

Applicability of the Precautionary Principle Reconsidered

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Introduction

The precautionary principle has been frequently referred to in recent times, particularly in the context of global environmental protection, such as combating global warming.¹ The 1992 United Nations Framework Convention on Climate Change (hereinafter referred to as the UNFCCC) and the protocols thereto construct the treaty regime for combating global warming. The Vienna Convention and the Montreal Protocol for ozone layer protection² are also examples of global environmental protection (hereinafter referred to as the Vienna Convention and as the Montreal Protocol).³ They provide for “precautionary measures,” not the precautionary principle. While it prescribes for the “precautionary approach,” not the “precautionary

*For the reader’s convenience, in the footnotes, the titles of cited works originally written in Japanese will be translated into English with [Japanese titles].

** All URLs were last accessed on the 27th of July, 2024.

¹ The 1992 United Nations Framework Convention on Climate Change and Protocols. <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

² The 1985 Vienna Convention for the Protection of the Ozon Layer and the 1987 Montreal Protocol on Substances That Deplete the Ozone Layer, https://ozone.unep.org/sites/default/files/2019-12/The%20Ozone%20Treaties%20EN%20-%20WEB_final.pdf

³ Preamble of the 1985 Vienna Convention reads:

Mindful also of the precautionary measures for the protection of the ozone layer which have already been taken at the national and international levels,

Preamble of the 1987 Montreal Protocol reads:

Noting the precautionary measures for controlling emissions of certain chlorofluorocarbons that have already been taken at national and regional levels,

Ibid.

principle,” Principle 15 of the Rio Declaration on Environment and Development (hereinafter referred to as the Rio Declaration) demonstrates the core of the precautionary principle. It reads:

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.⁴

Also, Article 3, Paragraph 3 of the UNFCCC entitled “Principles” reads:

The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.⁵

It is clear that the essence of the precautionary principle is to take measures for avoiding⁶ damage even at the stage of “lack of full scientific certainty.” In addition, regarding the expected damage, Principle 15 of the Rio Declaration states, “there are threats of serious or irreversible damage.”⁷ Depending on the treaty or international documents, the terms “precautionary principle,” “precautionary approach,” and “precautionary measures” are mentioned. This paper examines the application of the idea of precaution in an appropriate way. Thus, as long as the idea contained in these phrases, “precautionary principle,” “precautionary approach,” and “precautionary measures” is the

⁴ <https://www.cbd.int/doc/ref/rio-declaration.shtml>.

⁵ See *supra* n. 1.

⁶ Article 3, Paragraph 3 of the UNFCCC prescribes for “precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects” which includes the term “prevention.” This paper will later explain the significance and meaning of the precautionary principle by comparing it to the principle of damage prevention. Therefore, in order to avoid causing any confusion, here it is appropriate not to use “prevention,” and instead to use “avoiding.”

⁷ As will be succinctly examined later, this also establishes a requirement for the application of the precautionary principle.

same, there is no need to make a distinction among them.⁸ This paper will use the term “precautionary principle” to describe the idea of precaution, unless other expressions are appropriate depending on the context.

Then how is the decision to trigger the application of the precautionary principle, even when there is “lack of full scientific certainty,” made? This paper focuses upon this particular element and examines how a balance is sought between the environment and development, so as to deny “over-application” of the principle by not allowing *the person who speaks up (‘risk of damage’) first to win*. This paper does not intend to minimize the function of precautionary principle and deny its significance, either. Its intention is totally opposite. It will examine the possibility for the precautionary principle to be firmly established as an international law, by refining the requirements for the applicability of the principle, and with seeking a balance of interests among sovereign State.

This is because, the duty of prevention or, it is said, the principle of international harm prevention, which was established prior to the precautionary principle, and the concept of sustainable development are based upon a balance among differences and even conflicting interests among States. That is how they have acquired the general approval of international society. This reflects the inherent nature of international society, which consists of sovereign States equal to and independent from each other. International law can be created, in general, by the consent of sovereign States.⁹

This paper mainly traces the development of the precautionary principle in the field of international environmental law, beginning with the explanation of the duty of the prevention of international harm, and will also touch upon recent incidents that Japan experienced in international litigation, such as the Southern Bluefin Tuna Case, and the international reaction to Japan’s discharge into the sea of treated water containing tritium.

⁸ In Section II, some interesting examples of the prescription of the precautionary approach will be introduced.

⁹ As for the characteristics and creation of international law by sovereign States, see Atsuko Kanehara, “Double Aspects of Being a Sovereign State: Positive and Passive Aspects,” https://cigs.canon/en/article/20240611_8159.html.

I. Duty of the Prevention of International Environmental Harm

1. Prevention and Precaution

The idea of precaution is frequently compared to that of prevention.¹⁰ The establishment of the duty of the prevention of international harm¹¹ in international law occurred prior to the emergence of the idea of precaution.¹² The idea of precaution initially appeared in the field of international environmental law.¹³ Thus, to make the comparison between prevention and precaution is meaningful when focusing upon the field of international environmental law.¹⁴

¹⁰ Such comparison concerns the strictness of the obligation. The duty of precaution against international harm requires more of sovereign States than the duty of the prevention of international harm. This can be discussed by comparing the condition for triggering the duty of prevention of international harm and the duty of precaution against it. Such discussion will be conducted in Section I and Section II.

¹¹ This may also be said as the principle of the prevention of international harm.

¹² Atsuko Kanehara, “Precautionary Remedies’ in the Conventions on Global Environmental Protection [Tikyū Kankyo Hogo ni Okeru ‘Songai Yobo’ no Hori],” *The Journal of International Law and Diplomacy [Kokusai Ho Gaiko Zasshi]*, Vol. 93, Nos. 3 · 4 (1994) (hereinafter referred to as Kanehara, “Precautionary Remedies”), pp. 458-460.

¹³ For a succinct explanation of the evolution of the precautionary principle, see Meinhard Schröder, “Precautionary Approach/Principle,” Max Planck Encyclopedias of International Law, article last updated: March 2014, <https://opil.ouplaw.com/display/10.1093/law:epil/9780199231690/law-9780199231690-e1603?rskey=GPjwau&result=1&prd=MPIL> paras. 6-7; Sabrina Hasan, “The Role of Precautionary Approach and Sustainable Development in International Environmental Law: Comparative Analysis,” *Journal of Law, Policy and Globalization*, Vol. 141, (2024), pp.122-132.

¹⁴ A different discussion on the comparison between prevention and precaution touches upon the meaningful applicability of the law of State responsibility. On the one hand, the law of State responsibility principally deals with relief *ex post facto* for the damage that is caused by violations of international obligations. It sheds light on the violations of international obligations *ex post facto*. On the other hand, when relief *ex post facto* is meaningless, a legal regime should be assumed for precaution. Such a regime needs to set forth an obligation of precaution, and decides the result of violations of the precaution, which is different from the entailment of State responsibility. As examined in Section II, the treaty regimes for global

2. Beginning of International Environmental Law in the 20th Century: Duty of the Prevention of International Environmental Harm¹⁵

The Trail Smelter Case,¹⁶ an arbitration, holds a special status in the development of international environmental law. The tribunal declared the duty of the prevention of transboundary environmental harm, although it did not clearly mention the environment. This duty of prevention¹⁷ is reflected principally in the Stockholm Declaration on Human Environment (hereinafter referred to as the Stockholm Declaration)¹⁸ under Principle 21,¹⁹ and in many environmental and other treaties²⁰ and international

environmental protection, such as those for combating global warming and ozone layer destruction have such characteristics.

