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Resolving Conflicts between Multilateral Environmental Agreements: The Case of the Montreal and Kyoto Protocols

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RESOLVING CONFLICTS BETWEEN MULTILATERAL ENVIRONMENTAL AGREEMENTS: THE CASE OF THE MONTREAL AND KYOTO PROTOCOLS

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Seen from a distance in such weather, Coketown lay shrouded in a haze of its own, which appeared impervious to the sun's rays A blur of soot and smoke . . . a dense formless jumble, with sheets of cross light in it, that showed nothing but masses of darkness. Coketown in the distance was suggestive of itself, though not a brick of it could be seen.

Charles Dickens¹

I. INTRODUCTION

In *HARD TIMES*, Dickens describes a nineteenth century industrial town shrouded in smoke. A century and a half later, our society has progressed away from the kind of air pollution that made industrial towns such as Coketown impervious blurs to distant onlookers.² However, in the 1970's, scientists became increasingly concerned

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1. CHARLES DICKENS, *HARD TIMES* 115 (Karen Oden ed., Barnes & Noble Classics 2004) (1854).

2. See generally U.S. ENVTL. PROTECTION AGENCY, AIR EMISSIONS TRENDS: CONTINUED PROGRESS THROUGH 2005, <http://www.epa.gov/airtrends/econ-emissions.html> (last visited Mar. 28, 2007) (demonstrating that air quality has improved in the United States over the last several decades).

that the effects of industrial emissions went beyond dirty and unhealthy air.³

First, since the 1950's the scientific community has gradually accepted that the emission of greenhouse gases such as carbon dioxide⁴ prevents heat from the earth's surface from escaping into the atmosphere, which increases global temperatures, and results in climate change.⁵ The results of climate change are potentially catastrophic, including rising ocean levels, drought, the extinction of organisms, and the spread of disease.⁶

Secondly, in the 1970's, scientists discovered that the emission of man-made chlorofluorocarbons ("CFCs")⁷ and other, methane based chemicals⁸ have caused the deterioration of the stratospheric ozone layer.⁹ The stratospheric ozone layer repels harmful ultraviolet ra-

3. See MICHAEL GRUBB, CHRISTIAAN VROLIJK & DUNCAN BRACK, *THE KYOTO PROTOCOL: A GUIDE AND ASSESSMENT* 4 (1999) (stating that international bodies became increasingly concerned about climate change in the 1970's). Swedish scientist Arrhenius and French scientist Fourier first proposed the theory of climate change in the nineteenth century and the scientific community first accepted the theory in the 1950's. *Id.* at 4-5. See also RICHARD ELLIOT BENEDICK, *OZONE DIPLOMACY: NEW DIRECTIONS IN SAFEGUARDING THE PLANET* 10-11 (1998) (stating that scientists began to theorize in the 1970's that some man-made chemicals could deplete the layer of stratospheric ozone in the upper atmosphere).

4. See Kyoto Protocol to the United Nations Framework Convention on Climate Change annex A, Dec. 10, 1997, 37 I.L.M. 22 [hereinafter Kyoto Protocol] (listing substances that the Kyoto Protocol regime considers to be greenhouse gases); GRUBB, *supra* note 3, at 3 (noting that carbon dioxide and water vapor are examples of greenhouse gases).

5. See ENVTL. INVESTIGATION AGENCY, *TURNING UP THE HEAT: LINKAGES BETWEEN OZONE LAYER DEPLETION AND CLIMATE CHANGE: THE URGENT CASE OF HCFCs AND HFCs* 3 (2006) [hereinafter EIA REPORT]; GRUBB, *supra* note 3, at 3-4. (describing the greenhouse effect as what happens when solar radiation comes in contact with the earth's surface).

6. See Scott Barnett, *The Problem of Averting Global Catastrophe*, 6 CHI. J. INT'L L. 527, 546-47 (2006) (describing the effects of climate change as the melting of polar ice caps, rising ocean levels, the collapse of the gulf stream, unpredictable weather patterns, and the spread of diseases such as malaria, meningitis, and rotavirus).

7. See BENEDICK, *supra* note 3, at 10 (stating that CFCs are stable, nonflammable, odorless chemicals that industries often used in refrigeration, as propellants, and as insulators).

8. See *id.* at 12 (stating that methane based substances commonly used as ignition fluid and pesticides contribute to ozone depletion).

9. See generally NATURAL ENV'T. RESEARCH COUNCIL, BRITISH ANTARCTIC SURVEY, *ANTARCTIC OZONE*, <http://www.antarctica.ac.uk/met/jds/ozone/index>

diation from the sun.¹⁰ Overexposure to ultraviolet radiation causes skin cancer and blindness in humans and various health problems in animals.¹¹

Currently, there are two treaties in place to deal with these issues: the Montreal Protocol on Substances that Deplete the Ozone Layer¹² ("Montreal Protocol") and the Kyoto Protocol to the United Nations Framework Convention on Climate Change ("Kyoto Protocol").¹³ Observers generally consider the Montreal Protocol a more successful treaty than the Kyoto Protocol.¹⁴ Unfortunately, the success of

.html (last visited Mar. 28, 2007) (describing the size of the hole in the ozone layer over Antarctica in 2005 and 2006).

