Boston College International and Comparative Law Review

Volume 19 | Issue 2 Article 2

8-1-1996

Transnational Responsibility and Recourse for Ozone Depletion

Jennifer S. Bales

Transnational Responsibility and Recourse For Ozone Depletion

*Jennifer S. Bales**

* Associate, International Practice Group, Baker & Botts, L.L.P., Houston Texas; Adjunct Professor, University of Houston Law Center; J.D. Vanderbilt University School of Law. The author wishes to thank Professor Jonathan I. Charney for his review of this article. The author would also like to thank Lisa Tilton-McCarthy and Richard A. Bales for their assistance.

ABSTRACT

This Article explores state responsibility to the international community as a whole and to injured states in particular for the damage occurring from the production and use of ozone depleting substances. This Article argues that pollution of the environment through the continued use and manufacture of ozone depleting substances is in violation of both treaty obligations and general obligations under customary international law. The author argues that pursuant to the international law principle of *pacta sunt servanda*, signatory states to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer are expected to comply with specific reductions set forth in those treaties. In addition, customary international law based upon the practice of states, judicial decisions and scholarly writings, requires the preservation and enhancement of the human environment. The result is that a state incurs responsibility for its failure to comply with the Montreal Protocol phase-out requirements and to cease production of ozone depleting substances.

This Article further explores the remedies available to the international community and to individual states injured by ozone layer depletion. The Article describes international dispute resolution techniques that states may employ in the face of continued polluting activities by other states. This Article also explores remedies available to injured states, including required cessation of manufacture and use of ozone depleting substances and monetary compensation for damages.

INTRODUCTION

Although most governments have become more conscious of environmental concerns, damage to the world's common spaces, particularly the ozone layer, continues at an alarming rate.[1] The international community as a whole has shown greater interest in protecting the world's common spaces and in restricting state activities that pose a threat to the safety of the territories and populations of other states.[2]

---

[1] *See generally* THE NEW NATIONALISM AND THE USE OF COMMON SPACES: ISSUES IN MARINE POLLUTION AND THE EXPLOITATION OF ANTARCTICA (Jonathan I. Charney ed., 1982).

[2] *See generally* Alexandre Kiss, *New Developments in International Law*, PROC. AM. SOC'Y INT'L L. 401, 424–25 (1991) (noting cooperation between states on environmental issues).

The increased interest stems from the fact that "traditional notions of national sovereignty" have become "questionable when local decisions and activities could affect the well-being of the entire planet."[3]

The international community has reacted to the problem of ozone depletion through the ratification of the Vienna Convention for the Protection of the Ozone Layer (Vienna Convention)[4] and the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol).[5] The Montreal Protocol represents an evolution in the area of international environmental law in that it sets target dates for the phasing out of ozone depleting substances (ODS), even though the requisite technologies did not exist at the time.[6] The Montreal Protocol also embodies the innovation of accommodating new scientific findings and changes in the attitudes of signatory states through periodic conferences.[7]

Despite well-quantified scientific evidence of damage to the ozone layer[8] and an increased awareness and commitment to environmental

---

[3] RICHARD E. BENEDICKT, OZONE DIPLOMACY, NEW DIRECTIONS IN SAFEGUARDING THE PLANET 4 (1991). *See also,* Christopher D. Stone, *Beyond Rio: "Insuring" Against Global Warming,* 86 AM. J. INT'L L. 445 (1992) (noting the failure of the international community in adequately addressing the issue of global warming and recommending possible solutions). Although I agree with Stone that the international community has not been fully responsive to environmental issues, the dialogue initiated by conferences such as the Rio Convention marks an international consciousness to this type of environmental damage and a commitment to react in some manner. The same is true with respect to ozone depletion and the Vienna Convention and Montreal Protocol.

[4] Vienna Convention for the Protection of the Ozone Layer, *opened for signature* Mar. 22, 1985, T.I.A.S. No. 11,097, 26 I.L.M. 1529 (1987) [hereinafter Vienna Convention].

[5] Montreal Protocol on Substances That Deplete the Ozone Layer, *opened for signature* Sept. 16, 1987, 26 I.L.M. 1550 (1987) [hereinafter Montreal Protocol]. The Montreal Protocol was amended by the Montreal Protocol Parties: Adjustments and Amendments to the Montreal Protocol on Substances That Deplete the Ozone Layer, *opened for signature* June 29, 1990, 30 I.L.M. 537 (1991) [hereinafter London Amendments]. *See also* Helsinki Declaration on the Protection of the Ozone Layer, May 2, 1989, *reprinted in* 28 I.L.M. 1335 (1989) (encouraging states to join the Vienna Convention and the Montreal Protocol and agreeing to phase out CFCs no later than the year 2000). Over 100 states are parties to the Vienna Convention, and over 90 are signatories to the Montreal Protocol. U.S. DEP'T OF STATE, TREATIES IN FORCE: A LIST OF TREATIES AND OTHER INTERNATIONAL AGREEMENTS OF THE UNITED STATES IN FORCE ON JANUARY 1, 1994, 391–92 (1994). In furtherance of the Montreal Protocol and the Vienna Convention, the European Union has also passed regulations on substances that deplete the ozone layer. Council Regulation 594/91 of 4 March 1991 on Substances that Deplete the Ozone Layer, 1991 O.J. (L 67) 1, sets forth a trade regime, including quantitative limits on importation of substances from third countries, a phase-out schedule, data reporting requirements and authorizing infringement mechanisms. *Id.*

[6] BENEDICKT, *supra* note 3, at 2.

[7] *Id.*

[8] *See also Testimony Aug. 1, 1995 of Mary D. Nichols, Assistant Administrator for Air and Radiation, U.S. Environmental Protection Agency, Before the Subcomm. on Oversight and Investigation*

protection issues, however, excessive production and use of known ODS have not ceased. Ozone layer depletion is a current problem in need of immediate attention, and it has been identified as the most immediately pressing environmental issue.[9] The discharge of ODS into the atmosphere is expected to affect the ozone layer well into the next century.[10]

This Article argues that pollution of the environment through the continued use and manufacture of ODS violates both a state's treaty obligations under the Vienna Convention and the Montreal Protocol and its obligations under general international law. Part I explores the depth of the problem of ozone depletion and the responses of various states with respect to use of ODS. Part II examines the sources of state responsibility to protect the ozone layer. Specifically, Part II argues that treaty responsibilities and customary international law prohibit the damage certain polluting states are currently inflicting on the ozone layer. The Vienna Convention and Montreal Protocol set forth specific limitations on the use of ODS that states are expected to meet

---

of the House Comm. on Commerce, 104th Cong., 1st Sess. (1995) (affirmatively stating that the ozone layer is being depleted due to CFCs and other ODS) [hereinafter *Nichols Testimony*]; *Testimony Mar. 16, 1995 of Jane G. Anderson, Department of Chemistry of Harvard University, Before the Subcomm. on Space and Aeronautics of the House Comm. on Science*, 104th Cong., 1st Sess. (1995) (noting that the reduction in stratospheric ozone over the Antarctic continent would not have occurred had CFCs not been synthesized and then added to the atmosphere) [hereinafter *Anderson Testimony*]. *See also infra* part I. *But see Testimony Aug. 1, 1995 of Dr. S. Fred Singer, President, The Science and Environmental Policy Project, Before the Subcomm. on Oversight and Investigations of the House Comm. on Commerce*, 104th Cong., 1st Sess. (1995) (arguing that there is no scientific consensus on ozone depletion or its consequences); Fred Singer, *Overdue Farewell to the Delaney Clause?*, WASH. TIMES, July 12, 1995, at A21 (worldwide phase-out of CFCs is a hasty operation based on theoretical fears of ozone depletion and skin cancer); Fred Singer, *Will CFC Policies Lead to Controls?*, WASH. TIMES, Dec. 28, 1994, at A15 (referring to "shaky science"); Ben Lieberman, *How Bad Science Leads to Environmental Excess and Higher Prices*, WASH. TIMES, Sept. 5, 1994, at A19 (referring to the high cost of CFC phase-out and arguing that the evidence of harm from CFC use is still uncertain). These authors appear to be in the extreme minority with respect to views on ozone layer depletion. Even they, however, appear only to point to uncertainty; they do not suggest that the use of ODS is definitively not a concern for the international community.

[9] *See Consumer Ozone Protection Act of 1989: Hearings on S. 870 Before the Subcomm. on the Senate Comm. on Commerce, Science and Transportation*, 101st Cong., 1st Sess. 2 (1989) (comments of now Vice President Al Gore) [hereinafter *Gore*]; *see also Ozone Depletion Over The United States*, 102d Cong. 2d Sess. 854 (1992) (comments of Mr. Pell calling for urgent action with respect to ozone depletion); *Stratospheric Ozone Depletion*, 102d Cong., 1st Sess. 15,097 (1991) (calling for stricter controls on ODS); *The President's Opposition to an International Plan to Protect the Stratospheric Ozone Layer*, 101st Cong., 2d Sess. 5,939 (1990) (comments of now Vice President Al Gore calling for leadership from the United States with respect to the problem of ozone depletion).

[10] *See infra* part I.B.

pursuant to the international law principle of *pacta sunt servanda.*[11] Existing customary international law also supports state responsibility and, where such law is incomplete, new rules of international law should emerge to prevent the type of damage that is occurring.[12] Furthermore, where the immediate injuries from environmental damage are not well quantified, the "precautionary principle"[13] suggests that the international community should favor the interests of the countries most at risk.

Finally, this Article examines the differing roles of developed and developing countries in protecting the world's common spaces. Status as a developing nation does not allow states to completely circumvent responsibilities under international law, especially where international conventions provide differing standards for developing countries.[14] Developed countries are obligated, however, to provide assistance to developing countries to help prevent this type of environmental damage.[15]

The Article concludes that ozone depleting states have incurred state responsibility under general international law for polluting activities.[16] The continued production of ODS violates specific treaty obligations under the Vienna Convention and the Montreal Protocol. The Vienna Convention specifically requires states to adopt appropriate domestic policies to protect the ozone.[17] The Montreal Protocol requires specific reductions of ODS on a strict timetable. Instead of following this mandate, certain states have been at least negligent in not implementing appropriate legislation and allowing the use of chlorofluorocarbons (CFCs) and other ODS in excess of Montreal Protocol limits, thereby harming the ozone.