¹⁵ This paper deals with transboundary environmental harm, whereby the harmful acts are conducted in one State, but the harm takes place in the territories of other States or in the publica sphere. Therefore, “international” environmental harm is a more precise expression. However, unless serious confusion is expected, the term “environmental” harm will be used.

¹⁶ Trail Smelter Case (United States, Canada) Decisions of 16 April 1938 and 11 March 1941, https://legal.un.org/riaa/cases/vol_III/1905-1982.pdf, pp. 1905-1982.

¹⁷ As long as no confusion is expected, to describe the duty of the prevention of international (environmental) harm, the term “duty of prevention” is used. Following the same idea, “duty of precaution” means the duty of precaution against international (environmental) harm. The duty of prevention and the duty of precaution do not necessarily apply solely to environmental harm. Here, it is enough to point this out without going into the definitions of “environment” and “environmental harm.”

¹⁸ <https://docenti.unimc.it/elisa.scotti/teaching/2020/22646/files/stockholm-declaration>.

¹⁹ It reads:

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

²⁰ For instance, UNCLOS, under Article 194, Paragraph 2, reproduced the gist of principle 21 of the Stockholm Declaration.

It reads:

documents.²¹ Thus, beyond individual treaties and international documents, such an obligation has been established under customary international law.²² For instance, Article 194, Paragraph 2 of the United Nations Convention on the Law of the Sea (UNCLOS)²³ is interpreted as providing for the duty of the prevention of international harm.

In addition, there are further examples of such provisions, such as Articles 1, 2, and 7 Paragraph 2 of the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter,²⁴ Article 2 of the 1974 Paris Convention for the Protection of the Marine Environment of the North-East Atlantic,²⁵ and Article 3 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area.²⁶

States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.

²¹ Schröder, *op. cit.*, *supra* n. 13, paras. 13-15.

²² In the case of Legality of the Threat or Use of Nuclear Weapons, the International Court of Justice (hereinafter referred to as the ICJ) declared as follows:

The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment.

Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996, <https://www.icj-cij.org/sites/default/files/case-related/95/095-19960708-ADV-01-00-EN.pdf>, para. 29.

²³

https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

²⁴

<https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/LC1972.pdf>.

²⁵ <https://www.jus.uio.no/english/services/library/treaties/06/6-05/protection-environment-atlantic.html>.

²⁶ <https://helcom.fi/about-us/convention/>.

The duty of prevention is a duty of due diligence.²⁷ States do not have an absolute obligation not to cause any harm, but they have to exercise due diligence not to cause international environmental harm. When they do not comply with said obligation, the law of State responsibility under international law regulates the result of such violations so as to mainly give relief *ex post facto* for the damage caused by the violations concerned. Here, it is not necessary to go into the discussion on the obligation of due diligence and the absolute obligation; the important point to confirm is that the duty of prevention is a duty of due diligence.²⁸

While Principle 2 of the Rio Declaration ²⁹ reproduced Principle 21 of the Stockholm Declaration, Principle 15 prescribes for the precautionary approach. Regarding Principle 21 of the Stockholm Declaration, there has been discussion on whether the principle provides for the duty of prevention or a more rigid obligation. Currently, it is interpreted as prescribing for the duty of prevention.³⁰

3. Two Forms of Balance Sought by the Duty of Prevention

²⁷ Kanehara, “Precautionary Remedies,” pp.459-460. As the same understanding, see the advisory opinion of the International Tribunal for the Law of the Sea in the case of Request for an Advisory Opinion Submitted by the Commission of Small Islands States on Climate Change and International Law, Advisory Opinion of 21 May 2024, https://www.itlos.org/fileadmin/itlos/documents/cases/31/Advisory_Opinion/C31_Adv_Op_21.05.2024_orig.pdf, paras. 245 *et seq.*

²⁸ For a detailed examination of the law of State responsibility for lack of due diligence, see Atsuko Kanehara, “The Role of Fault in the Law of State Responsibility for Internationally Wrongful Acts [Kokusai Ihokoi Sekinin ni Okeru Kasitsu no Kino],” *The Journal of International Law and Diplomacy [Kokusai Ho Gaiko Zassi]*, Vol. 96, No. 6 (1998), pp. 867 *et seq.*

²⁹ It reads:

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

³⁰ See *supra* n. 27.

The Trail Smelter Case concerned transboundary air pollution in the territory of the U.S. caused by the Trail Smelter factory, which a private entity was permitted, by Canada, to operate in the border area between the U.S. and Canada.

Under international law, every State has the obligation to ensure that private entities under its jurisdiction or control do not cause transboundary harm by implementing the duty of due diligence thereupon.³¹ While the operation of the Trail Smelter is the act of a private entity, Canada, as the territorial State where the operation is conducted, has such an obligation.

The tribunal declared the duty of prevention as follows.

The Tribunal, therefore, finds that the above decisions, taken as a whole, constitute an adequate basis for its conclusions, namely, that, under the principles of international law, as well as of the law of the United States, *no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence* (emphasis added).³²

In such a formulation of the duty of prevention, balance was sought in the following two senses.

³¹ This is closely connected to the legal framework of international law and the law of State responsibility. Sovereign States do not owe responsibility for the acts of private entities. They owe responsibility solely for their own acts. However, in relation to private entities, States have the duty to exercise due diligence to ensure that international harm is not caused to other States and international spheres by the acts of private entities who are under their jurisdiction or control. When States do not comply with the obligation of this due diligence, they owe responsibility in accordance with the law of State responsibility. They take such responsibility for their own lack of due diligence, not for the harmful acts of private entities. For a detailed examination of the theory of the law of State responsibility, particularly for the acts of private entities, see Atsuko Kanehara, "The Reassessment of Acts of the State in the Law of State Responsibility - A Proposal of an Integrative Theoretical Framework of the Law of State Responsibility to Effectively Cope with Internationally harmful acts of Non-State Actors," *Recueil des cours*, Vol. 399, (2019), pp. 19-266.

³²See *supra* n. 16, the Decision of 1941, p. 1964.

First, there must be a balance between two equal sovereign States in terms of territorial sovereignty.³³ The Trail Smelter Case is a typical precedent of transboundary environmental harm. On the one hand, Canada has territorial sovereignty over the use of its own territory. On the other hand, the U.S. has the right to territorial integrity. In this context, the right to territorial integrity signifies no physical changes to its own territory without its permission. The air pollution caused by the Trail Smelter constituted such physical changes to the integrity of the U.S. territory.

Second, a balance was to be achieved between the prevention of environmental harm and the development of technology.³⁴ In order to avoid unnecessarily placing a burden on the operation of the factory, a State should take preventive measures only “*when the case is of serious consequence and the injury is established by clear and convincing evidence.*” The trigger of the duty of prevention is conditioned by the scale of the expected consequences and injury, as they need to be “serious,”³⁵ and the required evidence is to be “clear and convincing.”

The first balance is precisely the result of equality among sovereign States. This is a fundamental requirement of international law, as international society consists of the co-existence of equal sovereign States.