10. See EIA REPORT, *supra* note 5, at 1 (stating that the ozone layer prevents ninety-nine percent of solar ultraviolet radiation from reaching the earth's surface).

11. See *id.* at 2. (demonstrating that ozone depletion may have already caused increases in melanoma and cataracts in humans). The EIA also demonstrates that ozone depletion causes health problems in various species of plants and animals. *Id.*

12. See Vienna Convention for the Protection of the Ozone Layer art. 2, Mar. 22, 1985, 26 I.L.M. 1529 [hereinafter Vienna Ozone Convention] (setting forth the goal of Vienna Ozone Convention and its protocols as the prevention of stratospheric ozone depletion); see also Montreal Protocol on Substances that Deplete the Ozone Layer art. 14, Sept. 16, 1987, 26 I.L.M. 1541 [hereinafter Montreal Protocol] (demonstrating the Montreal Protocol's relationship with the Vienna Ozone Convention, its parent treaty); Laura Thoms, *A Comparative Analysis of International Regimes on Ozone and Climate Change with Implications for Regime Design*, 41 COLUM. J. TRANSNAT'L L. 795, 801-02 (2003) (describing the Vienna Ozone Convention). The author argues that the adoption of the Montreal Protocol made the Vienna Ozone Convention successful by implementing the goal of preventing ozone depletion articulated in the Vienna Convention. *Id.* at 802.

13. See United Nations Framework Convention on Climate Change art. 2, May 9, 1992, 31 I.L.M. 849 [hereinafter UNFCCC] (stating that the goal of UNFCCC is the prevention of radical change in the earth's climate system); see also Kyoto Protocol, *supra* note 4, at pmb1. (demonstrating that the Kyoto Protocol shares the purpose of the UNFCCC).

14. See AARON SCHWABACH, INTERNATIONAL ENVIRONMENTAL DISPUTES, 71-79 (2006) (comparing the Montreal and Kyoto Protocols). The Kyoto Protocol officially became effective in 2004. *Id.* at 77. Schwabach argues, however, that the Kyoto Protocol has not yet been as successful as the Montreal Protocol. *Id.* at 73-74; see also Thoms, *supra* note 12, at 797 (comparing the Montreal and Kyoto Protocol regimes). The author argues as of 2003 that while the Montreal Protocol regime has been largely successful, the Kyoto Protocol has not. Thoms, *supra* note 12, at 797. Thoms wrote this article before the Kyoto Protocol officially took effect and it focuses on the structure of the Kyoto Protocol. *Id.* at 812-16.

the Montreal Protocol could undermine any potential gains against climate change made by the Kyoto Protocol.¹⁵

This Comment argues that the Montreal Protocol treaty regime and the Kyoto Protocol treaty regime have a legal obligation to cooperate in effectively regulating the global atmosphere. Part II briefly describes the Montreal and Kyoto Protocols. Part II then details how, by encouraging the replacement of CFCs with greenhouse gases, the Montreal Protocol undermines the effectiveness of the Kyoto Protocol. Part II then details how the Kyoto Protocol gives its parties incentive to produce substances that the Montreal Protocol attempts to phase out. Next, Part II describes sources of conventional international conflict of treaty law. Finally, Part II describes sources of customary international law, especially regarding multilateral environmental agreements.

Part III discusses how conventional conflict of treaty principles and the principle of *lex specialis* cannot adequately address the conflict between the Montreal and Kyoto Protocols. Part III also discusses how the “most favorable treaty” principle commonly included in multilateral environmental agreements can adequately address part of the conflict. Part III then analyzes how the “most effective treaty” principle and principles of treaty cooperation can solve the remainder of the conflict. Lastly, Part IV argues that the treaty regimes can operate more effectively by substituting substances with the best available alternative, integrating their assessment of global atmospheric problems, and encouraging solutions that will have the best overall impact on reducing ozone depletion and controlling climate change.

15. See EIA REPORT, *supra* note 5, at 6 (reporting that the Kyoto Protocol attempts to prevent the emission of 950 million metric tons of carbon). A joint report by the Montreal and Kyoto Protocol regimes predicts that the emission of ozone depletion substitutes will be two billion metric tons of carbon, which is over twice as much carbon as the Kyoto Protocol seeks to prevent. *Id.* at 9 (citing INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE & TECHNOLOGICAL AND ECONOMIC ASSESSMENT PANEL, IPCC/TEAP SPECIAL REPORT: SAFEGUARDING THE OZONE LAYER AND THE GLOBAL CLIMATE SYSTEM: ISSUES RELATED TO HYDROFLUOROCARBONS AND PERFLUOROCARBONS (2005) [hereinafter IPCC/TEAP SPECIAL REPORT]).

II. BACKGROUND

The Montreal and Kyoto Protocols are multilateral environmental agreements. The Montreal Protocol regime encourages the use of certain substances controlled by the Kyoto Protocol. Also, the Kyoto Protocol regime encourages the manufacture of certain substances controlled by the Montreal Protocol. However, principles of conventional and customary international law exist that may resolve this conflict.

