further supported by Judge Weeramantry’s endorsement of the “larger principle of caution.”⁷⁷ While the judgment may have delivered a disappointing result according to 1989 facts, it nevertheless provides a promising

70. See *infra* note 83 and accompanying text.

71. Gabcikovo-Nagymaros Project, 1997 I.C.J. at 65.

72. *Id.* at 35, 58 (citations omitted).

73. *Id.* at 58 (emphasis added).

74. *Id.* at 67.

75. *Id.* (emphasis added).

76. See Ellen Hey, *The Watercourses Convention in the Context of the Gabcikovo-Nagymaros Case*, in *REFLECTIONS ON PRINCIPLES AND PRACTICE OF INTERNATIONAL LAW* 83, 92 (Terry D. Gill et al. eds., 2000) (noting that the I.L.C.’s language, if it does not endorse the principle, certainly endorses “the concept of precaution as part of the discourse of international environmental law”).

77. Gabcikovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 1, 21 (Sept. 25) (separate opinion of Judge Weeramantry) [hereinafter Weeramantry Opinion].

possibility that ecological necessity may today include the precautionary principle.⁷⁸

This possibility is bolstered by the infiltration of the precautionary principle into “virtually every international environmental and natural resource treaty regime.”⁷⁹ Amongst its dramatically increased recognition in the 1990s, the precautionary principle has featured in the Rio Declaration,⁸⁰ the Helsinki Convention,⁸¹ and numerous others.⁸² This has led many to argue that the precautionary

78. See generally Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 35, 37, 58, 67 (Sept. 25).

79. David Freestone, *International Fisheries Law Since Rio: The Continued Rise of the Precautionary Principle*, in INTERNATIONAL LAW AND SUSTAINABLE DEVELOPMENT PAST ACHIEVEMENTS AND FUTURE CHALLENGES 135, 135 (Alan Boyle et al. eds., 1999).

80. Rio Declaration, *supra* note 60, at princ. 15.

81. Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (entered into force Jan. 17, 2000) [hereinafter Helsinki Convention], available at <http://www.helcom.fi/convention/conven92.html> (last visited May 20, 2002). This incorporation is particularly relevant to transboundary harm. See U.N. Convention on the Protection and Use of Transboundary Watercourses and International Lakes, reprinted in 31 I.L.M. 1312, 1316 (1992) (stating that “[t]he 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”).

82. See Memorial of the Republic of Hungary, *supra* note 61, at 202. In its pleadings, Hungary argued that “[a]lmost no new international instrument, whether regional or universal, drafted since 1989, ignores the precautionary principle.” *Id.* These instruments include: Ministerial Declaration of the Third International Conference on the Protection of the North Sea, The Hague, Mar. 8, 1990, available at <http://odin.dep.no/md/nsc/declaration/022001-990244/index-dok000-b-n-a.html> (last visited May 20, 2002); Baltic Sea Declaration, [1990] 1 Y.B. INT’L. ENVTL L. 424, 427; Second World Climate Conference (Geneva), [1990] 1 Y.B. INT’L. ENVTL L. 473, 475; Bamako Convention 1991, 20 I.L.M. 773, 781 (1991); London Dumping Convention, Dec. 29, 1972, available at

principle has become a part of customary international law.⁸³ However, this proposition is seriously undermined by the varied formulations of the principle and its resulting vagueness.⁸⁴ In the North Sea Continental Shelf Cases,⁸⁵ the I.L.C. held that before acquiring the requisite degree of state practice and *opinio juris*, for a norm to exist, it must be "of a norm-creating character."⁸⁶ The I.L.C. seemed to deny that the equidistance principle was a norm of

<http://sedac.ciesin.org/pidb/texts/marine.pollution.dumping.of.wastes.1972.html> (last visited May 20, 2002); U.N. Conference on Environment and Development: Framework Convention on Climate Change, 31 I.L.M. 849, 854 (1992) [hereinafter Climate Change Convention]; Convention on Biological Diversity, June 5, 1992, available at <http://www.austlii.edu.au/au/other/dfat/treaties/1993/32.html> (last visited May 20, 2002); Maastricht Treaty on European Union and Final Act, Feb. 3, 1992, 31 I.L.M. 247; Convention for the Protection of the Marine Environment of the Northeast Atlantic, Sept. 22, 1992, 32 I.L.M. 1069, 1076.

83. See, e.g., Owen McIntyre & Thomas Mosedale, *The Precautionary Principle as a Norm of Customary International Law*, 9 J. ENVTL. L. 221 (1997).

84. See, e.g., PATRICIA W. BIRNIE & ALAN E. BOYLE, *INTERNATIONAL LAW AND THE ENVIRONMENT* 98 (1992).

Despite its attractions, the great variety of interpretations given to the precautionary principle, and the novel and far-reaching effects of some applications suggest that it is not yet a principle of international law. Difficult questions concerning the point at which it becomes applicable to any given activity remain unanswered and seriously undermine its normative character and practical utility, although support for it does indicate a policy of greater prudence on the part of those states willing to accept it.

Id.