The second balance is, to use a broad expression, that between the environment and development. As will be described later in this paper, the concept of sustainable development (and the sustainable development goals (SDGs)) greatly reflects such a balance. This idea has a long history. Since the 1972 Stockholm Declaration, as an epoch-making international document,

³³ For a detailed examination of this balance, see Atsuko Kanehara, “The Meaning of Relativity of the Territorial Sovereignty in the Principle of *sic uttere tuo ut alienum non laedas* [Ryoiki Siyo no Kanrisekinin Gensoku ni Okeru Ryoiki Shuken no Sotaikal],” in S. Murase and N. Okuwaki eds., *Jurisdiction of a State—The Relation of International Law and National Laws [Kokka Kankatsuken—Kokusai Ho to Kokunai Ho no Kankei]* (1998), pp. 179 *et seq.*

³⁴ Depending on the context, “technology” here represents economic activities and development of resources, and possibly other meanings. This will be discussed later.

³⁵ It is not easy to identify the exact scale that the term “serious” designates. It can, however, be said that “serious” means more than “substantial” and “significant.”

places the environment and development side by side under Principle 21,³⁶ this balance has held the status of the core consideration in environmental protection.³⁷

Thus, the two forms of balance sought by the tribunal in the Trail Smelter Case form exactly “the backbone” of international law and international environmental law.

In international society, where equal sovereign States co-exist, without any authoritative legislative organs, sovereign States themselves create international law mainly through consent.³⁸ The interests that States desire to realize have been various in the 20th and 21st centuries when the number of States has grown. That differs from the situation wherein modern-age European States, whose number was relatively limited, had relatively similar interests, which lead to the establishment of modern European international law. In the 21st century, depending on the matter concerned, related interests and stakeholders are more varied. In such an international society, to reach

³⁶ It reads:

States have, in accordance with the Charter of the United Nations and the principles of international law, *the sovereign right to exploit their own resources* pursuant to their own environmental policies, and *the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment* of other States or of areas beyond the limits of national jurisdiction (emphasis added).

³⁷ On the one hand, the definition of the environment as a legally protected interest needs to be determined. Some treaties have their own definitions of environment or damage to it in a particular context and they signify the legal interests to be protected by the treaty concerned and injury thereto. For instance, Article 1, Paragraph 1 (4) of UNCLOS defines pollution. On the other hand, “the sovereign right to exploit their own resources” under Principle 21 of the Stockholm Declaration connotes not only protection of natural (living and non-living) resources but also the economic interests that sovereign States can gain from such resource exploitation. Atsuko Kanehara, “Reappraisal of Legal Interests of “Sovereign States” in International Environmental Disputes [Kokusai Kankyo Hunso ni Okeru Hoeki no ‘Kokka’ Sei],” in Y. Simada, S. Sugiyama and M. Hayashi eds., *Legal Resolution of Diversified International Disputes [Tayo Ka Suru Kokusai Hunso no Hoteki Kaiketsu]* (2006), pp. 324-325. Section II will deal with this issue.

³⁸ Regarding the characteristics of international law-making and inherent function of sovereign States therefor, see Kanehara *op. cit.*, *supra* n. 9.

consent among sovereign States is not an easy task and balancing various interests is critically important. Otherwise, no proposed international law rules could gain enough acceptance from sovereign States, and proposals would come to be abortive.

In international environmental law, the description by the Stockholm Declaration of environment and development side by side clearly demonstrates the different and even conflicting interests of sovereign States that require immensely difficult compromises.³⁹ As is explored in this paper, there is the expectation that the concept of sustainable development will find a compromise between environment and development. Deciding how this goal can be achieved remains a difficult task.⁴⁰

Thus, seeking a balance has been one of the most fundamental requirements and a backbone of international law.

As a critical difference from its predecessor, the 1992 Rio Declaration reproduces Principle 21 of the 1972 Stockholm Declaration but shifts away from “prevention” and moves further toward “precaution,” as it prescribes for the precautionary approach under Principle 15.

Then, what balance is to be realized by the precautionary principle? How will it be achieved?

II. Precautionary Principle

1. Emergence of the Precautionary Principle

The precautionary principle began to be adopted in the field of international environmental law. Prior to Principle 15 of the 1992 Rio Declaration, there had already been treaties and international documents without legal binding force that prescribed for the precautionary principle. These are, for instance, in the 20th century, IV of the Ministerial Declaration of the Second International Conference on the Protection of the North Sea, London, 24-25

³⁹ Kanehara, *op. cit.*, *supra* n. 37, pp. 329-330.

⁴⁰ *Ibid.*, p. 335. The concept of sustainable development introduces the idea of “continuity,” as it seeks a balance between present and future generations. Pierre-Marie Dupuy, “Où en est le droit international de l’environnement à la fin du siècle?” *Revue générale de Droit International Public*, Vol. 101 (1997), pp. 886-887.

November 1987, OSPAR Commission,⁴¹ the precautionary approach to marine pollution, including waste-dumping at sea, UNEP/GC/DEC/15/27, in United Nations Environment Programme: Report of the Governing Council on the Work of its 15th session, 15-26 May 1989,⁴² and I. 7 of the Bergen Conference - Ministerial Declaration on Sustainable Development.⁴³ Almost in the same period as that of the Rio Declaration, in addition to Article 3, Paragraph 3 of the UNFCCC, which was reproduced in the Introduction, the preamble of the Convention on Biological Diversity (CBD) ⁴⁵ p r e s c r i b e s f o r t h e p r e c a u t i o n a r y p r i n c i p l e . ⁴⁶ In the field of the conservation and management of fishery resources, the Fish Stocks Agreement ⁴⁷ with its Annex II, ⁴⁸ which is an implementation

⁴¹ https://www.ospar.org/site/assets/files/1239/2nsc-1987_london_declaration.pdf.

⁴² <https://digitallibrary.un.org/record/79301?ln=fr&v=pdf>, pp. 152-153.

⁴³ *Environmental Policy and Law* Vol. 20, No. 3 (1990), pp. 100-103.

⁴⁴ As other examples, see Schröder, *op. cit., supra*. 13, paras. 13-14; Kanehara, "Precautionary Remedies," p. 462 and footnotes thereto.

⁴⁵ <https://www.cbd.int/convention/text>.

⁴⁶ It reads:

Noting also that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

⁴⁷ Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, https://www.un.org/oceancapacity/sites/www.un.org.oceancapacity/files/files/Projects/UNFSA/docs/unfsa_text-eng.pdf. As for the development of the idea of conservation and management of fish resources, see Atsuko Kanehara, "A Critical Analysis of Changes and Recent Developments in the Concept of Conservation of Fishery Resources on the High Seas," *The Japanese Annual of International Law*, No.41 (1998), pp. 1-29.

Article 6 of the Fish Stocks Agreement provides for the application of the precautionary approach and concrete implementing methods.

⁴⁸ Guidelines for the Application of Precautionary Reference Points in Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks,

agreement to UNCLOS, provides for the precautionary principle (precautionary approach) in a unique way.⁴⁹ It is interesting that the 2023 BBNJ Agreement⁵⁰ does not mention the precautionary principle,⁵¹ while the CBD, which also deals with biodiversity, in its preamble, refers to the precautionary principle.

2. Characteristics of the Precautionary Principle

In regard to the conditions triggering the application of the precautionary principle, from the international practice of treaties and international documents, in general, the following two elements are in accord.⁵² First, the expected damage is irreversible or the recovery costs for the damage are tremendously high. Second, there is scientific uncertainty for the risk of damage and/or scientific indeterminacy for the causation between acts and damage as a result.⁵³

The difficult issue is how to determine the “timing” of the triggering application of the precautionary principle. In comparison, it is possible to decide violations of the duty of prevention for lack of prevention, when

https://www.un.org/oceancapacity/sites/www.un.org.oceancapacity/files/files/Projects/UNFSA/docs/unfsa_text-eng.pdf.