Furthermore, an existing rule of customary international law imposes state responsibility for environmental damage where an injury has been sustained, which will not cease unless a remedy is available, and where there is evidence of the damage and of the continued effects on population and territory. Additionally, both the international com-

---

[11] *Pacta sunt servanda* is perhaps the most important legal principal in international law and states that parties shall observe international agreements. LOUIS HENKIN, HOW NATIONS BEHAVE 19, 29–33 (2d ed., 1979); *see also infra* part II.

[12] Jonathan I. Charney, *Universal International Law,* 87 AM. J. INT'L L. 529, 529–30 (1992).

[13] *See infra* notes 184–93 and accompanying text.

[14] London Amendments, *supra* note 5, arts. 2A–E, 30 I.L.M. at 539–41, 543–45.

[15] *See infra* notes 106–14, 201–02, and accompanying text.

[16] *See infra* part II.

[17] Vienna Convention, *supra* note 4, art. 2(2), 26 I.L.M. at 1530.

munity as a whole and damaged states in particular are the appropriate parties to claim redress for damage to those portions of the world shared by the international community. Peaceful dispute resolution through negotiation, mediation, conciliation, arbitration and resort to the International Court of Justice (ICJ) is available pursuant to the Vienna Convention. Finally, the international community and, in particular, affected states should employ these dispute resolution techniques and pursue all available remedies, including enforcing ODS reductions pursuant to the Montreal Protocol and demanding monetary damages for specific injuries. If injured states and the international community do not pursue claims for ozone depletion, serious environmental damage will continue.

I. DEPLETION OF THE OZONE LAYER

A. *Causes of Ozone Depletion*

The United Nations has recognized that "[m]ankind is a part of nature and life depends on the uninterrupted functioning of natural systems which ensure the supply of energy and nutrients."[18] Ozone depletion clearly affects all members of the international community, but it especially affects certain areas where the damage and potential for damage is apparent.[19] "The issue is global in scope and involves the whole international community because one country's overhead zone is not protected by that country's unilateral restrictions on the use of CFCs."[20]

The proper functioning of nature's systems has been threatened by a declining ozone layer that is being damaged primarily due to chlorine released from the production and use of ODS by industrialized and developing nations.[21] The "ozone layer" is a thin sheet of O_3 molecules in the stratosphere that until recently completely covered the earth, and protected it from harmful dosages of ultraviolet radia-

---

[18] World Charter for Nature, G.A. Res. 7, U.N. GAOR, 37th Sess., Supp. No. 51, at Annex, U.N. Doc. A/37/7 (1982), *reprinted in* 21 I.L.M. 455 (1983).

[19] H. Christian Sorensen, *International Agreements - Montreal Protocol on Substances that Deplete the Ozone Layer*, 29 HARV. INT'L L.J. 185, 188–91 (1988).

[20] Sylvia M. Williams, *A Historical Background on the Chlorofluorocarbons Ozone Depletion Theory and Its Legal Implications*, *in* TRANSBOUNDARY AIR POLLUTION 267, 274 (C. Flinterman et al. eds., 1986).

[21] WESTON ET AL., INTERNATIONAL LAW AND WORLD ORDER 385–86 (1990) [hereinafter WESTON]; Stratospheric Ozone Review Group, 1993 Stratospheric Ozone Report.

tion.[22] Ozone is highly reactive, though, and can be destroyed by complex chemical reactions involving chlorine, bromine nitrogen and other elements.[23]

CFCs and halons were the first materials proved by scientists to deplete the ozone layer.[24] CFCs are used in refrigeration units and in the production of computer chips, aerosol sprays, styrofoam and other products.[25] Carbon tetrachloride and methyl chloroform are also known depleters of the ozone.[26] Most recently, scientists discovered that even hydrochloro-flourocarbons, previously thought a safe alternative to CFCs, also deplete the ozone.[27] Scientists are developing safe alternatives to ODS, however.[28]

Scientists have directly linked the widening hole in the ozone layer over the southern hemisphere to the manufacture and use of CFCs and other ODS by polluting states.[29] Between the years 1969 and 1986, losses of 1.7 to 3 percent of the ozone layer occurred over much of the United States, Canada, Western Europe, the People's Republic of China (PRC), Japan and the former Soviet Union.[30]

Total ozone depletion over the middle latitudes of Europe and North America is estimated at ten percent.[31] Furthermore, scientists

---

[22] WESTON, *supra* note 21, at 384–85.

[23] *Id.*; *New Evidence Ties Ozone Hole to Human Activity*, N.Y. TIMES, Dec. 20, 1994, at C7 (CFCs produced by human activities are chiefly responsible for ozone depletion) [hereinafter *New Evidence*].

[24] *See* Lori B. Talbot, *Recent Developments in the Montreal Protocol on Substances that Deplete the Ozone Layer: The June 1990 Meeting and Beyond*, 26 INT'L LAW. 145, 145–46 (1992).

[25] Malcolm W. Browne, *Grappling With The Cost of Saving Earth's Ozone*, N.Y. TIMES, July 17, 1990, at C1.

[26] Talbot, *supra* note 24, at 148–49. Carbon tetrachloride is primarily used as a solvent in metal cleaning and in the manufacture of CFCs. *Id.* at 148. Carbon tetrachloride is approximately 10 to 20 percent more powerful than CFCs in ozone depletion. *Id.* Methyl chloroform is used in metal and electronic equipment cleaning by industry in household products such as aerosols, coatings and adhesives. *Id.* at 149. Although methyl chloroform depletes the ozone, it is a less intense depleter and breaks down much more quickly. *Id.* at 149.

[27] Talbot, *supra* note 24, at 150; *More Shipments of CFCs Said Entering Global Market as Phase-Out Deadline Nears*, 17 Int'l Envtl. Rep. (BNA) 542, 542 (June 15, 1994) [hereinafter *More Shipments*].

[28] *More Shipments*, *supra* note 27, at 542. Problems have developed, however, with respect to flammability of some of the alternative chemicals with low or no ozone depleting potential. *Id.*

[29] *New Evidence*, *supra* note 23, at 7 (CFCs are responsible for the ozone hole); *Report Cites Largest Ozone Hole Ever as Thinning Occurs at a Significant Pace*, 17 Int'l Envtl. Rep. (BNA) 302 (Apr. 6, 1994) [hereinafter *Report Cites*].

[30] *Hole in the Ozone Layer Found at North Pole Too; Destruction Not as Severe as in Antarctic*, WASH. POST, Mar. 16, 1990, at A10. Losses of 15 to 17 percent were measured over Antarctica. *Id.* In the winter, the depletion is estimated to reach 50 percent ozone reduction. *Id.*

[31] *See World Briefings*, CHI. SUN-TIMES, Feb. 15, 1995, at 8; *International Ozone Conference Ends*

expect the ozone layer to continue to deteriorate for at least another ten years due to materials already released into the atmosphere.[32]

B. *Results of Ozone Depletion*

Ozone depletion has been classified by some as the most immediately pressing environmental issue.[33] Antarctica is the most affected area with an ozone hole opening up each spring since the mid–1980s reaching its maximum size in early October and then slowly closing.[34] A smaller seasonal hole has also begun to appear each spring over the North Pole, and the high-altitude ozone layer in all regions of the world has become somewhat depleted.[35] Ozone coverage is expected to continue to decline in the 1990s at least as fast as it did in the 1980s.[36] Depletion in 1993 was the highest since 1978 and is seriously threatening certain areas of the world, including South America and the Mediterranean.[37] Even though the rate of depletion has lessened due to reduction in ODS use and production by the international community, it will be thirty to fifty years before any realizable improvement in the ozone layer is fully achieved.[38]

A diminished ozone layer results in more radiation from the sun reaching the earth, thereby adversely affecting plant and animal life.[39] Scientists have concluded that the increased radiation could eventually induce genetic mutations, damage crops, and cause skin cancer, eye damage and a weakening of the immune system.[40] There is no question

---

in Greece, XINHUA NEWS AGENCY, May 19, 1995 (scientists from 40 countries called for states to give up ODS to save the ozone layer).

[32] *Scientists Say Ozone Layer Depletion Can Be Expected For Another 10 Years or More*, 17 Int'l Envtl. Rep. (BNA) 383, 383–84 (1994) [hereinafter *Scientists Say*].

[33] *See Gore, supra* note 9; *Special Report, U.N. Meeting*, BNA INT'L ENVTL. DAILY, Jan. 15, 1992.

[34] Malcolm W. Browne, *Antarctica's Ozone Layer is Threatened by Depletion*, N.Y. TIMES, Oct. 8, 1994, § 1, at 7 [hereinafter Browne].

[35] *Id.*

[36] *Destruction of Ozone Layer Reaches Record Level*, Agence France Presse, Mar. 12, 1996, *available in* LEXIS, World Library, Afp File; Philippe Naughton, *U.N. Scientists Say Damage to Ozone Layer Not Slowing Down*, Reuter North American News, Oct. 22, 1991, *available in* LEXIS, News Library, Reuna File [hereinafter *Damage to Ozone Layer Not Slowing Down*].

[37] *Damage to Ozone Layer Not Slowing Down, supra* note 36; *Ozone Depletion Over Mid-Latitude Countries Twice as High as Expected, Scientists Report*, 17 Int'l Envtl. Rep. (BNA) 418, 418–19 (May 18, 1994).

[38] *See* Browne, *supra* note 34, at 7.

[39] *Scientists Say, supra* note 32, at 384; WESTON, *supra* note 21, at 386.

[40] *Scientists Say, supra* note 32, at 384; WESTON, *supra* note 21, at 386.

that the ozone is being damaged through the use of ODS, such as CFCs.[41]

Scientific studies have concluded that ozone depletion is not only a distant phenomena affecting Antarctica.[42] Large portions of the world's population and environment are already facing greater health risks.[43] This problem is already apparent in several countries.[44] "If the world continues using CFCs, we are going to have problems because . . . fresh fruit, forestry and fish meal exports will be affected."[45] Scientists expect that most of the damage being currently inflicted will not be fully known for another ten to fifteen years, when the real damages from cancer also become quantifiable.[46] Even in less immediately affected areas, it has been noted that "unless we stop this trend soon, we are going to suffer serious damage."[47]

C. *Response of the International Community*

Despite some successes[48] and the recognized dangers of ODS use, several states have raised objections to protection of the ozone layer

---

[41] *Scientists Say, supra* note 32, at 384; WESTON, *supra* note 21, at 386; *see also* Boyce Rensberger, *A Reader's Guide to the Ozone Controversy; Ozone Layer Depletion*, SKEPTICAL INQUIRER, Sept. 22, 1994, at 488. *But see Testimony Aug. 1, 1995 of Dr. S. Fred Singer, President, The Science and Environmental Policy Project, Before the Subcomm. on Oversight and Investigations, supra* note 8 (arguing that there is no scientific consensus on ozone depletion or its consequences); Singer, *supra* note 8, at A21 (worldwide phase-out of CFCs is a hasty operation based on theoretical fears of ozone depletion and skin cancer); Singer, *supra* note 8, at A15 (referring to "shaky science"); Lieberman, *supra* note 8, at A19 (referring to the high cost of CFC phase out and arguing that the evidence of harm from CFC use is still uncertain).