85. North Sea Continental Shelf Cases (F.R.G. v. Den.) (F.R.G. v. Neth.), 1969 I.C.J. 4 (Feb. 20).

86. *Id.* at 42. See generally Vaughan Lowe, *Sustainable Development and Unsustainable Arguments*, in *INTERNATIONAL LAW AND SUSTAINABLE DEVELOPMENT* 19 (Alan Boyle et al. eds., 1999).

customary international law since, *inter alia*, there were “very considerable, still unresolved controversies as to the exact meaning and scope of this notion.”⁸⁷

Yet whether the precautionary principle has become a norm of customary international law is of limited importance. Even if the precautionary principle exists as a vague principle in soft law, it still deserves recognition. Indeed the court’s distinction in the Danube Dam Case between “norms” which “have to be taken into consideration” and “standards” which must be “given proper weight,”⁸⁸ recognizes that standards have been useful in many contexts, and thus, “for the first time, the I.L.C. accorded some significance to ‘soft,’ ‘technical’ law.”⁸⁹

Opponents of the precautionary principle may argue that its vagueness precludes its useful operation, as illustrated in the Beef Hormones case.⁹⁰ In this case, the United States challenged a ban imposed by the European Community (“EC”) on the importation of beef produced using artificial hormones, arguing that it failed to carry out the risk assessment specified in Articles 5.1⁹¹ and 5.2⁹² of

87. North Sea Continental Shelf Cases, 1969 I.C.J. at 42.

88. Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 67 (Sept. 25).

89. Paulo Canelas de Castro, *The Judgement in the Case Concerning the Gabčíkovo-Nagymaros Project: Positive Signs for the Evolution of International Water Law*, [1997] 8 Y.B. INT’L. ENVTL. L. 21, 25.

90. *EC Measures Concerning Meat and Meat Products (Hormones)*, Jan. 16, 1998, AB-1997-4WT/DS 26/AB/R [hereinafter *Beef Hormones*], available at <http://www.sice.oas.org/DISPUTE/wto/horm-us.asp> (last visited May 20, 2002). This view was echoed in *Australia—Measures Affecting Importation of Salmon*, report of 20 Oct. 1998, WT/DS18/AB/R, ¶ 157, available at <http://www.wto.org/> (last visited May 20, 2002), where a “lack of reliable scientific information” was held to have made an examination “highly speculative.”

91. Article 5.1 of the SPS Agreement states: “Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.” WTO Agreement on the Application of Sanitary and

the Agreement on the Application of Sanitary and Phytosanitary Measures (“SPS Agreement”).⁹³ Although true that the Appellate Body of the World Trade Organization rejected that the precautionary principle might override the explicit language of Articles 5.1 and 5.2 of the SPS Agreement,⁹⁴ few have paid due credence to dicta.⁹⁵ Ultimately, such action “does not exclude the possibility that a risk assessment could be relied upon even if it indicated a degree of uncertainty.”⁹⁶ Indeed the reason that the EC’s claim failed was not because it was precautionary, but because it was insufficient for the purposes of Articles 5.1 and 5.2, “at best . . . represent[ing] the beginning of an assessment of such risks.”⁹⁷

The reality is that while it is “in the nature of principles that uncertainties about their application and even their content

Phytosanitary Measures (SPS Agreement), *available at* http://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm (last visited May 20, 2002).

92. Article 5.2 of the SPS Agreement states: “[i]n the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest–or disease–free areas; relevant ecological and environmental conditions; and quarantine or other treatment.” *Id.*

93. Sands, *supra* note 68, at 385.

94. Beef Hormones, *supra* note 90, at para.125.

95. In interpreting Article 5.1, the WTO Appellant Body found that the results of risk assessment must merely “*sufficiently warrant*—that is to say, *reasonably support*—the SPS measure at stake . . . [and] that there be a rational relationship between the measure and the risk assessment.” Beef Hormones, *supra* note 90, at para.193 (emphasis added). Significantly, the risk assessment need not “come to a monolithic conclusion that coincides with the scientific conclusion.” *Id.* at para. 194. Indeed, the risk assessment need not “necessarily embody only the view of a majority of the relevant scientific community . . . [R]esponsible and representative governments may act in good faith on the basis of what, at a given time, may be a divergent opinion coming from qualified and respected sources.” *Id.* at para.194; *see also* Sands, *supra* note 68, at 386.

96. Sands, *supra* note 68, at 387.

97. Beef Hormones, *supra* note 90, at para. 207.

remain,"⁹⁸ the precautionary principle still has a proven capacity to be applied as a legal principle.⁹⁹ This is exemplified in the Southern Bluefin Tuna case,¹⁰⁰ which revolved around the commercial fishing of southern bluefin tuna, which had reached its historically lowest levels thus posing serious biological risks.¹⁰¹ The International Tribunal for the Law of the Sea recognized this risk, acknowledged the scientifically uncertain evidence, and ultimately concluded that scientific uncertainty should not preclude the parties from "act[ing] with prudence and caution to ensure that effective conservation measures are taken."¹⁰² It was, "[w]ithout a doubt . . . a fully fledged implementation of a precautionary approach in fisheries management."¹⁰³ In light of the heightened recognition of the precautionary principle, the I.L.C. recognized in its 1999 Report that "Article 33 should not be formulated so stringently that the party relying on it would have to prove beyond the shadow of a doubt that the apprehended event would occur."¹⁰⁴ Unfortunately the I.L.C.