A. Defining the Montreal Protocol

The Montreal Protocol opened for signature in 1987.¹⁶ It is a protocol to the Vienna Convention on the Protection of the Ozone Layer (“Vienna Ozone Convention”),¹⁷ which opened for signature in 1985.¹⁸ Both the Vienna Ozone Convention and the Montreal Protocol work to prevent the use of chemicals that damage that stratospheric ozone layer of the earth’s upper atmosphere.¹⁹ Damage to the ozone layer could result in negative effects on the health of humans and animals.²⁰

The Montreal Protocol regime establishes phase-outs of ozone depleting substances, and funds the development of substitutes through its Multilateral Fund.²¹ Substances controlled by the Montreal Pro-

16. See BENEDICK, *supra* note 3, at 1 (citing Montreal Protocol, *supra* note 12, at art. 15) (stating that the Montreal Protocol opened for signature on September 16, 1987).

17. See Montreal Protocol, *supra* note 12, at art. 14 (stating that the provisions Vienna Ozone Convention apply unless the Montreal Protocol states otherwise).

18. See Vienna Ozone Convention, *supra* note 12, at art. 21 (stating that the Vienna Ozone Convention opened for signature on March 22, 1985).

19. See Montreal Protocol, *supra* note 12, at art. 2 (stating the regulations that the Montreal Protocol regime places on ozone depleting substances); Vienna Ozone Convention, *supra* note 12, at art. 2 (stating the purpose of the Vienna Ozone Convention as the protection of the earth’s stratospheric ozone layer).

20. See EIA REPORT, *supra* note 5, at 2 (describing the effects of ozone depletion as the spread of disease, increases in skin cancer rates, damage to zooplankton stocks, and damage to agricultural plants).

21. See Elizabeth R. DeSombre, *The Experience of the Montreal Protocol: Particularly Remarkable and Remarkably Particular*, 19 UCLA J. ENVTL. L. & POL’Y 49, 53-54 (2001) (describing the Montreal Protocol’s Multilateral Fund as a system that encourages the replacement of ozone depleting substances with various substances that cause less damage to the ozone layer). DeSombre argues that the strength of the Montreal Protocol is its ability to make adjustments without formal amendments. *Id.* at 54.

tolocol include CFCs,²² which are aerosol propellants and refrigeration chemicals²³ such as CFC-11 and CFC-12.²⁴ The Montreal protocol also controls hydro-chlorofluorocarbons (“HCFC”),²⁵ such as the refrigeration chemical HCFC-22,²⁶ and pesticides such as Methyl Bromide.²⁷

B. Defining the Kyoto Protocol

The Kyoto Protocol opened for signature in 1997.²⁸ It is a protocol to the United Nations Framework Convention on Climate Change (“UNFCCC”),²⁹ which opened for signature in 1992.³⁰ The UNFCCC and Kyoto Protocol work to prevent climate change by limiting the emission of greenhouse gases.³¹ The effects of radical climate change include rising ocean levels and the spread of disease.³²

22. See Montreal Protocol, *supra* note 12, at art. 2 (establishing the phase-out schedule for CFCs).

23. See Elias Mossos, *The Montreal Protocol and the Difficulty with International Change*, 10 ALB. L. ENVTL. OUTLOOK J. 1, 2-8 (2005) (mentioning that CFCs are aerosol propellants); Jennifer S. Bales, *Transnational Responsibility and Recourse for Ozone Depletion*, 19 B.C. INT’L & COMP. L. REV. 259, 265 (1996) (stating that industries use CFCs as refrigeration coolants and in Styrofoam).

24. See Montreal Protocol, *supra* note 12, at annex A (listing CFC-11 and CFC-12 as chemicals controlled by the Montreal Protocol regime).

25. See *id.* at art. 2 (establishing the phase-out schedule for HCFCs).

26. See EIA REPORT, *supra* note 5, at 8 (mentioning that the air conditioner industry uses HCFC-22 as a coolant).

27. See Montreal Protocol, *supra* note 12, at art. 2 (establishing the phase-out schedule for methyl bromide); Sondra Goldschein, Note, *Methyl Bromide: The Disparity between the Pesticide’s Phase-out Dates Under the Clean Air Act and the Montreal Protocol on Substances that Deplete the Ozone Layer*, 4 ENVTL. L. 577, 577 (1998) (defining Methyl Bromide as a pesticide).

28. See Kyoto Protocol, *supra* note 4, at art. 28 (stating that the Kyoto Protocol opened for signature on December 11, 1997).

29. See *id.* at pmb. (stating that the Kyoto Protocol is a protocol to the UNFCCC).

30. See UNFCCC, *supra* note 13, at art. 26 (stating that the United Nations Framework Convention on Climate Change opened for signature on May 9, 1992).

31. See Kyoto Protocol, *supra* note 4, at art. 2 (stating the goal of the Kyoto Protocol as limiting emissions of greenhouse gases to prevent radical climate change); UNFCCC, *supra* note 13, at art. 2 (stating the objective of the UNFCCC is to prevent radical climate change).

32. See EIA REPORT, *supra* note 5, at 3 (describing the effects of climate change as melting polar ice and the spread of diseases such as malaria and respiratory infections).

