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The Future of the Montreal Protocol: Money and Methyl Bromide

by

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THE FUTURE OF THE MONTREAL PROTOCOL: MONEY AND METHYL BROMIDE

*Lee Anne Duval**

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I. INTRODUCTION

The global community has struggled with the issue of ozone depletion for more than two decades. With the signing of the Montreal Protocol,¹ the world recognized the disastrous consequences that could result if use of ozone depleting substances (“ODSs”) were allowed to go unchecked. Although great strides have been made towards reducing and eventually phasing-out ODSs,² the Montreal Protocol is on the cusp of either becoming one of the

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¹ The Montreal Protocol is an international treaty that addresses the problem of ozone depleting substances. See KAREN T. LITFIN, OZONE DISCOURSE: SCIENCE AND POLITICS IN GLOBAL ENVIRONMENTAL COOPERATION 5, 115 (1994).

² See *id.* at 11.

most successful environmental treaties in history or failing to meet its lofty goals. At this stage in the treaty's life, many unanswered questions remain as to the scope of the Montreal Protocol. This Note addresses two of these unanswered questions. First, are countries in non-compliance with the Montreal Protocol if they fail to pay their required contribution to the Multilateral Fund ("Fund")? More precisely, what options do developing countries have to "force" payment into the Fund? Second, what are the ramifications to Article 5 developing countries if they are unable to comply with the accelerated phase-out schedules of the chemicals? This issue could arise in 2003 when the parties review the timeline for phasing out the use of methyl bromide.³

The discussion of these issues begins with background on the development of the scientific inquiry into ozone depletion and the evolution of the international response to this problem. The Note then addresses the specific non-compliance issues in greater detail. After this discussion, the perspectives of both developed and developing countries are examined with regard to their views on the specific problems, as well as the underlying reasons for each group's position. Finally, the discussion concludes with a look at alternative ways to address these issues.

II. BACKGROUND

A. Scientific Background

Ozone is a simple, albeit highly unstable molecule containing three atoms of oxygen.⁴ Our atmosphere contains varying concentrations of ozone, concentrating primarily in the stratosphere (10-50 kilometers above the surface of the earth).⁵ The ozone layer performs two essential functions necessary for life to exist on earth.⁶ It absorbs solar radiation, which prevents harmful radiation from reaching the earth's surface,⁷ and it is also "an essential

³ At the Ninth Meeting of the Parties it was agreed to review the treatment of methyl bromide in 2003. See Ninth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, U.N. Environment Program, at dec. IX/5, para. 1(e), U.N. Doc. UNEP/OzL.Pro.9/12 (1997) [hereinafter Ninth Meeting]. This issue could arise if a suitable alternative is not developed to replace methyl bromide as an agricultural fumigant. See *id.*

⁴ See Anne Gallagher, *The "New" Montreal Protocol and the Future of International Law for Protection of the Global Environment*, 14 HOUS. J. INT'L L. 267, 270 (1992).

⁵ See LITFIN, *supra* note 1, at 53.

⁶ See Gallagher, *supra* note 4, at 270-71.

⁷ See *id.*

trace gas for the maintenance of atmospheric temperature.”⁸ The increased radiation resulting from the destruction of the ozone layer is believed to be responsible for the increases in skin cancer and a multitude of harmful environmental effects.⁹

In 1970, scientists first voiced concerns over the viability of the ozone layer.¹⁰ In 1974, Mario Molina and F. Sherwood Rowland published their seminal article hypothesizing that chlorofluorocarbons were depleting the ozone layer.¹¹ While scientists and politicians debated the validity of the Rowland-Molina hypothesis, researchers were searching for empirical evidence of harm to the ozone layer.¹² Although the international community signed a framework convention to address the ozone depletion issue in 1985, the Vienna Convention,¹³ the turning point came with the discovery of the ozone hole.¹⁴ In May 1985, just two months after the signing of the Vienna Convention, Dr. Joseph Farman of the British Antarctic Survey reported that for the third consecutive year major losses of stratospheric ozone occurred over portions of Antarctica.¹⁵ Since Farman’s discovery, the Antarctic hole has progressively grown deeper, and another hole has been reported over portions of the North Pole.¹⁶ Based on the current phase-out timelines of ODSs, scientists believe that the ozone layer will not recover until well into the next century.¹⁷

B. Development of the Montreal Protocol

While scientists debated the threat to the ozone layer in the late 1970’s and early 1980’s, several countries and non-governmental organizations (“NGOs”) called for international ac-

⁸ *Id.* at 271.

⁹ See LITFIN, *supra* note 1, at 56-58. Examples of adverse environmental consequences include reduced crop yields and depletion of marine organisms. See *id.*

¹⁰ See *id.* at 61-62. Although the concerns voiced in 1970 are not the issues currently viewed as causing the ozone depletion problem, concerned scientists established an important framework necessary to address the issues today. See *id.*

¹¹ See Mario J. Molina & F. S. Rowland, *Stratospheric Sink for Chlorofluoromethanes: Chlorine Atomic-catalysed Destruction of Ozone*, 249 NATURE 810 (1974).

¹² See Gallagher, *supra* note 4, at 274-75.

¹³ Vienna Convention for the Protection of the Ozone Layer, Mar. 22, 1985, UNEP Doc.IG.53/5, 26 I.L.M 1529 (entered into force Sept. 22, 1988) [hereinafter Vienna Convention].

¹⁴ See LITFIN, *supra* note 1, at 97.

¹⁵ See *id.* at 96.

¹⁶ See Gallagher, *supra* note 4, at 275-77.

¹⁷ See *id.* at 306-07.

tion to take a precautionary approach to protect the atmosphere.¹⁸ In 1977, experts from governments and NGOs drew up the World Plan of Action on the Ozone Layer.¹⁹ This plan created a committee to coordinate, initiate and review research and placed responsibility with the United Nations Environment Program ("UNEP") to promote research and gather data on the status of the ozone layer.²⁰

Over the next several years, experts debated the goals and policies that would guide any action taken by the international community.²¹ Finally, in 1985, the interested parties signed the Vienna Convention for the Protection of the Ozone Layer, which created an obligation on the part of the states to 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."²² The Vienna Convention established general principles to guide signatory activities, created a permanent administrative body (the Secretariat), and required that a Conference of the Parties meet regularly to take any additional steps needed to fulfill the purposes of the Convention.²³ Although the Vienna Convention is a broad-framework treaty that allowed the agreement to be strengthened with future protocols,²⁴ it conspicuously lacked specific controls on each party's behavior.

With the announcement and subsequent confirmation of Dr. Farman's discovery of the ozone hole, the parties to the Vienna Convention acted relatively quickly to strengthen the treaty. In 1987, after intense negotiations, twenty-four nations signed the Montreal Protocol on Substances that Deplete the Ozone Layer ("Montreal Protocol").²⁵ The agreement represented an important phase in international environmental treaties because it sought "to anticipate and manage a world problem before it becomes an irreversible crisis."²⁶

The Montreal Protocol strengthened the Vienna Convention by

¹⁸ See Bing Ling, *Developing Countries and Ozone Layer Protection: Issues, Principles and Implications*, 6 TUL. ENVTL. L.J. 91, 93-94 (1992).

¹⁹ See *id.*

²⁰ See *id.*

²¹ See *id.* at 94.

²² Vienna Convention, *supra* note 13, at art. 2(1).

²³ See *id.* at arts. 6(1), 6(4), 7(2).

²⁴ See Ling, *supra* note 18, at 94.

²⁵ See LITFIN, *supra* note 1, at 115.

²⁶ *Id.*

placing restrictions on the production and consumption of ODSs.²⁷ Specifically, each party agreed to cut its 1986 level of consumption of CFCs (Group I Substances) in half by 1998 and to freeze consumption of halons (Group II Substances) at 1986 levels.²⁸ The agreement also included incentives in the form of trade restrictions to “encourage” states to join the Montreal Protocol.²⁹ Article 4 contained these “incentives” and effectively banned (or at least significantly restricted) trade with non-parties in the controlled substances as well as in products containing or produced with those substances.³⁰

The Montreal Protocol is also significant in that it recognized the special situation, and hence the unique problems, that would face developing countries (“DCs”) in complying with the agreement.³¹ Although many of the DCs did not participate in the debate preceding the adoption of the Montreal Protocol, the industrialized nations realized that any effective agreement to protect the ozone layer would require the participation of this group.³² Any agreement reached by the developed world would be rendered ineffective if the DCs continued using ODSs, where the potential growth of CFC use was considered to be enormous.