98. David Freestone, *Caution or Precaution: 'A Rose By Any Other Name . . .'*, [1999] 10 Y.B. INT'L ENVTL. L. 25, 27.

99. Freestone aptly notes that

more than thirty years after the UN General Assembly Resolution 1514 on self determination, international lawyers, and indeed the members of the International I.L.C. of Justice (I.C.J.) itself, still debate its exact content and application . . . Despite continued dispute as to how the principle might be applied, few international lawyers would today deny that self-determination is a principle of international law.

Id.

100. Southern Bluefin Tuna (N.Z. v. Japan) (Austl. v Japan), 381 I.L.M. 1624 (Provisional Measures Order of Aug. 27, 1999), available at http://www.itlos.org/start2_en.html (last visited May 20, 2002).

101. *Id.* at para. 71.

102. *Id.* at para. 77.

103. Adriana Fabra, *The LOSC and the Implementation of the Precautionary Principle*, [1999] 10 Y.B. INT'L ENVTL. L., 15, 17.

104. 1999 Report, *supra* note 16, at para. 377.

“reluctantly decided against including the precautionary principle”¹⁰⁵ in the text of Article 33 for reasons discussed *infra* Part III.¹⁰⁶

III. THE FUTURE DIRECTION OF ECOLOGICAL NECESSITY

As argued above, the legal parameters of the precautionary principle are theoretically compatible with the defense of ecological necessity.¹⁰⁷ But before the practical difficulties of this compatibility are addressed, a far more pressing issue central to ecological necessity warrants consideration. This concerns the failure of the I.C.J. to adopt a proper appreciation of environmental risks and to embrace scientific evidence in its application of ecological necessity.¹⁰⁸ While there are undoubtedly both institutional and legal difficulties in confronting scientific evidence, failure to do so destroys the very foundations upon which ecological necessity rests. Upon recognizing that scientific evidence is crucial to determining the imminence requirement, the logical consequence is to apply the precautionary principle as a tool for evaluating this evidence. The precautionary principle also has a role as a constituent part of sustainable development in the balancing requirement.¹⁰⁹ Yet it must not be forgotten that ecological necessity is an excuse for non-performance of an existing obligation and consequently, the precautionary principle must be applied narrowly.

A. *The Science of Ecological Necessity*

Since ecological necessity exists for the purpose of protecting the environment, it should be approached not merely from a legal perspective, but with a proper appreciation of the unique and

105. *Id.* at para. 378.

106. “[F]irstly because the International I.L.C. of Justice had endorsed Article 33 and secondly because necessity stood at the outer edge of the tolerance of international law for otherwise wrongful conduct.” *1999 Report, supra* note 16, at para. 378.

107. *See supra* Part II.B.

108. *See infra* note 132 and accompanying text.

109. Afshin A-Khavari & Donald R. Rothwell, *The ICJ and the Danube Dam Case: A Missed Opportunity for International Environmental Law?*, 22 MELB. U. L. REV. 507, 527–29 (1998).

irreplaceable nature of the environment. Environmental damage does not merely impede economic development due the massive costs of remediation,¹¹⁰ but often the damage is irreversible, detrimentally impacting upon the human environment and, ultimately, human life.¹¹¹

In this context, it was most disappointing that although the I.L.C. in the Danube Dam Case recognized the importance of the environment,¹¹² its denial of the imminence requirement on the basis of being “long-term and uncertain”¹¹³ failed to properly appreciate the true nature of environmental risks.¹¹⁴ The very nature of ecological damage is that it may take years, even decades, to manifest at which time the environmental, societal and economic consequences are both serious and irreversible.¹¹⁵ While necessity can only be pleaded in extreme situations,¹¹⁶ there may be little point in establishing the defense of ecological necessity if the I.L.C. does not properly appreciate the ecology of an environment.

The same argument applies equally to the use of scientific evidence. Before the I.C.J. issued its decision, the outcome of the case was expected to depend on the court’s assessment of the evidence presented by the parties on environmental degradation.¹¹⁷

110. Gabriel E. Eckstein & Yoram Eckstein, *International Water Law, Groundwater Resources and the Danube Dam Case, in GAMBLING WITH GROUNDWATER—PHYSICAL, CHEMICAL, AND BIOLOGICAL ASPECTS OF AQUIFER-STREAM RELATIONS* 243 (John Van Brahana et al. eds., 1998), available at <http://www.internationalwaterlaw.org/Articles/GW-Resources.htm> (last visited May 20, 2002).

111. *Id.*

112. *See supra* notes 72–75 and accompanying text.

113. *See supra* note 64.

114. Adrianna Koe, *Damming the Danube: The International I.L.C. of Justice and the Gabčíkovo-Nagymaros Project (Hungary v Slovakia)*, 20 SYDNEY L. REV. 612, 616–17 (1998).

115. *Id.*

116. *See supra*, note 22 and accompanying text.