[42] *See Nichols Testimony, supra* note 8; *Anderson Testimony, supra* note 8.

[43] *Ritt Bjerregaard Calls for Drastic Measures to Combat Ozone Depletion*, European Report, Mar. 16, 1996, *available in* LEXIS, Busfin Library, Eurrpt File; *See Nichols Testimony, supra* note 8; *Anderson Testimony, supra* note 8.

[44] *Climate Change: Acid Rain, Ozone Depletion May Harm Fish*, Greenwire, Feb. 23, 1996, *available in* LEXIS, Cmpgn Library, Apn File; Marla Cone, *Ozone Hole Blamed for Frog Decline*, L.A. TIMES, Mar. 1, 1994, at A1 (research suggests that the thinning of the ozone layer directly harms wild animals, supported by findings that increased levels of UV radiation killing frog eggs); Boyce Rensberger, *Sunlight and Fungus as Amphibian Hazards; While Thinning Ozone Lets in UV Rays, Disease Also Spreads, Researcher Suspects*, WASH. POST, Mar. 7, 1994, at A3 (decline in amphibian numbers); Anthony Boadle, *Experts Warn Ozone Hole Threatens Population, Crops in Chile*, Reuter North American News, Dec. 4, 1991, *available in* LEXIS, News Library, Reuna File.

[45] Boadle, *supra* note 44 (comments of University of Chile cellular biologist Sergio Cabrera).

[46] *Id.*

[47] *Report Cites, supra* note 29, at 302; *Montreal Protocol Working Group Considers Earlier Phase-Out of HCFCs*, 17 Int'l Envtl. Rep. (BNA) 659, 659–60 (Aug. 10, 1994) (recommending earlier phase-out of HCFCs, another ODS) [hereinafter *Montreal Protocol Working Group*].

[48] *See, e.g., Australian EPA Says CFC Use Will Reach Zero by Year's End*, OZONE DEPLETION

and the schedule for the phasing out of ODS. For instance, the PRC and India have both resisted compliance with the Montreal Protocol and reductions of ODS, citing the need for technical and financial support from other states.[49] In addition, Japan is the only developed state with no law prohibiting the release of CFCs.[50] In the United States, the State of Arizona recently passed legislation allowing the use of CFCs.[51] Only eight out of ten Canadian provinces have passed regulations to eliminate the emissions of existing stocks of ODS, despite commitments to pass such regulations, and most existing regulations are not comprehensive.[52] Finally, the Russian Federation's manufacturing activities and use of certain ODS scheduled for phase-out exceeds the limits set forth in the Montreal Protocol.[53]

Several of these states have defended their continuing use of ODS, citing inability to comply with the Montreal Protocol because of economic, developmental and other concerns.[54] States, however, have

---

NETWORK ONLINE, 1995 WL 2266405 (May 4, 1995); *Consumption of CFCs Dropped 70 Percent Since 1986, Halon Use Eliminated, Report Says*, 17 Int'l Envtl. Rep. (BNA) 783, 783–84 (Sept. 21, 1994) (reporting on the successes of New Zealand in reducing ODS); *Release Rate of CFCs is Slowing, Researchers Say; Environment: International Pact to Phase Out Ozone-Depleting Chemicals is Taking Effect, UCI Professor Says*, L.A. TIMES, at B6 (the increase in concentration of CFCs in the atmosphere has been reduced by half since states agreed to phase out manufacture of ODS). The European Union reported record low imports of CFCs in the first half of 1994. *Commission Says EU Imports of CFCs For First Half of 1994 Hit Record Lows*, 17 Int'l Envtl. Rep. (BNA) 692, 692 (Aug. 24, 1994).

[49] Talbot, *supra* note 24, at 146; Jawed Naqvi, *India Calls for Battle Against West in Ozone War*, Reuter Textline, July 13, 1995, *available in* LEXIS, World Library, Txtlne File (India has accused Western nations of seeking a trade advantage by promoting an early phase–out of ODS). India is ranked 12th in the world in ozone depletion and the People's Republic of China is ranked 8th. R. Senthilnathan, *India Ranked 12th in Ozone Depletion*, INDIA ABROAD, Jan. 12, 1996, *available in* LEXIS, News Library, Enw File. The United States, Japan, and Great Britain are ranked first through third, respectively. *Id.*

[50] *INTERNATIONAL REPORT Greenpeace Calls Japan Major Ozone Culprit*, Ozone Depletion Network Online Today, Feb. 21, 1996, *available in* LEXIS, Market Library, Iacnws File; *Japanese Activists to Make Plea for Help in Ozone Protection Efforts*, 1995 WL 2266474 (June 7, 1995).

[51] *Arizona Freon Law Meaningless from Legal Viewpoint, EPA Says*, ARIZ. DAILY STAR, May 10, 1995, at 2B (Arizona law is preempted by United States federal law); James D. Flori, *On CFC Issue, It's Arizona vs. World*, ARIZ. REP., May 7, 1995, at F3 (noting Arizona law is preempted by federal law).

[52] *Friends of the Earth Ozone Report Card Finds Canadian Provinces in ODS Cuts Lagging*, 17 Int'l Envtl. Rep. (BNA) 530, 530 (June 15, 1994).

[53] *Montreal Protocol Working Group, supra* note 47, at 660. The Russian Federation has cited economic crises as preventing the phase out of products listed in Annex A to the Montreal Protocol. *Id.* The Russian Federation is also still using halons, which were to be phased out by 1994 except for essential uses. *Id.* Poland and several other Eastern European countries are apparently in a similar position. *Id.*

[54] *See supra* notes 49–53 and accompanying text.

common responsibilities toward other members of the international community that include the "protection, preservation and enhancement of the environment for the present and future generations. . . ."[55] States that continue to use ODS, therefore, incur responsibility under international law for violations of treaty obligations under the Vienna Convention and the Montreal Protocol and violations of general obligations to protect the environment arising under customary international law.

In the international community, especially in the realm of environmental concerns, it is unimaginable that the concept of sovereignty would allow a state to take actions within its own borders that have such a serious impact on the international community to which the state belongs.[56] Because the use of ODS is of high concern in the international community, states are under the obligation to restrict their sovereign rights in that regard.[57] Thus, unbridled use and encouragement of ODS transcends a state's right to exploit its own resources because it causes damage both directly to other states and to common areas beyond its national jurisdiction.

II. SOURCES OF STATE RESPONSIBILITY

In accepting the tenets of international law, all states give up a certain amount of autonomy and freedom as the cost of such participation in international relations with other states.[58] The foundation of traditional international law has been termed "customary international law," formed over time by widespread practice of states acting under a sense of obligation.[59] International agreements negotiated at international conferences, however, have begun to codify and modify customary international law.[60]

Article 38(1) of the Statute of the International Court of Justice sets forth general sources of international law and provides:

> The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply:

---

[55] Charter for the Economic Rights and Duties of States, art. 30, G.A. Res. 3281, U.N. GAOR, 29th Sess., Agenda Item 48, U.N. Doc. A/Res.3281 (1974), *reprinted in* 14 I.L.M. 251 (1975).

[56] Williams, *supra* note 20, at 275.

[57] *Id.*

[58] HENKIN, *supra* note 11, at 30.

[59] *Id.* at 33.

[60] *Id.*

> (a) international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
> (b) international custom, as evidence of a general practice accepted as law;
> (c) the general principles of law recognized by civilized nations;
> (d) [j]udicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.[61]

Article 38(1) is accepted as a valid list of some of the primary sources of international law.[62] Thus, any examination of whether states have incurred responsibility for continuing use and production of ODS necessitates a review of the sources of international law contained in article 38(1).

A. *Treaty Responsibilities*

Treaties, the first item mentioned in article 38(1), are the major instruments of cooperation in international relations and have resulted in a significant expansion of international law over the past 100 years.[63] Treaties and conventions establish international rules expressly recognized by signatory states.[64] Pursuant to the international law principle of *pacta sunt servanda*, states are expected to comply with their international treaty obligations.[65]

---

[61] Statute of the International Court of Justice, June 26, 1945, art. 38, 59 Stat. 105, T.S. No. 993.

[62] *See* MICHAEL AKEHURST, A MODERN INTRODUCTION TO INTERNATIONAL LAW 23 (6th ed., 1987); *see also* RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES § 102 (1987) [hereinafter RESTATEMENT] (rules of international law are those that have been accepted by the international community and include: customary international law, international agreements, and derivations from the general principles of the major legal systems of the world); Stephen C. McCaffrey, *The Restatement's Treatment of Sources and Evidence of International Law*, 25 INT'L LAW. 311, 318–19 (1991) (Restatement § 102 closely follows the classical listing in article (1) of the Statute of the International Court of Justice).

[63] AKEHURST, *supra* note 62, at 25.

[64] *Id.* at 25. The word "convention" means a treaty and "treaty" also includes agreements, pacts, protocols, charters, statutes, acts, covenants, declarations, engagements, arrangements, accords, regulations and provisions. *Id.*

[65] *See generally* THOMAS M. FRANK, THE POWER OF LEGITIMACY AMONG NATIONS 187–88, 202 (1990); Maurice H. Mendelson, *Are Treaties Merely A Source of Obligation?*, *in* PERESTROIKA AND INTERNATIONAL LAW 81, 81 (W.E. Butler ed., 1990); Charney, *supra* note 12, at 534; LOUIS HENKIN ET. AL., INTERNATIONAL LAW: CASES AND MATERIALS 389–91 (2d. ed., 1987) [hereinafter INTERNATIONAL LAW: CASES AND MATERIALS].

The Vienna Convention on the Law of Treaties states that its rules apply to treaties between states and that every state has the capacity to enter into treaties.[66] The Vienna Convention on the Law of Treaties specifically recognizes that treaties are binding upon the signatories and imposes a good faith requirement of compliance with treaties in force.[67] Thus, international agreements create law for the parties when such agreements are intended to invoke compliance and are widely accepted.[68] The Vienna Convention and the Montreal Protocol are such legal obligations that were undertaken by the signatory states. Promotion of the manufacture and use of ODS that damage the ozone layer is in direct contravention of these international obligations under the Vienna Convention and Montreal Protocol, and thus ODS-producing states incur responsibility for ozone depletion.