Article 5 of the Montreal Protocol granted several concessions to DCs whose consumption of ODSs did not exceed 0.3 kg per capita at the time the agreement entered into force.³³ The agreement allowed DCs who qualified for Article 5 treatment (“Article 5 Parties”) to delay compliance with the phase-out and reduction schedules for ten years.³⁴ These Article 5 Parties are also allowed to increase consumption during this period, as long as the 0.3 kg per capita calculation is not exceeded.³⁵ Article 5 states also were given more leeway in calculating base consumption levels.³⁶ Rather than using 1986 figures, DC base levels were calculated by using either 0.3 kg per capita or the average of the annual con-

²⁷ See Ling, *supra* note 18, at 95.

²⁸ See Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, arts. 2(2), 2(4), 26 I.L.M. 1550. (entered into force Jan. 1, 1989)[hereinafter Montreal Protocol].

²⁹ See *id.* at arts. 4(1)–(4).

³⁰ See *id.*

³¹ See *id.* at pmbl. (“Acknowledging that special provision is required to meet the needs of developing countries for these substances”).

³² See Ling, *supra* note 18, at 95-96.

³³ See Montreal Protocol, *supra* note 28, at art. 5(1).

³⁴ See *id.*

³⁵ See *id.*

³⁶ See *id.*

sumption of the country for the years 1995-1997, whichever was lower.³⁷

Although the Montreal Protocol included special provisions and established different obligations for Article 5 Parties, many DCs were dissatisfied with the agreement.³⁸ The Montreal Protocol used very general language to call for technical and financial assistance to Article 5 Parties, but failed to establish any mechanism to facilitate the transfer of aid.³⁹ The DCs' dissatisfaction became a focal point for debate at the next conference of the parties, by which time the severity of the ozone crisis had become more apparent.⁴⁰

The Montreal Protocol's basic premise assumed that the control measures adopted would be sufficient to preserve the status quo and would not result in significant additional losses of ozone.⁴¹ New reports shattered this assumption and forced the realization that the parties must take more significant steps to curb consumption and production of ODSs.⁴² Reports provided evidence that the 1987 Antarctic hole was the largest ever reported and that ozone depletion was occurring at a much faster rate and over a larger area than models predicted.⁴³ Evidence also indicated that a complete phase-out of all controlled substances was necessary, along with a widening of the Protocol's scope to include other ODSs, in order to curb the ozone depletion problem.⁴⁴

In 1990, the Second Meeting of the Parties was held in London. With a general consensus that the controlled substance list should be expanded and the phase-out schedule accelerated, debate at the Second Meeting focused on the precise timeline for phasing out ODSs and the establishment of a mechanism to facilitate technical and financial assistance to Article 5 Parties.⁴⁵ The parties agreed to phase out Group I and Group II substances by the year 2000⁴⁶

³⁷ See *id.*

³⁸ See LITFIN, *supra* note 1, at 121. Malaysia called the treaty "inequitable," equivalent to "a trade war by environmental decree" while India and China registered strong reservations against the treaty. See *id.*

³⁹ See Montreal Protocol, *supra* note 28, at pmb1.

⁴⁰ See LITFIN, *supra* note 1, at 147. At the next conference of the parties, the London Meeting of 1990, a working group was created to simplify the negotiations for assistance for developing countries. See *id.*

⁴¹ See Gallagher, *supra* note 4, at 288.

⁴² See *id.* at 288-90; LITFIN, *supra* note 1, at 130-43.

⁴³ See Gallagher, *supra* note 4, at 288-89.

⁴⁴ See *id.* at 289-90.

⁴⁵ See *id.* at 290.

⁴⁶ See Adjustments and Amendment to the Montreal Protocol on Substances that De-

and expanded coverage of the agreement to include phase-out schedules for two other ODSs.⁴⁷

More significantly, the London Amendments established the Interim Financial Mechanism ("IFM") consisting of the Multilateral Fund and the Executive Committee.⁴⁸ Each non-Article 5 Party's contribution to the Fund is determined by the United Nations scale of assessment, and the money is used to "meet all agreed incremental costs of [Article 5] Parties in order to enable their compliance with the control measures of the Protocol."⁴⁹ The establishment of the Fund also required the assessed contributions to be in addition to any other financial transfers made to DCs.⁵⁰

The Executive Committee is comprised of fourteen members: seven from the developed countries and seven from parties operating under Article 5.⁵¹ Responsibility for Fund disbursement and administration is vested with the committee.⁵² A tripartite structure controls this mechanism, allocating administrative and disbursement tasks between the UNEP, the United Nations Development Program ("UNDP"), and the World Bank.⁵³ This structure gave the DCs a powerful voice in the management of the Fund and a stake in the continued viability of the Montreal Protocol as a whole. Despite the fact that the London Amendments expanded the obligations of Article 5 countries to phase out a wider variety of controlled substances, the Fund provided a great incentive for DCs to become parties to the Montreal Protocol.⁵⁴

Since the adoption of the 1990 London Amendments, parties to the Montreal Protocol have met every year. In 1992 the parties met in Copenhagen to accelerate the phase-out process for several

plete the Ozone Layer, U.N. Environment Program, arts. 2A(5), 2B(3), U.N. Doc. UNEP/Oz.L.Pro.2/3, 30 I.L.M. 537 (1990) [hereinafter London Amendments].

⁴⁷ See *id.* at arts. 2(D)-(E). Carbon tetrachloride had a phase-out deadline of 2000; methyl chloroform had a phase-out deadline of 2005. See *id.*

⁴⁸ See *id.* at art. 10.

⁴⁹ *Id.* at art. 10(1).

⁵⁰ See *id.*

⁵¹ See Fourth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, U.N. Environment Program, at Annex X, para. 2, U.N. Doc. UNEP/Oz.L.Pro.4/15 (1992) [hereinafter Fourth Meeting]. This represented a departure from other financial institutions because for the first time aid recipients were able to have veto power over decisions made by the committee. See FRANK BIERMANN, *SAVING THE ATMOSPHERE: INTERNATIONAL LAW, DEVELOPING COUNTRIES AND AIR POLLUTION* 105 n.432 (1995).

⁵² See London Amendments, *supra* note 46, at art. 10(5).

⁵³ See *id.*

⁵⁴ For example, Article 5 Parties were also required to phase out carbon tetrachloride and methyl chloroform. See *id.* at arts. 2(D) and 2(E).

of the controlled substances.⁵⁵ Additionally, the Copenhagen Amendments transformed the IFM into a permanent multilateral fund, while increasing the budget for the years 1994-1996 to \$500 million.⁵⁶ Finally, the Copenhagen meeting established a noncompliance procedure⁵⁷ and for the first time placed a freeze on the use of methyl bromide.⁵⁸

After the adoption of the Copenhagen amendments, the parties have made many adjustments to the phase-out schedules of the controlled substances. A large portion of the debate at each meeting has centered on the establishment of a control schedule for methyl bromide. At the Ninth Meeting of the Parties, the participants reached an agreement phasing out the use of methyl bromide although there were several critical use exemptions.⁵⁹ The non-Article 5 Parties also agreed to provide \$25 million each year for research and demonstration projects for methyl bromide alternatives and to review the situation in 2003.⁶⁰

Currently more than 170 countries have ratified the Vienna Convention and the Montreal Protocol, while more than 135 countries have ratified the London Amendments.⁶¹ The Tenth Meeting of the Parties took place in November 1998, with no significant changes to these issues.⁶²

C. *Binding Nature of Contributions to the Fund*

One of the primary complaints of the Article 5 Parties is the persistent failure of some non-Article 5 countries to pay their assessed contributions to the Fund. The percentage of contributions paid from 1991 to 1995 has hovered around 88 percent⁶³ and at

⁵⁵ See Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Nov. 25, 1992, 32 I.L.M. 874 [hereinafter Copenhagen Amendments].