117. “[T]he environmental evidence will play a key role.” Paul R. Williams, *International Environmental Dispute Resolution: The Dispute Between Slovakia and Hungary Concerning Construction of the Gabčíkovo and Nagymaros Dams*, 19 COLUM. J. ENVTL. L. 1, 57 (1994); *see also* Gaetan Verhoosel, *Gabčíkovo-Nagymaros: The*

The I.C.J. even exercised, for the first time in its history, the power to visit a site pertaining to the case before it.¹¹⁸ Yet when it came to the examination of scientific evidence in relation to the determination of the imminence requirement, the I.C.J. merely stated that it had given it “most careful attention,”¹¹⁹ failing to articulate any substantive findings: “it is not necessary . . . for [the court] to determine which of those points of view is scientifically better founded.”¹²⁰ Yet the I.L.C. must have engaged in some analysis of the scientific evidence to determine that the peril was not imminent.¹²¹ This evinces a disturbing lack of transparency in the decision-making process, inspiring little confidence in the accountability of the court.

Although the methodology of the I.C.J. is unacceptable, it is understandable. From a practical perspective, international environmental law is an emerging area of law, and thus there was previously little need to engage with scientific evidence. Furthermore, research suggests that most I.C.J. judges are unlikely to have a scientific background sufficient to evaluate the scientific evidence presented.¹²² Even if the judges could and wished to

Evidentiary Regime on Environmental Degradation and the World I.L.C., 6 EUR. ENVTL. L. REV. 247 (1997).

118. This site visit was undertaken under Article 66 of the Rules of Court pursuant to the court’s function with regard to the obtaining of evidence. Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 9 (Sept. 25).

119. *Id.* at 36.

120. *Id.*

121. “[T]he I.L.C. concluded that the threats to ecology had not been sufficiently established and were merely perceived perils as opposed to actual and imminent threats.” Stephen Stec & Gabriel Eckstein, *Of Solemn Oaths and Obligations: The Environmental Impact of the I.C.J.’s Decision in the Case Concerning the Gabčíkovo-Nagymaros Project*, 8 Y.B. OF INT’L. ENVTL. L. 41, 43, (1997). As Stec and Eckstein note, this “raises a troubling question: how can a I.L.C. determine the degree or immediacy of a particular environmental threat without evaluating the very data describing the peril?” *Id.* Koe is equally critical. Koe, *supra* note 114, at 616.

122. Preiss notes that the judges in the Danube Dam Case “consisted mostly of white male octogenarians, whose legal training

engage in scientific enquiries, institutional barriers such as lack of research assistance and insufficient electronic resources,¹²³ make such ambitions profoundly difficult.

The failure to examine the scientific evidence produced the I.C.J.'s highly unsatisfactory test; a test requiring an unreasonably high degree of both certainty and severity for an environmental risk to invoke ecological necessity.¹²⁴ Had the scientific evidence been examined, the I.L.C. would have discovered that scientific evidence is never 100% probable, nor is it ever completely certain.¹²⁵ It seems that the I.C.J. was worried that the mere recognition of scientific uncertainty would have undermined the sanctity of legal certainty. The I.L.C. likely feared the undesirable consequences of a slippery slope; an avalanche of ecological necessity claims using scientific uncertainty as a cloak for escaping treaty obligations.¹²⁶

If the I.C.J. is to continue to recognize the defense of ecological necessity, it must accept that scientific evidence is required to evaluate the imminence and gravity of the peril.¹²⁷ Therefore, it must also accept that scientific evidence will never be completely conclusive, and that legal certainty will be limited to this extent. Additionally, given the importance of environmental protection, the I.C.J. must become more educated about science and using science

and background presumably did not include environmental concerns." Preiss, *supra* note 36, at 344 n.205.

123. Chistopher Weeramantry, *Some Practical Problems of International Adjudication*, [1996] 17 AUST. Y.B. INT'L L. 1, 9–11.

124. Koe, *supra* note 114, at 616–17.

125. For a framework aimed at assessing the finer detail of ignorance in necessity. See Stephen R. Dovers & John W. Handmer, *Ignorance, Sustainability and the Precautionary Principle: Towards an Analytical Framework*, in PERSPECTIVES ON THE PRECAUTIONARY PRINCIPLE 167, 178–82 (Ronnie Harding et al. eds., 1999). In relation to "climate change the uncertainties are enormous." *Id.* at 168; see also M. Common & T. Norton, *Biodiversity: Its Conservation in Australia* 21 (1992); EDWARD O. WILSON, *THE DIVERSITY OF LIFE* (1992).

126. At the same time, "while not sustaining the argument in this case, the I.L.C. left the door open to the possibility that even a legal pillar . . . might, in some circumstances, have to yield to environmental concerns." Stec & Eckstein, *supra* note 121, at 43.

127. Koe, *supra* note 114, at 616.

to help settle legal issues. This may involve developing an awareness of the technical nature of science and embracing new discoveries within the decision-making process.¹²⁸ To the extent that this causes difficulties for judges, the I.C.J. could consider appointing impartial experts to evaluate the scientific data and submit analyses with conclusions.

With this framework in place,¹²⁹ the I.C.J. must openly state its evaluations and even if this does not involve providing technical benchmarks, it should establish scientific standards and guidelines. Resulting decisions will thus become more thoughtful, transparent and factually based. In this context, it will be argued in Part III.B that the precautionary principle adds certainty to the defense of ecological necessity. Indeed one reason why the precautionary principle has been slow to seep into judicial decision-making process is arguably because scientific evidence has rarely been embraced.