⁴⁹ As a succinct explanation of that, see Kanehara, *op. cit.*, *supra* n. 47, and Atsuko Kanehara, “Rights and Responsibility of a State in the Protection of International Environment [Kankyo Hogo ni Kansuru Kokka no Kenri to Sekinin],” in the Japanese Society of International Law ed., *100 Years of Japan from the Perspective of International Law [Nihon to Kokusai Ho no 100 Nen]*, Vol. 6, *Development and Environment [Kankyo to Kaihatsu]* (2002), p. 49 and footnote 56.

⁵⁰ Agreement on Biodiversity of the Areas beyond National Jurisdiction, <https://www.un.org/depts/los/XXI10CTC%28EN%29.pdf>.

⁵¹ As some analysis of the Agreement from a perspective of the history of the law of the sea, see Atsuko Kanehara, “Significance of the BBNJ Agreement from the Perspective of the Historical Development of the Law of the Sea,” https://cigs.canon/en/article/20240510_8077.html.

⁵² For a more detailed examination, see Kanehara, “Precautionary Principle,” pp. 460-462.

⁵³ In addition, it has been pointed out that the precautionary principle has an innovative character with sustainable and continuous factors, as it is connected to the concepts of sustainable development and equity for the future generation, *ibid.*, p. 461. Also, see Dupuy, *op. cit.*, *supra* n. 40.

substantial damage is predictable.⁵⁴ At least as a matter of degree, the determination of violations of the duty of precaution is more difficult than that of violations of the duty of prevention.⁵⁵ It might be said that the duty of precaution is a stricter obligation than the duty of prevention.⁵⁶

In the 2021 Case of Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area,⁵⁷ the advisory opinion rendered by the Seabed Dispute Chamber of the International Tribunal for the Law of the Sea (hereinafter referred to as ITLOS) deserves attention. It makes the comparison between the obligation of due diligence⁵⁸ and the precautionary approach.⁵⁹ It said, “the precautionary approach is also an integral part of the general obligation of due diligence of sponsoring States.”⁶⁰ In addition, it said “the precautionary approach has been incorporated into a growing number of international treaties and other instruments In the view of the Chamber, this has initiated a trend towards making this approach part of customary international law.”⁶¹

Considering the requirement for the triggering application of the precautionary principle, namely, “scientific uncertainty for the risk of damage and/or scientific indeterminacy for the causation between acts and damage as a result,” at what point of scientific uncertainty, for instance, is the precautionary principle to be applied?

⁵⁴ In the Trail Smelter Case, the tribunal said, “*the case is of serious consequence and the injury is established by clear and convincing evidence.*” For a comparison between “serious,” on the one hand, and “substantial” and “significant, on the other hand, see *supra* n. 35. “Clear and convincing evidence” somehow reflects the “predictability” of damage as a requirement for the duty of prevention.

⁵⁵ Kanehara, “Precautionary Remedies,” pp. 461-462.

⁵⁶ Or, it might be said that the difference between the duty of prevention and the duty of precaution is not that of degree, and that they have a substantive difference rather than a difference in terms of strictness, *ibid.*, pp. pp. 461-462.

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https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_17/17_adv_op_010211_en.pdf.

⁵⁸ For an examination of this point, see Kanehara, *op. cit.*, *supra* n. 31, Chapter IV, V.

⁵⁹ See *supra* n. 57, paras. 117-136.

⁶⁰ *Ibid.*, para. 131.

⁶¹ *Ibid.*, para. 135.

In this regard, when, as in the Fish Stocks Agreement and its Annex II,⁶² concrete methods and standards are set for implementing precaution, the triggering of the precautionary principle and the determination of violations of the duty of precaution may become somewhat easier. Or, in some international practice, when the prohibition of acts can be lifted with proof of no environmental damage by the entity that plans to conduct the acts, the application of the precautionary principle could be greatly simplified.⁶³ Such international practice⁶⁴ places the burden of proof on the side of the entity that conducts the acts and is called a “prior justification procedure.”⁶⁵ However, such a burden on the side of the entity could seriously hinder the development of technology, exploitation of resources, and economic utility so as to seriously disrupt the critically important balance that international law and international environmental law must seek.⁶⁶

For the enforceability of the precautionary principle, on the one hand, further identification of the conditions for triggering its application is needed, by specifying the degree of “scientific uncertainty” and “irreversibility” of the expected damage as the thresholds for such application. On the other hand, an alternative way could be to devise inherent procedures and/or to determine the requirements for the application of the precautionary principle. Without these kinds of developments, the precautionary principle would not be put into operation in a real sense, while it might provoke a sort of idea for environmental protection with disregard for the consideration of other factors, such as the economy, technology, resource development, etc.

From this perspective of inherent procedures to put into operation the precautionary principle, the treaty regimes for global environmental protection deserve special attention.

3. Treaty Regimes for Global Environmental Protection

(1) Global Environment

⁶² See *supra* n. 48.

⁶³ Kanehara, *op. cit.*, *supra* n. 37, p. 333 and footnote thereto.

⁶⁴ A similar thought can be found in the argument by New Zealand in the Nuclear Test Case. In this regard, see Kanehara, *op. cit.*, *supra* n. 49, pp. 47-49.

⁶⁵ Kanehara, “Precautionary Remedies,” p. 461 and footnote thereto.

⁶⁶ As to such a balance, see Section III. 3.

With regard to the global environment, typical examples that have emerged for international law are ozone layer protection and combating global warming.⁶⁷ Before them, “international” environmental protection was mentioned as one of the newly established fields of international law. For ozone layer protection and combating global warming, international law has firmly recognized the issues as being of a global scale.

For ozone layer protection, the treaty and the protocol thereto⁶⁸ were adopted in the 1980s. For combating global warming, a framework convention and the protocols thereto⁶⁹ were adopted in the 20th century and the 21st century.

(2) Scientific Uncertainty Accompanying Ozone Layer Destruction and Global Warming

That is not to mention that both for ozone layer protection and combating global warming, scientific uncertainty constitutes a very difficult obstacle to overcome.

First, it is difficult to specify the substances that cause ozone layer destruction and global warming, and even if they are specified, it is still difficult to identify the activities and associated entities that create and/or discharge such substances. Second, it is impossible to determine the causation between such harmful substances and the result, namely, ozone layer destruction and global warming. The lapse of a long time and a variety of harmful activities and their associated entities contribute to the impossibility. In addition, ozone layer destruction and global warming constitute damage covering the globe, and therefore, everybody on the globe is both a perpetrator and a victim.⁷⁰

Due to these facts, the law of State responsibility to give relief for such

⁶⁷ For a detailed analysis of the treaty regimes for precaution against global environmental damage, see Kanehara, “Precautionary Remedies,” pp. 448 *et seq.*

⁶⁸ As for the Vienna Convention and the Montreal Protocol, see *supra* n. 2.

⁶⁹ As for UNFCCC, see *supra* n. 2. The 1997 Kyoto Protocol, <https://unfccc.int/sites/default/files/resource/docs/cop3/107a01.pdf>, and the 2015 Paris Agreement, https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.

