

ARTICLE

THE MARINE ENVIRONMENTAL TURN IN THE LAW OF THE SEA AND FUKUSHIMA WASTEWATER

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ABSTRACT

On the release of Fukushima-treated wastewater into the oceans, Japan argues, based on the wastewater not causing transboundary environmental harm, that neither international nuclear treaties nor the United Nations Convention on the Law of the Sea prohibits the release of Fukushima wastewater; thus, Japan has the right to discharge Fukushima wastewater. This article argues that the contemporary jurisprudential trend is conspicuous enough to counter Japan's firm conviction about the lawfulness of the discharge of Fukushima wastewater. To this end, this article adduces how Part XII of UNCLOS has evolved through the interpretation of various international courts and other legal instruments, thereby indicating that the planned release at Fukushima may not stand up to close scrutiny under the UNCLOS regime.

I. INTRODUCTION

Concern over sea pollution has come to the fore due to a series of oil tanker accidents, which have spilled thousands of tons of oil into the sea from 1967 onward.¹ Although oil tanker accidents at sea are tragic events for the marine environment, land-based pollutants are responsible for around eighty percent of contemporary marine degradation.² Notwithstanding, no legally binding international treaty on regulating land-based pollution sources has come into effect.³ Identifying land-based sources for marine pollution has proved elusive, rendering a causal link between the source and the damage suffered extremely difficult.⁴

1. See R. R. CHURCHILL & A. V. LOWE, *THE LAW OF THE SEA* 328 (3d ed. 1999). Such accidents include *Torrey Canyon* off Land's End in 1967, *Amoco Cadiz* off Brittany in 1978, *Exxon Valdez* in Alaska in 1989, and *Sea Empress* off southwest Wales in 1996. *Id.*

2. U.N. Env't Programme (UNEP), UNEP 2007 Annual Report 43 (2007), <https://wedocs.unep.org/bitstream/handle/20.500.11822/7647/-UNEP%202007%20Annual%20Report-2008806.pdf?sequence=5&isAllowed=y> [<https://perma.cc/LL3V-GMKJ>].

3. Yukari Takamura, *Release of Radioactive Substances into the Sea and International Law: The Japanese Experience in the Course of Nuclear Disaster*, in *THE INTERNATIONAL LAW OF DISASTER RELIEF* 89, 100 (David D. Caron, et al. eds., 2014).

4. CHURCHILL & LOWE, *supra* note 1, at 389.

A clean ocean is considered an international public good⁵ which states, as consumers, may use whether they pay for it or not. This presents a “collective action problem,”⁶ which perverts attitudes around the issue of land-based marine pollution. Despite the necessity of collective cooperation for the community as a whole, each member easily evades expenditure out of selfish intentions.⁷ The governance of marine environmental protection from land-based sources is “left in the hands of over 125 coastal states with differing laws and policies,”⁸ with the exception of some global or regional soft law instruments.⁹ This disjointed regulatory system paradigmatically illustrates the infancy of international environmental law.¹⁰

At 14:46 on March 11, 2011, a magnitude 9.1 earthquake hit the Fukushima Daiichi nuclear plant (“Fukushima”), located 200 km northeast of Tokyo. The plant is owned and operated by the Tokyo Electric Power Company (TEPCO).¹¹ A 15-meter tsunami disabled the power supply and cooling of three Fukushima reactors, causing all three cores to melt within the first three days.¹² Beginning on April 4, 2011, TEPCO released more than 10,000 tons of “low-level” radioactive water into the ocean to open up storage for “high-level” radioactive water. The low-level radioactive water, however, was

5. Public goods are goods that cannot be withheld from consumers who do not pay for them, and whose consumption does not reduce their availability to other consumers. See JOHN RAVENHILL, *GLOBAL POLITICAL ECONOMY* 55, 421 (5th ed. 2017).

6. See ROBERT O. KEOHANE, *AFTER HEGEMONY: COOPERATION AND DISCORD IN THE WORLD POLITICS ECONOMY* 69 (1st ed. 2005).

7. In his 1991 article, Bernard H. Oxman depicted this classic dilemma as a “free rider” problem. This term was also borrowed from economics. See Bernard H. Oxman, *The Duty to Respect Generally Accepted International Standards*, 24 N.Y.U. J. INT’L L. & POL., 109, 112 (1991).

8. David L. VanderZwaag & Ann Powers, *The Protection of the Marine Environment from Land-Based Pollution and Activities: Gauging the Tides of Global and Regional Governance*, 2323 INT’L J. MARINE & COASTAL L., 423, 424 (2008).

9. See CHURCHILL & LOWE, *supra* note 1, 380 (providing an account of such soft law instruments).

10. Régis Chemain, *The ‘Polluter Pays’ Principle*, in, *THE LAW OF INTERNATIONAL RESPONSIBILITY* 877, 877 (James Crawford et al. eds., 2010) (noting that “the ‘paradoxical separation’ between damage to the environment and responsibility bears witness to the infancy of international environmental law”).

11. Adam Dukett, *Fukushima in Numbers*, *THE CHEMICAL ENGINEER*, Mar. 2021, at 28.

12. *Fukushima Daiichi Accident*, WORLD NUCLEAR ASS’N: INFORMATION LIBRARY (Apr. 2021), <https://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-daiichi-accident.aspx> [<https://perma.cc/BUU9-7785>].

significantly above the standard of discharge under Japanese law.¹³ Due to the area's topography, unlike that of Chernobyl, a significant amount of radioactive fallout went into the ocean.¹⁴

As of April 2021, it is reported that about 1.25 million tons of wastewater¹⁵ are stored in more than 1,000 tanks at the plant site, continually accumulating at a rate of about 170 tons a day.¹⁶ This wastewater is produced in the cooling process, after which a filtration process using multi-nuclide removal equipment—the advanced liquid processing system (“ALPS”)—should follow to reduce the contamination rate of the wastewater.¹⁷ However, approximately seventy percent of ALPS-treated water contains radioactive materials, such as ruthenium, plutonium, strontium, and cobalt, in concentrations exceeding regulatory standards for discharge.¹⁸

On April 13, 2021, Japan announced that it had decided to gradually release tons of Fukushima wastewater into the ocean, claiming that the discharge of Fukushima-treated wastewater is the best option and that “treated” wastewater is not harmful to human health.¹⁹ Some scientists argue that treated wastewater will cause no health concerns, as even seawater contains traces of uranium.²⁰ In contrast, others point out that the tritium in the treated wastewater “organically binds to other molecules, moving

13. Takamura, *supra* note 3, at 92.

14. Andrew Wang, *Nuclear Waste: Forever Contaminated?*, *BERKELEY SCI. J.* 24, 25 (2015) (explaining that “In Chernobyl, the winds carried the fallout across Europe, while in Fukushima, the fallout mostly went into the ocean because of Japan’s mostly mountainous topography”).

15. Commentators use different names for wastewater at the Fukushima power plant, which include “Fukushima nuclear wastewater,” “radioactive water,” “treated waste water,” “tritium-tainted water,” “contaminated water,” “Fukushima water,” and “Fukushima waste water.” This article uses “Fukushima-treated wastewater” in an attempt to choose neutralized parlance.

16. Jennifer Jett & Ben Dooley, *Fukushima Wastewater Will Be Released Into the Ocean, Japan Says*, *N.Y. TIMES* (Apr. 12, 2021), <https://www.nytimes.com/2021/04/13/world/asia/japan-fukushima-wastewater-ocean.html> [<https://perma.cc/G26W-KXMP>].

17. John Boyd, *Japan’s Plan to Discharge Fukushima Radioactive Water into the Sea has Supporters as Well as Foes*, *IEEE SPECTRUM* (Apr. 26, 2021), <https://spectrum.ieee.org/tech-talk/energy/policy/japans-plan-to-discharge-fukushima-radioactive-water-into-the-sea-has-supporters-as-well-as-foes> [<https://perma.cc/84YW-CZ8L>].

18. *Id.*

19. Jett & Dooley, *supra* note 16.

20. Boyd, *supra* note 17.

up the food chain affecting plants and fish and humans.”²¹ Critics of the Japanese plan to release Fukushima wastewater argue that there are alternatives to “the cheapest option, [which is] dumping the water into the Pacific Ocean,”²² such as “geosphere injection, vapor release, hydrogen release, underground burial, and long-term storage.” Those critics recommend “adopt[ing] the best available technology to minimise radiation hazards by storing and processing the water.”²³

This issue’s connection to nuclear-related materials begs the question of whether the international nuclear-related legal regime has the authority to limit the discharge of Fukushima-treated wastewater. The short answer is no. Although the International Atomic Energy Agency (“IAEA”) has safety standards for operations making use of nuclear materials, services, equipment, facilities, and information,²⁴ these IAEA standards usually apply to a consenting state’s activities. However, Japan has not consented to IAEA oversight, and is therefore not bound by such IAEA standards.²⁵ None of the international nuclear treaties that Japan has joined thus far—including “the Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency,”²⁶ “the

21. U.N. Human Rights Office of the High Commissioner, Japan: UN Experts Say Deeply Disappointed by Decision to Discharge Fukushima Water, (Apr. 15, 2021), <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=27000&LangID=E> [<https://perma.cc/3ZMV-LJ6C>] (asserting that the hazards of tritium have been underestimated and could pose risks to humans and the environment for over 100 years).

22. Jett & Dooley, *supra* note 16.

23. Xiaouu Zheng, *Does Fukushima Wastewater Decision Violate Our Environmental Rights?*, EJIL: TALK! (Apr. 22, 2021), <https://www.ejiltalk.org/does-fukushima-wastewater-decision-violate-our-environmental-rights/> [<https://perma.cc/KX27-4ALT>]; Duncan E. J. Currie & Shaun Burnie, *Japan’s Plan for Radioactive Water Defies International Law*, KOREA TIMES (Mar. 9, 2021), https://www.koreatimes.co.kr/www/nation/2020/07/371_285553.html [<https://perma.cc/6SBR-5ZWW>] (“The discharge of radioactive materials into the marine environment from the nuclear plant will inevitably increase marine species’ exposure to radioactivity, with the exact level of exposure depending on multiple variables. The concentrations in biota are of direct relevance to those who may consume them, including marine species, and ultimately, humans.”).

24. Int’l Atomic Energy Agency [IAEA], *Statute of the International Atomic Energy Agency*, at art. III.A., (Dec. 28, 1989).

25. Takamura, *supra* note 3, at 94.

26. Int’l Atomic Energy Agency [IAEA], *Convention On Assistance In The Case of a Nuclear Accident or Radiological Emergency*, INFCIRC/336 (Nov. 18, 1986) (Adopted on September 26, 1986 and entered into force on February 26, 1987. Japan is party to this convention since 1987.).

Convention on Early Notification of a Nuclear Accident,”²⁷ “the Convention on Nuclear Safety,”²⁸ and “the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management”²⁹ —specifically prohibit or regulate the release of radioactive materials into the sea.³⁰

Japan’s main arguments can be outlined as follows: a) although the possibility that the radioactive material in the wastewater “may be bio-accumulating in fish and marine animals,”³¹ treated wastewater “neither caused transboundary adverse effects to the environment nor implied an international transboundary release of radiological safety significance for another state”³²; b) neither international nuclear treaties nor the United Nations Convention on the Law of the Sea (“UNCLOS”)³³ makes the release of Fukushima wastewater illegal; and c) as a corollary, Japan has the right to discharge Fukushima-treated wastewater into the sea under the current international legal system.³⁴

Against this backdrop, this Article argues that although the texts of relevant provisions (mostly Part XII) of UNCLOS appear to be vague and thus unlikely to regulate a particular state’s land-

27. Int’l Atomic Energy Agency [IAEA], *Convention On Early Notification Of A Nuclear Accident*, INFCIRC/335 (Nov. 18, 1986) (Adopted on September 26, 1986 and entered into force on October 27, 1986. Japan is a member state since 1987.).

28. Int’l Atomic Energy Agency [IAEA], *Convention On Nuclear Safety*, INFCIRC/449 (July 5, 1994) (Adopted on June 17, 1994 and entered into force on October 24, 1996. Japan is party to this convention since 1996.).

29. Int’l Atomic Energy Agency [IAEA], *Joint Convention On The Safety Of Spent Fuel Management And On The Safety Of Radioactive Waste Management*, INFCIRC/546 (Dec. 24, 1997) (Adopted on September 5, 1997 and it came into effect on June 18, 2001. Japan deposited its instrument of accession on August 25, 2003 and it entered into force on November 24, 2003.).

30. Takamura, *supra* note 3, at 96. Moreover, Japan is not a state party to liability for nuclear damage treaties, such as “the 1963 Vienna Convention on Civil Liability for Nuclear Damage and its “1996 Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage” and “the Paris Convention on Nuclear Third Party Liability and its 2004 Protocol,” as well as the “1963 Brussels Supplementary Convention on Nuclear Third Party Liability” and its 2004 Protocol, which was adopted by the Organisation for Economic Cooperation and Development (OECD). *Id.*

31. Takamura, *supra* note 3, at 90.

32. *Id.* at 107.

33. U.N. Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 3, 397, https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf [hereinafter UNCLOS] (entered into force Nov. 16, 1994).

34. Takamura, *supra* note 3, at 100.

based behavior that results in systemic marine degradation, the contemporary jurisprudential trend is conspicuous enough effectively counter Japan's firm conviction that the discharge of Fukushima wastewater was lawful. This long-envisaged interpretative trend of Part XII of UNCLOS, which leans toward compelling states to protect the marine environment is the "marine environmental turn" in the law of the sea. The rest of this Article is concerned with adducing how this marine environmental turn has been made through international courts and other legal instruments.

Section II outlines customary rules with regard to environmental protection and, specifically, the marine environmental protection regime of UNCLOS. Section III examines the marine environmental turn in the law of the sea, which resulted from international courts' evolving interpretation of UNCLOS to require an advanced level of due diligence from member states. This reading of UNCLOS stems from its procedural obligation that states review all internal activities that possibly impact the marine environment. Section III also emphasizes the importance of conducting environmental impact assessments and consulting states that are likely to be affected by planned activities. Japan's position on the Fukushima-treated wastewater discharge will not likely withstand this new scrutiny. Part IV reviews judicial and regional implications of the marine environmental turn in UNCLOS for the discharge of Fukushima wastewater, focusing on regional fisheries agreements, the compromissory clause of UNCLOS, and the role of experts in judicial proceedings.

II. THE UN CONVENTION ON THE LAW OF THE SEA AND MARINE ENVIRONMENTAL PROTECTION

International law concerning the marine environment is composed of Part XII of UNCLOS, customary international law, and regional environmental treaties, as Article 237 of UNCLOS envisages.³⁵ Various customary international law obligations that

35. UNCLOS, *supra* note 33, at art. 237(1):

The provisions of this Part [Obligations under Other Conventions on the Protection and Preservation of the Marine Environment] are without prejudice to the specific obligations assumed by States under special conventions and agreements concluded previously which relate to the protection and

relate to the environment have emerged gradually over time. Some customary rules are represented in international agreements such as UNCLOS. Furthermore, international jurisprudence has elaborated some aspects of international law concerning marine protection, including Part XII of UNCLOS.³⁶

A. From Customary International Marine Environmental Rules to UNCLOS

In 1941, the *Trail Smelter* Arbitral Tribunal opined a historic proposition that

under the principles of international law . . . 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.³⁷

In the 1949 *Corfu Channel* case, the International Court of Justice (“ICJ”) noted that it is illegal if states knowingly use their territories to the detriment of other states’ rights.³⁸ In the 1957 *Lake Lanoux* Arbitration (*Affaire du Lac Lanoux*),³⁹ the tribunal confirmed two state obligations: 1) to not cause substantial or serious damage to the environment of other states, and 2) to notify and consult with other parties that may be affected prior to engaging in activities which may harm a shared resource.⁴⁰ Therefore, a “no harm principle”—which prohibits states from discharging harmful matter into the sea if it would likely end up in another state—has existed in customary international law since 1957. The principle, however, is vague regarding concrete elements.⁴¹

In 1958, states discussed and adopted a particular provision on the dumping of radioactive waste in Article 25 of the

preservation of the marine environment and to agreements which may be concluded in furtherance of the general principles set forth in this Convention.