The Kyoto Protocol regime establishes a complex emissions cap and trade system which allows parties that do not meet their caps to transfer their extra allowance to other parties who are over their caps.³³ The regime controls and enforces this system through its Clean Development Mechanism³⁴ and the decisions of its Conference of the Parties.³⁵ Substances controlled by the Kyoto Protocol include pollutants such as the hydro fluorocarbon HFC-23.³⁶

C. *Defining the Conflicts between the Kyoto and Montreal Protocols*

The conflicts between the treaties stem from two realities. First, most ozone depleting substances are also greenhouse gases.³⁷ Second, both the Montreal and Kyoto Protocols regulate the same physical object: the global atmosphere.³⁸ Although ozone depletion and climate change result from separate chemical processes,³⁹ many substances, especially CFCs, contribute to both problems.⁴⁰ Al-

33. See GRUBB, *supra* note 3, at 198-200 (describing the system of emissions capping and trading under the Kyoto Protocol).

34. See Kyoto Protocol, *supra* note 4, at art. 12 (defining the role and function of the clean development mechanism).

35. See *id.* at art. 9 (describing the functions of the Conference of the Parties).

36. See *id.* at annex A (stating that the Kyoto Protocol caps the emissions of hydro fluorocarbons).

37. See IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6. (displaying the global warming potential of ozone depleting substances and their replacements). The report also displays charts showing expected increases of ozone depleting substances in the atmosphere over the next several years. *Id.* at 9.

38. Compare UNFCCC, *supra* note 13, at art. 2 (stating that the purpose of the UNFCCC is to prevent climate change) with Vienna Ozone Convention, *supra* note 12, at art. 2 (stating that the purpose of treaties under the Vienna Ozone Conventions is to take action against damage to the atmospheric ozone layer).

39. See also Thomas, *supra* note 12, at 823-24 (arguing that ozone depletion is a simpler and more predictable problem than climate change). Few substances cause ozone depletion compared to substances that cause climate change. *Id.* at 823. Furthermore, the effects of ozone depletion are limited to the ozone layer rather than the entire climate system. *Id.* at 823-24. Finally, the effects of ozone depletion are predictable, unlike the effects of climate change which are unpredictable. *Id.* at 824.

40. See also IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (displaying a chart showing the global warming potential of several ozone depleting substances such as CFCs, HCFCs, and HFCs). The global warming potential of CFCs ranges from 10,720 times that of carbon dioxide to 4680 times. *Id.* The global warming potential of HCFCs range from 3270 times that of carbon dioxide to 76 times. *Id.*

though the Montreal Protocol is responsible for combating climate change by phasing out CFCs,⁴¹ it is also responsible for the replacement of CFCs with hydro fluorocarbons (“HFCs”) and HCFCs,⁴² which serve many of the same functions as CFCs with a lesser effect on the ozone layer (or no effect on the ozone layer in the case of HFCs).⁴³ However, both of these substances generally contribute to climate change.⁴⁴ Although the Montreal Protocol regime has mandated the phase-out of HCFCs,⁴⁵ the manufacture of HCFCs has in-

Finally, the global warming potential of HFCs range from 14,310 to 122 times that of carbon dioxide. *Id.*

41. See Guus J. M. Velders et al., *The Importance of the Montreal Protocol in Protecting Climate*, 104 PROC. NAT’L ACAD. SCI. 4814 (2007), available at <http://www.pnas.org/cgi/reprint/0610328104v1>; EIA REPORT, *supra* note 5, at 7 (stating that by successfully phasing out the use of CFCs, the Montreal Protocol regime has had a positive effect on climate change).

42. See DeSombre, *supra* note 21, at 62 (stating that the Montreal Protocol’s Multilateral Fund allows developing countries to purchase CFC substitute technology); BENEDICK, *supra* note 3, at 200-01 (stating that industries have often replaced CFCs with HFCs and HCFCs).

43. See IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 18 (stating that HFCs have no effect on ozone depletion because they do not contain chlorine); UNITED NATIONS ENVTL. PROGRAMME [hereinafter UNEP], MONTREAL PROTOCOL ON SUBSTANCES THAT DEplete THE OZONE LAYER: 2002 ASSESMENT, REPORT OF THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL 1-2 (2003) [hereinafter TEAP HCFC REPORT] (demonstrating that the ozone depletion potential of HCFCs is lower than the substances that they replace).

44. See IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (displaying a chart showing the global warming potential of ozone depleting substances). The IPCC/TEAP Special Report states that various HFCs and HCFCs have high global warming potentials, which is how much of a greenhouse effect a substance has in comparison to carbon dioxide. *Id.* For example, HFC-23, a variant of HFCs, has a global warming potential of 14,130. *Id.* This means that one metric ton of HFC-23 is 14,130 times more effective at warming the atmosphere than one metric tonne of carbon dioxide. *Id.*; but see STEPHEN O. ANDERSON & DURWOOD ZAEKE, *INDUSTRY GENIUS: INVENTIONS AND PEOPLE PROTECTING THE CLIMATE AND FRAGILE OZONE LAYER*, 161-62 (2003) (stating that, when used in industrial, emissions-free air conditioners, one kind of HCFC, HCFC-123, has a high enough energy efficiency that its global warming potential is minimized).