⁷⁰ Kanehara, “Precautionary Remedies,” pp. 449-450.

damage (ozone layer destruction and global warming) *ex post facto* is also inconceivable and meaningless.⁷¹

Then, rather than assuming State responsibility for violations of the obligations under the treaty regimes for ozone layer protection and combating global warming, inherent procedures are established for realizing the idea of the precautionary principle. This is based upon cooperation among the party States to the treaties and their consent to put into operation the precautionary measures. The point is that it is by the consent of the party States that they overcome the scientific uncertainty.⁷²

Next, mainly taking the example of the treaty regime for ozone layer protection, such inherent procedures will be explored.

(3) Procedures for Precaution⁷³

① Setting Objective Standards for Target Environmental Risk

Under scientific uncertainty, it is not possible to scientifically decide the target environmental risk, namely, harmful substances, degree of strictness of the restriction on the discharge of harmful substances, etc. Predictability, the probability of the occurrence of global environmental damage, could be judged solely subjectively by each party State to the treaty regimes for ozone layer protection and combating global warming. To cope with such a situation, these treaty regimes not only provide for general obligations to protect the ozone layer and to combat global warming,⁷⁴ but they also adopt protocols⁷⁵ to decide the harmful substances and standards and measures to be taken for their regulation. This is the “objectivization” of the target environmental risk.⁷⁶

Taking the example of the treaty regime for ozone layer protection, under the

⁷¹ *Ibid.*, pp. 450-456; Kanehara, *op. cit.*, *supra* n. 49, p. 46.

⁷² As will be introduced, in the case of the Paris Agreement, the special procedure of “pledge and review” is adopted.

⁷³ For a detailed analysis of the precautionary procedures under the treaty regimes for ozone layer protection and combating global warming, see Kanehara, “Precautionary Remedies,” pp. 467-474.

⁷⁴ Article 2 of the Vienna Convention, and Article 4 of the UNFCCC.

⁷⁵ As for the Montreal Protocol, see *supra* n. 2. As for the Kyoto Protocol and the Paris Agreement, see *supra* n. 69. Under the UNFCCC, currently the Paris Agreement is functioning, and so it will be mainly focused upon.

⁷⁶ Kanehara, “Precautionary Remedies,” pp. pp. 467-469.

general obligation set forth by the Vienna Convention, the Montreal Protocol provides for concrete regulative measures and standards.⁷⁷ They have legally binding force.⁷⁸ These measures and standards have been regularly and continuously reviewed by the periodical convening of the Conference of the Parties, and, when needed, they are amended in accordance with the procedure under Article 2, Paragraph 9 (a) of the Montreal Protocol.

The Paris Agreement has adopted a unique mechanism of “pledge and review.”⁷⁹ The Paris Agreement under Article 2, Paragraph 1 (a) the target goal is set as follows:

Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

Under this goal, in accordance with Article 4, Paragraph 9, each party State shall communicate a nationally determined contribution every five years. Under Article 14 the Conference of the Parties shall periodically take stock of the implementation of the Agreement to assess the collective process towards achieving the purpose of the Agreement.

Under this mechanism, on the one hand, considering the individual situations of the party States, they themselves set the nationally determined contribution. On the other hand, the global goal is set by the consent of parties under Article 2 of the Paris Agreement. The Conference of Parties periodically reviews the implementation of the Agreement.

Even under scientific uncertainty, the treaty regime for ozone layer protection does not neglect the importance of scientific research. The regulative measures and standards are determined with the best scientific technology⁸⁰

⁷⁷ Articles 2 of the Montreal Protocol.

⁷⁸ While here, it is not necessary to go into the details of the Protocol, it should be noted that under these regulative measures and standards, the individual situations of each party State, particularly developing countries, is to be well considered. Kanehara, “Precautionary Remedies,” p. 471.

⁷⁹ As for a “pledge and review” procedure, see Atsuko Kanehara, “The Significance of ‘Pledge and Review’ Process in Growing International Environmental Law,” *The Japanese Annual of International Law*, No. 35 (1992), pp. 1-32.

⁸⁰ Article 9 of the Montreal Protocol. The Paris Agreement provides for best available science under its preamble, Article 4, paragraph 1, Article 7, Paragraph 5, and Article 14, Paragraph 14.

and placed under constant review alongside advances in scientific knowledge.⁸¹

② International Cooperation under Treaty Regimes

For acquiring the best technique and best available scientific knowledge, and for sharing a common understanding of the environmental risk, a treaty regime establishes a system for continuous cooperation among the party States to it.

The Vienna Convention provides for institutional observation and research, and international cooperation for exchanging information and impact assessment. The Conference of Parties discharges the critical role for the international cooperation.⁸² Such provisions on international cooperation among the party States can promote a shared recognition of the environmental risk at a global scale and a sense of integrity, and enable the party States to make collective decisions on precautional measures and standards of precaution for protecting the ozone layer.⁸³

③ Non-Compliance Procedure for “Correction” of Non-Compliance of Measures and Standards

When a party State does not obey the precautionary measures and standards under the Montreal Protocol, rather than the law of State responsibility, a special mechanism for “correction” is put into operation. This is the so-called non-compliance procedure.⁸⁴ Article 8 of the Montreal Protocol and the London amendment thereto prescribes for the non-compliance procedure.⁸⁵

This sub-Section examines the treaty regimes for ozone layer protection and combating global warming. To overcome the scientific uncertainty that

⁸¹ Article 6 of the Montreal Protocol. As for the Paris Agreement, review has critical importance, for instance, under Article 14, Paragraph 1.

⁸² Among others, Articles 3, 5, and 6 of the Vienna Convention. Articles 5, 7, and 12 of the UNFCCC.

⁸³ Kanehara, “Precautionary Remedies,” pp. 472-474.

⁸⁴ For details, see Kanehara, “Precautionary Remedies,” pp. 478-485.

⁸⁵ Kanehara, “Precautionary Remedies,” pp. 478- 479. Under the UNFCCC, the Kyoto Protocol under its Article 18 established the non-compliance procedure. The Paris Agreement under its Article 15 sets a mechanism to facilitate implementation of the Agreement.

inevitably accompanies such matters, the treaty regimes establish inherent procedures for realizing the precaution required. They have created “a system of precaution.” The critically important point is that the required precaution is decided by the consent of the party States based upon international cooperation under the treaty regimes. This consent based upon international cooperation decides precautionary measures and standards in place of, at least partly, scientific efforts that face immense difficulty to propose precautionary measures and standards due to scientific uncertainty. The party States to the Paris Agreement by their consent established the pledge and review procedure.

In setting the precautionary measures and standards, the individual situations of party States, particularly those of developing countries, are to be well considered. For that purpose, among others, the treaty regimes provide for international cooperation under various provisions. This reflects the fact that the precautionary principle under those treaty regimes demonstrates the fundamental characteristics of seeking a balance among different interests. In addition, rather than relief *ex post facto* in accordance with the law of State responsibility, special non-compliance procedures and a mechanism to facilitate the implementation of the protocol have also been established. This is a valuable device for putting into operation the precautionary principle.⁸⁶

As an example of one recent incident, in Section III, based upon Japan’s experience regarding the precautionary principle, limits or conditions for the triggering application of the precautionary principle will be discussed.

III. Consideration of Limits or Conditions for the Triggering Application of the Precautionary Principle: Applicability of the Precautionary Principle

1. Japan’s Experience of the Precautionary Principle in the Southern Bluefin Tuna Case⁸⁷

⁸⁶ In this regard, as mentioned above, the Fish Stocks Agreement and its Annex II also demonstrate a device for concretely enforcing the precautionary principle.