⁵⁶ See Fourth Meeting, *supra* note 51, at dec. IV/18, para. 3. See also *id.* at Annex IX. The budget for the years 1997-1999 was set at \$540 million. See Eighth Meeting, *infra* note 63, at dec. VIII/4.

⁵⁷ See Fourth Meeting, *supra* note 51, at Annex IV.

⁵⁸ See Copenhagen Amendments, *supra* note 55, at art. 2H.

⁵⁹ See Ninth Meeting, *supra* note 3, at paras. 82-83.

⁶⁰ See *id.* at dec. IX/5.

⁶¹ The Ozone Secretariat (visited Dec. 2, 1999) <<http://www.unep.org/ozone/ratif.htm>>. As of November 15, 1999, 101 states had ratified the Copenhagen Amendments, while only 29 countries had ratified the Montreal Amendments, and while 136 countries had ratified the London Amendments. See *id.*

⁶² See Tenth Meeting of the Parties to the Montreal Protocol on Substances the Ozone Layer, U.N. Environment Program, U.N. Doc. UNEP/OzL.Pro. 10/9 (1998) [hereinafter Tenth Meeting].

⁶³ See Eighth Meeting of the Parties to the Montreal Protocol on Substances that De-

every meeting of the parties after 1992, representatives have voiced serious concerns over the amount of the Fund arrears.

The current situation is not as critical in terms of political ramifications as it was in 1994. Of the \$393 million pledged for the period of 1991 to 1994, only \$216 million had been received by October of 1994.⁶⁴ Even more importantly, only \$25 million of the \$216 million received had been disbursed.⁶⁵ Although the official reasons cited for the delay were administrative problems in approving projects and delays in receiving the contributions, suspicions arose regarding the level of commitment of the non-Article 5 countries.⁶⁶ At that point in time, India threatened to pull out of the Montreal Protocol unless the developed countries "honor their commitments and contribute to the Protocol's multilateral fund."⁶⁷

More recently, the Article 5 countries have stated that their ability to fulfill the commitments of the Montreal Protocol is dependent on receiving sufficient aid. For example, in 1996, China's National Environmental Protection Agency reported that it had the "formulation of a strategy" to eliminate ozone-depleting substances gradually. At the same time, however, state planners targeted a 30 percent increase in refrigerators that use CFCs.⁶⁸ The Chinese government estimated that it would cost \$260 million to replace CFCs in refrigerator production, and that without increased funding and technology transfers it would be unable to meet its Montreal Protocol commitments.⁶⁹ It is noteworthy that at each of the last three meetings of the parties, representatives of Article 5 countries have commented that efforts to phase-out controlled substances would be delayed, and were contingent upon the developed states fulfilling their commitment to pay assessed contributions into the Fund.⁷⁰

plete the Ozone Layer, U.N. Environment Program, at para. 80, U.N. Doc. UNEP/OzL.Pro. 8/12 (1996) [hereinafter Eighth Meeting].

⁶⁴ See *Cash Crisis Cited as a Major Threat to the Use of Non-Ozone-Depleting Substances*, 17 INT'L ENV'T REP. (BNA) No. 21, at 841 (Oct. 19, 1994).

⁶⁵ See *id.*

⁶⁶ See *id.* at 842.

⁶⁷ *India May Pull Out of Montreal Protocol if Developed Nations Fail on Fund Pledges*, 17 INT'L ENV'T REP. (BNA) NO. 21, at 849 (Oct. 19, 1994).

⁶⁸ *Government Cites Need for More Technology, Funding, To Meet Pledge on Ozone Depleters*, 19 INT'L ENV'T REP. (BNA) No. 20, at 897 (Oct. 2, 1996). See also Timothy T. Jones, *Implementation of the Montreal Protocol: Barriers, Constraints and Opportunities*, 3 ENVTL. LAW. 813, 849-50 (1997).

⁶⁹ See *India May*, *supra* note 67, at 849.

⁷⁰ See Ninth Meeting, *supra* note 3, at para. 64; Eighth Meeting, *supra* note 63, at para. 43; Seventh Meeting of the Parties to the Montreal Protocol on Substances that Deplete

Some debate whether the assessed contributions represent a legally binding obligation on the part of the developed countries. Although the United States has argued that the contributions are not a legal obligation,⁷¹ there is an extremely strong argument that failure to contribute to the Fund would be a breach of a country's obligations under the London Amendments. First, the language of the London Amendments provides evidence that a failure to contribute to the Fund would be considered noncompliance with the Montreal Protocol. The text of the amendment states that the "Multilateral Fund *shall be financed* by contributions from Parties not operating under paragraph 1 of Article 5. . . ."⁷² This evidence is bolstered by the next sentence in the amendment: "Contributions by other parties shall be encouraged."⁷³ As one commentator points out, "[w]hile this clearly suggests that contribution by 'other parties' . . . is not legally obligatory, it also implies that contribution by non-Article 5 countries is, indeed, something more than to be 'encouraged.'"⁷⁴

Also supporting the binding nature of the contributions, several representatives stated that countries who made a conscious decision not to fulfill their obligations to contribute to the Fund should be subject to the non-compliance penalties.⁷⁵ It is also pertinent to note that the developed countries voluntarily accepted the arrangements to make assessments on the basis of the UN scale and granted the Executive Committee, as well as the regular Meeting of the Parties, exclusive budgetary authority.⁷⁶ Unlike many other international agreements, the Fund's financial provisions were explicitly established in a legally binding document, the Montreal Protocol, and all of the developed countries accepted, or at least acquiesced to, these terms.⁷⁷ Finally, several commentators have

the Ozone Layer, U.N. Environment Program, at para. 70, U.N. Doc. UNEP OzL.Pro 7/12 (1995) [hereinafter Seventh Meeting].

⁷¹ See *Whether Accelerated Phase-Out Deadlines Apply To Developing Countries Unresolved*, 15 Int'l Env't Rep. (BNA) No. 24, at 772. At the Copenhagen meeting, the parties failed to adopt an "indicative list" of possible situations of noncompliance, which included a failure to pay contributions into the Fund. The question of whether contributions are legally binding was a primary reason the list failed to be adopted. See *id.*

⁷² London Amendments, *supra* note 46, at art. 10(6) (emphasis added).

⁷³ *Id.*

⁷⁴ Ling, *supra* note 18, at 114.

⁷⁵ See Seventh Meeting, *supra* note 70, at para. 73.

⁷⁶ See The Ozone Secretariat (visited Sept. 10, 1999) <<http://www.unep.org/unep/secretar/ozone/ratif.htm>> (indicating which countries have voluntarily agreed to be bound by the Protocol and subsequent amendments).

⁷⁷ See London Amendments, *supra* note 46.

argued that these contributions are obligatory and are actually codifying an emerging general principle of international law.⁷⁸

D. Debate Over Methyl Bromide

In the 1992 meeting of the Open Ended Working Group of the Parties, the United States recommended the addition of methyl bromide to the list of controlled substances.⁷⁹ Methyl bromide is a "broad-spectrum fumigant used to combat insects, fungi, bacteria, nematodes, and weeds in soil, structural, and commodity/quarantine fumigation."⁸⁰ The chemical is relatively inexpensive to produce and is used in a variety of climates and for a wide variety of crops.⁸¹ During the Copenhagen meeting, representatives agreed to a freeze by developed countries on the use of the chemical at 1991 levels, with exemptions for quarantine and pre-shipment applications.⁸² The parties also allowed the use of methyl bromide at levels necessary to meet the "basic domestic needs" of developing countries.⁸³ The delegates agreed to address the issue of a comprehensive agreement for the phase-out of methyl bromide at the Sixth Meeting of the Parties. However, it should be noted that only 101 countries have ratified the Copenhagen Amendments, fewer than the number of countries that ratified the London Amendments, which may indicate the lack of consensus on the latter revisions.⁸⁴

The issue of how to regulate the consumption and production of methyl bromide has been a point of major disagreement at every meeting of the parties after Copenhagen.⁸⁵ Although the parties

⁷⁸ See BIERMANN, *supra* note 51, at 103-19; Ling, *supra* note 18, at 114.