1. Vienna Convention

The Vienna Convention, sponsored by the United Nations Environment Program in 1985, specifically recognized the "potentially harmful impact on human health and the environment through modification of the ozone layer."[69] The parties observed that "precautionary measures" had already been taken at the national and international levels to protect the ozone layer and that such measures require international cooperation and action.[70] The parties cited the provision of the Declaration of United Nations Conference on the Human Environment (Stockholm Declaration),[71] which provides that a state's sovereign right to explore its own resources pursuant to its own environmental policies is limited by the responsibility to ensure that activities within its own jurisdictional control do not damage the environment of other states or areas beyond the limits of its jurisdiction.[72] The parties stated their determination to protect human health and the

---

[66] Vienna Convention on the Law of Treaties, *opened for signature* May 23, 1969, arts. 1, 6, 8 I.L.M. 679, 680, 682 [hereinafter Convention on the Law of Treaties].

[67] *Id.* art. 26, 8 I.L.M. at 690. The text of article 26 provides that "[e]very treaty in force is binding upon the parties to it and must be performed by them in good faith." *Id.*

[68] RESTATEMENT, *supra* note 62, § 102.

[69] Vienna Convention, *supra* note 4, pmbl., 26 I.L.M. at 1529.

[70] *Id.*

[71] United Nations Conference on the Human Environment: Final Documents, U.N. Doc. A/Conf. 48/14 Rev. 1, art. 21, *reprinted in* 11 I.L.M. 1416 (1972) [hereinafter Stockholm Declaration].

[72] Vienna Convention, *supra* note 4, pmbl., 26 I.L.M. at 1529.

environment against adverse effects resulting from ozone layer depletion.[73]

The Vienna Convention instructs that the "[p]arties shall take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer."[74] The Vienna Convention adopts the "precautionary principle," which recognizes that waiting for threats to the environment to become actual problems would be waiting too long.[75] This anticipatory approach has been seen as "a sign . . . of a political maturity that has developed over the years, which recognized how vital it is that we act to prevent environmental degradation or disaster with wisdom and foresight."[76]

The Vienna Convention directs signatories to take certain measures that are within their means and capabilities.[77] The appropriate measures under the Vienna Convention involve at least four commitments, including: (1) cooperating in research and information exchange; (2) adopting appropriate legislative or administrative measures and cooperating in harmonizing policies under state jurisdiction; (3) cooperating in the formulation of agreed measures, procedures and standards for the implementation of the Vienna Convention, with a view to the adoption of protocols and annexes; and (4) cooperating with international bodies for purposes of implementation.[78] Each signatory state must transmit, through the Secretariat, information on the measures they adopt in implementing the Vienna Convention and of protocols to which they are a party.[79] Parties may, of course, adopt additional domestic measures compatible with the Vienna Convention.[80]

---

[73] *Id.*

[74] *Id.* art. 2, at 1529.

[75] Douglas M. Johnston, *Systematic Environmental Damage: The Challenge to International Law and Organization*, 12 SYR. J. INT'L L. & COM. 255, 271–73 (1985); *see also* Daniel Bodansky, *Scientific Uncertainty and the Precautionary Principle*, 33 ENV'T 4, 5 (1991); *infra* notes 187–96 and accompanying text.

[76] Johnston, *supra* note 75, at 271–73.

[77] Vienna Convention, *supra* note 4, art. 2(2), 26 I.L.M. at 1530.

[78] *Id.* The Vienna Convention contains two annexes. *Id.* Annex I, II, 26 I.L.M. at 1536–40. Annex I relates to research and systematic observations with respect to modification of the ozone layer and directs parties to cooperate in conducting research on the effects of ODS on the climate and systematic observations on the status of the ozone layer. *Id.* Annex I, 26 I.L.M. at 1536–38. Annex II provides for an exchange of scientific, technical, socioeconomic and commercial and legal information relating to implementation of the Vienna Convention. *Id.* Annex II, 26 I.L.M. at 1539–40.

[79] Vienna Convention, *supra* note 4, art. 5, 26 I.L.M. at 1531.

[80] *Id.* art. 2(3), 26 I.L.M. at 1530.

The Vienna Convention establishes a conference to be held at regular intervals.[81] The parties may also hold extraordinary meetings if supported by at least one-third of the parties.[82] The conference continuously reviews the implementation of the Vienna Convention and performs various functions, including, submissions of reporting information and adoption of and amendments to protocols and annexes to the Vienna Convention.[83] The text of any protocol must be communicated to the parties by the Secretariat at least six months before any conference meeting.[84] Each protocol is subject to ratification, acceptance or approval by the states and regional economic integration organizations.[85] No state, however, may become a party to any protocol unless it is also a party to the Vienna Convention.[86] Finally, the Vienna Convention provides that no reservations may be made to it.[87]

Certain polluting states have most often violated the second requirement arising under the Vienna Convention. This requires parties to:

> adopt appropriate legislative or administrative measures and cooperate in harmonizing appropriate policies to control, limit, or prevent human activities under their jurisdiction or control should it be found that these activities have or are likely to have adverse effects resulting from modification or likely modification of the ozone layer.[88]

Furthermore, parties are directed to cooperate with competent international bodies to implement the Vienna Convention and the protocols.[89] Several states are attempting to absolve themselves of these treaty obligations by delaying enactment of appropriate legislation in contravention of the Vienna Convention.[90] Rather than passing appropriate domestic policies to protect the ozone layer, several of these states have cited economic and other reasons for the continued production and use of ODS.

---

[81] *Id.* art. 6(1), 26 I.L.M. at 1531.

[82] *Id.* art. 6(2), 26 I.L.M. at 1531.

[83] *Id.* art. 6(4), 26 I.L.M. at 1531.

[84] Vienna Convention, *supra* note 4, art. 8, 26 I.L.M. at 1532.

[85] *Id.* art. 13, 26 I.L.M. at 1534.

[86] *Id.* art. 16, 26 I.L.M. at 1535.

[87] *Id.* art. 18, 26 I.L.M. at 1535. A reservation is a unilateral statement made by a state purporting to exclude or vary the effect of certain provisions of a treaty and their application to that particular state. INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 414.

[88] Vienna Convention, *supra* note 4, art. 2(2)(b), 26 I.L.M. at 1530.

[89] *Id.* art. 2(2)(d), 26 I.L.M. at 1530.

[90] *Id.* art. 2(2)(d), 26 I.L.M. at 1530.

2. Montreal Protocol[91]

The 1989 Montreal Protocol, as amended in 1991, seeks to implement the Vienna Convention requirement that states cooperate in the formulation of appropriate measures to protect human health and the environment against adverse effects resulting from human activities modifying the ozone layer.[92] The parties specifically recognized that worldwide emissions of ODS significantly deplete and otherwise modify the ozone layer, resulting in adverse effects on human health and the environment.[93] The parties stated their determination to protect the ozone layer by taking "precautionary measures" to control total global emissions of ODS and, ultimately, to eliminate use and production of ODS.[94] The parties further acknowledged the special needs of developing countries, including the need for financial resources and relevant technologies, which can be expected to make a substantial difference in the ability of all states to address the problem of ozone depletion and its resulting effects.[95] Finally, the parties emphasized international cooperation with respect to technologies relating to ODS and the special needs of developing countries.[96]

The Montreal Protocol requires specific reductions in production of CFCs, halons, other fully halogenated CFCs, carbon tetrachloride and methyl chloroform.[97] This is to be accomplished by strict annual percentage reductions resulting in an eventual elimination of usage.[98] Developing countries are provided a ten-year grace period with respect to full compliance with the phase-out.[99] The Montreal Protocol bans the import of specified ODS from any state not a party to the Montreal Protocol and bans the export of ODS.[100] Similar to the Vienna Conven-

---

[91] All text references to the Montreal Protocol are as amended, unless otherwise noted.

[92] Montreal Protocol, *supra* note 5, pmbl., 26 I.L.M. at 1550.

[93] *Id.*

[94] *Id.*

[95] *Id.*

[96] *Id.*

[97] London Amendments, *supra* note 5, arts. 2A–E, 30 I.L.M. at 539–41, 543–45. Use of CFCs and halons must be eliminated by the year 2000. *Id.* arts. 2A, 2B, 30 I.L.M. at 539–41. The other ODS are also set for phase-out and elimination. *Id.* arts. 2C–E, at 543–45.

[98] *Id.* arts. 2A–E, 30 I.L.M. at 539–41, 543–45. The Montreal Protocol requires a 50% annual reduction of CFCs, as compared to 1986 levels, by 1995 in industrialized countries and an 85% reduction by 1997. *Id.* art. 2A, 30 I.L.M. at 539–40. Halons and other ODS are scheduled for similar phase-outs. London Amendments, *supra* note 5, arts. 2B–E, 30 I.L.M. at 540–41, 543–45.

[99] *Id.* art. 5, 30 I.L.M. at 547–48.

[100] *Id.* art. 4, 30 I.L.M. at 546–47; Montreal Protocol, *supra* note 5, 26 I.L.M. at 1555. Article

tion, states may not make any reservations to the Montreal Protocol's requirements.[101]

In addition to phase-out requirements, the Montreal Protocol also requires periodic assessment of control measures at least every four years.[102] The Montreal Protocol further requires parties to supply statistical data on each of the controlled ODS.[103] The Montreal Protocol also includes provisions with respect to research, development, public awareness and exchange of information.[104]

The Montreal Protocol provides two mechanisms designed to benefit developing countries. First, it establishes a financial mechanism, which is to include a Multilateral Fund to assist developing countries in meeting their obligations under the Montreal Protocol.[105] Pursuant to this provision, the parties established a Multilateral Fund of $160 million, which could be raised to $240 million once India and the PRC become parties to the Montreal Protocol.[106] A fourteen member Executive Committee has responsibility for managing the Multilateral Fund.[107] Grants and concessional loans are available to developing countries to help them implement programs to protect the global environment in accordance with the Montreal Protocol pursuant to the Global Environment Facility, administered by the World Bank.[108] The Global Environment Facility is coordinated with the Multilateral Fund by allocating resources to the World Bank for investment project financing included under the Global Environment Fund in the Ozone

---

Four also contemplates the imposition of trade sanctions against products produced with, but not containing, restricted ODS. London Amendments, *supra* note 5, art. 4, 30 I.L.M. at 546–47.

[101] Montreal Protocol, *supra* note 5, art. 18, 26 I.L.M. at 1560.