45. See TEAP HCFC REPORT, *supra* note 43, at 77 (describing the specific phase-out schedule for HCFCs). Developed nations, such as the United States and European Union nations, will gradually phase-out HCFCs by 2020. *Id.* Developing nations, such as India, China, and Brazil, will have their HCFC use capped in 2016 and phase-out HCFC use by 2040. *Id.* at 77-78. See also Montreal Protocol, *supra* note 12, at art. 5 (setting forth the nations that the Montreal Protocol considers developed and developing nations).

creased in developing nations that are not yet subject to the phase-out.⁴⁶ Finally, the Kyoto Protocol specifically regulates HFCs.⁴⁷

In 1994 the Montreal Protocol regime began phasing out HCFCs but not HFCs.⁴⁸ Industries commonly substitute HFCs for ozone depleting substances, especially HFC-134a, which has become the preferred substitute for CFCs in refrigerators, air conditioners, and heat pumps since the adoption of the Montreal Protocol.⁴⁹ Also, the manufacture of HCFCs, most notably the air conditioner coolant HCFC-22, continues to expand in countries where the Montreal Protocol regime has not yet implemented a phase-out, especially in China.⁵⁰

1. The HFC-134a Conflict

The Kyoto Protocol specifically caps the emissions of HFCs,⁵¹ including HFC-134a, a coolant commonly used in household and automobile air conditioners.⁵² The Kyoto Protocol Conference of

46. See EIA REPORT, *supra* note 5, at 8 (citing IPCC/TEAP SPECIAL REPORT, *supra* note 15) (describing a rapid increase in HCFC product over the past several years, most notably in China and India).

47. See Kyoto Protocol, *supra* note 4, at annex A (listing carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride as greenhouse gases regulated by the Kyoto Protocol).

48. See BENEDICK, *supra* note 3, at 228-31. (stating that the Montreal Protocol regime plans a phase-out of HCFCs). However, he also states that the Montreal Protocol regime refused to phase-out HFCs despite their global warming potential. *Id.* HFCs do not contain chlorine, which is essential to the ozone depletion process. *Id.* Therefore, they do not contribute to ozone depletion. *Id.*

49. See IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (describing the high global warming potential of HFCs); see also UNEP, REPORT OF THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL, PROGRESS REPORT 5.2, 57-63 (2006) [hereinafter TEAP 2006 REPORT] (implying that the Montreal Protocol regime has influenced the expanded use of HFCs in air conditioning systems). This report describes the widespread use of HFC as a substitute for CFC, especially HFC-134a, as progress because it results in limiting use of CFCs and HCFCs. *Id.* at 571.

50. See TEAP HCFC REPORT, *supra* note 43, at 26-27 (describing the world market growth for small air conditioners manufactured in China, using HCFC-22 as a coolant).

51. See Kyoto Protocol, *supra* note 4, at annex A (listing HFC among substances whose industrial emissions are capped by the Kyoto Protocol).

52. See TEAP 2006 REPORT, *supra* note 49, at 57-63 (describing the use of HFC-134a along with other coolants); see also EIA REPORT, *supra* note 5, at 6 (stating that the Kyoto Protocol regime caps the emissions of HFC-134a); IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (stating that the global warming potential of HFC-134a is 1410 times that of carbon dioxide). The European Union

the Parties has noted that the Montreal Protocol regime's Multilateral Fund encourages the replacement of ozone depleting substances with greenhouse gases,⁵³ including HFC-134a.⁵⁴ Therefore, while the Kyoto Protocol discourages the use of HFC-134a because it is a greenhouse gas, the Montreal Protocol encourages the use of HFC-134a as a substitute for CFCs in refrigeration and air conditioning equipment by funding it through its Multilateral Fund.

2. The HCFC-22/HFC-23 Conflict

Another conflict between the Kyoto and Montreal Protocols involves HCFC-22, a coolant used in air conditioners and refrigerators, and the gas emitted as a byproduct of its manufacture, HFC-23.⁵⁵

has planned a phase-out of HFC-134a in order to lower their greenhouse gas emissions. *Id.* at 16.

53. See Conference of the Parties to the Framework Convention on Climate Change, Eighth Session, New Delhi, India, Oct. 23 – Nov. 1, 2002, *Part Two: Action Taken by the Conference of the Parties at its Eighth Session*, U.N. Doc FCCC/CP/2002/7/Add.1 (Mar. 28, 2003). (noting that the Montreal Protocol encourages the replacement of ozone depleting substances with greenhouse gases in some instances). The report recommends policies to fix this problem, such as encouraging governments and industries to consider the climate change implications when developing substitutes for ozone depleting substances. *Id.*; see also Kyoto Protocol, *supra* note 4, at art. 2 (implying that the Conference of the Parties cannot recommend that the Kyoto Protocol regime regulate HCFC because the Kyoto Protocol exempts HCFC and other substances controlled by the Montreal Protocol regime from its regulations).