36. PATRICIA BIRNIE ET AL., *INTERNATIONAL LAW & THE ENVIRONMENT* 106, 107-08 (3d ed. 2009).

37. *Trail Smelter* (U.S. v. Can.), III R.I.A.A. 1905, 1965 (Mar. 11, 1941).

38. *Corfu Channel* (U.K. v. Alb.), Judgment, 1949 I.C.J. 4, at 22 (Apr. 9).

39. *Lac Lanoux* (Lake Lanoux) Arb. (Fr. v. Spain), 12 R.I.A.A. 281, 317 (1957).

40. Astrid Epiney, *Lac Lanoux Arb.*, in *THE MAX PLANCK ENCYCLOPEDIA OF PUBLIC INT’L L.* 628, 628 (Rüdiger Wolfrum ed., 2012).

41. See CHURCHILL & LOWE, *supra* note 1, at 322.

“Convention on the High Seas,”⁴² which read: “Every State shall take measures to prevent pollution of the seas from the dumping of radioactive waste, taking into account any standards and regulations which may be formulated by the competent international organizations.”⁴³ In its commentary, the International Law Commission (“ILC”) noted that, “A new source of pollution of the sea is the dumping of radioactive waste . . . such dumping, which may be particularly dangerous for fish and fish eaters, should be put on the same footing as pollution by oil.”⁴⁴

Beginning in the 1970s, developments in international environmental law began to supersede the concept of sovereignty. The 1972 London Convention⁴⁵ explicitly prohibits the dumping of radioactive waste into the oceans. Around this time, environmental principles made inroads into many soft law instruments. Principle 21 of the 1972 Stockholm Declaration contains the general principles emanating from *Trail Smelter* and subsequent jurisprudence.⁴⁶ In the 1996 advisory opinion, ICJ reaffirmed that the prevention of transboundary harm arising from hazardous activities has become a central obligation of international law as customary law:

The environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn. 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.⁴⁷

42. Convention on the High Seas, Apr. 29, 1958, 450 U.N.T.S 11 (entered into force on September 30, 1962). Japan ratified this convention on June 10, 1968.

43. *Id.* at art. 25(1).

44. *Report of the Int'l L. Comm'n to The General Assembly*, 1956 Y.B ON THE INT'L L. COMM'N 253, 286, U.N. Doc. A/CN.4/104.

45. Convention on the Prevention of Marine Pollution by Dumping of Wastes & Other Matter, Nov. 13, 1972, 11 ILM, 1291 (and it entered into force on August 30, 1975) [hereinafter *The London Convention*]. Japan became a member state in 1980.

46. U.N. Conference on the Human Environment, Stockholm Declaration, (June 16, 1972) https://www.ipcc.ch/apps/nj-lite/srex/nj-lite_download.php?id=6471 [<https://perma.cc/WNG9-SZVU>].

47. *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 1996 I.C.J. Rep. 226, 241–42. Later in 2015, the International Tribunal for the Law of the Sea (“ITLOS”) ascertained this part of ICJ Advisory Opinion and the customary legal status of the rule in its decision on provisional measure of Delimitation of the Maritime Boundary

In 1982, for the first time in history, the obligation to protect and preserve the marine environment became part of a multilateral treaty with binding force.⁴⁸ Part XII of UNCLOS—which has 46 provisions dedicated to the protection and preservation of the marine environment—is praised as the “paradigm for all international environmental law,”⁴⁹ since it is “universal” and “applicable to all States as generally accepted customary international law.”⁵⁰ It is true that UNCLOS innovatively codified “*erga omnes* interests”—specifically determined interests that states have towards the international community as a whole—by way of Part XII. Yet, it should be stressed that UNCLOS is a “product of its time”—negotiated during the 1970s, the agreement targeted the uses of the oceans and was not an “environmental treaty in essence.”⁵¹

Article 192 of UNCLOS sets out that, “States have the obligation to protect and preserve the marine environment.” In principle, the discharge of Fukushima-treated wastewater falls within the terms of Article 192 and the subsequent provisions of Part XII since “pollution of the marine environment” is defined as the introduction of “substances or energy into the marine environment ... which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, [or a] hindrance to marine activities.”⁵² Article 192 provides the most general legal obligation, but not a political one, in Part XII,⁵³ reflecting the pre-existing customary

in the Atlantic Ocean between Ghana and Côte d’Ivoire on April 25, 2015. *See*, Delimitation of the Maritime Boundary between Ghana and Côte d’Ivoire in the Atlantic Ocean (Ghana/Côte d’Ivoire), Case No. 23, Judgment of Sept. 23, 2017, Provisional Measures, 2015 ITLOS Rep., 33, ¶ 71.

48. Victor Alencar Mayer Feitosa Ventura, *Environmental Jurisdiction in the Law of the Sea: The Brazilian Blue Amazon 196-97*. (2020); Moira L. McConnell & Edgar Gold, *The Modern Law of the Sea: Framework for the Protection and Preservation of the Marine Environment?* 23 *CASE WESTERN RESV. J. OF INT’L L.* 83, 89 (1991).

49. McConnell & Gold, *supra* note 48, at. 103.

50. Louis Sohn, *Implications of the Law of the Sea Convention Regarding the Protection and Preservation of the Marine Environment*, in *THE DEVELOPING ORDER OF THE OCEANS* 106 (Robert B. Krueger & Stefan A. Riesenfeld, eds., 1985).

51. VENTURA, *supra* note 48.

52. UNCLOS, *supra* note 33, at art. 1(1)(4).

53. Chie Kojima, *South China Sea Arbitration and the Protection of the Marine Environment: Evolution of UNCLOS Part XII Through Interpretation and the Duty to Cooperate*, 21 *ASIAN YEARBOOK INT’L L.* 166, 171 (2015). UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III 1280 (Alexander Proelss et al. eds., 2017).

international law no-harm-principle, sourced in various international judicial determinations.⁵⁴

Article 194(1) sets forth that, “States shall take all measures necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities.” Article 194(1) is a procedural rule⁵⁵ as supported by the 2015 *Chagos Marine Protected Area* arbitration. The Tribunal stated that the United Kingdom was under an obligation to “endeavor to harmonize” its policies with Mauritius.⁵⁶ Article 194(2), which aims to protect other states from marine pollution damage,⁵⁷ contains a stronger obligation than the one usually found in international customary law.⁵⁸ Note that the second half of Article 194(2) does not require “the existence of damage” as a requirement of establishing liability. Thus, it is logical to infer that the “existence of wide-spread pollution” arising from incidents or activities under a state’s jurisdiction or control that spreads beyond the area where the state exercises sovereign rights is enough to establish liability for failing to “take all measures.”⁵⁹ Because under Article 194(3), such measures taken by States “shall deal with all sources of pollution,” neither the place of origin nor the source gives a state an excuse for failing to prevent, reduce, and

(explaining that “If this provision were only meant to be a political statement, the negotiating parties would rather have left it solely at another position e.g. at the Preamble”).

54. Maria Gavouneli, *Protection Standards for the Marine Environment: Updating Part XII of the Law of the Sea Convention?*, in *STRESS TESTING THE LAW OF THE SEA* 254, 256 (Stephen Minas & H. Jordan Diamond eds., 2018).

55. UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 1305.

56. In the Matter of the Chagos Marine Protection Area Arb. (Mauritius v. U.K.), Award 211, ¶¶ 538-39 (Perm Ct. Arb. 2015)[hereinafter Chagos MPA].

57. UNCLOS, *supra* note 33, at art. 194(2):

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.

58. *Pulp Mills on the River Uruguay (Arg. v. Uru.)*, Judgment, 2010 I.C.J. Rep., ¶ 101 [hereinafter Pulp Mills].

59. UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 1306.

control marine pollution, “whether [it be from] land, marine, or any other sources.”

It is axiomatic to read Articles 192 and 194 as covering Fukushima wastewater resulting in marine pollution. Two other UNCLOS provisions are relevant here: Article 207, which requires member states to regulate and prevent land-based sources of marine pollution,⁶⁰ and Article 123,⁶¹ which calls for cooperation among states bordering an enclosed or semi-closed sea in the exercise of their rights and in the performance of their duties under this Convention.⁶² Coastal states, such as China and Korea, may invoke this provision on the assumption that wastewater has an adverse impact on the marine environment in the East China Sea, the Yellow Sea (West Sea), or the East Sea (Sea of Japan).⁶³ Taken

60. UNCLOS, *supra* note 33, at art. 207 (Pollution from land-based sources): States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources . . . taking into account internationally agreed rules, standards and recommended practices and procedures. 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution. 3. States shall endeavour to harmonize their policies in this connection at the appropriate regional level. 4. States . . . shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources . . . Such rules . . . shall be re-examined from time to time as necessary. 5. Laws, regulations, measures, rules, standards and recommended practices and procedures . . . shall include those designed to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those which are persistent, into the marine environment.

61. UNCLOS, *supra* note 33, at art. 123 (Cooperation of States bordering enclosed or semi-enclosed seas): States bordering an enclosed or semi-enclosed sea should cooperate with each other in the exercise of their rights and in the performance of their duties under this Convention. To this end they shall endeavour, directly or through an appropriate regional organization: (a) to coordinate the management, conservation, exploration and exploitation of the living resources of the sea; (b) to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment; (c) to coordinate their scientific research policies and undertake where appropriate joint programmes of scientific research in the area; (d) to invite, as appropriate, other interested States or international organizations to cooperate with them in furtherance of the provisions of this article.

62. UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 887.

63. China claims that Japan has neither properly consulted with China and Korea, nor addressed the parties’ legitimate. *See* Press Release, Ministry of Foreign Affairs of the

together, Articles 192, 194, 207, and 123 appear to cover the Fukushima-treated wastewater comprehensively.

Article 197 requires states to cooperate on a global or regional basis, “directly or through competent international organizations.” The International Tribunal for the Law of the Sea (ITLOS) regards the Article 197 duty to cooperate as “a fundamental principle in the prevention of pollution of the marine environment under Part XII of the Convention and general international law.”⁶⁴ Additionally, Article 207 confirms rules for land-based sources. Article 207(4) obliges states to “endeavor to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources.” But it is little surprise that states pay scant attention to elaborating strict international rules and regulations for land-based pollution sources compared to other sources of marine pollution since economic developments associated with land-based pollution count for much with states.⁶⁵

Further, environmental impact assessments (“EIA”) are not mentioned in UNCLOS. However, Section 4 of Part XII, comprising Articles 204 to 206, sets out a state obligation to conduct environmental assessments for activities that might result in marine pollution or significant changes to the marine environment.⁶⁶ Yet, subjective elements in Article 206— phrases such as, “reasonable grounds for believing” and “as far as

People’s Republic of China, Foreign Ministry Spokesperson Wang Wenbin’s Regular Press Conference on June 11, 2021 (June 11, 2021), https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/t1883214.shtml [https://perma.cc/LB5G-GDRC]; see also *China Supports S. Korea’s Just Position in Condemning Japan’s Decision to Dump Wastewater into Sea, Urges Japan to Withdraw Mistaken Plan*: FM, GLOBAL TIMES (June 30, 2021) <https://www.globaltimes.cn/page/202106/1227512.shtml> [https://perma.cc/H3SP-R7D8].

64. MOX Plant (Ir. v. U.K.) Provisional Measures, 2001 ITLOS Rep., ¶ 82 (Nov. 9, 2001).

65. UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 1380.

66. UNCLOS, *supra* note 33, at art. 206 (Assessment of potential effects of activities): When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments in the manner provided in article 205.

practicable,” as well as the words “substantial” and “significant”—have aided and abetted states’ excuses for not conducting EIAs.⁶⁷

The discharge of Fukushima-treated wastewater does not fall under the category of “dumping” in accordance with Article 1(1)(5) of UNCLOS because the Fukushima is not a “man-made structure at sea.”⁶⁸ Therefore, provisions regulating “dumping” in UNCLOS have no bearing on Fukushima wastewater. Neither the 1972 London Convention⁶⁹—which prohibits the dumping of high-level radioactive waters into the sea—nor the 1996 Protocol to the 1972 London Convention⁷⁰—which prohibits the dumping of all radioactive waste and other materials into the sea through a “reverse list approach”—can regulate wastewater for the same reason.⁷¹

In sum, Fukushima wastewater squarely fits into Part XII of UNCLOS and customary international laws that are designed to protect the marine environment. However, the discretion that these legal instruments lend to states in drafting regulations and enforcing standards prevents relevant rules from having any practical effect⁷² Echoing this understanding, Yukari Takamura

67. See NEIL CRAIK, *THE INTERNATIONAL LAW OF ENVIRONMENTAL IMPACT ASSESSMENT: PROCESS, SUBSTANCE AND INTEGRATION* 116 (2008).

68. UNCLOS, *supra* note 33, at art. 1(1)(5)(a): “dumping” means: (i) any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea; (ii) any deliberate disposal of vessels, aircraft, platforms or other man-made structures at sea.

69. The London Convention, *supra* note 45, at art. 4.1. Under this convention, parties adopted a nonbinding resolution calling for a moratorium on dumping of low-level radioactive waste pending completion of a two-year technical and scientific review of such dumping by experts. See Int’l Maritime Org. [IMO], London Convention Res. LDC.14(7), *Disposal of Radio-Active Wastes and Other Radio-Active Matter at Sea* (1983).

70. Protocol to the 1972 London Convention, Nov. 7, 1996, ATS 11 (came into effect on Mar 24, 2006) [hereinafter 1996 Protocol]. Japan became party to the Protocol in 2007.

71. Article 1.4 of the 1996 Protocol defines “dumping” as follows:

Any deliberate disposal into the sea of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea; 2. Any deliberate disposal into the sea of vessels, aircraft, platforms or other man-made structures at sea; 3. Any storage of wastes or other matter in the seabed and the subsoil thereof from vessels, aircraft, platforms or other man-made structures at sea; and 4. Any abandonment or toppling at site of platforms or other man-made structures at sea, for the sole purpose of deliberate disposal. *Id.* at art. 1.4.

As a result, Yukari Takamura asserts that “the release from Fukushima Daiichi NPP falls outside of the scope of the 1996 Protocol.” See Takamura, *supra* note 3, at 96.