⁸⁷ Southern Bluefin Tuna Cases (New Zealand v. Japan; Australia v. Japan), Provisional Measures, Order of 27 August 1999, https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_3_4/published

In the Southern Bluefin Tuna Case, the applicants, Australia and New Zealand, claimed Japan's violation of the precautionary principle.

The applicants' submissions regarding this point reads:

1. That Japan has breached its obligations under Articles 64 and 116 to 119 of UNCLOS [*United Nations Convention on the Law of the Sea*] in relation to the conservation and management of the SBT [*southern bluefin tuna*] stock, including by:

[...]

(e) otherwise failing in its obligations under UNCLOS in respect of the conservation and management of SBT having regard to the requirements of the precautionary principle.⁸⁸

ITLOS, which ordered the provisional measures in the case, has jurisdiction solely over the interpretation or application of UNCLOS.⁸⁹ It does not have competence to decide anything relating to the 1994 Convention for the Conservation of Southern Bluefin Tuna (CCSBT).⁹⁰

Under the CCSBT, the party States, at that time Australia, New Zealand, and Japan, did not reach the annual allowable catch of southern bluefin tuna. Japan unilaterally began experimental fishing to acquire data for determining the resource status in order to overcome the stalemate. Australia and New Zealand sued Japan over its experimental fishing at ITLOS.⁹¹

As ITLOS has jurisdiction solely over the interpretation or application of

[/C34-O-27 aug 99.pdf](#). Southern Bluefin Tuna Case between Australia and Japan and between New Zealand and Japan, Award on Jurisdiction and Admissibility, Decision of 4 August 2000, https://legal.un.org/riaa/cases/vol_XXIII/1-57.pdf.

⁸⁸ For New Zealand, Provisional Measures, *ibid.*, para. 28. For Australia, *ibid.* para. 29

⁸⁹ Article 288, Paragraph 1 of UNCLOS reads:

A court or tribunal referred to in article 287 shall have jurisdiction over any dispute concerning the interpretation or application of this Convention which is submitted to it in accordance with this Part.

⁹⁰

https://www.ccsbt.org/sites/default/files/userfiles/file/docs_english/basic_documents/convention.pdf

⁹¹ For such facts, see Atsuko Kanehara, "Determination of the Dispute in the Southern Bluefin Tuna Case," *Rikkyo Hogaku*, Vol. 60 (2002), pp. 136-138.

UNCLOS,⁹² the applicants claimed that Japan had violated Articles 64 and 116-119 of UNCLOS and the precautionary principle, not its obligations under the CCSBT.⁹³

Neither ITLOS, nor the arbitral tribunal established under Annex VII of UNCLOS,⁹⁴ had the opportunity to determine whether the precautionary principle is embodied in UNCLOS, nor whether Japan had violated it.⁹⁵ ITLOS ordered only provisional measures under Article 290 of UNCLOS,⁹⁶ and the arbitral tribunal denied jurisdiction on the merits.⁹⁷

As to the applicability of the precautionary principle, the following Dissenting Opinion that Judge Vukas appended deserves attention.⁹⁸

After this general comment, let us now turn to the provisional measures required by New Zealand and Australia. The first measure requires "that Japan immediately cease unilateral experimental fishing for SBT". This request may seem urgent, but only if the schedule of Japan's experimental fishing programme in 1999 is not taken into account. *Namely, as this programme will end no later than 31 August 1999, a provisional measure requiring immediate cessation*

⁹² As to the determination of the dispute in the Southern Bluefin Tuna Case, see *ibid.*, pp. 103-156.

⁹³ As for the provisional measures requested by the applicants, Provisional Measures, see *supra* n. 87, para. 31 (New Zealand) and para. 32 (Australia).

⁹⁴ Article 287, Paragraph 1 (c) prescribes for it.

⁹⁵ When the precautionary principle is not incorporated into UNCLOS, and when the courts and tribunals, which have the jurisdiction under UNCLOS, are requested to determine violations of the precautionary principle, the following questions need to be examined. In accordance with Article 293 of UNCLOS which provides for applicable law, whether the precautionary principle applies, and if it is the case, what is the relationship between the relevant provisions of UNCLOS, such as Article 64 and Article 116-119, on the one hand, and the precautionary principle, on the one hand. In addition, there is a question to be examined as to how such courts and tribunals adhere to the limit on their jurisdiction under Article 288 of UNCLOS (see *supra*. 23), when they consider and determine violations of the precautionary principle. Here it is enough to point out these possible questions.

⁹⁶ Provisional Measures, see *supra* n. 87, para. 90.

⁹⁷ Jurisdiction and Admissibility, see *supra* n.87, para. 72.

⁹⁸

https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_3_4/published/C34-O-27_aug_99-DO_V.pdf.

*of the experimental fishing, if adopted on 27 August 1999, would have only a symbolic value. In practice, it may concern only a hundred tonnes or so of tuna to be caught between 28 and 31 August 1999 (paragraph 83 of the Order). It is difficult to characterize such a provisional measure as urgent and, therefore, not being appropriate to await the establishment of the arbitral tribunal under Annex VII (emphasis added).*⁹⁹

As this opinion clearly pointed out, it is completely unreasonable to think that in a few days of Japan's experimental fishing the resources of southern bluefin tuna would become extinct. Such a thought is against common sense. The provisional measure ordering Japan to immediately cease its experimental fishing was ordered 27 August. Japan had declared to end its experimental fishing no later than the end of August. The dissent by Judge Vukas is not the theoretical setting of a limit on the applicability of the precautionary principle. Nonetheless, at least indirectly, it may demonstrate the necessity of prudence for a provocative claim of the precautionary principle. In that sense, the argument based upon common sense by Judge Vukas may be even stronger than a theoretical argument on a limit to the applicability of the precautionary principle.

Paragraph 77 of the Order of Provisional Measures mentioned "prudence and caution" as follows:¹⁰⁰

Considering that, in the view of the Tribunal, 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 of southern bluefin tuna;

There has been discussion that this phrase reflects the precautionary principle.¹⁰¹ It might be the case. However, as was pointed out,¹⁰² for the tribunal to apply the precautionary principle in any sense, it would have to

⁹⁹ *Ibid.*, para. 5.

¹⁰⁰ Provisional Measures, see *supra* n. 87.

¹⁰¹ For instance, Judge Treves's Separate Opinion, https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_3_4/published/C34-O-27_aug_99-SO_T.pdf, para. 8; Judge Laing's Separate Opinion, https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_3_4/published/C34-O-27_aug_99-SO_L.pdf, para. 13.

¹⁰² See *supra* n. 95.

discuss the several questions to justify for such application.¹⁰³

2. Japan's Discharge of Treated Water that Contains Tritium¹⁰⁴

(1) Facts

On 13 April 2021, the Japanese Government issued the “Basic Policy on Handling of ALPS Treated Water at the Tokyo Electric Power Company Holdings’ Fukushima Daiichi Nuclear Power Station.”¹⁰⁵ This is based upon “The Subcommittee on Handling of the ALPS Treated Water Report,”¹⁰⁶ submitted to the Japanese Government on 10 February 2020 by the Subcommittee on Handling of the ALPS Treated Water. The Japanese Government decided to proceed with the discharge of the ALPS treated water into the sea by Tokyo Electric Power Company Holdings (TEPCO) while complying with regulatory standards and other procedures.

The actual discharge began on 24 August 2023 after a review by the Nuclear Regulation Authority and an impact assessment for radiation on the environment.