[102] London Amendments, *supra* note 5, art. 6, 30 I.L.M. at 548–49; Montreal Protocol, *supra* note 5, art. 6, 26 I.L.M. at 1556.

[103] London Amendments, *supra* note 5, art. 7, 30 I.L.M. at 549.

[104] *Id.* art. 9, 30 I.L.M. at 549; Montreal Protocol, *supra* note 5, art. 9, 26 I.L.M. at 1556–57.

[105] London Amendments, *supra* note 5, art. 10, 30 I.L.M. at 549–51.

[106] *See generally World Bank: Documents Concerning the Establishment of the Global Environment Facility*, 30 I.L.M. 1735, 1749–50, 1757 (1991) [hereinafter *World Bank*]; Report of the Second Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, U.N. Environment Programme, U.N. Doc. Unep/Ozl. Pro 2/3 29 Annex II (1990) [hereinafter *Environment Programme*].

[107] *See Environment Programme, supra* note 106, at 14. The Executive Committee includes seven members from developed countries and seven members representing developing countries. *Id.* The United States has a permanent seat on the Executive Committee. *Id.*; *see also World Bank, supra* note 106, at 1773.

[108] *World Bank, supra* note 106, at 1739. The global environment facility identified four areas of operation including, protection of the ozone layer, limiting emissions of greenhouse gases, protection of biodiversity and protection of international waters. *Id.* at 1739–40.

Projects Trust Fund, which is separate from the Global Environment Trust Fund.[109]

Second, the Montreal Protocol requires parties to take "every practicable step" to ensure that the best available, environmentally safe substitutes and related technologies are transferred to developing countries under fair and favorable conditions.[110] At least one author has argued that the phrase "every practicable step" nullifies any legal obligation imposed on developed countries to transfer technologies to developing countries.[111] Because every state is presumed to have the capacity to enter into treaties of its choosing, however, and this particular phrase was heavily negotiated, this argument is unpersuasive.[112] General rules of international law require states to refrain from acts that would defeat the object and purpose of a treaty.[113] Therefore, developed states have an enforceable obligation toward developing countries pursuant to this provision.

Certain states have put economics in front of the environment and their treaty obligations. These states should be required to comply with the minimum applicable reductions set forth in the Montreal Protocol, depending upon whether the state is a developed or developing country.[114] The problem of ozone depletion is serious and some countries are expecting to phase out CFCs completely by 1995.[115] Many large corporations are already voluntarily undertaking such efforts.[116] If signatory states do not comply with the minimum reductions expected to begin addressing the problem of ozone depletion under the Montreal Protocol, the Vienna Convention will be nothing more than merely aspirational.

---

[109] *Id.* at 1746–47. Work programs are submitted to the Executive Committee for the Multilateral Fund for review and approval. *Id.* Thereafter, approved funding is drawn from the Ozone Projects Trust Fund, which only applies to countries that are signatories to the Montreal Protocol. *Id.* Donor contributions to the Interim Fund of the Montreal Protocol totaled $160 million. *World Bank, supra* note 106, at 1749–50.

[110] London Amendments, *supra* note 5, art. 10A, 30 I.L.M. at 551.

[111] *See generally* Bing Ling, *Developing Countries and Ozone Layer Protection: Issues, Principles and Implications*, 6 TUL. ENVTL. L.J. 915 (1992).

[112] *See* Convention on the Law of Treaties, *supra* note 66, art. 6, 8 I.L.M. at 682.

[113] *Id.* art. 18, 8 I.L.M. at 686.

[114] London Amendments, *supra* note 5, arts. 2A–E, 30 I.L.M. at 539–41, 543–45.

[115] *Special Report, U.N. Meeting, supra* note 33.

[116] *Affiliates of Japanese, U.S. Firms Plan to End Use of Ozone Depleters*, BNA INT'L ENVTL. DAILY, Mar. 19, 1992.

B. *General International Law Responsibility*

The second source of international law identified by article 38(1) is "international custom, as evidence of a general process accepted as law."[117] Customary, or general, international law results from consistent practice among the states, accompanied by *opinio juris,* or a sense of legal obligation.[118] Customary international law may develop quickly or over a long period of time.[119] For a rule to become customary international law, it must be accepted by the international community as a whole, but need not be accepted by all individual states.[120]

The primary evidence of the existence of customary international law is found in the practice of states.[121] Other evidence that determines whether a rule has obtained the status of customary international law includes: judgments and opinions of international judicial and arbitral tribunals, judgments and opinions of national tribunals, writings of scholars, and pronouncements by states that undertake to state a rule of international law that are not challenged by other states.[122]

An examination of state practice and the pertinent opinions, writings, decisions and practice of states with respect to this type of transboundary pollution indicates that, despite a relatively short time frame in the development, customary international law is well defined on the subject of state responsibility for ozone depletion. Furthermore, it has been argued that it may be necessary to establish new rules of customary international law, regardless of the attitude of certain individual states, to combat environmental threats because of the risks to the international community as a whole.[123] Such rules are necessary to prevent certain states from evading the cost of environmental protection and becoming "free riders" on the efforts of other states.[124]

In addition, developments in customary international law show a step toward allowing third states not directly injured to seek remedy

---

[117] Statute of the International Court of Justice, June 26, 1945, art. 38(1)(b), 59 Stat. 105, T.S. No. 993.

[118] RESTATEMENT, *supra* note 62, § 102(2) (practice that is generally followed, but which states feel free to legally disregard does not contribute to customary international law); North Sea Continental Shelf Cases (F.R.G. v. Den.; F.R.G. v. Neth.), 1969 I.C.J. 4, 44.

[119] Charney, *supra* note 12, at 536.

[120] *Id.*

[121] AKEHURST, *supra* note 62, at 25–26.

[122] RESTATEMENT, *supra* note 62, § 103.

[123] Charney, *supra* note 12, at 529–30.

[124] *Id.* at 530.

for environmental damage to the world's common areas.[125] There is a general necessity for enforcement through third state remedies, or else serious environmental damage caused by states will go unaddressed.[126] These obligations are similar in nature to the principle of good neighborliness, which arises because of the global nature of the problem.[127] Under the doctrine of *erga omnes*, all states suffer an injury for breach of certain norms and may seek redress even though no particular injury may have been suffered by a particular state.[128]

1. State Practice

As stated above, the primary evidence of the existence of customary international law is found in the practice of states.[129] The consistent practice of states takes many forms, including actions of states through international organizations and conferences.[130] Although major inconsistencies in state practice prevent the creation of a rule of customary international law, minor inconsistencies in state practice do not prevent the creation of a rule.[131] Furthermore, state practice is also evidenced by what states say, in addition to what states do.[132] Finally, it is important to examine whether states comply with a rule of customary international law because of the existence of *opinio juris*, a conviction that the conduct is required by international law.[133] Thus, the states must view the rule as obligatory.[134]

International conferences provide states with an opportunity to codify international law on a particular subject.[135] In fact, international conferences have played an increasingly greater role in the development of customary international law than state practice and *opinio juris*.[136] The work and products of international conferences may be characterized as state practice.[137] Thus, general consensus at a confer-

---

[125] *See infra* notes 165–69, 178–83 and accompanying text.
[126] Charney, *supra* note 12, at 529–30.
[127] Williams, *supra* note 20, at 275.
[128] *See infra* notes 165–69, 178–83 and accompanying text.
[129] AKEHURST, *supra* note 62, at 25–26.
[130] RESTATEMENT, *supra* note 62, § 102 rep. note 2.
[131] AKEHURST, *supra* note 62, at 28.
[132] *Id.* at 28–29.
[133] *Id.* at 29–30.
[134] *Id.*
[135] RESTATEMENT, *supra* note 62, § 102 rep. note 2; McCaffrey, *supra* note 62, at 319–20.
[136] Charney, *supra* note 12, at 543–44.
[137] *Id.* at 545.

ence contributes to the creation of customary international law.[138] The overwhelming participation in the Vienna Convention and the Montreal Protocol indicates that the states have expressed a consensus as to the law with respect to ODS.[139] Furthermore, even noncomplying states appear to recognize that ozone depletion is unacceptable and that phasing out ODS is both required and necessary.

In the *North Sea Continental Shelf Cases*, the International Court of Justice (ICJ) considered whether state practice in the matter of Continental Shelf delimitation, subsequent to the 1958 Geneva Convention on the Continental Shelf,[140] was sufficient to support a new rule of customary international law.[141] The ICJ suggested that a treaty rule might become customary international law even without the passage of any considerable period of time if there was widespread and representative participation in the convention, including particularly affected states.[142] The court noted that where a short period of time had passed since ratification of a convention, an indispensable requirement prior to the formation of a new rule of customary international law would be that within the period in question, short though it may be, state practice, including that of states that are specially effected, is both extensive and virtually uniform with respect to the provision invoked.[143] Such practice should occur in a manner showing a general recognition that a rule of law or legal obligation is involved.[144]

2. International Conventions

In addition to the above judicial decisions, the Stockholm Declaration also supports a finding that a violation of a rule of customary international law occurs through the continued production of ODS.[145] The Stockholm Declaration was promulgated with a view toward the "need for a common outlook and for common principles to inspire

---

[138] RESTATEMENT, *supra* note 62, § 102 rep. note 2.

[139] Charney, *supra* note 12, at 548; RESTATEMENT, *supra* note 62, § 102 rep. note 1; *see, e.g.*, North Sea Continental Shelf Cases, 1969 I.C.J. 37 (F.R.G. v. Den.; F.R.G. v. Neth.), codifying the doctrine of the Continental Shelf as well as its basic principles, but not provisions containing reservations.

[140] Convention on the Continental Shelf, *opened for signature* Apr. 29, 1958, 15 U.S.T. 471, T.I.A.S. No. 5578, 499 U.N.T.S. 311.

[141] North Sea Continental Shelf Cases, 1969 I.C.J. 37, 43.

[142] *Id.* at 42.

[143] *Id.* at 43.

[144] *Id.*

[145] Stockholm Declaration, *supra* note 71, 11 I.L.M. at 1416.

and guide the people of the world in the preservation and enhancement of the human environment."[146] The Stockholm Declaration identified the "protection and improvement" of the environment as the responsibility of all states.[147] Section I underscores the challenges to the international community:

> We see around us growing evidence of man-made harm in many regions of the earth: dangerous levels of pollution in the water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies harmful to the physical, mental and social health of man, in the man-made environment. . . .[148]

The Stockholm Declaration directs states to cooperate in the development of international law regarding liability and compensation for environmental damage to third states.[149] Article twenty-one of the Stockholm Declaration provides that states must balance the right of sovereignty with the right of other states to live in a pollution free environment.[150] A state has the sovereign right to exploit its own resources, pursuant to its own environmental policies.[151] This right, however, is not all encompassing because there is also a responsibility to ensure that activities carried on within the jurisdiction, or control, of the state do not cause environmental harm to other states, or areas beyond national jurisdiction.[152] Thus, there is a fine line to be drawn between the right of sovereignty enjoyed by states which justify action, and the abuse that results in state responsibility for environmental damage.[153] A state's contention that it has an unlimited right to exploit

---

[146] *Id.* at pmbl., 11 I.L.M. at 1416.