72. Despite the assertive declarations in UNCLOS of mandatory obligations on states to protect the marine environment, their effect in practice is muted. Damaged states have

summarizes that “states enjoy some degree of discretion in how and to what extent they implement these obligations...The choice of measures and the standards is largely left to the discretion of states since there are few internationally agreed-upon rules and standards governing land-based pollution.”⁷³

B. The Need for Interpreting Part XII UNCLOS as a “Living” Framework Instrument

UNCLOS is an “open framework agreement” as a “living treaty.”⁷⁴ The law of the sea must be amenable to developments. As a living treaty, UNCLOS is designed to be responsive to contemporaneous cries from the seas. It therefore stands to reason that duties and obligations under UNCLOS ought to be read in a sustainable fashion.⁷⁵

Notably, Part XII of UNCLOS has many “open-ended provisions ripe for further evolution and implementation” in the interest of the modern conservation norms and objectives of international marine environmental law.⁷⁶ In other words, Part XII cannot be understood as reflecting complete and detailed rules for states with respect to marine environmental protection. Rather, bearing in mind that UNCLOS is a framework convention, Part XII provides a framework that envisages elaboration by subsequent regional or issue-specific treaties and state practice.⁷⁷ There is no

difficulties in bringing marine environmental disputes to international proceedings because of the lack of detail in UNCLOS as to what are the standards of the various elements. See Alan Boyle, *The Environmental Jurisprudence of the International Tribunal for the Law of the Sea*, 22 INT’L J. OF MARINE AND COASTAL L., 369, 377-78 (2007).

73. Takamura, *supra* note 3, at 100.

74. Alan Boyle, *Further Development of the 1982 Convention on Law of the Sea: Mechanisms for Change*, in LAW OF THE SEA PROGRESS AND PROSPECTS 40, 46 (David Freestone et al. eds., 2006); VENTURA, *supra* note 48, at 214.

75. See Richard Barnes, *The Law of the Sea Convention and the Integrated Regulation of the Oceans*, in THE 1982 LAW OF THE SEA CONVENTION AT 30: SUCCESSES, CHALLENGES AND NEW AGENDAS 190 (David Freestone ed., 2013); VENTURA, *supra* note 48, at 214.

76. Robin M. Warner, *Conserving Marine Biodiversity in Areas Beyond National Jurisdiction: Co-Evolution and Interaction with the Law of the Sea*, in THE OXFORD HANDBOOK OF THE LAW OF THE SEA 752, 775 (Donald Rothwell et al. eds., 2015). In this respect, some argue that states are supposed to become and adhere to other treaties to fulfil their obligation to protect the marine environment, notwithstanding no express mentions in Part XII. See David Dzidzornu, *Coastal State Obligations and Powers Respecting EEZ Environmental Protection under Part XII of the UNCLOS: A Descriptive Analysis*, 8 COLO. J. INT’L ENVTL. L. AND POL’Y (1997).

77. Kojima, *supra* note 53, at 178.

doubt that provisions regarding protection and preservation of the marine environment require “living interpretation in the light of the developments in international law.”⁷⁸ The 2016 *South China Sea* arbitration demonstrated the living treaty characteristic of UNCLOS by emphasizing that the content of Article 192 was informed by other provisions of Part XII and “other applicable rules of international law,”⁷⁹ which is interpreted as encompassing both treaties and customary international law.⁸⁰

Over about forty years since the adoption of UNCLOS, a number of such treaties, customary rules, and soft-law instruments⁸¹ have appeared, providing reference to the interpretation of Part XII. The paramount examples are the “Convention on Biological Diversity,”⁸² the “1972 London Convention,” and the “1996 Protocol to the 1972 London Convention”—which is a “victory for general community interests over the interests of twenty or so industrialized States.”⁸³ Regarding non-binding instruments, the “Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-based Sources”—adopted in 1985 by the United Nations Environment Programme (“UNEP”)—is a noteworthy example.⁸⁴ Soft law instruments include the Rio Declaration on Environment and Development,⁸⁵ Agenda 21 of the 1992 Rio Conference,⁸⁶ and the Global Programme of Action for the Protection of the Marine

78. *Id.* at 180.

79. *South China Sea Arbitration* (Phil. v. China), PCA Case No. 2013–19, Award (Perm. Ct. Arb. 2016) 373, ¶ 941 [hereinafter *South China Sea*].

80. Kojima, *supra* note 53, at 171.

81. The legal status of soft law varies; however, it is not necessarily non-binding in all circumstances. *See* BIRNIE ET AL., *supra* note 36, at 107.

82. The Convention on Biological Diversity, June 5, 1992, 1760 UNTS 69.

83. CHURCHILL & LOWE, *supra* note 1, at 370. This is particularly so given that dumping “allows a small number of industrialized states acting for their own benefit to impose pollution risks on many others, perhaps extending into future generations. *See* BIRNIE ET AL., *supra* note 36, at 467.

84. Governing Council of UNEP, Decision 13/18/II (May 24, 1985).

85. *See* Report of the United Nations Conference on Environment and Development, U.N. Doc. A/CONF.151/26 (Vol. I) (June 1992), https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf [<https://perma.cc/9XZH-XBDZ>].

86. Report of the United Nations Conference on Environment and Development, U.N. Doc. A/CONF.151/26/Rev.1 1 (June 1992), U.N. Sales No. E.93.1.8, p. 9ff, <https://www.un.org/esa/dsd/agenda21/Agenda%2021.pdf> [<https://perma.cc/JKN5-TT8E>].

Environment from Land-based Activities.⁸⁷ Although, at first glance, the aforementioned sources of law present issues of fragmentation, plurality, and sometimes a lack of binding force, the mainstreaming of environmental concerns through this multifaceted legal system has nonetheless benefitted the cause of protecting the marine ecosystems, and consequentially contributed to the goal of Part XII of UNCLOS.⁸⁸

UNCLOS is also a paradigmatic example of “evolutionary interpretation” of treaties, a method of interpretation as envisioned in Articles 31 to 33 of the 1969 Vienna Convention on the Law of Treaties.⁸⁹ ICJ notes that in some situations “the Parties’ intent upon conclusion of the treaty was...to give the terms used...a meaning or content capable of evolving...so as to make allowance for...developments in International law.”⁹⁰ In this respect, the importance lies in the fact that the interpretation and application of Part XII of UNCLOS, as the starting point, must be attended to within the larger legal system at the time of the interpretation out of regard for the further evolution of the law of the sea.⁹¹ On this very point, in *Namibia Advisory Opinion*, ICJ opined:

[T]he Court must take into consideration the changes which have occurred in the supervening half-century, and its interpretation cannot remain unaffected by the subsequent development of law, through the Charter of the United Nations and by way of customary law. Moreover, an international instrument has to be interpreted and applied within the framework of the entire legal system prevailing at the time of the interpretation.⁹²

Pursuant to Article 293, international courts or tribunals that interpret Part XII can apply “other rules of international law not incompatible with UNCLOS,” which prohibits international courts

87. Intergovernmental Conference to Adopt a Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, *Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities*, UNEP(OCA)/LBA/IG.2/7 (Dec. 5, 1995).

88. See VENTURA, *supra* note 48, at 195.

89. *Id.* at 216.

90. Dispute Regarding Navigational and Related Rights (Costa Rica v. Nicaragua), Judgment of 13 July 2009, ICJ Reports 2009, para. 64.

91. Alan Boyle, *Law of the Sea Perspectives on Climate Change*, in THE 1982 LAW OF THE SEA CONVENTION AT 30: SUCCESSES, CHALLENGES AND NEW AGENDAS 157 (David Freestone ed., 2013).

92. *Namibia Advisory Opinion* (1971) I.C.J. Rep. 16, at 31 (June 21, 1971).

from functioning in isolation.⁹³ The *South China Sea* tribunal established that generic terms included in UNCLOS can similarly have an active interaction not only with other environmental treaties, but also general international law. UNCLOS can therefore “adapt to new challenges without creating an implementation agreement or amending to UNCLOS.”⁹⁴ Chie Kojima opines that “the tribunal’s positive attitude towards the principle of systematic integration in interpreting UNCLOS” is witnessed in the tribunal’s reading of Article 237⁹⁵ as having a close link with the general obligations of Part XII of UNCLOS, as well as particular obligations under other treaties.⁹⁶ In short, no one can be sure that any matter involving wastewater that threatens marine life will not be dealt with in connection with other rules—such as the Convention on Biological Diversity.

Part XII of UNCLOS should be interpreted and applied not only in the way contained in its original text, but also rather in reference to rules in relevant international instruments (mainly hard law but in supplementary terms soft law as well). Only an interpretation of UNCLOS Part XII that is in context with other rules and obligations outlined in international cases and ILC instruments can warrant the legality of states’ behaviors. Such an approach to UNCLOS will contribute to organic developments of the international law of the sea system per marine environmental protection.⁹⁷ The next

93 . Philippe Gautier, *The Role of International Courts and Tribunals in the Development of Environmental Law*, 109 AM. SOC’Y INT’L L. PROC. 192 (2015).

94. Kojima, *supra* note 53, at 166, 175.

95. UNCLOS, *supra* note 33, at art. 237 (Obligations under other conventions on the protection and preservation of the marine environment):

1. The provisions of this Part are without prejudice to the specific obligations assumed by States under special conventions and agreements concluded previously which relate to the protection and preservation of the marine environment and to agreements which may be concluded in furtherance of the general principles set forth in this Convention. 2. Specific obligations assumed by States under special conventions, with respect to the protection and preservation of the marine environment, should be carried out in a manner consistent with the general principles and objectives of this Convention.

96. Kojima, *supra* note 53, at 172. Also, the tribunal held that a The Tribunal emphasized that a State could violate Articles 192 and 237 not only by harming the marine environment but also by failing to take active measures to protect and preserve the marine environment. *See South China Sea*, Perm. Ct. Arb. at 373-74.

97. If states adopt law-making treaties or confirm declarations of legal principles adopted by international organizations regarding marine environmental protection, those instrument will be regarded in part as *lex lata* or statements of what international

Section will cover how the meaning and scope of various provisions of Part XII has evolved under judicially review.

III. HOW THE MARINE ENVIRONMENTAL TURN OCCURRED IN THE LAW OF THE SEA

The marine environmental turn in the law of the sea is the result of, above all, two trends: 1) international courts and tribunals increasingly ruling that certain elements constitute the state obligations under Part XII of UNCLOS, and 2) the growth of the international community's common interest in protecting and preserving the marine environment, especially of areas beyond national jurisdiction. This section examines three obligations—the obligation of due diligence, the obligation to conduct environmental impact assessment, and the obligation to cooperate—in regards to the lawfulness of Japan's discharge of Fukushima wastewater. This Section also examines how the obligations under Part XII are inherently related to the "*erga omnes*" characteristic, and anticipates that international courts will endorse the status of obligations *erga omnes* of some core elements in Part XII of UNCLOS in the future.

A. Rules vs. Standards Under Part XII of UNCLOS

Law and economics scholars distinguish between two different types of norms in regulatory systems: rules and standards.⁹⁸ Rules are clear and easy to apply, thus reducing the costs and creating greater predictability. Rules, however, produce higher error rates because future decisionmakers have less leeway to consider "totality of the circumstances."⁹⁹ In contrast, standards are relatively unclear and hard to apply. Standards render high decision costs, but ultimate lower error costs since decisionmakers have some latitude in applying the norm to all the facts.¹⁰⁰ In short,

law is and at the same time as *lex ferenda* or statements of what international should be, thereby eventually engendering norm development of the matter under consideration. See Oxman, *supra* note 7, at 120.

98. See, e.g., Colin S. Diver, *The Optimal Precision of Administrative Rules*, 93 YALE L.J. 65 (1983); Louis Kaplow, *Rules versus Standards: An Economic Analysis*, 42 DUKE L.J. 557 (1992).

99. JOHN YOO, POINT OF ATTACK: PREVENTIVE WAR, INTERNATIONAL LAW, AND GLOBAL WARFARE 93-94 (2014).

100. *Id.*

“[t]he more complicated the legal rule, the greater the likelihood that these administrative costs, including error costs, will be high.”¹⁰¹

UNCLOS adopts the rule approach for some institutions¹⁰² and the standard approach for others.¹⁰³ It is reasonable to infer that the negotiators at the UN Conference on the Law of the Sea from 1973 to 1982 (UNCLOS III) might have tried to regulate as much as they could while still reaching a consensus among ego-centric sovereign states. Notwithstanding significantly procrastinated sessions and the accompanying costs of negotiating states, states had no option but to agree upon a vague resolution in order to reach a consensus.¹⁰⁴ This is how some core provisions of UNCLOS ended up in the form of standards. Additionally, the negotiators had simply not foreseen some developments, such as climate change, marine degradation by massive land-based sources, and technological developments.¹⁰⁵

For some UNCLOS institutions couched in the standard approach, contemporary decisionmakers—foreign ministries, international courts, and international lawyers—are perceived to be more qualified to come up with subsequent measures to

101. RICHARD A. EPSTEIN, *SIMPLE RULES FOR A COMPLEX WORLD* 31 (1995).

102. See e.g., UNCLOS *supra* note 33, at art. 15 (delimitation of the territorial sea: the median line out of regard for special circumstances), art. 19 (meaning of innocent passage), art. 47 (archipelagic baselines: the specific water-to-land ratio requirement and the maximum length of baselines up to 100 nm), and Part XI (The Area) and Annex III (Basic Conditions of Prospecting, Exploration and Exploitation) relating to the Implementation of Part XI of UNCLOS.

103. See e.g., UNCLOS *supra* note 33, at Part V (EEZ) (permissibility of certain activities and methods of maritime boundary delimitation), Part XII (protection and preservation of the marine environment), Part VIII (Regime of Islands), and Part XIII (marine scientific research).

104. Approaching the end of UNCLOS III, delegates tired of negotiating and receiving criticism for the excessive length of the negotiations and associated costs. “The working premise at the end for largely exhausted delegates at the Third Conference was that imperfect solutions were better than no solutions at all.” See Myron H. Nordquist & William G. Phalen, *Interpretation of UNCLOS Article 121 and Itu Aba (Taiping) in the South China Sea Arbitration Award*, in *INTERNATIONAL MARINE ECONOMY: LAW AND POLICY* 27, 77 (Myron H. Nordquist et al. eds., 2017).

105. For example, UNCLOS negotiators did not expect technological development in marine scientific research and military intelligence gathering activities. See M.J. Valencia, *Introduction: Military and Intelligence Gathering Activities in the Exclusive Economic Zones: Consensus and Disagreement II*, 29 *Marine Policy*, 97, 98 (2005); Sam Bateman, *Hydrographic Surveying in Exclusive Economic Zones—Is it Marine Scientific Research?*, in *FREEDOM OF SEAS PASSAGE RIGHTS, AND THE 1982 LAW OF THE SEA CONVENTION* 122 (Myron H. Nordquist et al. eds., 2009).

improve a regulatory function of UNCLOS. This is because current governments, international courts and tribunals, and international lawyers have access to superior information, which was unavailable to the negotiators, and are equipped with more data, experience, and better technical qualifications.¹⁰⁶ Understanding the both the achievements and limitations of UNCLOS III, states today ought to supplement, reinforce, and implement the marine environmental protection regimes that draw on “standards.” To this end, bilateral, regional, or multilateral agreements that have been agreed thus far, the work of ILC, and the materialized elements of Part XII “standards” through international jurisprudence should be referred to for the benefit of state parties to UNCLOS and, by extension, the international community.