54. See generally United Nations Multilateral Fund Secretariat, Project Completion Report ALG/REF/26/INV/30 (2006), available at <http://www.unmfs.org/pcr/databases.asp> (search for ALG/REF/26/INV/30) (describing the money used by the Multilateral Fund to phase-out a CFCs and replace them with HFC-134a in Algeria); United Nations Multilateral Fund Secretariat, Evaluation Report on MAC Projects in India (2003), available at <http://www.unmfs.org/policydoc/policy47p614.htm> (describing projects by the Multilateral Fund to replace ozone depleting automobile cooling equipment with HFC-134a equipment in India). See also TEAP 2006 REPORT, *supra* note 49, at 62 (stating that HFC-134a is the global standard for mobile air conditioning); EIA REPORT, *supra* note 5, at 6 (stating that the Montreal Protocol regime promotes HFC-134a as an alternative to ozone depleting substances).

55. See EIA REPORT, *supra* note 5, at 7-9. (detailing the HCFC-22/HFC-23 conflict). The EIA describes what they refer to as the "perverse incentive" for developing countries to manufacture HCFC-22 in order to collect and destroy its byproduct, HFC-23. *Id.* at 9. Industries can destroy HFC-23 to gain Kyoto Protocol emissions credits, and the cost of capturing and destroying HFC-23 is inexpensive, allowing for high profit. *Id.* If this policy did not encourage the production of HCFC-22, it would greatly benefit the Kyoto Protocol regime's goal of stabilizing

The Kyoto Protocol exempts from its controls any substance “not controlled by the Montreal Protocol.”⁵⁶ Although the Montreal Protocol mandates the phase-out of HCFC-22,⁵⁷ developing countries have until a production freeze in 2016 before they have to begin phasing out HCFC-22.⁵⁸ The Montreal Protocol regime estimates that, especially in China, South America, and India,⁵⁹ the production and use of HCFC-22 will result in the emission of two billion metric tonnes of carbon, which will cancel out any gains against greenhouse gas emissions made by the Kyoto Protocol.⁶⁰

The process of manufacturing HCFC-22 results in the emission of the chemical HFC-23 as a pollutant.⁶¹ The Kyoto Protocol regime regulates the emission of HFC-23 because it is a hydro fluorocarbon.⁶² In fact, HFC-23 has one of the highest global warming potentials of any greenhouse gas regulated by the Kyoto Protocol.⁶³ Un-

the global atmosphere because of HFC-23’s high global warming potential. *Id.* at 7; IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (demonstrating the high global warming potential of HFC-23).

56. See Kyoto Protocol, *supra* note 4, at art 2 (stating multiple times that its regulations exclude substances controlled by the Montreal Protocol); UNFCCC, *supra* note 13, at art. 4 (exempting substances controlled by the Montreal Protocol from climate change regulations).

57. See TEAP HCFC REPORT, *supra* note 43, at 27-28 (predicting that developed nations such as the United States and the European Union will successfully phase-out the use of HCFCs by the targeted date of 2015). The European Union will ban imports of HCFCs in 2008. *Id.* at 28. The air conditioner market in the United States, likewise, almost entirely comprises of imports from countries that have to phase-out HCFCs by 2015. *Id.* at 27.

58. See EIA REPORT, *supra* note 5, at 7 (citing TEAP/HCFC REPORT, *supra* note 43) (stating that developing countries have between a production freeze in 2016 until 2040 to phase-out HCFC-22).

59. See TEAP HCFC REPORT, *supra* note 43, at 40 (stating that China, India, and South America are likely to increase HCFC-22 production between now and 2015).

60. See EIA REPORT; *supra* note 5, at 9 (stating that HCFC-22 emissions and manufacture will produce twice as much greenhouse gas emissions as the Kyoto Protocol plans to reduce by 2012).

61. See *id.* at 6 (stating that HFC-23 is a byproduct of HCFC-22 manufacture).

62. See Kyoto Protocol, *supra* note 4, at annex A (listing HFCs as regulated greenhouse gases).

63. See IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (stating that the global warming potential of HFC-23 is 14,310 times that of carbon dioxide). See also U.S. Env’tl. Prot. Agency, *High Global Warming Potential (GWP) Gases*, <http://www.epa.gov/highgwp/scientific.html> (last visited Feb. 18, 2007) (demonstrating that the official global warming potential of HFC-23 is 11,700, based on the IPCC’s 1996 Second Assessment Report).

der the Kyoto Protocol's Clean Development Mechanism companies that capture and destroy HFC-23 can make large profits.⁶⁴ Therefore, by giving emissions credits for the destruction of HFC-23, the Kyoto Protocol regime indirectly supports the production of HCFC-22, a substance that the Montreal Protocol Regime attempts to phase-out.⁶⁵

D. International Legal Frameworks That Could Resolve the Conflicts between the Kyoto and Montreal Protocols

According to the International Court of Justice, there are four sources of international law.⁶⁶ The Statute of the International Court of Justice states that international conventions and international custom accepted as law as are accepted sources.⁶⁷ The Vienna Convention on the Law of Treaties ("VCLT") is the main source of conventional conflict of treaty law unless the treaty itself specifies a conflict resolution clause.⁶⁸ If conventional law is inadequate to resolve the conflict, customary international law, "a consistent and general state practice reflected in the text of treaties which the parties agree that they are obliged to follow," can resolve conflicts.⁶⁹

64. See EIA REPORT, *supra* note 5, at 9 (reporting that companies in Kyoto Protocol parties can receive a five to fifteen dollar credit for each metric tonne of greenhouse gases that they destroy). It only takes about twenty cents to destroy a metric tonne of HFC-23, which results in a profit of several dollars regardless of how large the Kyoto Protocol emissions credit. *Id.*

65. See Montreal Protocol, *supra* note 12, at art. 2 (describing the phase-out of HCFCs). See also TEAP HCFC REPORT, *supra* note 43, at 2-3 (discussing progress made towards ending the use of HCFCs in developed countries).