[147] *Id.* § I(2), 11 I.L.M. at 1416.

[148] *Id.* § I(3), 11 I.L.M. at 1416.

[149] *Id.* art. 22, 11 I.L.M. at 1420.

[150] Stockholm Declaration, *supra* note 71, art. 21, 11 I.L.M. at 1420. Article 21 provides that:

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

Id.

[151] *Id.*

[152] *Id.*

[153] Williams, *supra* note 20.

its natural resources because of the notion of absolute sovereignty is a thing of the past.[154]

3. Judicial Decisions

Article 38(1) of the Statute of the International Court of Justice further recognizes that judicial decisions are evidence of international law.[155] Judicial decisions also include the results of international arbitration because there is often little difference between judicial settlements and arbitration in the context of international law.[156] Judgments of the ICJ and of national courts also fall within the scope of article 38(1)(d).[157]

The existence of customary international law with respect to protection of the environment and state responsibility for damage to the environment is also evidenced by the decisions of various tribunals. For instance, the arbitral tribunal in the 1941 *Trail Smelter* arbitration between the United States and Canada held Canada responsible under international law for the conduct of the Trail Smelter that caused damage through fumes to the persons and property of the State of Washington.[158] The tribunal specifically noted that states have a duty to protect other states from injurious acts done by private individuals from within their jurisdictions.[159] The *Trail Smelter* tribunal concluded that state liability is incurred when: (1) injury is caused to the territory, properties or persons within another state; (2) the injury is of serious consequence; and (3) the injury is established by clear and convincing evidence.[160]

Even if it is found that states injured by the continued production of ODS cannot quantify the type of injury required under the *Trail*

---

[154] *Id.*

[155] Statute of the International Court of Justice, June 26, 1945, art. 38(1)(d), 59 Stat. 105, T.S. No. 993.

[156] AKEHURST, *supra* note 62, at 36–37.

[157] *Id.*

[158] Trail Smelter Arbitration (U.S. v. Can.), 3 R.I.A.A. 1938, 1965 (1941), *reprinted in* 35 AM. J. INT'L L. 701, 716–17 (1941). The United States claimed damage resulting from the emission of sulfur dioxide by the smelters of the Consolidated Mining and Smelting Company at Trail, British Columbia. *Id.* at 707. To determine the probability of damage, the arbitral tribunal considered the length of the fumigation, the intensity of concentration, the combination of length and intensity, the frequency of fumigation, the time of day of fumigation, the weather conditions, the season of the year, the altitude and geophysical location of the fumigated area, personal surveys and investigations and other factors. *Id.*

[159] *Id.*

[160] Trail Smelter Arbitration (U.S. v. Can.), 3 R.I.A.A. 1938, 1965 (1941).

Smelter analysis, redress may still be available under the principle of third state remedies. Even if the third state's remedies are limited, the seriousness of the environmental damage to the ozone layer warrants application in the instant case.

The principle of third state remedies for injuries to states generally has been supported by the ICJ.[161] In *Barcelona Traction, Light & Power Co., Ltd. (Belgium v. Spain)*, the ICJ noted a difference between "the obligations of a state toward the international community as a whole, and arising vis-a-vis another state in the field of diplomatic protection."[162] The court stressed that these state obligations, by their very nature, are of concern to the international community as a whole.[163] The court concluded that because these rights are so important, all states have a "legal interest in their protection; they are obligations *erga omnes*."[164]

Furthermore, states cannot escape liability for environmental damage from ODS because the manufacture and use of ODS is done by private corporations. In *Corfu Channel*, the ICJ held that a state is responsible for damage to another state's property when the state knows, or has reason to know, of the danger.[165] The state becomes the guarantor of the private conduct, and incurs responsibility as the source state.[166] In this case, the polluting states have knowledge of the excessive ODS pollution and have the ability and responsibility to regulate it.

4. *Scholarly Writings*

Finally, article 38(1)(d) also recognizes that scholarly writings are a subsidiary means for the determination of rules of international law.[167] Although scholarly writings are not controlling, they often provide a

---

[161] *See* Case concerning the Barcelona Traction, Light & Power Co., Ltd. (Belgium v. Spain), 1970 I.C.J. 3, 32.

[162] *Id.*

[163] *Id.*

[164] *Id.* A violation of such an *erga omnes* right injures the world community as a whole. *See supra* notes 161–65 and accompanying text; *see infra* notes 172–76 and accompanying text.

[165] Corfu Channel (U.K. v. Alb.), 1949 I.C.J. 4. Corfu Channel involved international responsibility for the explosion of mines and resulting damage to U.K. property in certain territorial waters where Albania knew of the mine laying by others. *Id.*

[166] *Id.* at 18–19.

[167] Statute of the International Court of Justice, June 26, 1945, art. 38(1)(d), 59 Stat. 105, T.S. No. 993.

conceptual framework and other evidence of the development of customary international law.[168]

a. *The Restatement*

The customary international law outlined above is also supported in the Restatement (Third) on the Foreign Relations Law of the United States (Restatement) and other scholarly writings.[169] The Restatement is pertinent to an examination of the development of customary international law because it defines the "foreign relations law of the United States" as consisting of international law as it applies to the United States and domestic law that has a substantial significance for the foreign relations of the United States or other substantial international consequences.[170] The Restatement attempts to state "rules that an impartial tribunal would apply if charged with deciding a controversy in accordance with international law."[171] Therefore, "international law" for purposes of the Restatement means what a consensus of states would accept or support.[172]

The Restatement section entitled State Obligations with Respect to Environment of Other States and the Common Environment, creates an obligation on the part of each state to ensure that activities within its jurisdiction conform to the appropriate standards for the prevention of injury to the environment of another state or area beyond its national jurisdiction.[173] The Restatement specifically declares that a state is responsible to other states for violations of its obligations to the environment of other states, and to the environment of areas beyond its national jurisdiction.[174]

The Restatement also attempts to codify the customary international law relating to third state remedies.[175] The Restatement explains that some international obligations are *erga omnes*, or those which apply to all states and with respect to which any state is entitled to pursue a

---

[168] AKEHURST, *supra* note 62, at 37.

[169] RESTATEMENT, *supra* note 62, § 601.

[170] *Id.* § 1.; *see generally*, McCaffrey, *supra* note 62, at 313–17.

[171] McCaffrey, *supra* note 62, at 313.

[172] *See id.*

[173] RESTATEMENT, *supra* note 62, § 601(1).

[174] *Id.* § 601(2).

[175] *Id.* § 902(1). "A state may bring a claim against another state for a violation of an international obligation owed to the claimant state or to states generally. . . ." *Id.*

remedy.[176] Therefore, states are entitled to seek redress from other states for violations of international obligations owed to the claimant state individually or to states generally.[177] Furthermore, "[w]hen a state has violated an obligation owed to the international community as a whole, any state may bring a claim in accordance with this section without showing that it has suffered a particular injury."[178] The Official Comments to section 902 of the Restatement specifically note that any state may call on an offending state to terminate conduct resulting in significant injuries to the environment.[179] Furthermore, a state may bring a claim for a violation of these international obligations even if it has not yet suffered an injury, if the state reasonably believes such injury is impending.[180]

b. *Other Scholarly Writings*

The development of customary international law with respect to environmental damage is also evident in the precautionary principle.[181] The precautionary principle is a policy-making device that defines international obligations concerning environmental protection.[182] The precautionary principle mandates that rather than awaiting uncertainty, the international community should act in an anticipatory manner to ensure that environmental harm does not occur.[183] This is necessary because of the fundamental scientific uncertainties surrounding many international environmental issues.[184] In instances where the threat of serious or irreversible environmental damage is present, lack of scientific certainty should not support postponement of measures to protect the environment.[185] The precautionary principle mandates that states should err on the side of protecting the

---

[176] *Id.* § 902(1) intro. note to Part IX.

[177] RESTATEMENT, *supra* note 62, § 902(1).

[178] *Id.* § 902 cmt. a.

[179] *Id.*

[180] *Id.* § 902 cmt. b.

[181] *See* Daniel Bodansky, *New Developments in International Environmental Law*, PROC. AM. SOC'Y INT'L L. 401, 413 (1991); *see generally* Vienna Convention, *supra* note 4, pmbl., 26 I.L.M. at 1529; Montreal Protocol, *supra* note 5, pmbl., 26 I.L.M. at 1550.

[182] Bernard A. Weintraub, *Science, International Environmental Regulation, and the Precautionary Principle: Setting Standards and Defining Terms*, 1 N.Y.U. ENVTL. L.J. 173, 180 (1992).

[183] James E. Hickey, Jr. & Vern R. Walker, *Refining the Precautionary Principle in International Environmental Law*, 14 VA. ENVTL. L.J. 423, 423–24 (1995); Bodansky, *supra* note 181, at 413.

[184] Bodansky, *supra* note 181, at 413.

[185] *Id.* at 414.

environment.[186] In application, this often requires a choice between one risk and another.[187]

Because the effects of ozone depletion are already apparent, the world's population should not continue to suffer injury simply because the full measure of damage is not yet known. It has been suggested that the precautionary principle is ripening into customary international law, as versions of it have been included in resolutions of UNEP,[188] the Montreal Protocol, the Vienna Convention, the Paris and Oslo Commissions, and the London Dumping Convention, among others.[189] Although the precautionary principle may be difficult to fully implement, it is certainly useful as evidence of the development of customary international law in this area.[190]

C. *Responsibilities of Developing Countries*

Some states have claimed that the need for economic growth justifies their pollution of the environment through the continued use of ODS.[191] The efforts of the international community to protect the atmosphere have historically been perceived as insensitive to the interests of developing countries and incompatible with equity and justice among states.[192] Some authorities have cited the over-consumptive behavior of the developed nations as the primary problem to be addressed.[193]

Merely shifting the source of the ODS pollution from the developed to the developing countries, however, will not alleviate the continuing damage to the environment and the risk to the world community. All states must adjust their view of sovereignty to the reality of an interdependent world despite resulting restraints on national development

---

[186] *Id.* at 415.