⁷⁹ See Sondra Goldschein, *Methyl Bromide: The Disparity Between the Pesticide's Phaseout Dates Under the Clean Air Act and the Montreal Protocol on Substances that Deplete the Ozone Layer*, 4 ENVTL. LAW. 577, 588 (1998).

⁸⁰ EPA Reports on Status of Methyl Bromide; House Bill Introduced to Repeal Phaseout, 18 Int'l Env't Rep. (BNA) NO. 18, at 690 (Sept. 6, 1995).

⁸¹ See Cost, *Feasibility of Alternatives to Methyl Bromide Said to Concern Users*, 19 Int'l Env't Rep. (BNA) No. 22, at 955 (Oct. 30, 1996) [hereinafter *Cost*]; *Southeast Asian Nations Discuss Ways to Cut Use of Methyl Bromide, Cite Problems*, 18 Int'l Env't Rep. (BNA) No. 23, at 865 (Nov. 15, 1995).

⁸² See Copenhagen Amendments, *supra* note 55, at art. 2H.

⁸³ *Id.*

⁸⁴ See Ozone Secretariat, *supra* note 61.

⁸⁵ See Tenth Meeting, *supra* note 62, at para. 62; Ninth Meeting, *supra* note 3, at para. 46; Eighth Meeting, *supra* note 63, at para. 62; Seventh Meeting, *supra* note 70, at para. 65; Sixth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, U.N. Environment Program, at para. 6, U.N. Doc. UNEP/OzL.Pro 6/7 (1994) [hereinafter Sixth Meeting]; Fifth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, U.N. Environment Program, at para. 25,

were not able to reach agreement at the Sixth Meeting of the Parties, a complete methyl bromide phase-out schedule for developed nations was agreed upon at the Seventh Meeting of the Parties in Vienna.⁸⁶ The Vienna agreement provided for a 25% reduction by 2001, a 50% reduction by 2005, and a phase-out by 2010.⁸⁷ The parties were not able to agree on a phase-out date for the DCs, but the Article 5 Parties made a commitment to freeze the use of methyl bromide.⁸⁸

At the November 1998 meeting of the parties, the debate over the phase-out schedules was intense.⁸⁹ Several industrialized countries were trying to gain support for a total phase-out by the year 2001, while many developing countries argued against the imposition of an accelerated phase-out date because of the lack of alternatives for methyl bromide.⁹⁰ After many debates about the availability of alternatives, the delegates agreed to two separate phase-out schedules for developed and Article 5 countries.⁹¹ The developed countries agreed to an accelerated phase-out of methyl bromide by 2005.⁹² Article 5 countries agreed to a much more lenient schedule. DCs must freeze their use of methyl bromide by 2002, with a 20% reduction in 2005 and a complete phase-out by the year 2015.⁹³ The developed countries also agreed to provide \$25 million per year for methyl bromide phase-out activities, including research into alternatives.⁹⁴

Although the representatives agreed to a phase-out schedule for methyl bromide, several issues remain. One of the central concerns expressed by both developed countries and DCs is the lack of a sufficient alternative for the multiple uses of methyl bromide.⁹⁵ In spite of the fact that many assessment panels, NGOs, and governments argued that alternatives have been found, scientists have not discovered one substitute that works for all methyl bromide applications.⁹⁶

UNEP/OzL.Pro.5/12 (1993).

⁸⁶ See Seventh Meeting, *supra* note 70, at Annex III.

⁸⁷ See *id.*

⁸⁸ See *id.*

⁸⁹ See Ninth Meeting, *supra* note 3, at paras. 46-52.

⁹⁰ See Roland Blassnig, *Methyl Bromide Phaseout Plans, CFC Licensing System Only Gains in Montreal*, 20 Int'l Env't Rep. (BNA) No. 20, at 903 (Oct. 1, 1997).

⁹¹ See *id.*

⁹² See *id.*

⁹³ See *id.*

⁹⁴ See Ninth Meeting, *supra* note 3, at dec. IX/5, para. b.

⁹⁵ See Goldschein, *supra* note 79, at 592.

⁹⁶ See *id.*

The fact that one comprehensive substitute does not exist is the one thing that most interested parties agree upon.⁹⁷ Without the creation of a universal alternative, concern is growing over the costs of the phase-out.⁹⁸ The potential costs could be enormous because each user will need to find the alternative that works best for his or her crop in the specific region. As the Environmental Protection Agency ("EPA") stated, "[e]ach pest situation and control method needed will have to be evaluated in relation to the target pest, the crop grown, the temporal and geographic effects, and the existing integrated pest management program."⁹⁹

At the last meeting of the parties, representatives continued to discuss the problems with phasing out or reducing the use of methyl bromide, "calling it the most critical issue still to be resolved."¹⁰⁰ Most of the concern continues to revolve around the dearth of suitable alternatives to methyl bromide and the economic feasibility of the substitutes that do exist.¹⁰¹ For example, members of the South African agricultural industry have not found an alternative to kill pests as effectively and as economically as methyl bromide and are extremely concerned about finding a substitute before the phase-out deadline.¹⁰² Because methyl bromide is used on the DCs "high value export-oriented cash crop[s] [they] are highly reluctant to abandon its use unless substantial funds are forthcoming" from the Fund to finance research into alternatives.¹⁰³

Although the parties agreed to provide \$25 million per year to finance methyl bromide projects, there is concern that a substitute will not be developed in time for the deadlines.¹⁰⁴ If that occurs it will be extremely hard for the DCs to remain in compliance with the Montreal Protocol. As several representatives have pointed out, food security is a primary priority in Article 5 countries, and is the reason for much of the opposition to additional controls on

⁹⁷ See *id.*

⁹⁸ See Ninth Meeting, *supra* note 3, at para. 77; *Cost*, *supra* note 81, at 855.

⁹⁹ Goldschein, *supra* note 79, at 592-93 (quoting 58 Fed. Reg. 65,018, 65040 (1993) (to be codified at 40 C.F.R. pt. 82)).

¹⁰⁰ Ninth Meeting, *supra* note 3, at para. 46.

¹⁰¹ See Chris Hall, *Availability of Alternatives to Methyl Bromide Worries Farming Industry*, 20 Int'l Env't Rep. (BNA) No. 3, at 126 (Feb. 5, 1997).

¹⁰² See *id.* at 125.

¹⁰³ Mark Newham, *Montreal Protocol Preparatory Meeting Fails to Agree on Phaseout of Methyl Bromide*, 20 Int'l Env't Rep. (BNA) No. 13, at 605 (June 25, 1997).

¹⁰⁴ See Ninth Meeting, *supra* note 3, at paras. 49, 51, dec. IX/5; Hall, *supra* note 101, at 125.

methyl bromide.¹⁰⁵ Unless an economically and technologically feasible alternative is forthcoming, Article 5 parties will not be able to justify the tremendous loss of crops (both in terms of lost food supplies and lost income) in the name of complying with the Montreal Protocol.¹⁰⁶ Due to these concerns, the parties have agreed to review the situation in 2003.¹⁰⁷

E. Interrelationship Between Continued Funding and Methyl Bromide

Two of the primary concerns voiced by DCs in the implementation of the Montreal Protocol are the continued support of (and contribution to) the Fund and the issues surrounding the phase-out of methyl bromide.¹⁰⁸ These two concerns are inextricably linked together. Without adequate funding or technology transfers, the DCs will have an extremely difficult time finding an alternative to methyl bromide, much less implementing the transition to the substitute.

These two concerns also support the argument for increased funding from the developed nations. Several of the theories supporting the Fund are even more convincing in the context of methyl bromide. For example, one argument in favor of financial assistance is the "equity" argument.¹⁰⁹ This argument may be summarized as follows: because the developed countries created the problem, the DCs should not be deprived of their development plans in order to solve a problem they did not create.¹¹⁰ This also includes the argument that the DCs should have the same devel-

¹⁰⁵ See *Report of the Sixteenth Meeting of the Open-Ended Working Group of the Parties to the Montreal Protocol on Substances That Deplete the Ozone Layer*, U.N. Environment Program, at para. 42, U.N. Doc. UNEP/OzL.Pro/WG.1/16/2 (1997); Eighth Meeting, *supra* note 63, at para. 62.