B. The Evolving Interpretation of Part XII of UNCLOS

In 1941, the *Trail Smelter* arbitration first established the “no harm principle,” and the 1949 *Corfu Channel* Case further developed its doctrine. The “no harm principle” limits state sovereignty in relation to marine environmental damage caused outside its territory.¹⁰⁷ The consensus among most international legal scholars is that the “no harm principle,” with regards to state responsibility for pollution damage outside its territory, must be regarded as customary law because of the 1974 *Nuclear Test* case.¹⁰⁸ The 1996 Advisory Opinion of ICJ on the *Legality of the Threat or Use of Nuclear Weapons* states, “The existence of the general obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or areas beyond national jurisdiction is now part of the corpus of international law relating to the environment.”¹⁰⁹ In 2001, the ILC adopted “Draft articles on Prevention of Transboundary Harm from Hazardous Activities” (“the ILC’s 2001 draft articles”). Article 3 of this instrument states that, “The State of origin shall take all appropriate measures to prevent significant transboundary harm

106. See YOO, *supra* note 99, at 94-96.

107. CHURCHILL & LOWE, *supra* note 1, at 322 (noting that under the no harm principle “States must not permit their nationals to discharge into the sea matter that could cause harm to the nationals of other States”).

108. *Nuclear Test (Austl. v. Fr.)*, Merits, Judgment, 1974 I.C.J. Rep. 389 (June 1974).

109. *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 1996 I.C.J., ¶ 29 (July 8).

or at any event to minimize the risk thereof.”¹¹⁰ ILC clarifies that the meaning of “take all appropriate measure” is an obligation to “prevent harm, or to minimize the risk thereof,” but that it “cannot be confined to activities which are already properly appreciated as involving such a risk. The obligation extends to taking appropriate measures to identify activities which involve such a risk, and this obligation is of a *continuing character*.”¹¹¹

Under Articles 192 and 194, all states have the “obligation to ensure” that no damage is caused to other states and that there is no pollution of the marine environment. This is understood as an “obligation of conduct” by international courts and tribunals, as seen, both implicitly and explicitly, in the 2010 *Pulp Mills on the River Uruguay*,¹¹² the 2011 Seabed Disputes Chamber Advisory Opinion¹¹³ by the ICJ, and the 2015 Sub-Regional Fisheries Commission (SRFC) Advisory Opinion by ITLOS.¹¹⁴

Under Roman law and civil law traditions, “obligations of conduct” requires the achievement of a particular procedure demanding an endeavor toward a goal and an outcome, whereas “obligation of result” requires a specific and concrete outcome.¹¹⁵ States cannot invariably prevent any use of their territory in ways harmful to others; yet, states can “reasonably be expected to take

110. *Report of the International Law Commission on the Work of Its Fifty-third Session*, [2001] 2(2) Y.B. INT’L L. COMM’N 153, UN Doc. A/56/10 [hereinafter ILC 2001 Draft Articles].

111. *Id.* at 153-54 (emphasis added).

112. *Pulp Mills*, 2010 I.C.J. at 14.

113. *Responsibilities and Obligations of States with Respect to Activities in the Area*, Advisory Opinion, 2011 ITLOS Rep., 41 (noting that “this obligation may be characterized as an obligation ‘of conduct’ and not ‘of result,’ and as an obligation of ‘due diligence’” and the notions of obligations “of due diligence” and obligations “of conduct” are connected”).

114. *Request for an Advisory Opinion Submitted by the Sub-Regional Fisheries Commission*, Advisory Opinion, 2015 ITLOS Rep., 4 (noting that “obligation of conduct” requires “due diligence” in the sense of a flag State not only adopting appropriated rules and measures, but also a “certain level of vigilance in their enforcement and the exercise of administrative control.”).

115. Benoit Mayer, “Obligations of conduct in the international law on climate change: A defence,” *Review of European, Comparative & International Environmental Law*, Vol. 27 (2018), pp. 130-1; Rüdiger Wolfrum, *Obligation of Result Versus Obligation of Conduct: Some Thoughts About the Implementation of International Obligations*, in Mahnouch H. Arsanjani et al. (eds.), *Looking to the Future: Essays on International Law in Honor of W. Michael Reisman* (Leiden and Boston: Brill, 2011), p. 367

'appropriate steps.'¹¹⁶ According to ICJ, states may infringe an obligation of conduct without breaching the objective of an obligation¹¹⁷ Although assessing non-compliance with obligations of conduct is a difficult task, the burden of proof belongs to the alleged violator, and international courts would be eventually requested to assess the evidence of compliance provided by the parties.¹¹⁸

In 2016, drawing on the relevant decisions, *South China Sea* clarifies that the obligation to ensure, as an obligation of conduct, requires “due diligence” and a “certain level of vigilance” in the exercise of state functions.¹¹⁹ In the meantime, in the 2015 *Chagos Marine Protected Area* arbitration, the tribunal opined that Article 194(1) has a “prospective character,” and thus states’ obligation to take all measure to prevent, reduce, and control pollution from any source should be satisfied by the best efforts of states.¹²⁰

One commentator appraises the importance of the *South China Sea* arbitration by claiming that the tribunal touched upon “common interests of the international community as a whole” for the manifestation of marine environmental protection.¹²¹ In fact, the *South China Sea* tribunal confirmed that “the environmental obligations in Part XII apply to States irrespective of where the alleged harmful activities took place”¹²² and further noted, with regard to Article 192, that:

Article 192 thus entails the positive obligation to take active measures to protect and preserve the marine environment . . . [and] the negative obligation not to degrade the marine

116. Benoit Mayer, “Obligations of conduct in the international law on climate change: A defence,” *Review of European, Comparative & International Environmental Law*, Vol. 27 (2018), p. 136.

117. Benoit Mayer, “Obligations of conduct in the international law on climate change: A defence,” *Review of European, Comparative & International Environmental Law*, Vol. 27 (2018), p. 138.

118. Benoit Mayer, “Obligations of conduct in the international law on climate change: A defence,” *Review of European, Comparative & International Environmental Law*, Vol. 27 (2018), p. 139.

119. *South China Sea*, Perm Ct. Arb. at 375.

120. *Chagos MPA*, Perm. Ct. Arb. at 211.

121. Yoshifumi Tanaka, *The South China Sea Arbitration: Environmental Obligations Under the Law of the Sea Convention*, 27 REV. EUR. COMPAR. & INT’L ENV’T L. 90, 90-91 (2018). In *South China Sea*, the Philippines alleged that China had breached Articles 123, 192, 194, 197, 205 and 206 of the Convention (para. 906) and the tribunal found that China breached Articles 192, 194(1), 194(5), 197, 123 and 206 of UNCLOS (para 1203(12) and (13)).

122. *See South China Sea*, Perm Ct. Arb. at 108, 370.

environment at the same time. The corpus of international law relating to the environment, which informs the content of the general obligation in Article 192, requires that States “ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control.” Thus States have a positive “duty to prevent, or at least mitigate’ significant harm to the environment when pursuing large-scale construction activities.” The Tribunal considers this duty informs the scope of the general obligation in Article 192.¹²³

Furthermore, the tribunal found that Article 192 must be read against the background of other applicable international law¹²⁴ and that the general corpus of international law is to be interpreted to mean the corpus of international law relating to the environment, including multilateral environmental treaties.¹²⁵ Consequently, the tribunal interpreted Article 192 with reference to 194(5) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), concluding that some Chinese activities have a “harmful impact on the fragile marine environment.”¹²⁶

Bearing in mind the evolving interpretation of Part XII as demonstrated above, it is reasonable to infer that: a) Articles 192, 194, 207,¹²⁷ and 237, along with bilateral or multilateral agreements regarding the marine environment and marine resources, concern Fukushima-treated wastewater; b) Japan has an obligation to “take all measures” to protect the marine environment from the release of the wastewater; c) Japan has the obligation, under Articles 192 and 194, that is a mixture of both the obligation of conduct and result; and d) Japan has a “positive duty to prevent or mitigate significant harm” to the environment before, during, and after discharging the water out of regard for the

123. *See id.* at 380 (internal footnotes omitted).

124. *Id.* at 381.

125. *Id.* at 380. *See also* Tanaka, *The South China Sea Arbitration: Environmental Obligations Under the Law of the Sea Convention*, *supra* note 121, at 92.

126. South China Sea, Perm. Ct. Arb. at 382 (deciding that “a failure to take measures to prevent these practices would constitute a breach of Articles 192 and 194(5) of the Convention, and turns now to consider China’s responsibility for such breaches”).

127. Article 207 envisages an approach of regional cooperation concerning land-based marine pollution. *See* UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 1386.

“prospective character”¹²⁸ of this obligation, regardless of how slowly the contamination occurs.

C. Due Diligence, Due Regard, and the Precautionary Principle

The duty to prevent harm in customary international law requires the exercise of due diligence by states to prevent significant environmental harm from activities within its jurisdiction or control.¹²⁹ If a state’s negligence or other failures to act with due diligence causes harm to other states, liability will ensue; if such negligence or failure concerns “ultra-hazardous activities,” strict liability will transpire.¹³⁰ If harm does occur, the harm that was brought about by a lack of proper care will demand the state to pay compensation; yet, for most cases, due diligence does not purport to mean “strict liability.” In reality, the concept of the “due diligence” obligation is a variable one, if not ever-changing. According to ITLOS, the concept of due diligence

may change over time as measures considered sufficiently diligent at a certain moment may become not diligent enough [in light of] new scientific or technological knowledge. It may also change in relation to the risks involved in the activity . . . less risky than exploration activities which, in turn, entail less risk than exploitation . . . activities . . . may require different standards of diligence. The standard of due diligence has to be more severe for the riskier activities.¹³¹

Commentators observe that the principle of sovereign equality has influenced to form the duty of due diligence. Balancing different rights and interests among sovereign states is the essence of the obligation of due diligence.¹³² As many legal standards

128. For the “prospective character” of the obligation under Article 194(1), see Chagos MPA, Perm. Ct. Arb at 211.

129. Donald Anton, *The Principle of Residual Liability in the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea: The Advisory Opinion on Responsibility and Liability for International Seabed Mining (ITLOS case no. 17)*, 7 MCGILL INT’L J. SUSTAINABILITY L. AND POL’Y, 242, 243-4(2011).

130. Alan Boyle, State Responsibility and International Liability for Injurious Consequences of Acts not Prohibited by International Law: A Necessary Distinction? 39 INT’L & COMP. L. Q., 1, 15 (1990).

131. Responsibilities and Obligations of States with Respect to Activities in the Area, Advisory Opinion, 2011 ITLOS Rep., 43.

132. See Mathias Forteau, *The Legal Nature and Content of ‘Due Regard’ Obligations in Recent International Case Law*, 34 INT’L J. OF MARINE AND COASTAL L. 30 (2019); Julia

require “some degree of care,” entailing setting a threshold that must satisfy the extent to which a state’s behavior discharges such an obligation,¹³³ a due diligence obligation requires states to prove that they have taken all the necessary measures domestically to prevent environmental harm¹³⁴ rather than guarantee a particular result.

A question may arise regarding different parlance that seems to indicate similar legal notions. In some cases, the terms, “due regard,” “due diligence,” “reasonable regard,”¹³⁵ “due recognition,”¹³⁶ and “a reasonable standard of care”¹³⁷ may bring about subtle legal distinctions.¹³⁸ This Article, however, regards these terms as functionally the same concept: a certain degree of care. Many international courts and tribunals support this view. In the 1974 *Fisheries Jurisdiction* case, ICJ regarded “reasonable regard” as equivalent to “due regard.”¹³⁹ In the 2015 ITLOS advisory opinion requested by the Sub-Regional Fisheries Commission, ITLOS perceived “due regard” as the same as “due diligence.”¹⁴⁰ Also, the 2015 *Chagos Marine Protected Area* arbitral tribunal viewed requirements of “good faith” and “due regard” as equivalent.¹⁴¹ The 2016 *South China Sea* tribunal indicated that any

Gaunce, *On the Interpretation of the General Duty of ‘Due Regard’*, 32 OCEAN YEARBOOK 7 (2018).

133. Forteau, *supra* note 132, at 28.

134. VENTURA, *supra* note 48, at 212.

135. *See, e.g.*, Convention on the High Seas, *supra* note 42, art. 2 (adopted on April 29, 1958) (“These freedoms, and others which are recognized by the general principles of international law, shall be exercised by all States with reasonable regard to the interests of other States in their exercise of the freedom of the high seas.”).

136. *See, e.g.*, *Fisheries Jurisdiction (UK v. Iceland)*, Judgment, 1974 I.C.J. Rep., ¶ 71.

137. ILC 2001 Draft Articles, *supra* note 110, at 154.

138. Some scholars presumably argue that due regard is stricter than due diligence with the former being a relative obligation in comparison to due diligence not necessarily being a relative obligation. *See, e.g.*, Forteau, *supra* note 132, at 38.

139. *Fisheries Jurisdiction*, 1974 I.C.J. at 29 (noting that “the principle of reasonable regard . . . requires Iceland and [UK] to have due regard to each other’s interests, and to the interests of other States . . .”).

140. Request for an Advisory Opinion Submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, 2015 ITLOS Rep., 61, 63 (stating that “The flag State is under an obligation, in light of the provisions of article [58(3), 62(4), and 192] of [UNCLOS], to take the necessary measures to ensure . . . The foregoing obligations are obligations of ‘due diligence’”).

141. *Chagos MPA*, Perm. Ct. Arb. at 203, 211 (noting that “Article 2(3) requires the [UK] to exercise good faith with respect to Mauritius’ rights . . . Article 56(2) requires the [UK] to have due regard for Mauritius’ rights . . . The Tribunal considers these requirements to be, for all intents and purposes, equivalent”).

states' behavior falling short of "due diligence" would fail to keep "due regard" under UNCLOS.¹⁴² In short, it is reasonable to assume that due regard and due diligence, among other such terms, function in the same manner.

According to Article 3 of the ILC's 2001 draft articles,¹⁴³ "the State of origin shall take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof." Regarding due diligence, the ILC confirmed that the conduct of the state of origin will determine the lawfulness of a state's behavior in accordance with Article 3.¹⁴⁴ ILC further commented that:

the State of origin is required . . . to exert its best possible efforts to minimize the risk . . . States are under an obligation to take unilateral measures to prevent significant transboundary harm or at any event to minimize the risk thereof arising out of activities . . . The standard of due diligence . . . should be examined is that which is generally considered to be appropriate and proportional to the degree of risk of transboundary harm in the particular instance . . . [Ultra-hazardous activities] require a much higher standard of care in designing policies and a much higher degree of vigour . . . its location . . . materials used in the activity, and whether the conclusions drawn from the application of these factors in a specific case are reasonable, are among the factors to be considered in determining the due diligence requirement in each instance.¹⁴⁵

As emphasized above, the required degree of care is in proportion to the degree of hazard involved. The potential degree of harm that radioactive wastewater can cause is evident, although

142. South China Sea, Perm. Ct. Arb. at 294 (stating that "the Tribunal considers that anything less than due diligence by a State in preventing its nationals from unlawfully fishing in the exclusive economic zone of another would fall short of the regard due pursuant to Article 58(3) of the Convention").

143. Article 2 of this draft instrument defines transboundary harm as "harm caused in the territory of or in other places under the jurisdiction or control of a State other than the State of origin, whether or not the States concerned share a common border." ILC 2001 Draft Articles, *supra* note 110, at 153. Also, in 2006, the ILC adopted eight draft principles on the allocation of loss in the case of transboundary harm arising out of hazardous activities. Report of the International Law Commission, Fifty-eighth session A/61/10, pp. 106-110.