66. See Statute of the International Court of Justice, art. 38, June 26, 1945, 49 Stat. 1055, 1060 (describing conventional law, customary law, general principles of law accepted by civilized nations as sources of law, and previous cases and academic legal writings as sources of legal interpretation).

67. See *id.* (defining conventional law as general or particular conventions establishing rules, and customary international law as generally followed international custom accepted as law).

68. See SEYED ALI SADAT-AKHAVI, *METHODS OF RESOLVING CONFLICTS BETWEEN TREATIES*, 47 (2003) (stating that if a treaty does not have a specific conflict resolution clause, the Vienna Convention on the Law of Treaties will prevail).

69. See *id.* at 99 (mentioning that the International Court of Justice also defines state practice as national court practice and government documents). This comment focuses on what Sadat-Akhavi refers to as "treaty practice of state" in his discussion of customary international law. *Id.* at 108. *But see* MARK E. VILLIGER, *CUSTOMARY INTERNATIONAL LAW AND TREATIES: A MANUAL ON THE THEORY*

1. The Vienna Convention on the Law of Treaties

The VCLT discusses the resolution of treaty conflicts in six different clauses.⁷⁰ Articles 59,⁷¹ 53,⁷² and 64⁷³ deal with conflicts where one treaty negates the existence of another.⁷⁴ Articles 40⁷⁵ and 41⁷⁶ deal with conflicts where both treaties remain valid, but one of them changes the other.⁷⁷ Article 30 of the VCLT specifically addresses conflicts between two treaties with the same subject matter when both treaties remain valid, but the provisions of one treaty prevail over the other.⁷⁸ Although Article 30 constitutes the most important and comprehensive provision of the VCLT concerning conflicts of treaties,⁷⁹ legal scholars have criticized it for having overly ambigu-

AND PRACTICE OF THE INTERRELATION OF SOURCES 50 (2d ed. 1997) (stating that the difficulty in ascertaining whether a general state practice is accepted as law have led scholars to question the concept of customary international law).

70. See SADAT-AKHAVI, *supra* note 68, at 47 (listing the different clauses where the Vienna Convention on the Law of Treaties deals with conflicts between treaties, which are articles 30, 40-41, 53, 59, and 64).

71. See Vienna Convention on the Law of Treaties, art. 59, May 22, 1969, 331 U.N.T.S. 1155 [hereinafter VCLT] (stating that a treaty can be terminated by a later treaty if it appears that the later treaty is intended to govern the same subject matter and is so incompatible with the earlier treaty that the two cannot coexist).

72. See *id.* at art. 53 (stating that a treaty is void if it conflicts with a generally accepted principle of international law).

73. See *id.* at art. 64 (stating that when a new generally accepted principle of international law is established, all previous treaties that follow the old rule are void).

74. See SADAT-AKHAVI, *supra* note 68, at 47 (stating that Article 59 of the VCLT will terminate one of two conflicting treaties and Articles 64 and 53 will invalidate one of two conflicting treaties).

75. See VCLT, *supra* note 71, at art. 40 (stating that an amendment to a treaty only binds the parties who agree to it).

76. See *id.* at art. 41 (stating the conditions by which two or more parties to a multilateral treaty can modify the treaty).

77. See SADAT-AKHAVI, *supra* note 68, at 47 (stating that Article 40 of the VCLT deals with amended treaties and Article 41 deals with modified treaties).

78. See VCLT, *supra* note 71, at art. 30 (defining the conflict resolution framework for treaties dealing with the same subject matter); SADAT-AKHAVI, *supra* note 68, at 59 (quoting VCLT, *supra* note 71, at art. 30) (noting that the title of Article 30 of the VCLT is "successive treaties relating to the same subject matter").

79. See SADAT-AKHAVI, *supra* note 68, at 59-60 (stating that Article 30 is the VCLT's most prominent article on the relationship between treaties).

ous language,⁸⁰ and inadequately addressing treaties that confer different obligations onto different states.⁸¹ Finally, courts rarely invoke Article 30.⁸²

2. Customary International Law

Customary international law plays an important role in the development of international environmental law.⁸³ Over the last several decades treaty practice has developed concerning the conflict of treaties in the international environmental law context.⁸⁴ First, the principle of *lex specialis*, which states that a specialized treaty will prevail over a general one,⁸⁵ applies to treaty conflicts in general.⁸⁶ The Basel Convention on the Control of Transboundary Movements of Hazardous Waste (“Basel Convention”),⁸⁷ the Convention on Inter-

80. *See id.* at 60 (arguing that ambiguous language in Article 30 of the VCLT regarding general treaties, special treaties, and treaties pertaining to the same subject matter).

81. *See id.* at 70-71 (arguing that Article 30 fails to address situations where a treaty confers conflicting obligations to different states).