¹⁰⁶ Developed countries are also under domestic pressure from their agricultural industry. Domestic farmers are concerned that their exports will be at a competitive disadvantage if the developing countries are not subject to the same phase-out schedule. See *EPA Reports on Status of Methyl Bromide*, *supra* note 80, at 691.

¹⁰⁷ See Cheryl Hogue and Brian Broderick, *U.S. Considering Air Act Amendment to Delay Domestic Methyl Bromide Phaseout*, 20 Int'l Env't Rep. (BNA) No. 20, at 905 (Oct. 1, 1997).

¹⁰⁸ See e.g., Eighth Meeting, *supra* note 63, at paras. 43-45, 62; Ninth Meeting, *supra* note 3, paras. 46-52, 62-63.

¹⁰⁹ See Jason M. Patlis, *The Multilateral Fund of the Montreal Protocol: A Prototype for Financial Mechanisms in Protecting the Global Environment*, 25 CORNELL INT'L L.J. 181, 219-20, 229 (1992); K. M. Sarma, *The Montreal Protocol's First 10 Years: The United Nations Environment Program's Perspective*, 20 Int'l Env't Rep. (BNA) No. 18, at 854 (Sept. 3, 1997).

¹¹⁰ See *id.*

opment opportunities as the industrialized nations had, and at the same price.¹¹¹

The equity argument has great appeal to basic notions of fairness. This appeal is even more pronounced in the context of methyl bromide when one begins to balance the benefits of a phase-out with the costs a DC would incur if it lost a substantial portion of its food supply. It is extremely difficult to argue that both Article 5 and non-Article 5 states should be subject to the same phase-out schedule when one realizes that many of the DCs have not found a viable alternative to methyl bromide. One reason for this is that many of the DCs do not have the research resources to devote to the development of alternatives and that most of the research that has taken place is occurring in the industrialized nations.¹¹² Because a universal substitute has not been discovered, an alternative developed in the industrialized world may not work in the developing nations. The research costs are magnified when one realizes that “[y]ou may even find that a technology that works on one farm may not be applicable to a neighboring farm if the one farm has sandy soils and the next one has clay soils.”¹¹³

Another argument used to support the payment of contributions into the Fund is the “polluter pays principle.”¹¹⁴ This theory suggests that, because the industrialized nations caused the pollution problems, they should pay the DCs to avoid making the same development decisions that would further contribute to the problem.¹¹⁵ The polluter pays theory recognizes the right of DCs to develop and encourages them to do so in an environmentally sound manner through the use of financial and technological assistance.¹¹⁶ This theory is also directly applicable to the methyl bromide debate. The DCs account for only 18% of the use of methyl bromide,¹¹⁷ thus the polluter pays principle suggests that developed countries should provide assistance to find alternatives so that the DCs can continue to develop without compromising their food

¹¹¹ See *id.*

¹¹² See *e.g.*, Hall, *supra* note 101, at 126.

¹¹³ *Id.* (quoting interview by Bureau of National Affairs with Mark Steyn, Director of Montreal Protocol Compliance, South African Department of Agriculture (Jan. 28, 1997)).

¹¹⁴ See Gallagher, *supra* note 4, at 297 n.171. See also Ling, *supra* note 18, at 102-105; Patlis, *infra* note 136, at 209.

¹¹⁵ See Gallagher, *supra* note 4, at 297 n.171.

¹¹⁶ See Ling, *supra* note 18, at 102-105; Patlis, *supra* note 109, at 209.

¹¹⁷ See Cost, *supra* note 81, at 956. Of the remaining methyl bromide use, the United States alone accounts for approximately 40%. See *id.*

supply.

Despite the fact that these theories provide justifications for financial and technical support for the DCs, an issue remains concerning what recourse these nations have if either the developed nations do not fulfill their contributions to the Fund or if the DCs cannot meet the timeline established for methyl bromide because of the lack of alternatives or financial assistance. It is unclear what concrete steps the DCs may take to avoid their own noncompliance (other than reporting it to the Executive Committee) or to force compliance on the part of the developed nations. The alternatives that may be available to the DCs depend on, to some extent, from which perspective you view the issues: that of the industrialized nations or that of the DCs.

III. PERSPECTIVE OF THE DEVELOPING COUNTRIES

A. *The North/South Dispute*

The divergent priorities of the industrialized countries (the North) and the DCs (the South) are a continuing source of conflict in the international realm. The differences that shape the debate between the North and the South become even more pronounced when negotiating environmental treaties. In many situations it is hard to justify asking a DC to refrain from some harmful process, thus interfering with its development plans, in order to protect the environment.¹¹⁸ This is especially difficult to defend when one realizes that many of these countries are more concerned with the immediate issues of poverty, food security, and public health.¹¹⁹

Many of the concerns of the South deal with the retardation of economic growth and development.¹²⁰ DCs may often be willing to sacrifice environmental pollution in order to increase their economic growth and raise their standard of living.¹²¹ In the context of the Montreal Protocol, the South "saw little fairness in being denied the CFC-based technologies that had played an important role in other countries' prosperity."¹²² This animosity was reflected

¹¹⁸ See Margaret M. Pinkham, *The Montreal Protocol: An Effort to Protect the Ozone Layer*, 15 SUFFOLK TRANSNAT'L L.J. 255, 269-270 (1991).

¹¹⁹ See *id.* at 269.

¹²⁰ See *id.* at 269-70.

¹²¹ See *id.*

¹²² David Hurlbut, *Beyond the Montreal Protocol: Impact on Nonparty States and Lessons for Future Environmental Protection Regimes*, 4 COLO. J. INT'L ENVTL. L. & POL'Y 344, 352 (1993).

during the debates over the London Amendments, when India's Environmental Minister demanded compensation, arguing that the North "had usurped India's 'opportunity' to develop CFC production."¹²³

Some of this animosity may be easing as the developed countries follow through on their pledges of financial and technical assistance. With this assistance, the DCs may no longer believe that the North is intentionally attempting to subvert their economic development. As one commentator pointed out, the feeling that environmental problems were "a rich men's problem, a rich men's solution"¹²⁴ has been alleviated by the increased emphasis on DCs concerns and the special considerations provided for them in the international lawmaking process. However, this trend is dependent on the continued fulfillment of the North's financial and technical commitments, as well as continuing to take the special concerns and needs of the South into account when making international environmental decisions.

Another priority of the South that often takes precedent over environmental concerns is the state's obligation to ensure that its citizens have basic necessities.¹²⁵ As pointed out in one article, "there exists a hierarchy of human needs in developing countries by which needs for food, clothing, and shelter take priority over social and aesthetic needs. Accordingly, marginal utility of environmental protection, compared with that of economic growth, turns out to be much smaller in LDCs [(less developed countries)] than in developed countries."¹²⁶ When a DC is struggling to meet the basic needs of its population, "[p]olicies to protect the environment may not be feasible for a country dealing with overpopulation, malnutrition, and lack of basic sanitation."¹²⁷

The issue of equity has also been raised frequently in the discussions surrounding the Montreal Protocol. As discussed in the above sections, the DCs did not create the problem of ozone depletion and are minor contributors to the current levels of ODSs consumption. When viewed from this perspective, and keeping in mind the competing priorities of the South, it is easy to understand why DCs do not appreciate northern lectures on environmental

¹²³ Dale S. Bryk, *The Montreal Protocol and Recent Developments to Protect the Ozone Layer*, 15 HARV. ENVTL. L. REV. 275, 291 (1991).

¹²⁴ Ling, *supra* note 18, at 98.

¹²⁵ *See id.* at 99.