144. ILC 2001 Draft Articles, *supra* note 110, at 15.

145. *Id.*

debated among scientists. Thus, Japan must know or should have known that the discharge of wastewater has the risk of significant harm. As the degree of harm is perceived higher, the required duty of care should be greater.¹⁴⁶

In practice, international jurisprudence has comported with principles on due diligence put forward by ILC. For instance, in 2011, the ITLOS Seabed Disputes Chamber has underlined that “the standard of due diligence has to be more severe for the riskier activities.”¹⁴⁷ In the 2014 *Virginia G* case, ITLOS—viewing the term “all possible consideration” as equivalent to “due regard”—stated that the state functioning under UNCLOS should look over the relevant situation thoroughly.¹⁴⁸ In addition, in the former advisory opinion, ITLOS has approached the high standard of due diligence as a “question of fact” rather than a “question of law”; the riskier an activity, the more due diligence would be required.¹⁴⁹

In some cases, international tribunals stress the need to establish cooperative arrangements as a way of discharging a due diligence obligation. In the 2012 *Delimitation of the maritime boundary in the Bay of Bengal* case between Bangladesh and Myanmar, ITLOS adduced a cooperative mechanism within the so-called “grey area,” in which one state’s continental shelf is overlapped with the exclusive economic zone of other states. Through the cooperative mechanism, due regard can be realized by the “conclusion of specific agreements or the establishment of appropriate cooperative arrangements” between coastal states.¹⁵⁰

146. *Id.* at 155.

147. Responsibilities and Obligations of States with Respect to Activities in the Area, Advisory Opinion, 2011 ITLOS Rep., 43.

148. *M/V “Virginia G”* (Panama/Guinea-Bissau), Judgment, 2014 ITLOS Rep., 99 (Apr. 14, 2014).

149. Makane Moïse Mbengue, *The South China Sea Arbitration Innovations in Marine Environmental Fact-Finding and Due Diligence Obligations*, 110 AM. J. OF INT’L L. UNBOUND 285, 286 (2016). In this advisory opinion, UNCLOS perceived environmental impact assessment, regulation and use of best available technology, application of the precautionary principle, and availability of recourse for compensation for damage as the contents of due diligence obligation. See Responsibilities and Obligations of States with Respect to Activities in the Area, Advisory Opinion, 2011 ITLOS Rep., ¶¶121-50.

150. *Delimitation of the Maritime Boundary in the Bay of Bengal* (Bangl./Myan.), Judgment, 2012 ITLOS Rep., ¶¶475-76.

This cooperative format is further supported by the 2014 *Bay of Bengal Maritime Boundary* arbitration.¹⁵¹

In 2015, the *Chagos Marine Protected Area* arbitral tribunal denies the “one-size-fits-all” criterion for deciding the exercise of “due regard.”¹⁵² The tribunal took a monumental step in adducing six practical elements against which the question of due regard should be examined. Specifically, the extent of the regard required by UNCLOS will depend upon: a) the nature of the rights held by other states (or the international community); b) the importance of such rights; c) the extent of the anticipated impairment; d) the nature and importance of the planned activities; e) the availability of alternative approaches; and f) whether there was some consultation with the affected State.¹⁵³ Paragraph 519 of the *Chagos Marine Protected Area* award, in which these elements were contained, was upheld by *South China Sea*.¹⁵⁴ Furthermore, the *Chagos* tribunal acknowledged the future rights of other states need to be considered significant at the time of the judicial process both as a matter of good faith and to satisfy UNCLOS.¹⁵⁵ International courts or tribunals will most likely examine the due regard of any state activity that could potentially cause marine degradation under the above criteria, bearing in mind the future rights of other states and the rights at the time of litigation.

As many international lawyers agree, the 2016 *South China Sea* arbitration espouses an expansive approach to due diligence in the context of Part XII of UNCLOS, advancing practicality in testing due diligence arising from the marine environmental protection regime.¹⁵⁶ In this arbitration, the “normative sophistication or diversification of international environmental law” is adopted as a “source of richness for the standard of due diligence under general international law.”¹⁵⁷

151. Bay of Bengal Maritime Boundary Arbitration (Bangl./India), PCA Case No. 2010-16, Award of 7 July 2014 (Perm. Ct. Arb. 2014) 103, ¶¶507–08.

152. Chagos MPA, Perm. Ct. Arb. at 202.

153. Chagos MPA, Perm. Ct. Arb. at 202.

154. South China Sea, Perm. Ct. Arb. at 293.

155. Chagos MPA, Perm. Ct. Arb. at 203.

156. Mbengue, *supra* note 149, at 285-86.

157. *Id.* at 286 (further arguing that “International environmental law feeds the law of the sea by giving a ‘particular shape’ to the duty of due diligence under Part XII of UNCLOS”).

So not only environmental treaties but also other regimes, such as nuclear treaty regimes or fisheries regimes, can be referenced in international proceedings that examine due diligence associated with marine degradation down the road. In brief, the *South China Sea* tribunal insists that a strong “level of vigilance” is required under Part XII, deducing the “high standard of due diligence” in the operation of a holistic-systemic treaty interpretation.¹⁵⁸ In this sense, the tribunal shed light on the “question of law” aspect of due diligence.¹⁵⁹

Moreover, the tribunal validates that the due regard obligation is an obligation of conduct¹⁶⁰ by advancing two components: a) a duty to adopt rules and measures to prevent harmful acts; and b) a duty to maintain a level of vigilance in enforcing those rules and measures.¹⁶¹ Interestingly, the tribunal decided that causing “environmental degradation” by the small propeller vessels involved in harvesting the giant clams was illegal within Part XII of UNCLOS.¹⁶² Fukushima wastewater may be viewed as causing “environmental degradation” because the scope and scale of the planned release had more significant influence on ocean degradation than a state’s fishery practice using “small propeller vessels” in one part of the ocean.

As contemporary international jurisprudence shows, the main characteristic of due diligence is its procedural nature,¹⁶³ alluding to procedural means in its application. In other words, “the duty of due regard does not include real substantial obligations [calling for] pragmatic, case-by-case measures to be decided by the relevant states.”¹⁶⁴ Therefore, a duty to cooperate is deduced from due regard, which will be discussed below. Even more importantly, a due diligence obligation is not only dedicated to balancing the rights of different states, but also to heading off breaches of UNCLOS—not least concerning areas beyond national

158. *Id.*

159. Responsibilities and Obligations of States with Respect to Activities in the Area, Advisory Opinion, 2011 ITLOS Rep., 44-52.

160. *South China Sea*, Perm. Ct. Arb. at 293-94 (quoting the 2015 ITLOS advisory opinion).

161. *Id.* at 382.

162. *Id.* at 384.

163. See UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 431.

164. Forteau, *supra* note 132, at 32.

jurisdiction, which look fundamental in terms of fulfilling the goal of UNCLOS.¹⁶⁵ It is understood that Japan has a “procedural obligation” to control and reduce the discharge of radioactive wastewater from any source likely to pollute the marine environment of areas beyond national jurisdiction or cause harm to other states.¹⁶⁶

Another consideration regarding due diligence is that states should consult the precautionary principle in fulfilling this somewhat elusive obligation.¹⁶⁷ Notwithstanding its status as a principle rather than a customary law,¹⁶⁸ the link between a due diligence obligation and the precautionary approach is validated in the ITLOS provisional measure of the 1999 *Southern Bluefin Tuna* cases (New Zealand v. Japan; Australia v. Japan)¹⁶⁹ and in the 2010 *Pulp Mills on the River Uruguay*.¹⁷⁰ Eventually, in 2011, ITLOS announced in its advisory opinion that “the precautionary approach . . . has initiated a trend towards making this approach

165. *Id.* at 42.

166. See Boyle, *supra* note 91, at 160.

167. The precautionary principle was initiated in international environmental law and later this principle has started to permeate other fields of international law. See Laurence Boisson de Chazournes, *Precaution in International Law: Reflection on its Composite Nature*, in *LAW OF THE SEA, ENVIRONMENTAL LAW AND SETTLEMENT OF DISPUTES: LIBER AMICORUM JUDGE THOMAS A. MENSAH 21* (Tafsir Malick Ndiaye & Rüdiger Wolfrum eds., 2007).

168. Many scholars claim that the precautionary principle is a customary international legal principle. See, e.g., James Cameron & Juli Abouchar, *The Status of the Precautionary Principle in International Law*, in *THE PRECAUTIONARY PRINCIPLE AND INTERNATIONAL LAW: THE CHALLENGE OF IMPLEMENTATION* 29-53 (David Freestone & Ellen Hey eds., 1996); PHILIPPE SANDS, *PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW* 279 (2d ed., 2003). Meanwhile, Laurence Boisson de Chazournes argues that the reluctant attitude of international judges in dealing with the precautionary principle demonstrates the principle as not a principle of international law. Nevertheless, she assesses the principle is soon likely to become a principle in customary law considering international, regional, and domestic judicial trend. Boisson de Chazournes, *supra* note 167, at 28-29.

169. *Southern Bluefin Tuna (New Zealand v. Japan; Australia v. Japan)*, Provisional Measures, Order of Aug. 27, 1999, 1999 ITLOS Rep., 296 (noting that parties “should in the circumstances act with prudence and caution to ensure that conservation measures are taken . . . there is scientific uncertainty regarding measures to be taken to conserve the stock of southern bluefin tuna . . . although the Tribunal cannot conclusively assess the scientific evidence presented by the parties, it finds that measures should be taken as a matter of urgency”).

170. *Pulp Mills*, 2010 I.C.J. at 71, ¶164 (stating that a “precautionary approach may be relevant in the interpretation and application of the provisions of the Statute” but denying a “reversal of the burden of proof”).

part of customary international law.”¹⁷¹ The precautionary principle has four constituting elements: a) risk, b) damage (impact), c) scientific uncertainty, and d) capacities.¹⁷² Firstly, the risk is a “more or less conceivable and contingent danger” that can cause damage. As long as there is any trace of doubt as to the occurrence of an event, there is a risk. Even “uncertain risks” that have not been established by science but which are not unthinkable must be handled by the precautionary principle.¹⁷³ “Scientific uncertainty” is a *sine qua non* condition to the application and legitimacy of the precautionary principle.¹⁷⁴ If the risk is known, preventive measures can be exercised. If risk or impact is unknown or contended—situations under “the absence of complete scientific certainty due to the lack of adequate scientific data”—a precautionary approach is essential to planning activities.¹⁷⁵ Furthermore, in many conventions containing a precautionary approach, the reversal of the burden of proof is a necessary mechanism of implementation.¹⁷⁶

As mentioned above, in the 2011 advisory opinion, ITLOS emphasizes—while noting that the precautionary approach is already an “integral part of the general obligation of due diligence” of states’ activities in the Area—that:

[The due diligence obligation] applies in situations where scientific evidence concerning the scope and potential negative impact of the activity in question is insufficient but where there are plausible indications of potential risks. A sponsoring State would not meet its obligation of due diligence if it disregarded those risks. Such disregard would amount to a failure to comply with the precautionary approach.¹⁷⁷

Although this advisory opinion was in relation to the Area, the discussion is an important clarification of customary international

171. Responsibilities and Obligations of States with Respect to Activities in the Area, Advisory Opinion, 2011 ITLOS Rep., 47.

172. Boisson de Chazournes, *supra* note 167, at 22-23.

173. *Id.* (explaining that “not only a ‘risk ascertainable in a science laboratory,’ but also a ‘risk in human societies as they actually exist, in other words, the actual potential for adverse effects on human health in the real world where people live and work and die’”).

174. *Id.* at 24.

175. *Id.*

176. *Id.* at 26.

177. Responsibilities and Obligations of States with Respect to Activities in the Area, Advisory Opinion, 2011 ITLOS Rep., 46.

environmental law and Part XII of UNCLOS, with application to all marine areas.

Although the precautionary principle has not expanded into international jurisprudence, one certainty is that the constituting elements of a precautionary principle, such as the “principle of intergenerational equity” (the acknowledgment of the rights of future generations) and the “principle of public participation” (the request of scientific communities, the private sector, NGOs, and local populations getting involved in decision-making processes) are likely to be increasingly considered by international courts and tribunals dealing with disputes regarding the marine environment.¹⁷⁸

D. The Obligation to Conduct Environmental Impact Assessments

An obligation of due diligence in preventing significant transboundary harm requires states to ascertain whether there is a risk of significant transboundary harm prior to undertaking an activity likely to have an adverse impact on the environment of another state or areas beyond national jurisdiction.¹⁷⁹ A commonly held view among international lawyers is that the duty to carry out EIAs has become customary international law.¹⁸⁰ In 1969, US domestic law established the first EIA obligation.¹⁸¹ Since the early 1990s, international lawyers have argued that conducting effective EIAs before taking action that could adversely affect “either shared natural resources, another country’s environment, or the Earth’s commons” is a customary obligation in the making.¹⁸² The *Trail Smelter* decision also established an obligation to conduct an EIA before state actions. This jurisprudential trend has continued ever

178. Boisson de Chazournes, *supra* note 167, at 32-33.

179. Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua) and Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica), Judgment, 2015 I.C.J. Rep., ¶153.

180. See Kojima, *supra* note 53, at 175-6; Astrid Epiney, *Environmental Impact Assessment*, in THE MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 587-88 (Rüdiger Wolfrum ed., 2012) (indicating, however, that some scholars argue that conducting EIAs is not yet part of customary international law). For a contrary view regarding the legal status of EIA, see, for example, John H Knox, *The Myth and Reality of Transboundary Environmental Impact Assessment*, 96 AM. J. INT’L L., 291, 319 (2002).

181. Epiney, *Environmental Impact Assessment*, in THE MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, *supra* note 176, at 581.

182. See, e.g., Nicholas Robinson, *International Trends in Environmental Impact Assessment*, 19 B.C. ENV. AFFAIRS L. REV. 602 (1992).

since UNCLOS came into effect in 1994, despite the absence of an explicit requirement of EIA in UNCLOS.¹⁸³

Article 7 of the ILC's 2001 draft articles sets forth that, "Any decision in respect of the authorization of an activity within the scope of the present articles shall, in particular, be based on an assessment of the possible transboundary harm caused by that activity, including any environmental impact assessment."¹⁸⁴ The ILC commentaries mention that state practice converges to require EIAs to "assess whether a particular activity has the potential of causing significant transboundary harm" while acknowledging the need of the states likely to be affected to get informed of and evaluate what possible harmful effects that activity might have on them.¹⁸⁵ Additionally, ILC confirms the importance of the protection of the environment *per se*, not of harm to humans or property.¹⁸⁶

In the 1997 *Gabčíkovo–Nagymaros* case, ICJ acknowledged the need for EIAs—without mentioning the term—by stating, "[t]he awareness of the vulnerability of the environment and the recognition that environmental risks have to be assessed on a continuous basis."¹⁸⁷ Later in the 2010 *Pulp Mills* case, ICJ affirmed the obligation to conduct EIAs by noting, "[I]t may now be considered a requirement under general international law to undertake an [EIA] where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource."¹⁸⁸ In addition, in its 2011 advisory opinion, the ITLOS Seabed Disputes Chamber stressed that "the obligation to conduct an [EIA] is a direct obligation under [UNCLOS] and a general obligation under customary international law" indicating that Article 206 of

183. This trend is often perceived as an example of the evolutionary interpretation of UNCLOS. See Kojima, *supra* note 53, at 177.

184. ILC 2001 Draft Articles, *supra* note 110, at 157.

185. *Id.* at 159.