B. "*Grave and Imminent Peril*" and the Precautionary Principle

Despite being accused as a "composite of several value-laden notions and loose, qualitative descriptors,"¹³⁰ the precautionary principle can actually add certainty to the decision-making process by recognizing the "certainty of uncertainty" of scientific evidence.¹³¹ This is achieved by recognizing that the graveness of

128. Dovers & Handmer, *supra* note 125, at 169 "We realize that quantifying the 'risk' is too often not possible and that we must make decisions in the face of what is commonly termed uncertainty." *Id.*

129. Due to its lack of competence in environmental issues, the I.L.C. recently created a special Chamber for Environmental Matters, to which environmental cases would be directed. See Malgosia Fitzmaurice, *Environmental Protection and the International I.L.C. of Justice*, in *FIFTY YEARS OF THE INTERNATIONAL I.L.C. OF JUSTICE* 293, 295 (Vaughan Lowe et al. eds., 1996). The Special Chamber has never been used, however, and the I.L.C. declined to use it in the Danube Dam Case. Preiss, *supra* note 36, at 344 n.204. Serious consideration should be given to using this Chamber for environmental disputes.

130. Dovers & Handmer, *supra* note 125 at 173.

131. James Cameron, *The Precautionary Principle: Core Meaning, Constitutional Framework and Procedures for Implementation*, in

the peril and the probability of it occurring (its imminence) are connected;¹³² and applying a precautionary approach to mediate between these two considerations. Thus, instead of the I.C.J. ignoring the graveness of the peril when assessing imminence,¹³³ it could apply the precautionary principle such that provided the peril is sufficiently grave,¹³⁴ scientific uncertainty, as to the probability of the imminence, does not preclude the imminence requirement being satisfied. Consequently, since a greater level of certainty is achieved when the peril is sufficiently grave and there is a chance that the peril is sufficiently imminent,¹³⁵ the I.L.C. can be less concerned with the varying probabilities of this imminence.¹³⁶

Before applying the precautionary principle, it is useful to define the scope of its application. Table 1 exhausts the potential scenarios where the precautionary principle could apply.¹³⁷ The following analysis is based on the assumption that the peril is sufficiently

PERSPECTIVES ON THE PRECAUTIONARY PRINCIPLE 29, 44 (Ronnie Harding et al. eds., 1999) (citing the Bergen Conference).

132. Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 35 (Sept. 25).

133. "However 'grave' [the peril] might have been, it would accordingly have been difficult . . . to see [it] as sufficiently certain and therefore 'imminent' in 1989." *Id.* at 37.

134. Note that the precautionary principle may also apply to the graveness of the harm too: the graver the potential harm, the greater the level of scientific uncertainty related to this graveness that is acceptable. However, since a high level of graveness is being used to justify scientific uncertainty as to the degree of imminence, only a low level of scientific uncertainty as to the graveness is acceptable.

135. These deductions are conclusions based on incorporating the precautionary principle with the basic reasoning used by the I.L.C. See *supra* text accompanying note 134.

136. The I.L.C., without the precautionary principle, is restricted to "certain strictly defined conditions, which must be cumulatively satisfied," particularly the imminence requirement, in order to invoke the state of necessity to take action. Case Concerning the Gabčíkovo-Nagymaros Project, 1997 I.C.J. at 34.

137. These diagrams do not suggest a mathematical analysis, but rather, serve to illustrate the discussion.

grave¹³⁸ and serves to assist a court in determining whether imminence is satisfied.

	Mean probability satisfies the imminence requirement	Mean probability does not satisfy the imminence requirement
<p>“Scientifically certain:” The level of scientific uncertainty is not so high that it affects whether the imminence requirement is satisfied or not. Thus the precautionary principle does not apply.</p>	Case (b)	Case (a)
<p>‘Scientifically “uncertain:” The level of scientific uncertainty means that there is both a chance that the imminence requirement will be satisfied and that it won’t be satisfied.</p>	Case (c)	Case (d)

Note: |—| corresponds to the range of scientific evidence (i.e. scientific uncertainty)

138. If the peril is found not to be sufficiently grave, this analysis does not apply.

1 Case (a)

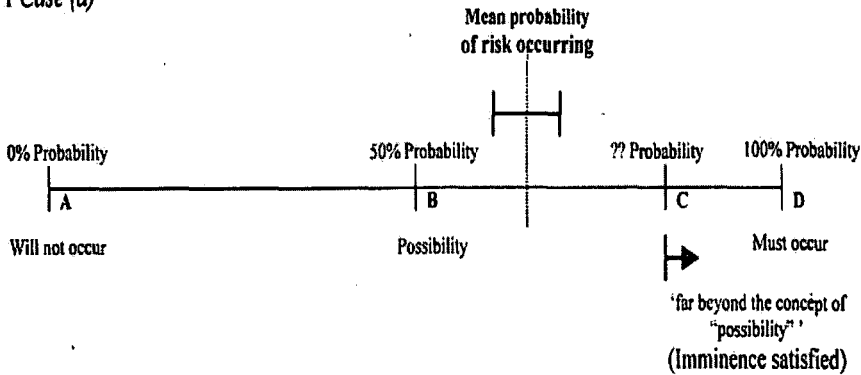


Figure 2: Case (a)