¹²⁶ *Id.*

¹²⁷ Pinkham, *supra* note 118, at 269.

quality.¹²⁸

B. *The Need For Financial Assistance*

Due to the special concerns and needs of the South, financial aid is imperative to implement environmental protection measures. Because of the equity and polluter pays arguments, many commentators and state representatives believe that the North has a duty to provide support to the South. As one commentator argued,

the primary responsibility of industrialized nations for causing the environmental crisis, together with their vast assumption of the world's economic wealth, calls for them to take primary responsibility commensurate with their share of global financial and technological resources, in taking initial, concrete and significant steps to reverse the environmental deterioration. These measures are particularly imperative to get the developing countries on board environmental regimes, since it would be clearly inequitable to expect the nations having a disproportionately smaller share of the world's resources to bear the burden for a crisis caused primarily by the rich countries.¹²⁹

Without this assistance, DCs often do not have the resources necessary to comply with treaty obligations, much less the political strength necessary to "sell" the agreement at home. Financial support is needed to help DCs subsidize the capital investment changes needed to allow CFC dependant industries to convert to ODSs substitutes.¹³⁰ These countries also require assistance to train personnel in order to meet the data reporting and monitoring obligations established in the Montreal Protocol. Finally, DCs also need assistance to invest in the research and development of ODSs substitutes. The aid for research is extremely important; especially when the Montreal Protocol is phasing out chemicals such as methyl bromide that do not currently have a comprehensive substitute.

¹²⁸ See *id.* at 270.

¹²⁹ Ling, *supra* note 18, at 103. But see Victor Williams, *Ozone Depletion, Developing Countries, and Human Rights: Seeking Better Ground on Which to Fight for Protection of the Ozone Layer*, 10 J. NAT. RESOURCES & ENVTL. L. 83 (1995).

¹³⁰ See Ling, *supra* note 18, at 102.

C. Accelerated Phase-out and Reduction Schedules Increase Compliance Problems for Developing Countries

Another problem that the South is beginning to encounter is associated with the process for the adoption of accelerated phase-out and reduction schedules. The problem arises because, once a chemical has gone through the amendment process, its phase-out schedule may be accelerated by a two-thirds majority vote at a meeting of the parties, without going through the traditional amendment and ratification procedure.¹³¹ In this manner, the provisions to which a DC initially may be radically changed at future meetings of the Parties.¹³²

Several of the DC representatives have begun to express concern over these adjustments. Beginning with the 1994 meeting of the parties, delegates "expressed alarm at the attempts that were being made to impose earlier phase-out dates than those prescribed by the Protocol and its Amendments. . . ."¹³³ At the most recent meeting, representatives emphasized the need for "stability in the Protocol . . . and that frequent changes in it created significant difficulties . . ." at the State implementation level.¹³⁴

These concerns have a range of implications for the DCs, primarily because of the practical difficulties they have in meeting the current treaty obligations. As discussed above, the DCs have many sociological and economic problems that require their attention, decreasing their priority of complying with the Montreal Protocol.¹³⁵ Although the Fund provides essential financial support and the treaty provides a more lenient phase-out schedule, many of the Article 5 countries have argued that economic circumstances are preventing them from complying with the current

¹³¹ See London Amendments, *supra* note 46, at art. 2(9)(c):

If all efforts at consensus have been exhausted and no agreement reached, decisions shall be adopted by a two-thirds majority vote of the Parties present and voting, representing a majority of the Parties operating under paragraph 1 of Article 5 present and voting and a majority of the Parties not so operating present and voting.

¹³² For example the Group I chemicals were subject to a 50% reduction from 1986 levels by the year 1999. See Montreal Protocol, *supra* note 28, at art. 2, para. 4. Three years later, the Parties adjusted this schedule to incorporate a complete phase-out by the year 2000. See London Amendments, *supra* note 46, at art. 2, para. 5. Although this is not the timeline for Article 5 countries, this experience provides an example of how significant the adjustments can be.

¹³³ Sixth Meeting, *supra* note 85, at para. 29.

¹³⁴ Ninth Meeting, *supra* note 3, at para. 44.

¹³⁵ See *supra* Section II.A.

schedules.¹³⁶ Thus, if financial and technical support are not increased when the parties accelerate the reduction and phase-out schedules, it is extremely unlikely that the DCs will be able to meet those deadlines.

IV. PERSPECTIVE OF THE DEVELOPED COUNTRIES

In providing financial and technical assistance to the DCs, the developed countries have rejected any implications of liability for past development practices.¹³⁷ One of the concerns of the North is that the establishment of the Fund would signal an "open pocket-book" that would provide unlimited assistance to the DCs.¹³⁸ For this reason, the industrialized nations have tried very hard to make it clear that the establishment of the Fund was not a precedent-setting event and was limited to the context of ozone depletion.¹³⁹ As one commentator pointed out, the aid is not given to the DCs as a form of reparation but rather in the "spirit of unity and common purpose,"¹⁴⁰ and the North seems to prefer to characterize the aid as a means of assisting countries that have developmental problems that may cause environmental harm, rather than in terms of moral obligation.¹⁴¹

The industrialized nations had, and continue to have, fears about the motives of the DCs in their demands for assistance, as well as how far the North's responsibility for providing aid will extend. At the 1990 London meeting several of the industrialized countries expressed their fears that DCs were using environmental concerns as a pretense for demands seeking a global redistribution of wealth.¹⁴² Concerns have also been expressed that the DCs were attempting to capitalize on concern for the environment in order to secure financial and technical assistance from the indus-

¹³⁶ See Scott N. Carlson, *The Montreal Protocol's Environmental Subsidies and GATT: A Needed Reconciliation*, 29 TEX. INT'L L.J. 211, 215 (1994).

¹³⁷ See Patlis, *supra* note 109.

¹³⁸ See Ling, *supra* note 18, at 110-11; Rene Bowser, *History of the Montreal Protocol's Ozone Fund*, 14 Int'l Env't Rep. (BNA) No. 23, at 645-47 (Nov. 20, 1991); Patlis, *supra* note 109, at 223; Gallagher, *supra* note 4, at 296.

¹³⁹ See Ling, *supra* note 18, at 110-11.

¹⁴⁰ Williams, *supra* note 129, at 110.

¹⁴¹ See Jennifer S. Bales, *Transnational Responsibility and Recourse for Ozone Depletion*, 19 B.C. INT'L & COMP. L. REV. 259, 286 (1996).

¹⁴² See LITFIN, *supra* note 1, at 144.

trialized nations.¹⁴³

A more recent development within the industrialized nations is concern that the different schedules provide unfair trade advantages to the DCs. A prime example of this fear involves the timelines for phasing out the use of methyl bromide. Because the DCs have more time to reduce their use of the chemical, the farming industry in developed countries has lobbied hard to delay the phase-out date until alternatives have been shown to be technologically and economically feasible.¹⁴⁴

Despite the fact that the industrialized countries continue to have concerns about the Fund and the dual phase-out schedule, the establishment of the Montreal Protocol and the Fund are important steps in strengthening North/South relations. For the first time the North acknowledged that DCs had a "right to develop their economies without hindrance, that they did not contribute significantly to the problem, that the ODSs phase-out by developing countries could hinder their development, and that the world community ought to meet the incremental costs of the ODSs phase-out by putting in the needed resources."¹⁴⁵ Although the industrialized nations continue to avoid discussions of actual liability, they have recognized that they benefited from "artificially low costs of development due to environmental externalities, and [have] the legal obligation . . . to compensate developing countries for higher costs of development imposed by new environmental regulations"¹⁴⁶

V. ALTERNATIVES AVAILABLE TO THE DEVELOPING NATIONS TO FORCE COMPLIANCE

A. *Options Provided by the Montreal Protocol*

The parties to the Montreal Protocol have not focused on enforcement or compliance mechanisms with the same intensity as they have devoted to other issues.¹⁴⁷ Because of this, the parties

¹⁴³ See Bryk, *supra* note 123, at 292.

¹⁴⁴ See Cost, *supra* note 81, at 955; EPA Reports on Status of Methyl Bromide, *supra* note 80, at 690.

¹⁴⁵ K. M. Sarma, *supra* note 109, at 853, 854.

¹⁴⁶ Patlis, *supra* note 109, at 229.