186. *Id.*

187. *Gabčíkovo–Nagymaros Project (Hung./Slovak.)*, Judgment, 1997 I.C.J. Rep. ¶112 (Sept. 25). This ICJ position was criticized for not noting EIAs as a customary international law principle. See generally Erika L. Preiss, *The International Obligation to Conduct an Environmental Impact Assessment: The ICJ Case Concerning the Gabčíkovo–Nagymaros Project*, 7 N.Y.U. ENVTL. L. J. 307 (1999).

188. *Pulp Mills*, 2010 I.C.J. at 83 (noting the need to have regard to the "nature and magnitude of the proposed development and its likely adverse impact on the environment as well as to the need to exercise due diligence in conducting such an assessment").

UNCLOS stipulates the EIA obligation on states.¹⁸⁹ Interestingly, in 2015 *Certain Activities Carried Out by Nicaragua in the Border Area* (Costa Rica v. Nicaragua) and *Construction of a Road in Costa Rica along the San Juan River* (Nicaragua v. Costa Rica), ICJ appears to consider that states under less risks of significant transboundary harm do not need to conduct EIAs.¹⁹⁰ However, as Yoshifumi Tanaka observes, due to the difficulty of determining the subjective appreciation in harm (“significant transboundary harm”), an arbitrary decision of the state of origin not to conduct EIAs will not likely be supported.¹⁹¹

Against this background, ITLOS, in the 2015 *Delimitation of the Maritime Boundary in the Atlantic Ocean* case between Ghana and Côte d’Ivoire, ordered provisional measures to carry out “strict and continuous monitoring of all activities ... with a view to ensuring the prevention of serious harm to the marine environment.”¹⁹² Also, *South China Sea* innovatively affirmed, while reiterating the obligation to carry out EIA as customary international law,¹⁹³ that:

Article 206 ensures that planned activities with potentially damaging effects may be effectively controlled and that other States are kept informed of their potential risks ... While the terms “reasonable” and “as far as practicable” contain an element of discretion for the State concerned, the obligation to communicate reports of the results of the assessments is absolute.¹⁹⁴

It appears that the difficulty of examining the propriety of EIAs may have caused the tribunal to focus on the non-fulfillment

189. Responsibilities and Obligations of States with Respect to Activities in the Area, Advisory Opinion, 2011 ITLOS Rep., 50, ¶145-46.

190. *Certain Activities Carried Out by Nicaragua in the Border Area* (Costa Rica v. Nicaragua) and *Construction of a Road in Costa Rica along the San Juan River* (Nicaragua v. Costa Rica), Judgment, 2015 I.C.J. at 720.

191. Tanaka, *The South China Sea Arbitration: Environmental Obligations Under the Law of the Sea Convention*, *supra* note 121, at. 94.

192. *Delimitation of the Maritime Boundary in the Atlantic Ocean* (Ghana/Côte d’Ivoire), Case No. 23, Provisional Measures, Order of Apr. 25, 2015, 2015 ITLOS Rep., 166, ¶ 108(1)(c).

193. *South China Sea*, Perm. Ct. Arb. at 377, ¶ 948 (citing the relevant paragraph (145) of the 2011 ITLOS advisory opinion on Responsibilities and Obligations of States with respect to Activities in the Area).

194. *South China Sea*, Perm Ct. Arb. at 377, ¶948.

of a procedural requirement: “communication.”¹⁹⁵ As will be discussed, the duty to communicate the result of an EIA for a planned activity to the affected states is included as part of carrying out an EIA.

What is proper EIA? The quality of EIA is often disputed. In the 2001 *Mox Plant* case, the plaintiff state (Ireland) claimed that the defendant state (United Kingdom) had failed to conduct a proper assessment of the impact on the marine environment.¹⁹⁶ It is true that the specific contents of EIAs required in each case are left to the discretion of each state.¹⁹⁷ Nonetheless, as confirmed in *South China Sea*, “comprehensiveness” of the contents of EIAs is a *sine qua non* characteristic of EIA.¹⁹⁸ Failing to exercise due diligence “encompassing a full examination of the potential environmental impact of a particular project” and due consideration for the “interests of affected parties” may fall short of the EIA comprehensiveness test.¹⁹⁹ Furthermore, if the likelihood of affecting the marine environment of areas beyond national jurisdiction by a planned activity is high, the “shared interests of the international community, such as the long-term sustainability of marine resources” should be taken into account at the scoping stage of EIA.²⁰⁰

International doctrine, state practice, and legal obligations among states all endorse a state duty to conduct transboundary EIAs when engaging in activities likely to have environmental consequences to other states or areas beyond national jurisdiction. The current trend on EIA seems to push Japan to conduct EIA and monitor the environmental risks and impacts prior to the project by carrying out periodic review.²⁰¹ This is particularly so given that

195. Tanaka, *supra* note 121, at 96.

196. *MOX Plant*, 2001 ITLOS Rep. at 99, ¶26.

197. *See Pulp Mills*, 2010 I.C.J. at 83, ¶205.

198. *South China Sea*, Perm Ct. Arb. at 396, ¶990. *See also Mbengue*, *supra* note 149 at 287.

199. Warner, *supra* note 76, at 774.

200. *Id.*

201. The ICJ acknowledged in the *Pulp Mills* case that an EIA “must be conducted prior to the implementation of the project. Moreover, once operations have started and, where necessary, throughout the life of the project, continuous monitoring of its effects on the environment shall be undertaken.” *Pulp Mills*, 2010 I.C.J. at 83, ¶ 205. Given that the release of radioactive wastewater into the ocean may have cumulative effects on human health, conducting prior EIAs and monitoring of the environmental impact of any discharge seems obligatory. In fact, most relevant treaties require states to make periodic

marine environmental conditions change and scientific projection develops over time.

E. The Duty to Consult as a Fundamental Principle under UNCLOS and General International Law

The obligation to cooperate is explicitly embodied in Articles 123 and 197 of UNCLOS. As Alan Boyle stressed, a key principle in both international environmental law and the law of the sea is the duty to cooperate in the effort to control environmental risks.²⁰² By nature, transboundary environmental effects of activities on marine pollution are cumulative, distant, or uncertain, which renders proving the damage and calculating compensation unrealistic. In this respect, cooperation between coastal states, in regarding conducting EIAs, consultation, and exchange of information, is very much called for under UNCLOS.²⁰³ In principle, the duty to consult neighboring states with regard to a future project that might affect the rights and interest of such neighbors ought to be exercised: a) within a reasonable time; b) in a spirit of understanding of the other state's concerns in connection of the proposed activities; and if possible, c) by submitting suggestions of compromise.²⁰⁴

The ILC's 2001 draft articles provide some procedural obligations for states to prevent transboundary damage to the environment. These procedural obligations include "notification of" and "consultation with" states likely to be affected prior to authorization of activities based on a risk assessment.²⁰⁵ Under the principle of good faith,²⁰⁶ the duty to consult should extend to "all

reports on matters affecting the treaty, although the extent of this obligation is varied. See PATRICIA BIRNIE ET AL., *supra* note 36, at 242, 443, 461.

202. See Boyle, *supra* note 72 at 379.

203. See Stephen Stec & Gabriel E Eckstein, *Of Solemn Oaths and Obligations: The Environmental Impact of the ICJ's Decision in the Case Concerning the Gabčíkovo-Nagymaros Project*, 8 YEARBOOK INT'L ENVTL. L. 41, 48 (1997).

204. See UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 431.

205. Article 4 (Cooperation): States concerned shall cooperate in good faith and, as necessary, seek the assistance of one or more competent international organizations in preventing significant transboundary harm or at any event in minimizing the risk thereof. See ILC 2001 Draft Articles, *supra* note 110, at 159-61.

206. *Id.* at 160 (noting that "The principle of good faith is an integral part of any requirement of consultations and negotiations"). See also the 1974 Fisheries Jurisdiction case, in which ICJ affirmed that "[t]he task [of the parties] will be to conduct their

phases of planning and of implementation.”²⁰⁷ Relevant to the matter at issue, the notification shall be accompanied by available scientific information on which the assessment is based.²⁰⁸

The duty to cooperate is a “fundamental principle in the prevention of pollution of the marine environment” under UNCLOS and general international law as confirmed in *MOX Plant*²⁰⁹ and *South China Sea*.²¹⁰ Since the duty to consult is inextricably connected to due regard,²¹¹ a lack of consultation may amount to failing to exercise due regard. Therefore, it is worth paying attention to *Certain Activities Carried Out by Nicaragua in the Border Area* (Costa Rica v. Nicaragua) and *Construction of a Road in Costa Rica along the San Juan River* (Nicaragua v. Costa Rica).²¹² In this case, ICJ opined—acknowledging that a risk of significant transboundary harm can be revealed in the result of EIA—that the state of origin is required to “notify and consult in good faith with the potentially affected State, where that is necessary to determine the appropriate measures to prevent or mitigate that risk.”²¹³

In *South China Sea*, the tribunal identified the duty to communicate the results of EIAs as an absolute obligation, regardless of different state capacities.²¹⁴ Commentators parse the meaning of “absolute” in a way that the duty to consult under Article 206 is not limited to the risk that is thought as causing

negotiations on the basis that each must in good faith pay reasonable regard to the legal rights of the other.” See *Fisheries Jurisdiction*, 1974 I.C.J. Rep. at ¶ 78.

207. Article 4 (Cooperation): “States concerned shall cooperate in good faith and, as necessary, seek the assistance of one or more competent international organizations in preventing significant transboundary harm or at any event in minimizing the risk thereof.” ILC 2001 Draft Articles, *supra* note 110, at 155.

208. *Id.*

209. *MOX Plant*, 2001 ITLOS Rep. at 99, ¶ 82.

210. *South China Sea*, Perm Ct. Arb. at 377, ¶ 946.

211. See *Whaling in the Antarctic* (Australia v. Japan: New Zealand intervening), 2014 I.C.J. Rep., 257, ¶ 83 (Dec.16) (noting that “the State parties to the ICRW have a duty to cooperate with the IWC and the scientific Committee and thus should give due regard to recommendations calling for an assessment of the feasibility of non-lethal alternatives”).

212. *Certain Activities Carried Out by Nicaragua in the Border Area* (Costa Rica v. Nicaragua) and *Construction of a Road in Costa Rica along the San Juan River* (Nicaragua v. Costa Rica), 2015 I.C.J. Rep. at 665.

213. *Id.*, at 707, ¶104 (emphasizing that the duty to notify derives from a due diligence obligation).

214. *South China Sea*, Perm Ct. Arb. at ¶948 (noting that “While the terms ‘reasonable’ and ‘as far as practicable’ contain an element of discretion for the State concerned, the obligation to communicate reports of the results of the assessments is absolute”).

significant transboundary harm.²¹⁵ Thus, there is ample room to believe that the state of origin is under an obligation to communicate the results of EIAs with (mostly) neighboring states (or any other states likely to be affected) unless the state of origin has a sound reason to conclude, beyond a reasonable doubt, that the activity planned would not cause any significant harm to the marine environment. Although states of origin usually conduct such assessments, countries likely to be affected may have a voice in the decision-making process about the scientific “significance” of the harm under the principles of good faith and due diligence.

In *South China Sea*, the tribunal considers that:

given the scale and impact of the island-building activities . . . China could not reasonably have held any belief other than that the construction “may cause significant and harmful changes to the marine environment.” Accordingly, China was required, “as far as practicable” to prepare an environmental impact assessment. It was also under an obligation to communicate the results of the assessment.²¹⁶

Viewed in this light, Japan may decide that it would be superfluous to conduct an initial or subsequent EIA around its discharge of Fukushima wastewater into the sea, because the associated transboundary harm would be insignificant. Even though the duty of Japan to consult likely affected states would not be invoked, Japan’s decision would likely still be declared illegal by an international court or tribunal. As seen in *South China Sea*, the decision not to conduct an EIA would be illegal based on the assumption that the treated wastewater would bring about marine degradation significantly, though incrementally.

Although it is unclear whether Japan has exercised the duty to notify some of its neighbors of the results of an EIA regarding the discharge of the wastewater through confidential diplomatic channels,²¹⁷ it appears that, since Japan announced the release plan, China, Russia, or Korea were not informed of such necessary information, based on which of these countries should examine the

215. Tanaka, *The South China Sea Arbitration: Environmental Obligations Under the Law of the Sea Convention*, *supra* note 121, at 94.

216. *South China Sea*, Perm Ct. Arb. at ¶ 988.

217. States are free to decide how they inform the states likely to be affected, but in general, states contact the other states through diplomatic channels. See ILC 2001 Draft Articles, *supra* note 110, at 160.

possible effects of the planned discharge. The failure of notification might be inconsistent with Japan's obligations under UNCLOS, general international law, and the Early Notification Convention.²¹⁸

In some fields of international law, the duty to cooperate is an evolving norm while functioning actively.²¹⁹ In international environmental law, the duty to cooperate "is meant to serve as the driving force for the progressive development" of multilateral framework agreements whose effectiveness depends upon continuing cooperation among the parties, developing "through additional instruments such as protocols or measures."²²⁰ Some provisions of UNCLOS are to be developed progressively as a framework convention. As such, the duty to consult is the driving force for the progressive development of Part XII of UNCLOS.²²¹

F. The Marine Environmental Turn in the Law of the Sea and Obligations Erga Omnes

The question remains whether massive marine environmental pollutions, especially in areas beyond national jurisdiction, could constitute a violation of an obligation *erga omnes*. The phrase "obligations *erga omnes*" was first introduced by ICJ in the 1970 *Barcelona Traction* case between Belgium and Spain. In *Barcelona Traction*, ICJ put forward the concept of "obligations of a State towards the international community as a whole," which are "the concern of all States" and for whose protection all states have a "legal interest."²²² These obligations are comprehended as fundamentally different from those existing vis-à-vis another state in the field of diplomatic protection. If obligations under Part XII of UNCLOS were to take the "*erga omnes*" nature, states with a "legal interest" might seek legal redress under international law.

Jus cogens and obligations *erga omnes* have different legal consequences. Nonetheless, these two notions are inextricably interchangeable in the sense that "[a] rule from which no

218. See Takamura, *supra* note 3, at 106.

219. Kojima, *supra* note 53, at 178.

220. Rüdiger Wolfrum, *Cooperation, International Law of*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 789 (Rüdiger Wolfrum ed., 2010).

221. Kojima, *supra* note 53, at 178.

222. *Barcelona Traction, Light and Power Company, Limited, Judgment*, (Belg. v. Spain), Judgment, 1970 I.C.J. 32, ¶ 33 (Feb. 5).

derogation is permitted because of its fundamental nature will normally be one in whose performance all States seem to have a legal interest.”²²³ Similarly, ILC confirms that “[p]eremptory norms of general international law (*jus cogens*) give rise to obligations owed to the international community as a whole (obligations *erga omnes*), in which all States have a legal interest.”²²⁴

Notably, Article 53 of the 1969 Vienna Convention on the Law of the Treaties affirms the notion of a “peremptory norm of general international law” (*jus cogens*);²²⁵ yet, it leaves the establishment of *jus cogens* in the hands of state practice and the jurisprudence of international courts and tribunals. There is no single criterion for identifying which rules of international law become peremptory norms. Not surprisingly, the *raison d’être* of obligations *erga omnes* rests on the protection of fundamental values and the common interests of the international community as a whole.²²⁶ That is, community interests reflecting the fundamental values of the international community on a particular subject matter are a vital element of identifying obligations *erga omnes*.²²⁷ Arguably, this would lead to the point at which obligations *erga omnes* may grow

223. Jochen A Frowein, *Obligations erga omnes*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 916 (Rüdiger Wolfrum ed., 2012). Yoshifumi Tanaka explains the difference between *jus cogens* and obligations *erga omnes*. See Yoshifumi Tanaka, *The Legal Consequences of Obligations Erga Omnes in International Law*, 68 NETH. INT’L L. REV. 1, 9-11 (2021) (exploring that “it may be said that obligations *erga omnes* horizontally expand the scope of States that have legal interests in compliance, while the concept of *jus cogens* vertically introduces a normative hierarchy in the international legal system . . . *jus cogens* constitutes a subset of obligations *erga omnes* . . . the scope of obligations *erga omnes* is wider than that of *jus cogens*, logically obligations *erga omnes* cannot be completely identified on the basis of *jus cogens* . . . *Jus cogens* norms derive from the matrix of obligations *erga omnes*, but not the reverse situation”).