[187] *Id.* at 417 (CFCs and DDT, for example, were originally viewed as environmentally benign when first developed).

[188] *Report of the Governing Council on the Work of its Fifteenth Session, United Nations Environment Program*, U.N. GAOR, 44th Sess., Supp. No. 25, 12th mtg. at 153, U.N. Doc. A/44/25 (1989) (recommending that governments adopt the "principle of precautionary action" with respect to prevention and elimination of marine pollution).

[189] Hickey & Walker, *supra* note 183, at 423–24; Bodansky, *supra* note 181, at 413.

[190] Bodansky, *supra* note 181, at 414.

[191] *See supra* notes 49–53 and accompanying text.

[192] Günther Handl, *International Law and Protection of the Atmosphere*, PROC. AM. SOC'Y INT'L L. 62, 63 (1989).

[193] *See* Cheng Zheng-Kana, *Equity, Special Considerations and the Third World*, 1 COLO. J. INT'L ENVTL. L. & POL'Y 57, 61–63 (1990); Ling, *supra* note 111, at 95.

that this imposes.[194] Although this presents a problem of equity on its face, because many of the emerging environmental policies recognize some form of special consideration for the developing states,[195] there is no reason for developing states to be allowed unlimited pollution of the environment through ODS use.

The Stockholm Declaration recognizes that many environmental problems in developing countries are caused by under-development.[196] Developing states must safeguard and improve the environment while directing efforts toward development.[197] Developed countries are obligated to assist developing countries with the transfer of financial and technological assistance.[198] This should not be viewed as an entitlement framed in terms of a moral obligation of donor states to address past wrongs of colonialism, but rather as assistance in redressing conditions of underdevelopment causing local environmental disruption.[199]

Status as a developing country is no reason to entirely avoid obligations present under the Vienna Convention and the Montreal Protocol. First, each state signed the treaty obligations voluntarily, and should not be allowed to materially breach its obligations because it now finds it economically convenient to do so. Secondly, the Montreal Protocol specifically provides for the special situation of the developing countries.[200] Under this provision, developing countries are permitted to exceed maximum consumption and production levels for ten years, if they meet certain other criteria.[201] Unless the developed states fail to provide technical, financial and other assistance required under the Montreal Protocol,[202] developing countries must comply with their international obligations. Thus, developing countries are fully able to comply with obligations under international law, while achieving economic growth. Therefore, the need for economic growth is not an adequate defense to environmental pollution.

---

[194] Handl, *supra* note 192, at 64.

[195] *See supra* notes 106–10 and accompanying text.

[196] Stockholm Declaration, *supra* note 71, § I(4), 11 I.L.M. at 1416.

[197] *Id.* at 1417.

[198] *Id.* § I(4), art. 9, 11 I.L.M. at 1416, 1418; *see also* Handl, *supra* note 192, at 64.

[199] Handl, *supra* note 192, at 65.

[200] London Amendments, *supra* note 5, art. 5, 30 I.L.M. at 547–48.

[201] *Id.*

[202] *Id.* arts. 10, 10A, 30 I.L.M. at 550–51.

III. RECOURSE FOR OZONE DEPLETION

A. *Recourse*

Most states comply with international responsibilities, perhaps for no other reason than to avoid being labeled a derelict within the international community.[203] Although "[i]t is probably the case that almost all nations observe almost all principles of international law and almost all of their obligations almost all of the time,"[204] international law provides recourse for injured states to pursue remedies when such is not the case. Remedies would include damages for ozone depletion.[205]

General principles of state responsibility provide that when a state breaches its international obligations by its acts or omissions, it incurs international responsibility to make reparations.[206] At least with respect to signatories to the Vienna Convention and the Montreal Protocol, the following is clear:

> It is a principle of international law that the breach of an engagement involves an obligation to make reparation in an adequate form. Reparation therefore is the indispensable complement of a failure to apply a convention and *there is no necessity for this to be stated in the convention itself.*[207]

International responsibility arises regardless of the origin of the breach of an international obligation.[208] Because polluting states have incurred state responsibility as a result of violations of treaty obligations and customary international law outlined above, the international community of states has obtained a right to proceed against these states for cessation of such activities and for damages related to violations of international law.[209]

Under the Vienna Convention on the Law of Treaties, a state may take remedial actions, even when it has sustained no particular in-

---

[203] HENKIN, *supra* note 11, at 97–98.

[204] INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 47.

[205] *See* Charney, *supra* note 12, at 531–32.

[206] INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 519.

[207] Case Concerning the Factory at Chorzow (F.R.G. V. Pol.) 1927 P.C.I.J. (ser. A) No. 6, at 21 (July 27) (Jurisdiction).

[208] INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 520.

[209] *See infra* part III.B.

jury.[210] Furthermore, a breach of a multilateral treaty causes injury to all states that are a party to the agreement, whether a particular injury is sustained or not.[211] The Vienna Convention on the Law of Treaties also recognizes certain preemptory norms of *jus cogens* that create obligations of individual states to the international community.[212] Therefore, there is established precedent indicating that both, particularly injured states and uninjured states, may seek recourse for damage to the ozone layer by certain states continuing production and use of ODS.

B. *Dispute Resolution Techniques*

International law does not mandate the specific form or process for states to employ in resolving disputes.[213] Article 2(3) of the United Nations Charter, however, directs states to settle their international disputes peacefully.[214] Article 33 of the Charter further directs states to pursue solutions through "negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice."[215] All of these procedures require the consent of the parties to resolve the dispute.[216] Generally, when parties withhold consent to dispute resolution, disputes follow one of three courses: they dissipate, fester and possibly escalate, or become the subject and justification for coercive measures against the withholding state.[217]

The Vienna Convention sets forth specific mechanisms for settlement of disputes arising among the signatories to the Convention.[218] The Vienna Convention requires parties first to negotiate disputes.[219] If negotiation is unsuccessful, the parties may seek mediation by a third party.[220] The Vienna Convention further provides that parties, when ratifying, accepting or approving the convention, can accept compul-

---

[210] Convention on the Law of Treaties, *supra* note 66, art. 1, 8 I.L.M. at 680; art. 6, 8 I.L.M. at 683.

[211] RESTATEMENT, *supra* note 62, § 902 cmt. a.

[212] Convention on the Law of Treaties, *supra* note 66, arts. 53, 71, 8 I.L.M. at 698–99, 706.

[213] Robert E. Lutz II, *Perspectives on the World Court, the United States, and International Dispute Resolution in a Changing World*, 25 INT'L LAW. 675, 681 (1991).

[214] U.N. CHARTER, art. 2, para. 3.

[215] *Id.* art. 33, para. 1. Article 33 of the U.N. Charter states that parties must employ this means whenever the dispute is likely to "endanger the maintenance of international peace and security." *Id.*

[216] *See* Lutz, *supra* note 213, at 676.

[217] *Id.*

[218] Vienna Convention, *supra* note 4, art. 11, 26 I.L.M. at 1533–34.

[219] *Id.* art. 11(1), 26 I.L.M. at 1533.

[220] *Id.* art. 11(2), 26 I.L.M. at 1533.

sory arbitration or submission of disputes to the ICJ.[221] Finally, if parties have not agreed to compulsory arbitration of submission of disputes to the ICJ, a conciliation committee must be formed to hear the dispute.[222]

1. Negotiation

In accordance with the Vienna Convention, the first stage of settlement for depletion of the ozone should be negotiation among complying and noncomplying states.[223] Parties to a dispute initially employ diplomatic channels in implementing reparation because they are less formal and more likely to lead to a speedy solution to the conflict without embarrassment in the international community.[224] In fact, negotiation resolves most international disputes.[225] Negotiation assumes a strong role in the peaceful settlement of international disputes because it enables states to exercise control over the outcome of the resolution, whereas other dispute resolution techniques, such as arbitration and judicial proceedings allow less control.[226] The negotiation process generally has three steps: (1) diagnosis; (2) formulation of a principle to define the problem; and (3) applying the principle to construct an agreement among the parties.[227] The general requirement under international law concerning negotiation is that states are under an obligation to "pursue them as far as possible with a view to concluding agreements."[228]

2. Mediation

Pursuant to the Vienna Convention, if negotiation is either implausible or unfruitful, the international community or injured states individually should seek mediation of the dispute by a third party. Mediation occurs when more than one party to a conflict looks toward the same third party for assistance with peaceful settlement of a dispute.[229]

---

[221] *Id.* art. 11(3), 26 I.L.M. at 1534.

[222] *Id.* art. 11(4–5), 26 I.L.M. at 1534.

[223] Manfred Lachs, *The Law and the Settlement of International Disputes, in* DISPUTE SETTLEMENT THROUGH THE UNITED NATIONS 287–89 (K. Vankata Raman ed., 1977).

[224] *Id.*

[225] AKEHURST, *supra* note 62, at 240.

[226] Lachs, *supra* note 223, at 287.

[227] *See* William Zartman, *Negotiation: Theory and Reality, in* INTERNATIONAL NEGOTIATION 1, 2 (Diane B. Bendahmane & John W. McDonald, Jr. eds., 1984).

[228] Lachs, *supra* note 223, at 287.

[229] Frank Edmead, *Analysis and Prediction in International Mediation, in* DISPUTE SETTLEMENT THROUGH THE UNITED NATIONS, 221, 246 (K. Venkata Raman ed., 1977).

The mediator seeks to give both parties some or all of the objects they are pursuing and to help both parties cut their losses.[230] A mediator does not have any authority to require settlement of a dispute by the parties.[231] A mediator, rather, works with the disputing parties to identify issues, explore areas of agreement, and assist the parties in formulating their own settlement.[232] Because mediation is a cooperative process, rather than an adjudicatory one, parties are often able to preserve ongoing relationships.[233]

The effectiveness of a mediator in achieving a peaceful settlement, however, ultimately depends upon whether the mediator can meet the needs of the parties.[234] The longer a conflict has been outstanding between the parties, the more difficult it will be for a mediator to satisfy the needs of the disputing parties.[235] Therefore, with respect to ozone layer depletion, the international community should not delay in pursuing dispute resolution techniques so that resolution at an early stage becomes likely and the parties avoid escalation of the dispute.[236]

3. Conciliation

The Vienna Convention allows disputing states the three alternatives of arbitration, resolution by the ICJ, or conciliation in the event that negotiation and mediation fail to resolve a dispute. Parties must resort to conciliation, however, unless the parties have agreed to accept compulsory arbitration or submission of disputes to the ICJ.[237] Conciliation has been defined as "the process of settling a dispute by referring it to a commission of persons whose task is to elucidate the facts and . . . to make a report containing proposals for the settlement, but not having the binding character of an award of judgment."[238] Like negotiation, the terms of settlement are merely proposed to the disputing parties and not dictated.[239] Conciliation encourages peaceful settlements by

---

[230] *Id.* at 246–47.