¹⁴⁷ Although the parties will examine the non-compliance procedure at the Tenth Meeting of the Parties, very few changes are expected. See Report of the 17th Meeting of the Open-Ended Working Group of the Parties to the Montreal Protocol, § VIII, at paras. 82-83, 91 U.N. Doc. UNEP/OzL.Pro/WG.1/17/3 (July 15, 1998)[hereinafter Report of the

have not had much discussion on what options a party may have if another state has breached its obligations under the Montreal Protocol. For this reason, the treaty provides few explicit alternatives to Article 5 Parties that want to "force" the compliance of other states (i.e. to force parties to make contributions to the Fund) or for DCs that may not be able to comply with the established schedules.

The Montreal Protocol is clear on two issues that are relevant to DCs' compliance. First, the treaty does not allow a state to register any formal reservations.¹⁴⁸ This is significant because it removes the possibility of a party avoiding particular obligations set by the Montreal Protocol or its amendments. Second, the treaty establishes explicit procedures for withdrawal: a party is not able to withdraw unless four years have passed since the Montreal Protocol entered into force for that state.¹⁴⁹ After the four years have passed, and the state gives notice to the depository, the withdrawal takes place one year after the receipt of the notification.¹⁵⁰ Although DCs have the option to withdraw from the treaty, in reality this alternative is not readily available to Article 5 Parties who want to protest the failure of industrialized states to pay their contributions or who are not able to meet accelerated phase-out schedules, because the treaty's four-year delay discourages parties from withdrawing.¹⁵¹

In addition to the explicit withdrawal constraints, a state that withdraws from the Montreal Protocol becomes a non-party, subject to the trade restrictions set forth in Article 4 of the Montreal Protocol. These provisions ban both the import and export of controlled substances with non-parties and also ban the import of goods produced with controlled substances from nonparties.¹⁵² These trade sanctions provide powerful incentives for DCs to join and remain parties to the Montreal Protocol. As one commentator pointed out, "a trade ban on goods containing or made with CFCs would be a more powerful incentive for them to join the Montreal Protocol, as such goods constitute the lion's share of their exported commodities. Developing countries simply cannot afford to lose export earnings and access to the markets of indus-

17th Meeting].

¹⁴⁸ See Vienna Convention, *supra* note 13, at art. 18.

¹⁴⁹ See *id.* at art. 19.

¹⁵⁰ See *id.*

¹⁵¹ See *id.*

¹⁵² See Montreal Protocol, *supra* note 28, at arts. 4(1), 4(2), 4(4).

trialized countries.”¹⁵³ Although these comments were made in the context of incentives for DCs to join the Montreal Protocol, they apply equally when viewing the trade restrictions as a disincentive to parties to withdraw from the treaty. For these reasons, withdrawal is not a promising option for DCs who wish to force payment into the Fund or who are not able to comply with the phase-out schedules.

Another possible option for DCs is to refuse to ratify subsequent amendments to the Montreal Protocol. However, this option is not available in most cases because DCs can only refuse to ratify amendments, not adjustments. The problems with this alternative become obvious in the cases of contributions to the Fund and the accelerated phase-out schedule of methyl bromide. In these situations the provisions are already contained in the Montreal Protocol and are currently binding on all of the parties, so that any changes made to them are in the form of adjustments. These adjustments are binding on all parties as long as two-thirds of the parties present, representing a majority of Article 5 and non-Article 5 Parties, approve them.¹⁵⁴ So, even if a country votes against a modification or fails to vote, it will still be bound by the adjustment. Thus, threatening to refuse to ratify an amendment will not strengthen the DCs’ position in either the Fund or methyl bromide issues because they could still be bound by the modifications, even if they had voiced their opposition to the changes.¹⁵⁵

A more viable alternative for the DCs is to use pressure to create a political alliance among like-minded parties. If the DCs are able to establish this coalition, they would be able to block changes to existing provisions because the adjustment procedure requires the two-thirds approval of the parties present, representing a majority of the Article 5 and Non-Article 5 parties.¹⁵⁶ In this manner, the DCs would be able to block any acceleration of phase-out or

¹⁵³ Katrien Vorlat, *The International Ozone Regime: Concessions and Loopholes?*, 17-WTR FLETCHER F. WORLD AFF. 135, 151 (1993). *But cf.* Geoffrey Palmer, *New Ways to Make International Environmental Law*, 86 AM. J. INT’L L. 259, 276 (1992).

¹⁵⁴ See London Amendments, *supra* note 46, at art. 2(9)(c); Montreal Protocol, *supra* note 28, art. 2(9)(c).

¹⁵⁵ Although the status of ratification for the Copenhagen Amendments has been much lower than the previous amendments (according to The Ozone Secretariat (visited Dec. 2, 1999) <<http://www.unep.org/ozone/ratif.htm>>), the Amendments entered into force after only twenty instruments of ratification were received. See Copenhagen Amendments, *supra* note 55, at § II.

¹⁵⁶ See London Amendments, *supra* note 46, at art. 2(9)(c); Montreal Protocol, *supra* note 28, art. 2(9)(c).

reduction schedules for methyl bromide or any other controlled substances. Because the DCs are essential to the success of the regime, they have increased leverage and bargaining power that can be used to affect future negotiations.

If the DCs are able to create a coalition, they may also use their power to ensure that the non-Article 5 Parties continue to make payments into the Fund. As a group, the DCs could threaten to expose non-complying Parties who failed to pay their assessed contributions. As several commentators have noted, “[t]hreatening to expose the noncompliance of Parties at Protocol meetings has proved to be an effective method to compel compliance, because most countries care about their reputations.”¹⁵⁷ Therefore, by creating a political alliance, the DCs will be able to exert considerable influence to block modifications to the current schedules and to “force” compliance with assessed contributions to the Fund.

If the DCs are not able to create an effective political coalition, the last formal outlet for their concerns is the noncompliance procedure. This procedure was set forth in Annex IV of the Copenhagen Amendments, and although the parties were set to review the guidelines at the Tenth Meeting of the Parties, no significant changes occurred.¹⁵⁸ The Copenhagen Amendments made permanent the Implementation Committee, which has the responsibility of gathering information on alleged violations and which then reports its findings to the Meeting of the Parties.¹⁵⁹ The noncompliance procedure begins when the complaining party submits the alleged violations to the Secretariat. At that point, the party alleged to be in breach is given an opportunity to respond.¹⁶⁰ After the Implementation Committee receives the submissions, it makes its report to the parties who are then authorized to call for steps to restore compliance.¹⁶¹ Although the Committee has significant authority to make recommendations to the parties, there is some question as to how far its authority extends.¹⁶² As one commentator has argued, the committee has not tested its authority but in-

¹⁵⁷ Timothy T. Jones, *supra* note 68, at 855; *see also* Bales, *supra* note 141, at 287.

¹⁵⁸ *See* Report of the 17th Meeting, *supra* note 147, § VIII, at paras. 82-83, 91; Tenth Meeting, *supra* note 62, at Annex II.

¹⁵⁹ *See* Fourth Meeting, *supra* note 51, at Annex IV, para. 7.

¹⁶⁰ *See id.* at Annex IV, paras. 1-2.

¹⁶¹ *See id.*

¹⁶² Prior to the Tenth Meeting, the Implementation Committee did not have any decision making powers although a proposal was submitted to the parties at that meeting which would give the Committee more authority than it currently enjoys. *See* Report of the 17th Meeting, *supra* note 147, at para. 88; Tenth Meeting, *supra* note 62, at Annex II.

stead has created an “‘indicative list’ of actions that could be taken to deter noncompliance. The result . . . was ‘an unsurprising list that includes providing implementation assistance, issuing cautions, and suspending treaty rights and privileges.’”¹⁶³

Because there has been debate over the legal status of contributions to the Fund, it is unclear whether an Article 5 party may submit allegations of noncompliance based on another country’s failure to pay its assessed amount into the Fund. As discussed in Section I, there is a strong argument that the assessed contributions are a legally binding obligation on the part of the industrialized parties.¹⁶⁴ Assuming *arguendo* that the parties accept this argument, there may not be the political will necessary on the part of the DCs to push this issue.