224. Int’l Law Comm’n., Rep. on the Work of its 71st session, U.N. Doc. A/74/10, at 145 (2015), <https://legal.un.org/ilc/reports/2019/english/chp5.pdf> [<https://perma.cc/29AX-EJNU>].

225. “[A] peremptory norm of general international law is a norm accepted and recognized by the international community of States as a whole as a norm from which no derogation is permitted and which can be modified only by a subsequent norm of general international law having the same character.” Vienna Convention on the Law of Treaties art. 53, May 23, 1969, 1155 U.N.T.S. 18.

226. See Tanaka, *The Legal Consequences of Obligations Erga Omnes in International Law*, *supra* note 223, at 29.

227. See Int’l Law Comm’n. Rep. on the Work of its 71st session, *supra* note 224. See *id.* at 9; ANTHONY AUST, MODERN TREATY LAW AND PRACTICE 319 (2007).

in scope over time to the extent to which all basic value of international legal order would give rise to *jus cogens*.²²⁸

Many legal scholars observe that marine environmental protection has gained the status of “common concern of humankind” as marine degradation threatens the well-being of persons living without centralized management regimes.²²⁹ This observation retains considerable purchase today despite the failure of deeming the obligations to safeguard and preserve the human environment as international crimes within the discussion of ILC.²³⁰ In brief, the notion of international crime was expunged from the Draft Articles Responsibility of States for Internationally Wrongful Acts adopted by ILC in 2001; however, “common concern of humankind” over the obligation to protect and preserve the marine environment has survived in the form of obligations that may be owed to the international community as a whole.²³¹ The resolution of third-party countermeasures (taken by not directly injured states) against a serious breach by a state of an obligation owed to the international community as a whole is claimed to have been left to the “further development of international law.”²³² Such “further development of international law” has appeared in international adjudication. For example, in the 2011 *Seabed Disputes Chamber* advisory opinion, ITLOS opined that “[e]ach State Party may also be entitled to claim compensation in light of the *erga omnes* character of the obligations relating to preservation of the environment of the high seas and in the Area.”²³³

228. See Tanaka, *The Legal Consequences of Obligations Erga Omnes in International Law*, *supra* note 223, at 2, 8; Jochen A Frowein, *supra* note 223.

229. VENTURA, *supra* note 48, at 193.

230. Article 19 of Draft Articles on State Responsibility (1980) clearly referred to “a serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment, such as those prohibiting massive pollution of the atmosphere or of the seas” as an example of international crimes in violation of *jus cogens*. See Frowein, *supra* note 228; *Report of the Commission to the General Assembly on the Work of Its Fifty-Second Session*, [2000] 2 Y.B. Int’l L. Comm’n 70-71, U.N. Doc. A/CN.4/SER.A/2000/Add.1 (Part 2)/Rev.1.

231. Frowein, *supra* note 223, at 917.

232. JAMES CRAWFORD, *THE INTERNATIONAL LAW COMMISSION’S ARTICLES ON STATE RESPONSIBILITY: INTRODUCTION, TEXT, AND COMMENTARIES* 305 (2002).

233. *Responsibilities and Obligations of States with Respect to Activities in the Area*, Advisory Opinion, 2011 ITLOS Rep., 59, ¶180. “Each state party” means *erga omnes* partes under UNCLOS. *Id.*

States' obligations toward the international community derive—relevant to the case of the marine environment—from the “body of general international law”²³⁴ and “international instruments of a universal or quasi-universal character,”²³⁵ such as the UN Charter or UNCLOS. While obligations *erga omnes* do not square with treaty obligations,²³⁶ the source of obligations *erga omnes* is germane to customary international law²³⁷ as elucidated by ILC.²³⁸ Therefore, obligations *erga omnes* are formulated through the general process of customary law-making.²³⁹ Following this logic, Yoshifumi Tanaka argues with conviction that “the obligation to protect and preserve the marine environment set out in Article 192 of [UNCLOS] constitutes an obligation *erga omnes partes* and an obligation *erga omnes*.”²⁴⁰

If any state breaches Article 192 and other provisions of UNCLOS that have obligations *erga omnes*, “non-forcible proportionate countermeasures” may be exercised by other states against the state of origin “where no institutional system exists or an existing system does not function properly.”²⁴¹ In addition, it cannot be ruled out that international proceedings are established as “non-forcible proportionate countermeasures” by a state invoking obligations *erga omnes* regarding pollutions in areas beyond national jurisdiction. An international court or tribunal may be asked on such occasions to ascertain an *erga omnes* nature

234. Reservations to the Convention on the Prevention and Punishment of the Crime of Genocide, Advisory Opinion, 1951 ICJ Rep., 23 (stating that obligations *erga omnes* derive from the “outlawing of acts of aggression, and of genocide, as also from the principles and rules concerning the basic rights of the human person, including protection from slavery and racial discrimination. Some of the corresponding rights of protection have entered into the body of general international law”).

235. Barcelona Traction, Light and Power Company, Limited (Belg. v. Spain), Judgment, 1970 I.C.J. 32, ¶ 34.

236. Frowein, *supra* note 223, at 916.

237. Tanaka, *The Legal Consequences of Obligations Erga Omnes in International Law*, *supra* note 223, at 3.

238. Int'l Law Comm'n, Rep. on the Work of Its Seventy-First Session, U.N. Doc. A/74/10, at 159 (2019) (noting that “customary international law is the most obvious manifestation of general international law”).

239. Tanaka, *The Legal Consequences of Obligations Erga Omnes in International Law*, *supra* note 223, at 11.

240. *Id.* at 7 (explaining that “[a] major difference between an obligation *erga omnes* and an obligation *erga omnes partes* consists of a compromissory clause provided by a treaty since the compromissory clause conferring jurisdiction on an international court or tribunal applies only to the parties to a treaty”).

241. Frowein, *supra* note 223, at 918.

of obligations under Article 192 of UNCLOS. Hypothetically, if the majority of states unilaterally declare obligations under Part XII of UNCLOS as obligations *erga omnes*, the confirmation process of Part XII as obligations *erga omnes* will be accelerated, although such unilateral declarations render the states to assume the responsibility for keeping the obligations as *erga omnes*.²⁴²

IV. FURTHER IMPLICATIONS OF THE MARINE ENVIRONMENTAL TURN IN UNCLOS FOR THE DISCHARGE OF FUKUSHIMA WASTEWATER

Adopting appropriate rules and measures to prohibit marine degradation is only one component of due diligence set out in Articles 192 and 194. Taking proper steps to enforce those rules and measures is another, or more important, indicator in deciding whether states keep their obligations under Part XII.²⁴³ Admittedly, in order for Japan to discharge its obligations under Part XII in relation to the planned release of Fukushima wastewater, obligations associated with “the corpus of international law relating to the environment” and “other applicable international law” must be taken into consideration. And the international rules may include “new norms” and “new standards” that have appeared after the activity begun.²⁴⁴

As *South China Sea* has shown,²⁴⁵ the Convention on Biological Diversity will have some bearing on the release of Fukushima wastewater because Japan is obliged to regulate, enforce, and monitor measures toward the preservation of marine biodiversity under Articles 5 to 8 of this Convention.²⁴⁶ This is particularly so

242. Jan Kolasa, *Unilateral Acts of a State in the Process of Forming Customary International Law*, 8 *WROCLAW REV. L., ADMIN. & ECON.*, 59 (2018) (explaining that the unilateral acts (including unilateral declarations) of states can be the basis of the creation of customary international law).

243. *South China Sea*, Perm Ct. Arb. at ¶¶941-43, 964.

244. Arbitration regarding the Iron Rhine (IJzeren Rijn) Railway between the Kingdom of Belgium and the Kingdom of the Netherlands, decision of 24 May 2005, VOLUME XXVII, pp.35-125, para. 59 (citing paragraph 140 of the *Gabčíkovo-Nagymaros* case).

245. The Tribunal stated that it has “no doubt that the harvesting of corals and giant clams from the waters surrounding Scarborough Shoal and features in the Spratly Islands ... has a harmful impact on the fragile marine environment. The Tribunal therefore considers that a failure to take measures to prevent these practices would constitute a breach of Articles 192 and 194(5) of the Convention.” *Id.* at ¶ 960.

246. See VENTURA, *supra* note 48, at 213.

given that the “use of the terms ‘conserving’ and ‘managing’ in [A]rticle 56 of [UNCLOS] indicates that the rights of coastal States go beyond conservation in its strict sense.”²⁴⁷

In Northeast Asia, due diligence may pertain to fisheries agreements between China, Japan, and Korea as “other applicable international law” as far as protecting marine living resources from treacherous pollutions is concerned. Article 11 of the Fisheries Agreement between China and Japan (1997) indicates that the China-Japan Fisheries Committee attends to the “circumstances and conservation of marine living resources.”²⁴⁸ Also, according to Article 12 of the Korea-Japan Fisheries Agreement (1998),²⁴⁹ subsidiary bodies composed of specialists may be established in addition to the Korea-Japan Fisheries Committee. Logically, within this bilateral fisheries regime, Korea may request of Japan that a subsidiary body should be set up to discuss the effect of Fukushima wastewater on marine living resources as a matter of the “conservation and management of marine living resources in the zone provided for in Article 9, paragraph 1” of this Agreement.²⁵⁰

In *South China Sea*, notwithstanding China’s repeated assertions that it has conducted thorough environmental assessments, the tribunal denied this claim on the ground that the tribunal had not “identif[ied] any report that would resemble an environmental impact assessment that meets the requirements of Article 206 of the Convention.”²⁵¹ Thus, it is necessary to examine the propriety of the quality and quantity of the results of Japanese EIAs on Fukushima wastewater, if any, against the “comprehensiveness” test, which was underscored as the most important characteristics of EIAs.²⁵²

As the planned discharge of Fukushima-treated wastewater had potentially damaging effects,²⁵³ China and Korea need to be

247. M/V “Virginia G”, 2014 ITLOS Rep. at 67, ¶ 212.

248. SUN PYO KIM, MARITIME DELIMITATION AND INTERIM ARRANGEMENTS IN NORTH EAST ASIA 342 (2004).

249. The preamble of this Agreement notes the “importance of rational conservation, management and optimum utilisation of marine living resources.” *Id.* at 327.

250. *Id.* at 332-33.

251. *South China Sea*, Perm Ct. Arb. at 395-96, ¶989.

252. Mbengue, *supra* note 149, at 286-87.

253. Currie & Burnie, *supra* note 23 [describing that “For South Korea, the impacts of this radiation exposure are of great importance to its fishing communities, the wider population and the government. The toxic cocktail of radionuclides from Fukushima

kept informed of the potential risks per Articles 204 to 206.²⁵⁴ Yet, China and Korea do not seem to have been informed of the relevant information.²⁵⁵ As regional states likely to be affected by the planned discharge, China and Korea should be consulted and furnished with sufficient information, thereby enabling them to assess the probable effects of the proposed release and provide comments.²⁵⁶ The need for active communication between China-Japan and Korea-Japan per the potential impact of the planned activity on marine living resources and marine biodiversity, let alone seafood safety, in the Northeast Asian seas, is bolstered by the fact that the East China Sea, the Yellow Sea (West Sea), and the East Sea (Sea of Japan) are semi-closed seas in accordance with Article 123 of UNCLOS.²⁵⁷

How much should Japan consult states likely to be affected by the planned discharge of radioactive water? *Chagos Protected Area* helps answer this question. Despite the UK's claim that it had a consultation with Mauritius, the tribunal found it difficult to conclude that "this one meeting could satisfy the obligation to have 'due regard' or to consult."²⁵⁸ More to the point, the tribunal

Daichi will rapidly disperse through the strong coastal currents along Japan's Pacific coast, and enter the East Sea via the East China Sea, including the waters of the Korean peninsula. We know this as a result of sea water sampling following the March 2011 nuclear disaster").

254. Tanaka, *The South China Sea Arbitration: Environmental Obligations Under the Law of the Sea Convention*, *supra* note 121, at 93.

255. See *Foreign Ministry Spokesperson's Remarks on Japanese Government Decision to Discharge Nuclear Wastewater from Fukushima Nuclear Plant into the Sea*, MINISTRY FOREIGN AFFS. CHINA (Apr. 13, 2021), https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/t1868528.shtml [<https://perma.cc/3YUU-EAXN>] ("Despite doubts and opposition from home and abroad, Japan has unilaterally decided to release the Fukushima nuclear wastewater into the sea before exhausting all safe ways of disposal and without fully consulting with neighboring countries and the international community."); See also Boyd, *supra* note 17.

256. See Warner, *supra* note 76, at 774 (noting that "potential stakeholders could include States, members of the public, international and regional organizations, inter-governmental and non-governmental organizations, industry representatives, and corporate entities"). See also Rules of Int'l L. Applicable to Transfrontier Pollution, 1982 *Montreal Rules of International Law Applicable to Transfrontier Pollution*, 60 Int'l L. Ass'n 157, 171 (1982).

257. Donald Rothwell et al., Charting the Future for the Law of the Sea, in Donald Rothwell et al. (eds.), *The Oxford Handbook of the Law of the Sea* (Oxford: Oxford University Press, 2015), p. 901 (noting that "coastal geography is a main determinant in shaping the area of application of cooperative mechanism...semi-enclosed seas...have been a clear focal point for regional cooperation").

258. *Chagos MPA*, Perm. Ct. Arb. at 208, ¶ 530.

contrasted the United Kingdom's approach to Mauritius with its approach to consulting with the United States. The United Kingdom presumed to conclude, without confirming with Mauritius, that the MPA was in Mauritius interests, whereas the United Kingdom consciously balanced "rights and interest, suggestions of compromise and willingness to offer assurances by the United Kingdom, and an understanding of the United States' concerns in connection with the proposed activities."²⁵⁹ Based on this, the tribunal concluded that the United Kingdom failed to exercise due regard vis-à-vis Mauritius.²⁶⁰ Applying this observation to the matter in question, Japan's seemingly frequent and close cooperation with the United States on the issue of Fukushima wastewater is likely to work against Japan—as the "absence of any justifiable rationale" for its haste²⁶¹—in light of its limited consultation, if any, with China or Korea.