[231] Karen L. Liepmann, Comment, *Confidentiality in Environmental Mediation: Should Third Parties Have Access to the Process?*, 14 B.C. ENVTL. AFF. L. REV. 93, 97 (1986).

[232] *Id.* at 98.

[233] *Id.* at 99.

[234] *Id.* at 98.

[235] *Id.* at 104.

[236] Liepmann, *supra* note 231, at 125, 128.

[237] Vienna Convention, *supra* note 4, art. 11, 26 I.L.M. at 1534.

[238] JAMES L. BRIERLY, THE LAW OF NATIONS: AN INTRODUCTION TO THE INTERNATIONAL LAW OF PEACE 373–76 (Humphrey Waldock ed., 6th ed. 1963).

[239] *Id.*

investigating the facts of a dispute and making a report stating them, rather than allowing the dispute to escalate.[240]

4. Arbitration

Compulsory arbitration is available under article eleven of the Vienna Convention to parties agreeing to such arbitration. Unlike negotiation, mediation and conciliation, arbitration leads to binding settlements through the application of law.[241] Arbitration is both effective in the settlement of disputes and equitable to the states involved.[242] Although it is uncertain whether any of the polluting states would accept any demand to submit the issue of ozone depletion to arbitration, the flexibility of arbitration[243] may be particularly helpful to any tribunal established to resolve claims involving damages due to ozone depletion.

To arbitrate a dispute, the parties would likely first execute an independent agreement, or compromise.[244] According to the International Law Commission's Model Rules on Arbitral Procedure,[245] a compromise should at least specify the following: the undertaking to arbitrate, the subject matter of the dispute, and the composition of the tribunal.[246] The agreement might also include applicable rules of law, power to make recommendations, power to make rules of procedure, applicable procedures, quorum for the hearings, voting requirements, time limit for awards, ways to submit individual or dissenting opinions, controlling languages, manner of apportioning costs and disbursements and whether the ICJ will be allowed to provide services.[247] The arbitral tribunal settles any procedural points a compromise does not specifically address.[248] If the parties have agreed to compulsory arbitra-

---

[240] *Id.*

[241] INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 587. For a discussion of the many issues, benefits and drawbacks of arbitration, *see* Michael Pryles, *Legal Issues Concerning International Arbitrations*, 64 AUSTL. L.J. 470 (Aug. 1990).

[242] Convention for the Pacific Settlement of International Disputes, July 29, 1899, art. XVI, 32 Stat. 1779 (1901), 1788, T.S. No. 392.

[243] Stephen C. Nelson, *Alternatives to Litigation in International Disputes*, 23 INT'L LAW. 187, 197 (1989). Generally, arbitral tribunals may resolve a single claim, may operate as a continuing body or may handle certain categories of disputes. INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 587.

[244] INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 589.

[245] MODEL RULES ON ARBITRAL PROC. art. 2, 2 Y.B. INT'L L. COMM'N 83, (1958).

[246] *Id.*

[247] *Id.*

[248] INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 591.

tion, the formation of an arbitral body would be an effective and efficient means of settling disputes related to ozone depletion because the arbitral body would be in a position to issue binding decisions.

5. Redress From the International Court of Justice

The Vienna Convention also provides that the parties may agree to compulsory settlement of disputes in front of the ICJ.[249] Pursuant to article thirty-six of the Statute of the International Court of Justice, the ICJ has jurisdiction over cases referred to it by the parties, or cases provided for in treaties or conventions in force.[250] Although resolution by the ICJ is effective, many governments are reluctant to voluntarily submit to the jurisdiction of the ICJ for binding adjudication.[251] Even amongst states submitting to resolution of disputes in front of the ICJ, jurisdiction of the ICJ is often challenged.[252] Therefore, resolution of disputes involving ODS use in front of the ICJ is unlikely to occur.

C. *Specific Remedies Available*

Injured states may pursue reparations for breaches of international obligations. The three forms of reparations available are restitution, indemnity and satisfaction.[253] Furthermore, Principle twenty-two of the Stockholm Declaration directs states to further the international law on both the issues of international liability and on the duty of compensation.[254] Pursuant to this directive, all forms of compensation should be available to injured states.[255]

The Restatement also describes available remedies for violations of international environmental obligations.[256] A state is responsible for damage and is bound to prevent, reduce or terminate the activity threatening the environment.[257] States are also liable for monetary damages for the injury done to the territory of other states.[258] Remedies

---

[249] Vienna Convention, *supra* note 4, art. 11, 26 I.L.M. at 1533.

[250] Statute of the International Court of Justice, June 26, 1945, art. 38, 59 Stat. 105–06, T.S. No. 993.

[251] *See generally* Jonathan I. Charney, *Compromissary Clauses and the Jurisdiction of the International Court of Justice*, 81 AM. J. INT'L L. 855, 855 (1987).

[252] *Id.*

[253] INTERNATIONAL LAW: CASES AND MATERIALS, *supra* note 65, at 552.

[254] Günther Handl, PROC. AM. SOC'Y INT'L L. 223 (1980).

[255] *Id.*

[256] RESTATEMENT, *supra* note 62, §§ 602, 901 (states must terminate violations of international law and make reparations).

[257] *Id.* § 602(1).

[258] *Id.*

under section 602(l) usually begin with a protest of the violation, a demand to desist the environmental damage, and to make payment for past violations.[259] The Restatement specifically recognizes that remedies are available for environmental injuries within the state's territory, injuries beyond its territory, such as fishing interests, and for injury to the common interest in the global commons, such as the high seas and the ozone layer.[260]

In *Trail Smelter*, the United States was awarded an injunction and an indemnity for transboundary damage resulting in the State of Washington from pollution emanating from a Canadian corporation's smelter.[261] The tribunal awarded damages for land and improvements.[262] The *Trail Smelter* tribunal also cited several United States Supreme Court cases as support for the injunction that was granted against the smelter as legal guidelines in the absence of international cases on the subject.[263]

The remedies available to the international community and to injured states particularly for continued production and use of ODS in excess of limitations set forth in the Montreal Protocol should span the entire spectrum of those available. The violation of international law at issue is serious, as ozone depletion is not only causing current damage, but continued use of ODS will inflict further damage on the world's population.[264] The international community should demand cessation of the activities that are damaging the ozone layer. Currently, that appears to mean at least meeting the minimum reductions set forth in the Montreal Protocol.[265] Requiring states to comply with the Montreal Protocol is a minimal remedy.

In addition, states should pursue monetary compensation for all current damage that certain states are inflicting upon the world's en-

---

[259] *Id.* § 602 cmt. a.

[260] *Id.*

[261] Trail Smelter Arbitration, 35 AM. J. INT'L L. at 712–34. The United States also claimed damages for livestock, property in the town of Northport, violations of sovereignty and interest in business enterprises. *Id.*

[262] *Id.* at 687.

[263] *Id.* at 714–16; *see also* State of Georgia v. Tennessee Copper Co. and Ducktown Sulphur, 206 U.S. 230, 237 (1970) ("the state has an interest . . . in all the earth and air within its domain"); New Jersey v. City of New York, 283 U.S. 473 (1931) (New York City enjoined from dumping sewage that was injurious to the coastal waters of New Jersey). *But see* State of Missouri v. State of Illinois, 180 U.S. 208 (1901); State of New York v. State of New Jersey, 256 U.S. 296, 309 (1921) (invasion of rights must be of serious magnitude and established by clear and convincing evidence).

[264] *See supra* part I.B. and accompanying notes.

[265] *See supra* part II.A. and accompanying notes.

vironment through pollution and continued destruction of the ozone layer. These remedies are well supported by international law. The risk facing the international community due to ozone depletion is of a serious nature and is only bound to worsen, as the full effects of cancer and damage to the livestock, crops and marine ecosystems become fully known. Finally, certain states are specially affected because of their location and have a special interest in the resolution of the problem of ozone depletion caused by the use and production of CFCs. Thus, monetary damages should continue to be available to these states as damages become fully known.

IV. CONCLUSION

Despite a relative improvement in the condition of the ozone layer, as compared to several years ago, states should remain diligent with respect to the phase-out of ODS. International law is of assistance in this matter and imposes responsibility on each individual state to prevent damage both to the common spaces of the world and to the territory of other states through the use and production of ODS. Ozone depletion is a serious problem that has caused damage to the world environment invoking state responsibility for such damage under international law. The sovereign rights of states are not unlimited where a state's activity impacts the international community to which the state belongs.

Certain states are violating existing obligations under international law through acquiescence in the use and production of ODS. The first of these obligations arises specifically pursuant to the Vienna Convention and the Montreal Protocol. All states are clearly obligated to comply with international treaty obligations. The Vienna Convention specifically requires states to adopt appropriate legislative or administrative measures with respect to use and production of ODS. The Montreal Protocol is even more specific and requires actual phase-out of ODS on a gradual time table. The signatory states agreed to such a phase-out and mechanisms are in place to aid developing countries in complying with their obligations. Thus, polluting states that are signatories to the Vienna Convention and the Montreal Protocol are violating state obligations based upon international treaties.

In addition to specific treaty obligations, rules of customary international law have evolved requiring cessation of use and production of ODS. Although only a short period of time has passed since ratification of the Vienna Convention and the Montreal Protocol, a large

majority of the international community has signed these treaties and evidenced a sense of legal obligation in implementing them. This position is further supported by longer standing evidence such as the Stockholm Declaration, the judicial decisions in the *Trail Smelter* arbitration, the ICJ decision in *Corfu Channel*, and in scholarly writings. The Restatement is particularly clear with respect to the existence of state obligations to protect the environment of other states and the world's common environment. This rule of customary international law results in the imposition of state responsibility for continued damage to the ozone layer caused by failure of certain states to comply with specific phase out requirements set forth in the Montreal Protocol.

As a result of continuing pollution, the world's population is and will continue to suffer from increasing levels of ozone layer depletion. It is imperative at this juncture that the international community and affected states, in particular, seek enforcement of ODS phase-out requirements by all available means. The Vienna Convention specifically provides for peaceful dispute resolution techniques available to all signatories. Although damages may be difficult to quantify at this point, cessation of polluting behavior must be the paramount concern.