Case (a) highlights that recognizing scientific uncertainty does not mean that a lower probability of imminence is acceptable. As Figure 2 illustrates, the level of scientific uncertainty does not extend so far as to satisfy the imminence requirement. Thus the precautionary principle does not apply and the imminence requirement is not satisfied

2 Case (b)

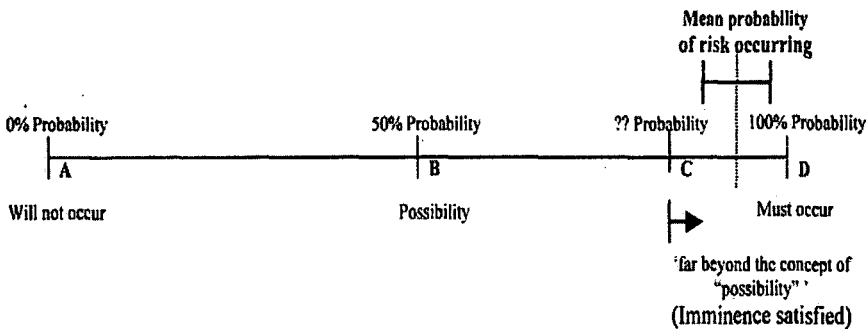


Figure 3: Case (b)

The imminence requirement is satisfied but the precautionary principle is not required since the scientific evidence is sufficiently certain.

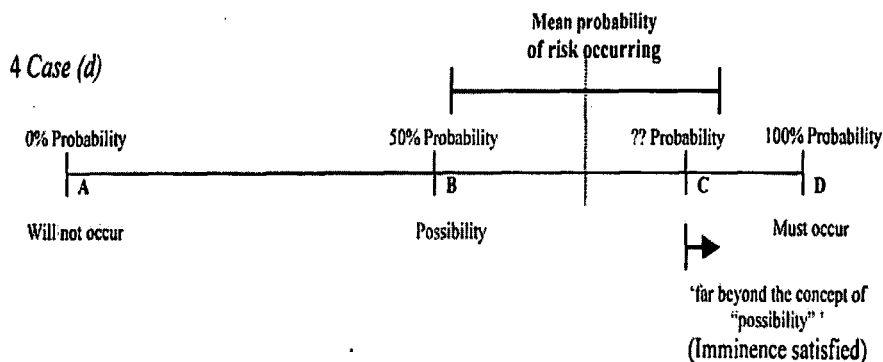


Figure 4: Case (c)

This is similar to Case (b) in that the mean probability satisfies the imminence requirement. However unlike in Case (b), scientific uncertainty extends outside the imminence requirement. The precautionary principle still applies to satisfy the imminence requirement notwithstanding the existence of scientific uncertainty.

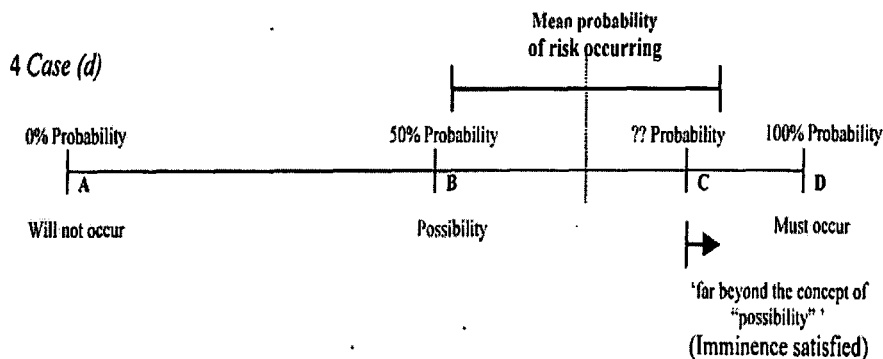


Figure 5: Case (d)

This case may be the most controversial application of the precautionary principle since the mean probability does not satisfy the imminence requirement. However in practice, the range of probabilities is frequently unknown¹³⁹ and thus the concept of a mean probability is very artificial. Hence this case is practically very similar to Case (c); the precautionary principle applies to satisfy the imminence requirement notwithstanding the existence of scientific

139. YOUNG, *supra* note 38, at 13.

uncertainty.¹⁴⁰ Rather than the averting scientific uncertainty, this case provides decision-makers with practical assistance.

Besides adding certainty to the decision-making process, the application of the precautionary principle shows a proper appreciation of the significance of the environment and the reality of uncertainty.¹⁴¹ However, the principal objection to this analysis is that it encourages a defendant with a low probability of grave harm to gather results so that there is enough uncertainty to activate the precautionary principle.¹⁴² However this can be easily overcome in a number of ways.