UNCLOS has a compromissory clause. Notwithstanding some limitations under Article 297 and optional exceptions under Article 298, environmental matters—with the exception of certain disputes on fisheries in the exclusive economic zones (Article 297(3)(a))—fall under the compulsory dispute settlement mechanism. The matter surrounding the discharge of Fukushima wastewater involves a dispute over the interpretation and application of Part XII of UNCLOS. Although the constitution of international litigation depends on the strength of the case, ITLOS or an arbitral tribunal is not likely to "throw out good cases on jurisdictional grounds if they can avoid doing so."²⁶² This trend has been categorically revealed in *South China Sea*. Despite China's rejection of the tribunal's jurisdiction on the grounds that the core of the case lies in the territorial issue over maritime features²⁶³ and that explicit consent of the parties is the prerequisite for international arbitration,²⁶⁴ the tribunal found that it had

259. *Id.* at 210, ¶ 535.

260. *Id.*

261. *Id.* at 209, ¶ 533.

262. Boyle, *supra* note 91, at 164.

263. Chinese Soc'y Int'l L., *The South China Sea Arbitration Awards: A Critical Study*, 17 CHINESE J. INT'L L. 207, 254 (2018).

264. Letter from Ambassador Chen Xu of the People's Republic of China in The Hague Judge Thomas A. Mensah (Feb. 6, 2015).

jurisdiction. Albeit with much criticism,²⁶⁵ it is presumably anticipated that international courts and tribunals will exercise their power to find expansive jurisdiction down the road, not least on the issues of the interpretation and application of UNCLOS, in which a compromissory clause is to be invoked.²⁶⁶

If a provisional measure were requested in accordance with UNCLOS with regard to Fukushima wastewater, ITLOS is likely to prescribe in line with *MOX Plant* and *Delimitation of the Maritime Boundary in the Atlantic Ocean*, a dispute between Ghana and Côte d'Ivoire which considered that the "risk of serious harm to the marine environment is of great concern" to international courts and tribunals, including ITLOS.²⁶⁷ The ICJ uses the criterion of "irreparable harm" in provisional measures proceedings, whereas ITLOS chooses the criterion of a "risk of serious harm," a criterion

265. China and some scholars criticize South China Sea for judicial activism. *See, e.g.,* Chinese Soc'y Int'l L., *supra* note 263, at 541-42 (explaining that China and some scholars criticize South China Sea for judicial activism); William G. Phalen, *Interpretation of UNCLOS Article 121 and Itu Aba (Taiping) in the South China Sea Arbitration Award*, in *INTERNATIONAL MARINE ECONOMY: LAW AND POLICY* 3, 5-6 (Myron H. Nordquist, et al. eds., 2017) (assessing that "[t]he Tribunal was not empowered under the Convention to rewrite the Convention text. It overstepped its role when it took upon itself to use the legitimate procedural latitude entrusted to it to embark on a wide-ranging historical review of factors with only a marginal relationship to the intended meaning of the Convention text and little relation to the Conference negotiations . . . the Tribunal inaccurately concluded that none of the features considered in the Spratly/ Nansha Group were 'islands'. Such a conclusion was procedurally convenient to allow the Tribunal to proceed with jurisdiction in the case since under this holding there was asserted to be no overlapping sea boundaries between the two parties to the arbitration").

266. Nonetheless, many international lawyers fulminate against a phenomenon of judicial activism in the case of international arbitration. *See, e.g.,* Kirsten E. Boon, *International Arbitration in Highly Political Situations: the South China Sea Dispute and International Law*, 13 *WASH. U. GLOB. STUD. L. REV.* 487, 490-92 (2014) (noting that "[c]onsent is important because the states involved need to make a commitment to submit themselves to a third party . . . [A]rbitrators need to manage the consent of the parties. One of the advantages of arbitration is that there is flexibility in the system, and parties have more control than they would before national courts. However, parties can walk away during the process, and even when parties agree to participate, they might reject an award . . . Without the consent and participation of one of the parties, the arbitration process itself is unlikely to resolve the problem").

267. *See* *Delimitation of the Maritime Boundary between Ghana and Côte d'Ivoire in the Atlantic Ocean (Ghana/Côte d'Ivoire)*, Case No. 23, Judgment of Sept. 23, 2017, Provisional Measures, 2015 ITLOS Rep., 33, ¶ 68. In *South China Sea*, the tribunal was "particularly troubled" by certain environmental concerns while assessing the actual and future harm. *See* *South China Sea*, Perm Ct. Arb. at 318, ¶ 957.

which is lower than ICJ practice.²⁶⁸ Japan's lack of due diligence may be found in its failure to monitor or assess the environmental impact and consult neighboring states. The need to "act with prudence and caution to prevent serious harm to the marine environment" is likely to be also confirmed.²⁶⁹ A hypothetical provisional measure may prescribe; a) "exchange further information" with regard to possible consequences for the Northeast Asian Seas arising out of the planned discharge of Fukushima wastewater; b) "monitor risks or the effects of the operation" of the release of radioactive water for the Northeast Asian Seas; and c) "devise, as appropriate, measures to prevent pollution of the marine environment which might result from the operation" of the Fukushima Daiichi nuclear plant.²⁷⁰

If the planned discharge causes a "risk of irreparable prejudice" to the environment of areas beyond national jurisdiction, it is possible that a dispute concerning breaches of obligations *erga omnes* will be filed an international court or tribunal.²⁷¹ In such a case, no one can denigrate the possibility that international courts or tribunals would "assume the role of a guardian of the protection of a common interest reflected in obligation *erga omnes*" and thereby entitle states that are not directly injured to "seek the cessation and the assurance of non-repetition of the wrongful act."²⁷²

If international proceedings concerning Fukushima treated wastewater were instigated, scientific evidence and expert reports would be of great importance ²⁷³ because (legally binding)

268. Gautier, *supra* note 93, at 191 (noting that general obligations under Article 192 are "powerful tools to ensure compliance with environmental law. A state which claims that such obligations have been violated may bring the dispute to an international court or tribunal and request provisional measures to prevent damage to the environment").

269. Delimitation of the Maritime Boundary in the Atlantic Ocean, 2015 ITLOS Rep. at 35 ¶ 72.

270. See MOX Plant, 2001 ITLOS Rep. at 111.

271. UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 1285 (emphasizing that "any State will have standing to sue for breach or non-compliance. This also applies to the duty to protect and preserve the marine environment of areas beyond national jurisdiction").

272. Tanaka, *The Legal Consequences of Obligations Erga Omnes in International Law*, *supra* note 223, at 24-26. See also Frowein, *supra* note 223, at 918.

273. Tanaka, *The South China Sea Arbitration: Environmental Obligations Under the Law of the Sea Convention*, *supra* note 121, at 95. The main lesson from Fukushima and Chernobyl is that governments needs to work closely with scientists to plan ahead in case disasters happen. See Wang, *supra* note 14, at 26.

scientific standards are drafted by technical experts.²⁷⁴ The active participation of scientific experts in the proceeding of *South China Sea* is even viewed as having placed the *de facto* burden of proof upon the experts.²⁷⁵ Environmental disputes, let alone the radioactive wastewater issue, have complex scientific and technical aspects, making it necessary to have recourse to experts. This inevitability is already provided for in Article 289 of UNCLOS and Article 82 of the Rules of ITLOS,²⁷⁶ which stipulates the possibility to arrange for an expert opinion and to designate an expert.²⁷⁷ Hence, international proceedings dealing with the marine environment are bound to use expert reports intensively. However, environmental issues invariably raise competing scientific claims. If two sharply differing views are presented in an equally compelling manner,²⁷⁸ an international court or tribunal is likely to act in a manner consistent with a precautionary approach.

Parenthetically, the resolution of the marine environmental dispute may have recourse to the alternatives. First, although Article 293(2) indicates that states can agree to apply “*ex aequo et bono*” in judicial proceedings, this is unlikely.²⁷⁹ Second, a competent international body may seek an advisory opinion from a judicial organ (ICJ or ITLOS).²⁸⁰ If the issue of marine degradation caused by radioactive wastewater is reasoned within advisory proceedings, such an opinion may serve to clarify the contents of obligations (*erga omnes*) under Part XII concerning marine environmental protection, including the protection of marine

274. Oxman, *supra* note 7, at 143-44.

275. Mbengue, *supra* note 149, at 287-89 (analyzing that South China Sea reveals that “there is room for procedural law-making and innovation with respect to the use of scientific experts in the system of international courts and tribunals”).

276. See International Tribunal for the Law of the Sea, art. 82, *amended* Mar. 25, 2021, 1833 U.N.T.S. 561.

277. Gautier, *supra* note 93, at 192.

278. Philippe Sands, *Litigating Environmental Disputes: Courts, Tribunals and the Progressive Development of International Environmental Law*, in *LAW OF THE SEA, ENVIRONMENTAL LAW AND SETTLEMENT OF DISPUTES: LIBER AMICORUM* JUDGE THOMAS A. MENSAH 313, 315 (Tafsir Malick Ndiaye & Rüdiger Wolfrum eds., 2007).

279. Thus far, ICJ, let alone ITLOS, has never applied *ex aequo et bono* to any cases, which indicates that no parties have agreed to choose this option. See *THE INTERNATIONAL COURT OF JUSTICE: HANDBOOK* 98 (7th ed., 2019), <https://www.icj-cij.org/public/files/publications/handbook-of-the-court-en.pdf> [<https://perma.cc/EV45-F989>].

280. Advisory opinions are given to public international organizations. See *id.* at, 82; See also International Tribunal for the Law of the Sea, *supra* note 268, at art. 130-38,

species and biological diversity.²⁸¹ In addition, in advisory proceedings, the important role of non-governmental organizations (NGOs) seems to grow continuously despite the lack of provisions on the status of NGOs before ICJ or ITLOS.²⁸²

The marine environmental turn in the law of the sea engenders a cooperative movement in Northeast Asia. Under the UNCLOS system, varying degrees of success have been achieved with regard to the protection of the marine environment and conservation of marine resources in many regions, often with the support of the UNEP's regional seas program and through regional fisheries management organizations (RFMOs); however, the Northeast Asian Seas are always exceptions. The Northeast Asian Seas should be monitored and managed within a regional regime not only because these seas are semi-enclosed,²⁸³ but also because China, Japan, and Korea produce a great deal of land-based pollutants, including nuclear power plant wastewater, causing marine degradation of this region and beyond.²⁸⁴ Considering that there is no exclusive economic zone boundary delimitation in these seas, cooperative regime-building for multi-level cooperation is needed.²⁸⁵ To this end, the voices of the "epistemic community"²⁸⁶ in the region must be heard in the decision-making process within each government.

281. Tanaka, *The Legal Consequences of Obligations Erga Omnes in International Law*, *supra* note 223, at 27-28.

282. Gautier, *supra* note 93, at 192-93 (explaining that NGOs' written statements in advisory proceedings are treated as "documents publicly available, and posted on the website of the Tribunal").

283. Semi-enclosed seas are suffering particularly badly from the effects of marine pollution. See CHURCHILL & LOWE, *supra* note 1, at 334.

284. See Pradeep A. Singh, *International Organizations and the Protection of the Marine Environment*, in GLOBAL CHALLENGES AND THE LAW OF THE SEA 54 (Marta Chantal et al. eds., 2020) (noting that "a substantial extent of marine environmental harm is caused by land-based sources, terrestrial and near coast environmental protection measures have a large determining effect on the health of the oceans"). Article 195 provides that States shall act so as not to transfer pollution from one area to another. *Id.*

285. See VENTURA, *supra* note 48, at 200 (explaining that single-sector decisions are gradually being replaced by multi-level cooperation between pertinent agencies, with participation of affected stakeholders).

286. See Peter M. Haas, *Introduction: Epistemic Communities and International Policy Coordination*, 46 INT'L ORG. 1, 3 (1992). By definition, "[a]n epistemic community is a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area."

V. CONCLUSION

In the short term, radiation water does not greatly affect humans. If exposed to radiation, radiation water may trigger nausea and other flu-like symptoms. Yet, radioactive waste is not biodegradable, nor is there any possibility of removing radioactivity from the sea once it has entered the water. As a result, seafood products become contaminated with radiocesium, and sea vegetables become contaminated with radiostrontium, rendering the seafood and sea vegetables containing these substances unsafe for humans to consume.²⁸⁷ This effect is particularly marked in enclosed seas, such as the Northeast Asian seas.²⁸⁸

Thus far, states have made the most of the maxim, “the land dominates the sea,”²⁸⁹ only to maximize their rights to maritime zones. In the UNCLOS regime, states have claimed the importance of land territory in order to gain more rights to EEZ and the continental shelf without realizing the responsibilities attached to this maxim. Seeing the marine environmental turn in the law of the sea, sovereign states ought to realize that the “land dominates the sea” principle comes with accompanying obligations; there is no right without duty. Recovering both sides of the “land dominates the sea” doctrine may require states to devote renewed attention to their role as keepers of common by focusing on marine pollution from the land-based source.²⁹⁰

Though the beginning of the “no harm principle” in general international law was insignificant, the latter end would greatly increase with the appearance of UNCLOS. As we have seen above, state practice, the interpretation and application of UNCLOS by international courts and tribunals, standards of international

287. Wang, *supra* note 14, at 25.

288. See CHURCHILL & LOWE, *supra* note 1, at 331. Meanwhile, Yukari Takamura argues that “[t]he knowledge about a long-term radiological risk to the ecosystem is still very limited in part because of scientific uncertainty.” See Takamura, *supra* note 3, at 93.

289. This maxim was approved by international courts and tribunals, for instance, by Territorial and Maritime Dispute (Nicar. v. Colom.), Judgment, 2012 I.C.J. 624, ¶ 140 (Nov. 19) (“The title of a State to the continental shelf and to the exclusive economic zone is based on the principle that the land dominates the sea . . . the land is the legal source of the power which a State may exercise over territorial extensions to seaward.”).

290. See Oxman, *supra* note 7, at 109-10 (stating that land-based sources may have detrimental effects not only on the oceans but on the global atmosphere and climate. Consolidated efforts of restraining these sources are much needed).

organizations,²⁹¹ and the view of the epistemic community seem to converge in enhancing the protection and conservation of marine resources and the marine environment.²⁹² This trend is likely to continue to the extent to which obligations under Part XII are declared “*erga omnes*” in international adjudication. Expanding scientific knowledge about the marine environment and the impact of pollutants, including radioactive wastewater, on that environment will lend additional support to such confirmation.²⁹³

This Article reveals the potential for liability if Japan were to discharge Fukushima wastewater without conducting EIAs and notifying states likely to be affected by the planned release, including China and Korea. If a lack of due diligence causes significant harm to the marine environment, Japan will be liable for failing to take all measures. States of origin should assume that in future international proceedings for disputes over marine degradation, particularly affecting areas beyond national jurisdiction, they will be requested to apply a high and strict threshold to their land-based activities affecting the health of the marine environment.

291. International Maritime Organization’s official interpretation regards “pipelines” as “other man-made structure at sea” within the meaning of the “dumping” definition. *See* Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter art. 3, Dec. 29, 1972, 36 I.L.M 1. If this definition is accepted, the scope of the definition for “dumping” would be vastly extended so that man-made structures that have direct access to the sea such as channels would also be included. *See* UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY, PART III, *supra* note 53, at 1384.

292. Tullio Treves, Historical Development of the Law of the Sea, in Donald Rothwell et al. (eds.), *The Oxford Handbook of the Law of the Sea* (Oxford: Oxford University Press, 2015), p. 2 (noting that state practice, international courts and tribunal, and writings of international lawyers contribute to the development of international law); *see* BIRNIE ET AL., *supra* note 36, at 388 (stating that later developments in general international law have reflected the interpretation and application of UNCLOS).

293. *See* Oxman, *supra* note 7, at 113.