One of the reasons the DCs may be unwilling to press this issue is that there is uncertainty as to what steps the parties would take to compel compliance. Because the Implementation Committee has not shown a willingness to strictly enforce the terms of the Montreal Protocol, there may not be any recourse for the DCs with respect to those industrialized countries that are able to pay but choose not to do so.¹⁶⁵ Even if the committee decided to consider arrears in payment to the Fund a form of noncompliance, it does not currently have the power to do anything except issue recommendations to the Meeting of the Parties. Finally, due to this debate, it is extremely unlikely that the DCs could garner enough support among all of the parties to reach the majority necessary to implement strong enforcement provisions, both in general terms and in the case of countries failing to pay their assessed contributions.¹⁶⁶

Although there is a question of whether DCs could submit complaints against the industrialized countries for failing to contribute to the Fund, the Montreal Protocol explicitly acknowledges that

¹⁶³ Jones, *supra* note 68, at 855 (citing Edward A. Parson and Owen Greene, *The Complex Chemistry of the International Ozone Agreements*, 37 ENV’T 1, 38 (Mar. 1995)); see also Fourth Meeting, *supra* note 51, at Annex V.

¹⁶⁴ See *supra* Section I.

¹⁶⁵ There is little incentive for the DCs to pursue enforcement proceedings against a country that does not have the financial resources necessary to pay its contribution into the Fund.

¹⁶⁶ As discussed in Section III above, the industrialized countries would likely oppose any steps to allow noncompliance sanctions to proceed against any party who is in arrears to the Fund. One main reason for the opposition of the developed countries stems from the fact that this group wants to minimize any implications of actual liability or any precedent setting effects the Fund may have on future regimes.

the capacity of DCs to meet their obligations depends upon effective implementation of Articles 10 and 10A. The treaty makes it very clear that the noncompliance procedures will not apply to Article 5 states if their failure to meet the treaty obligations arises from "inadequate implementation" of those financial and technical mechanisms.¹⁶⁷ If an Article 5 Party notifies the Secretariat of its inability to meet obligations set forth in Article 2, the next Meeting of the Parties will review the situation and recommend an appropriate course of action.¹⁶⁸

The noncompliance provision allows the DCs a specific forum to voice their implementation problems, as well as to receive a reprieve from the noncompliance penalties. In the context of the methyl bromide phase-out, the DCs have, and will continue to have, safety nets in case suitable alternatives have not been developed by the time the reductions are to take place. If the situation arises where a DC cannot comply with the phase-out because of the economic unfeasibility of alternatives, if there is an alternative, or food security issues, this provision allows the country to escape the penalties of noncompliance. The DC will also be able to force the parties to address the funding or technological issues related to its noncompliance at the next meeting. This is the best alternative for the Article 5 countries because it allows them to remain parties to the Montreal Protocol while compelling the non-Article 5 states to address the difficult issues of funding and technological feasibility.

B. Options Provided by the Vienna Convention on the Law of Treaties

If the situation reaches the point where DCs do not receive adequate assistance and the parties are not willing to rectify the circumstances, the final option that may be available to the DCs is to terminate or suspend the treaty, as it relates to them, under the Vienna Convention on the Law of Treaties ("Treaties Convention").¹⁶⁹ The Treaties Convention provides two justifications for suspending or terminating the treaty: a material breach or a fun-

¹⁶⁷ See London Amendments, *supra* note 46, at art. 5(7).

¹⁶⁸ See *id.* at art. 5(6).

¹⁶⁹ See Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331, art. 60(2)(b) (entered into force on Jan. 27, 1980). This argument assumes that the parties involved are also parties to the Vienna Convention on the Law of Treaties. However there is also an argument that the following discussion applies to nonparties as principles of customary law.

damental change of circumstances.¹⁷⁰

If a DC can show that the failure of non-Article 5 Parties to pay their contributions into the Fund constitutes a material breach of the Montreal Protocol, the DC is entitled to suspend the operation of the treaty in whole or in part between themselves and the Party in breach.¹⁷¹ The Treaties Convention defines a material breach as a “violation of a provision essential to the accomplishment of the object or purpose of the treaty.”¹⁷² Although there is some debate over the binding nature of contributions to the Fund, there is no question that the financial support is essential to the DCs’ compliance with the terms of the Montreal Protocol.¹⁷³ In fact, several of the DCs refused to join the Montreal Protocol until a mechanism was established to facilitate the transfer of financial aid.¹⁷⁴ Thus, the failure to contribute the assessed amounts to the Fund would constitute a material breach. However, if this provision is invoked, the Montreal Protocol may only be suspended as between the affected party and the party in breach—not the entire conference of the parties, and would not be grounds for the affected party to suspend all of its obligations under the agreement.¹⁷⁵

A fundamental change of circumstances may also be invoked to terminate or withdraw from a treaty if “[t]he existence of those circumstances constituted an essential basis of the consent of the parties to be bound by the treaty; and [t]he effect of the change is radically to transform the extent of obligations still to be performed under the treaty.”¹⁷⁶ As discussed above, the first part of the test is met, because the financial and technical assistance provisions were essential to the DCs’ acceptance of the Montreal Protocol’s obligations. The second portion of the test is also met, because, without the financial and technical assistance provided in the Montreal Protocol, the DCs would not have the resources necessary to meet their phase-out and reduction obligations, which would substantially increase the burdens imposed by the treaty.¹⁷⁷

¹⁷⁰ See *id.* at Part IV, sec. 3, arts. 60, 62.

¹⁷¹ See *id.* at art. 60(2)(b).

¹⁷² See *id.* at art. 60(3)(b).

¹⁷³ See Montreal Protocol, *supra* note 28, at art. 5(3).

¹⁷⁴ See Bowser, *supra* note 138, at 636; Patlis, *supra* note 109, at 193.

¹⁷⁵ The only way the Protocol could be suspended between the complaining party and the rest of the member states is if the other countries vote by unanimous consent to the suspension. See Vienna Convention, *supra* note 169, at art. 60(2)(a).

¹⁷⁶ *Id.* at arts. 62(1)(a)-(b).

¹⁷⁷ The inability of the DCs to meet the demands imposed by the Protocol is discussed extensively in Section II above.

Although a DC would be able to withdraw entirely from the treaty based on a fundamental change of circumstances, this alternative succumbs to the same concerns as the Montreal Protocol provisions for withdrawal. If a DC invokes this provision as grounds for withdrawal, that party would be subject to the Article 4 trade restrictions discussed above. Again, these sanctions provide a strong incentive to keep parties from leaving the agreement. Thus, a DC may find that the trade restrictions would be too severe to justify withdrawing entirely from the Protocol.

VI. CONCLUSION

Although the Montreal Protocol is viewed by many as a success, that success has not been complete. The parties have failed to adequately address important questions that continue to be raised by the DCs. Two of the main issues still to be resolved by the parties involve the legal status of contributions to the Fund and how the parties are going to respond to concerns that an adequate substitute for methyl bromide does not exist.

This Note has argued that the assessed contributions to the Fund are legally binding obligations under a variety of theories. But, even if this argument were assumed to be true, there is little a DC can do to force industrialized countries to pay their contributions. Article 5 Parties have too much to lose by withdrawing from the Montreal Protocol to use such a threat effectively. Until the parties reach an agreement on the status of contributions, or the Implementation Committee decides to take an active enforcement approach to ensure compliance, the DCs have little recourse. The only realistic options DCs have to assure payments into the Fund are political pressure (the threat of exposing noncompliance) and creating coalitions to influence the decisions made at the Meetings of the Parties.

The DCs have more alternatives available to them when debating the phase-out schedule of methyl bromide. Aside from the options of creating coalitions or using political pressure, the DCs can invoke the provisions in Article 5 if they are unable to comply with the phase-out timeline for methyl bromide. These provisions allow the DCs to avoid noncompliance sanctions while also compelling the developed countries to address the issues of economic and technological feasibility for methyl bromide substitutes. In this

manner, the DCs are able to remain parties to the treaty, retaining its valuable trade and economic benefits, and still fulfill the ultimate goal of the treaty--to protect the ozone layer.