Firstly, the use of a refutable presumption that the defendant's evidence is acceptable, while highly precautionary, is merely an extension of the "polluter pays principle" to the "polluter pays for precaution principle."¹⁴³ This could operate such that the defendant's evidence is presumed to be accurate;¹⁴⁴ however, in the event that it is found to be unsatisfactory on account of evidence submitted by the plaintiff, the defendant would have to reimburse the plaintiff for the scientific studies conducted. This deters a defendant from conducting studies, which it knows to be incorrect and simultaneously recognizes that the fragility of the environment deserves the benefit of the doubt.¹⁴⁵

140. Some may argue that since the peril is sufficiently grave, the mere insufficiency of its imminence should not preclude the operation of ecological necessity. Ultimately, this hinges on the tension between *intragenerational* equity and *intergenerational* equity. As later discussed, consideration of the obligation owed means that the precautionary principle should be applied narrowly and thus in this respect, *intragenerational* equity prevails.

141. Dovers & Handmer, *supra* note 125 at 173-74.

142. *See supra* Part III.B discussing Case(d).

143. *See* Robert Costanza & Laura Cornwell, *The 4P Approach to Dealing with Scientific Uncertainty*, 34 ENV'T 12, 18 (1992).

144. *See* David Farrier, *Factoring Biodiversity Conservation Into the Decision-Making Processes: The Role of the Precautionary Principle*, in PERSPECTIVES ON THE PRECAUTIONARY PRINCIPLE 99, 107-10 (Ronnie Harding et al. eds., 1999) (drawing comparison to burden shifting and reasonable doubt in the criminal process).

145. "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

Yet the latter approach may be faulted in that it imposes too onerous obligations on a plaintiff since it is required to discharge a presumption to ecological necessity when in fact ecological necessity is an excuse to the very obligation that the plaintiff is owed. Thus a test based on the balance of probabilities may be preferred. The court may also consider conducting an independent environmental analysis,¹⁴⁶ and thus base its decision on this study,¹⁴⁷ resulting in a transparent and objective decision-making process.¹⁴⁸

Either of these approaches could be further narrowed by restricting the application of the precautionary principle to a particular and limited class of activities or substances recognized to possess higher than usual risks or hazards.¹⁴⁹ Ultimately, the strictness of the test used will depend on the court's sympathy to the environment.¹⁵⁰

measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost." Climate Change Convention, *supra* note 82, at 854, art.3, princ.3.

146. See Farrier, *supra* note 144, at 115.

147. Perhaps the fairest cost distribution would be for the defendant to pay if unsuccessful and for the cost to be shared if the defendant is successful. Note also that the overall cost of this alternative would be less since only one rather than two studies are being conducted.

148. See Farrier, *supra* note 144, at 110. "The thrust is towards making decisions more transparent – towards ensuring that they are not lost within a mélange resulting from the 'balancing of economic and environmental factors.'" *Id.*

149. Specifically, this may include applying the principle to discharges of special chemical, developments of an identified class such as petrochemical plants, or developments in a designated environmentally sensitive area. John Whitehouse, *Will the Precautionary Principle Affect Environmental Decision-making and Impact Assessment*, in PERSPECTIVES ON THE PRECAUTIONARY PRINCIPLE 59, 62 (Ronnie Harding et al. eds., 1999); see also Lothar Gündling, *The Status of the Principle of Precautionary Action*, in 5 INT'L J. ESTUARINE & COASTAL L. 23, 26 (1990).

150. See Farrier, *supra* note 144, at 109 (purporting that where the precautionary principle is the test, it "places pressure on decision-makers to reveal their true values").

C. Reforming the Balancing Requirement

Assuming ecological necessity is used as an excuse to an economic treaty obligation, it is contended that the concept of sustainable development should be used to balance the treaty obligation with the necessity of environmental protection.¹⁵¹ Sustainable development reflects "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs."¹⁵² The precautionary principle plays an important part of sustainable development in exercising precaution to safeguard the rights of future generations as embodied in the concept of intergenerational equity.¹⁵³ It is unclear whether sustainable development is a principle of modern international law,¹⁵⁴ or merely a concept¹⁵⁵ that lacks normative content.¹⁵⁶ However, it is widely accepted that at the very least, sustainable development means that economic development and environmental protection must be broadly considered together.¹⁵⁷

This broad consideration may apply to ecological necessity in the balancing of the economic obligation owed with the essential environmental interest to be protected.¹⁵⁸ In mediating between these considerations, it must be recognized that ecological necessity is not merely a defense with significance limited to the parties involved in

151. Weeramantry Opinion, *supra* note 77, at 1.

152. World Commission on Environment and Development, Our Common Future, GA Res 187, 42 U.N. GAOR, 96th Sess., U.N. Doc A/42/821Add.5 (1987).

153. The principle of intergenerational rights has been recognized by Judge Weeramantry, Weeramantry Opinion, *supra* note 77, at 19, and by numerous treaties including: 1946 International Convention for the Regulation of Whaling Convention, Preamble, 161 U.N.T.S. 72, 1849; 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage, Nov. 16, 1972, 11 I.L.M. 1358; Rio Declaration, *supra* note 60, at princ. 3, 4; Climate Change Convention, *supra* note 82, at art. pmb1.

154. Weeramantry Opinion, *supra* note 77, at 19.

155. Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 67 (Sept. 25).

156. See Lowe, *supra* note 86.

157. *Id.* 32; Weeramantry Opinion, *supra* note 151, at 1-7.