(2) ALPS Treated Water

ALPS is an abbreviation of “Advanced Liquid Processing System,” which is a piece of multi-nuclide removal equipment. ALPS is the method adopted in accordance with the impact assessment method developed by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).

¹⁰³ Kanehara, *op. cit.*, *supra* n. 91, pp. 128-129.

¹⁰⁴ As an introduction and analysis of Japan’s practice, see Atsuko Kanehara, “Japan’s Discharge of ALPS Treated Water Containing Tritium,” *Japanese Yearbook of International Law*, Vol. 66 (2023) (hereinafter referred to as Kanehara, Digest), pp. 413-434.

¹⁰⁵ *Basic Policy on handling of ALPS treated water at the Tokyo Electric Power Company Holdings’ Fukushima Daiichi Nuclear Power Station*, 13 April, 2021 The Inter-Ministerial Council for Contaminated Water, Treated Water and Decommissioning issues, provisional English translation, https://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/bp_alps.pdf (hereinafter referred to as *Basic Policy*).

¹⁰⁶ *The Subcommittee on Handling of the ALPS Treated Water Report*, February 10, 2020 The Subcommittee on Handling of the ALPS Treated Water, provisional English translation, https://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20200210_alps.pdf.

“ALPS treated water” is water generated by removing the radioactive materials from contaminated water to the maximum extent using ALPS. This water has been stored in tanks at the site of Fukushima Daiichi Nuclear Power Station (Fukushima Daiichi NPS).

Therefore, a distinction should be made between “contaminated water” and the “treated water” discharged into the sea by Japan. The treated water is water purified by ALPS. It is not the contaminated water generated in the plant buildings.¹⁰⁷ Water that may be called “contaminated” is produced when cooling water mixes with ground water and rainwater that seeps into the buildings. Entirely different from this is water resulting from a process of passing the aforementioned contaminated water through various purification devices. Such water should be called “treated water.”

(3) No Harmful Result Scientifically Proved¹⁰⁸

The quantity of tritium and other radioactive materials to be discharged is explained by the Japanese Government.¹⁰⁹

To allay the concerns of the consumers, the target concentration of tritium should be the same as the operational target (less than 1,500Bq/Liter-water) for the currently implemented discharge of water pumped up via subdrains, at Fukushima Daiichi NPS. To

¹⁰⁷ *Basic Policy*, p. 9. Also see *Basic Policy on Handling of the ALPS Treated Water*, 13 April, 2021 Ministry of Economy, Trade and Industry, https://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/202104_bp_breifing.pdf (hereinafter referred to as METI, *Basic Policy*), p. 14.

¹⁰⁸ There should be a difference, at least theoretically, between arguing that “no harm is scientifically proved,” and that “there is no scientific proof for harm.” Nevertheless, in the formulations of the precautionary principle, such as Principle 15 of the Rio Declaration and Article 3, Paragraph 3 of the UNFCCC that were reproduced in the Introduction, the following formula is used, “where there are threats of serious or irreversible damage, lack of full scientific certainty” and “where there are threats of serious or irreversible damage, lack of full scientific certainty.” In such a formula, any precise distinction is found between saying that “no harm is scientifically proved,” and that “there is no scientific proof for harm.” Therefore, in this paper, when it adopts a phrase saying that there is no (convincing) scientific proof (evidence) for harm and similar ones, that does not exclude necessarily what the expression “no harm is scientifically proved” may mean.

¹⁰⁹ Kanehara, Digest, p. 424, [II-4-a] and the source indicated.

achieve this target concentration of tritium, prior to the discharge into the sea, the ALPS treated water needs to be sufficiently diluted (more than 100 times) by sea water. Radioactive materials other than tritium will also be significantly diluted with this dilution. The total annual amount of tritium to be discharged will be at a level below the operational target value for tritium discharge of the Fukushima Daiichi NPS before the accident (22 trillion Bq/year). The amount will be reviewed periodically. This operational value for tritium discharge is within the range of the amount of discharge from each nuclear power station inside and outside the county [*sic*]. [Paragraph numbering omitted.]

In terms of drinkable water, 1,500 Bq/Liter-water, which is the quantity of tritium being discharged, is around 1/7 of the value in the World Health Organization's (WHO) Guidelines for drinking-water quality.¹¹⁰

(4) Support for Japan's Position by the International Atomic Energy Agency (IAEA)

Immediately after Japan issued its Basic Policy on the Handling of ALPS Treated Water, the IAEA showed its support. In an official IAEA video, Mr. Rafael Mariano Grossi, IAEA Director General, welcomed Japan's decision, referring to international practice and mentioning the IAEA's close cooperation with Japan before, during and after the discharge of the ALPS treated water. In addition, the IAEA pointed out the importance of Japan's handling of the ALPS water for the decommissioning activities.¹¹¹

Japan's chosen water disposal method is both technically feasible and *in line with international practice*, IAEA Director General Grossi said. Controlled water discharges into the sea are routinely used by operating nuclear power plants in the world and in the region under specific regulatory authorisations based on safety and environmental impact assessments. [Emphasis added.]

"Today's decision by the Government of Japan is a milestone that will help pave the way for continued progress in the decommissioning of the Fukushima Daiichi nuclear power plant," Mr. Grossi said. "Tanks

¹¹⁰ Kanehara, Digest, p. 425, [II-4- b].

¹¹¹ *Ibid.*, pp. 425-426, [III-1-a].

with the water occupy large areas of the site, and water management, including the disposal of the treated water in a safe and transparent manner involving all stakeholders, is of key importance *for the sustainability of these decommissioning activities.*” [Emphasis added.]
[...]

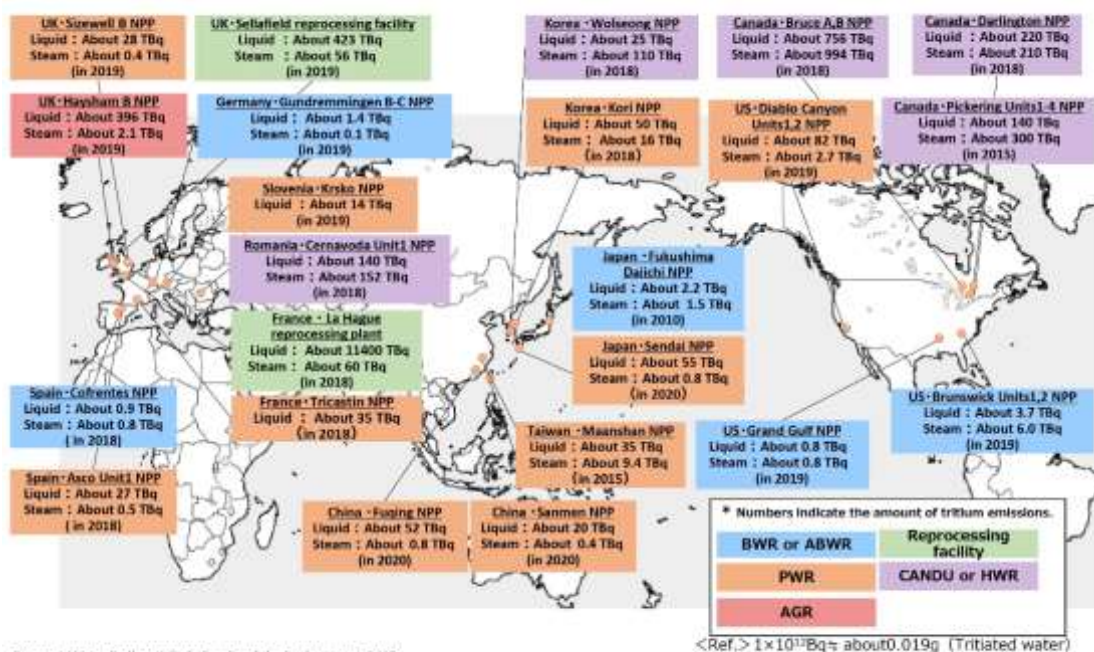
“*We will work closely with Japan before, during and after the discharge of the water,*” said Mr Grossi, who visited the Fukushima nuclear power plant last year. “Our cooperation and our presence will help build confidence –in Japan and beyond – that the water disposal is carried out without an adverse impact on human health and the environment.” [Emphasis added.]