158. See Lowe, *supra* note 86, at 36.

the dispute.¹⁵⁹ Instead, environmental protection transcends the mere domestic, essential interests of a state to the status of a human right.¹⁶⁰ Not only did Judge Weeramantry endorse this view,¹⁶¹ but also the conception of the test for ecological necessity implicitly supports a higher end: the defense is activated by the mere occurrence of an incident in stark contrast to frustration which is based on the parties' expectations.¹⁶² Viewed as a human right, the use of precaution as part of the imminence requirement is more than justified.¹⁶³ It is submitted that since the 1999 amendment to Article 33 recognized that the interest arising from the obligation can include "some common or general interest,"¹⁶⁴ similar recognition should be afforded to the essential interest of a state.¹⁶⁵

It must not be forgotten that the party pleading ecological necessity promised to discharge an economic obligation. Environmental protection is only one side of the delicate balance of sustainable development,¹⁶⁶ and it is necessary to consider both *intragenerational* and *intergenerational* equity.¹⁶⁷ As such, it was recognized above that the use of the precautionary principle in the imminence

159. *See supra* Part III.

160. *See infra* note 162.

161. Judge Weeramantry notes that "[e]nvironmental rights are human rights." Weeramantry Opinion, *supra* note 77, at 22.

162. *Vienna Convention on the Law of Treaties*, opened for signature May 23, 1969, UN Doc A/CONF.39/27; *see* Daniel Reichert-Facilides, *Down the Danube: The Vienna Convention on the Law of Treaties and the Case Concerning the Gabčíkovo-Nagymaros Project*, 47 INT'L. & COMP. L.Q. 837 (1998).

163. In international human rights complaints procedures, the precautionary approach tends to be followed. Menno Kamminga, *The Precautionary Approach in International Human Rights Law: How It can Benefit the Environment*, in THE PRECAUTIONARY PRINCIPLE AND INTERNATIONAL LAW: THE CHALLENGE OF IMPLEMENTATION 171, 184 (David Freestone et al. eds., 1996).

164. *1999 Report*, *supra* note 16, at n.218.

165. Weeramantry Opinion, *supra* note 77, at 1.

166. The delicate balance of sustainable development means that "efforts to eliminate any given risk will create some new risks." Frank Cross, *Paradoxical Perils of the Precautionary Principle*, 53 WASH. & LEE L. REV. 851, 882 (1996).

167. Lowe, *supra* note 86 at 26-30.

requirement must not lower the probability of imminence that is acceptable,¹⁶⁸ and additionally, an alternative to reversing the burden of proof was suggested.¹⁶⁹

Although the I.L.C. rejected the inclusion of the precautionary principle on the basis that necessity stood at the “outer edge of the tolerance of international law for otherwise wrongful conduct,”¹⁷⁰ the narrow acceptance of the precautionary principle as part of ecological necessity appreciates the importance of environmental protection while still recognizing the economic obligation owed and the overriding concept of sustainable development.¹⁷¹

Ultimately the old rights test, despite its abandonment, still haunts the modern defense—the balancing requirement will continue to pose the most significant challenges for future judicial decisions in this context.

CONCLUSION

The inclusion of the precautionary principle in ecological necessity will serve an important part of environmental protection. Notwithstanding this importance, perhaps the most insidious element of ecological necessity is that it fundamentally misconstrues the nature of environmental protection as an adversarial issue rather than an obligation owed by each state.¹⁷² This is particularly apparent from the fact that a state cannot invoke necessity if it has contributed the environmental risk. Judge Weeramantry noted that the adversarial procedure followed by the I.C.J. “scarcely does justice to rights and obligations of an *erga omnes* character”¹⁷³ and that international law must look beyond the “parochial concerns [of states] to the greater interests of humanity and planetary welfare.”¹⁷⁴

168. See *supra* Part III.B discussing Case(d).

169. See *supra* notes 146–147 and accompanying text.

170. *I.L.C. Commentary*, *supra* note 23, at 378.

171. See Hey, *supra* note 76, at 92.

172. Hungary argued in its pleadings that “the principle of prevention, which forms the basis of all environmental law, must be considered an *erga omnes* obligation.” Memorial of the Republic of Hungary, *supra* note 61, at 200.

173. Weeramantry Opinion, *supra* note 77, at 25.

174. *Id.*

The concept of environmental *erga omnes* obligations has been mentioned elsewhere¹⁷⁵ and indeed the I.L.C. indicated that environmental protection might potentially have such a character in stating that it serves the interests of those other than the parties including the "living space, the quality of life and the very health of human beings, including generations unborn."¹⁷⁶ Beyond the inclusion of the precautionary principle as a key element of ecological necessity, the future challenge of international environmental law will be to grapple with the concept of environmental protection as an *erga omnes* obligation.

175. *Legality of the Threat or Use of Nuclear Weapons*, 1996 I.C.J. 104, 348-350 (July 8) (dissenting opinion of Judge Weeramantry); see also MAURIZIO RAGAZZI, *THE CONCEPT OF INTERNATIONAL OBLIGATIONS ERGA OMNES* 154-63 (1997).

176. *Case Concerning the Gabčíkovo-Nagymaros Project* (Hung. v. Slov.), 1997 I.C.J. 35, 58 (Sept. 25).