(5) International Practice of Discharging Tritium: Annual Amount More than That of Japan’s Discharge

The amount of tritium discharged from nuclear facilities differs depending on the type of facility. Therefore, when comparing the amount of tritium discharged, for the comparison to be meaningful, it should be between the same type of facility. Japan’s discharge from the Fukushima Daiichi NPS of tritium as liquid waste was about 2.2 TBq (trillion becquerel) in 2010. This value is far less than the tritium discharged as liquid waste from other countries’ nuclear power plants (NPPs), such as the UK (Sizewell B, about 23 TBq in 2020); France (Tricastin NPP, about 42 TBq in 2021); Canada (Bruce A & B NPP, about 1090 TBq in 2021), and the US (Diablo Canyon Units 1 & 2 NPP, about 40 TBq in 2021).¹¹²

¹¹² “Appendix 3. Information on tritium: (3-2) Annual discharge from NPPs” in METI, *Basic Policy*, p. 28. At nuclear facilities around the world, tritium is discharged as liquid waste into rivers and the sea, etc., and also into the atmosphere through the ventilation process, in compliance with the laws and regulations of each country and region. Discharge from vessels into the sea is prohibited by the London Convention, see *supra* n. 24.”

Appendix 3. Information on tritium: (3-2) Annual discharge from NPPs



Source : UK : Radioactivity in Food and the Environment, 2019
 Canada : Canadian National Report for the Convention on Nuclear Safety
 France : Tritium White paper
 Other countries and regions : Prepared from reports published by electricity providers in various countries and regions.

Judging from the quantity of tritium that Japan is discharging and the IAEA’s support, it can be said that there is no convincing scientific evidence that harm to the environment and people’s health is being caused by the discharge of the treated water by Japan.¹¹³ In addition, the fact that States around the world are discharging higher quantities of tritium than Japan proves, at least indirectly, that the quantity that Japan is discharging does not cause harm.

Thus, there does not exist convincing scientific evidence to suggest that harm to the environment and people’s health is being caused by the discharge of the treated water by Japan. This situation should be distinguished from one that requires the application of the precautionary principle, namely, a situation in which there is a lack of full scientific certainty on the threats of serious or irreversible damage.

There may not be complete scientific proof for no harm. However, Japan has

¹¹³ See, *supra* n. 108.

sufficiently proved that its discharge of tritium will not cause harm.¹¹⁴ No convincing scientific evidence has been established for a harmful result.¹¹⁵ This point is critically important for the (non-)applicability of the precautionary principle, considering that the principle is applied based upon the balance between the environment¹¹⁶ and development.

In the case of the discharge of tritium, as emphasized by Mr. Grossi, Secretary General of the IAEA, “Tanks with the water occupy large areas of the site, and water management, including the disposal of the treated water in a safe and transparent manner involving all stakeholders, is of key importance *for the sustainability of these decommissioning* (emphasis added).” Safe and sustainable decommissioning is indispensable for the development of nuclear energy. Restrictions applied inappropriately on the basis of the precautionary principle would seriously hinder such decommissioning, which is necessary for the safe development of nuclear energy.

(6) Japan’s Discharge of Tritium as Discharge from Land

Japan is discharging the treated water from its land. This discharge is not ocean dumping. It is occurring in the vicinity of Japan’s coasts (within around 1,000 meters).¹¹⁷ Therefore, this discharge of treated water by Japan is outside the scope of the London Convention regime on ocean dumping.¹¹⁸

¹¹⁴ The delegation of IAEA who visited Japan endorsed this. Kanehara, Digest, p. 429, [IV-1-a].

¹¹⁵ *Basic Policy*, pp. 7-9.

¹¹⁶ The environment may also include human health.

¹¹⁷ Agency for Natural Resources and Energy, Ministry of Economy, Trade, and Industry, “Important Stories on Decommissioning, Fukushima Daiichi Nuclear Power Station, now and in the future 2022,” pp. 11-12, <https://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/brochure2022en.pdf>.

¹¹⁸ As for the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, see *supra* n. 24. The 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (as amended in 2006), <https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/PROTOCOLAmended2006.pdf>.

Frequently, criticism of Japan's discharge of treated water characterises it as ocean dumping.¹¹⁹ This is not a correct interpretation of the London Convention regime on ocean dumping, because the discharge is not dumping.¹²⁰ To apply the London Convention regime to the discharge of tritium from land seriously subverts the object and purpose of the regime. In reality, considering the practice worldwide of other countries discharging more tritium than Japan, such international legal regulation on it would not be effective.¹²¹

The author has provided further explanation elsewhere, and here it is enough to solely emphasize that, as Japan has conducted the discharge from land, it has complied with its international obligations under UNCLOS.¹²²

Concluding Remarks

Fundamentally, in international environmental law, the balance between development and the environment is the most important factor to be realised. This is firmly established by, among other sources, Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration concerning "Environment and Development." If planned activities are restricted by the precautionary principle even when there is convincing scientific evidence for no environmental harm, it would seriously disrupt the balance between development and the environment.

The seeking of such a balance is needed not only in the field of international environmental law. It is one of the most fundamental requirements for international law, as its existence and effectiveness depend on the consent of sovereign States who have various and even conflicting interests. To overcome the conflicts for creating effective international law, careful compromise and a fine balance between different interests are critically

¹¹⁹ Atsuko Kanehara, "Effective Implementation of the Stockholm Declaration and the London Convention Regime on Dumping: Dynamically Incorporating the Development of the Concept of Environment in the Twenty-First Century to the LOSC," *International Journal of Marine and Coastal Law* (2024), Forthcoming.

¹²⁰ As for the discussion in the context of the London Convention on Dumping, see Digest, pp. 419-422, [II-1-c], [II-1-d], [II-1-f], [II-2-a], [II-2-b], [II-2-c].

¹²¹ See *supra* n. 119.

¹²² *Ibid.*; Kanehara, Digest, pp. 422-425, [II-3-a], [II-3-b], [II—3-c].

important.

The precautionary principle should not be applied to allow “*the person who speaks up (‘risk of damage’) first to win.*” Such an “over-application” subverts the object and purpose of the precautionary principle. To maintain the significance of the precautionary principle, it needs to be applied in a precise and appropriate manner. For that purpose, the limits on and conditions for the applicability of the precautionary principle, such as “scientific uncertainty,” “serious or irreversible damage,” “cost-effective measures,” and the different capabilities of each State should be taken into serious consideration.¹²³ Solely such consideration could put into operation the precautionary principle so as to make it a solid international law principle.

¹²³ The Seabed Disputes Chamber of ITLOS has demonstrated a similar line of thinking. See *supra* n.57, paras. 128-129.