82. *See* Christopher J. Borgen, *Resolving Treaty Conflicts*, 37 *GEO. WASH. INT'L L. REV.* 573, 604-606 (2005) (arguing that Article 30 of the VCLT is generally weak). Borgen argues that despite an increasing number of treaties, Article 30 of the VCLT has only occasionally applied to conflicts between treaties. *Id.* at 605. Article 30's limited application to successive treaties dealing with the same subject matter is problematic because legal authorities have narrowly interpreted the meaning of “same subject matter.” *Id.* at 603-05. Furthermore, courts do not generally adjudicate treaty conflicts because the parties themselves usually resolve conflicts politically. *Id.* at 605.

83. *See* RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES § 601 (1987) (stating that states must conform to customary international rules to prevent, reduce, and control any potential injury to the environment of another state); PETER OREBECH ET AL., *THE ROLE OF CUSTOMARY LAW IN SUSTAINABLE DEVELOPMENT* 386-87 (2005) (using the Rio Declaration's principles of sustainable development and the “precautionary principle” as examples of customary international environmental law).

84. *See* SADAT-AKHAVI, *supra* note 68, at 163 (arguing that environmental law treaties usually use the “most favorable treaty” principle in resolving conflicts with bilateral and regional treaties).

85. *See* Borgen, *supra* note 82, at 589 (defining the principle of *lex specialis* as the principle which states that narrow treaties shall prevail over broad treaties).

86. *See* SADAT-AKHAVI, *supra* note 68 at 101-02 (describing instances where courts have applied the principle of *lex specialis*).

87. *See* Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal art. 11, Mar. 22, 1989, 1992 U.N.T.S. 126 [hereinafter *Basel Convention*] (stating that previous and future treaties that are

national Trade in Endangered Species of Wild Fauna and Flora (“CITES”),⁸⁸ the Convention on Biological Diversity,⁸⁹ and Convention on the Prohibition of Fishing with Long Driftnets in the South Pacific (“Driftnet Convention”)⁹⁰ apply the “most favorable treaty” principle to treaty resolution. The principle of “most favorable treaty” allows for other treaties to coexist with these multilateral environmental agreements if they act more favorably towards the goals of these treaties.⁹¹

Variations of the “most effective treaty” principle exist in international environmental law as well, such as in the Convention on the Law of Non-Navigational Uses of International Watercourses (“Convention on International Watercourses”).⁹² The principle of “most effective treaty,” is usually applied to international judicial treaties, such as the Hague Convention on the Taking of Evidence Abroad in Civil or Commercial Matters (“Hague Evidence Conven-

equally or more favorable to the Basel Convention’s goal of “environmentally sound management of hazardous wastes” are valid).

88. See Convention on International Trade in Endangered Species of Wild Fauna and Flora art. 14, Mar. 3, 1973, 993 U.N.T.S. 243 [hereinafter CITES] (stating that CITES does not prohibit its parties from entering into treaties that implement stricter regulations on the trade of endangered species.).

89. See DAVID R. DOWNES, INTEGRATING IMPLEMENTATION OF THE CONVENTION ON BIOLOGICAL DIVERSITY AND THE RULES OF THE WORLD TRADE ORGANIZATION 55 (1999) (citing Convention on Biological Diversity art. 22, June 5, 1992, 31 I.L.M. 818) (demonstrating that Article 22 of the Convention on Biological Diversity allows for any treaty to coexist with the Convention on Biological Diversity so long as it does not cause serious damage or threaten biological diversity).

90. See SADAT-AKHAVI, *supra* note 68, at 164 (citing Convention on the Prohibition of Fishing with Long Driftnets in the South Pacific art. 3, Nov. 24, 1989, 1899 U.N.T.S. 3 [hereinafter Driftnet Convention]) (stating that the Driftnet Convention allows agreements that are more favorable to the elimination of long drift-net fishing).

91. See SADAT-AKHAVI, *supra* note 68, at 168 (defining the “most favorable treaty” principle as treaties allowing for more favorable treaties, regardless of whether or not these treaties are regional, bilateral, or universal in their scope).

92. See ALISTAIR RIEU-CLARKE, INTERNATIONAL LAW AND SUSTAINABLE DEVELOPMENT: LESSONS FROM THE LAW OF INTERNATIONAL WATERCOURSES, 134 (2005) (citing Convention on the Law of Non-Navigational Uses of International Watercourses art. 8, May 21, 1997, 36 I.L.M. 700 [hereinafter International Watercourses Convention]) (quoting the International Watercourses Convention as stating that states will cooperate to most effectively protect international watercourses).

tion")⁹³ and the Hague Convention on International Access to Justice ("Hague Access Convention").⁹⁴

Other treaties contain principles of party cooperation that could help resolve the conflict between the Montreal and Kyoto Protocols. The Convention on Long-Range Transboundary Air Pollution ("CLRTAP") mandates cooperation between parties in the regulation of transnational air pollution.⁹⁵ Also, the European Union's proposed Registration, Evaluation, Authorization, and Restriction of Chemicals Directive ("REACH Directive") takes into account the best available substitute during its chemical authorization process.⁹⁶ The principles from these treaties, when applied to the conflicts between the Montreal and Kyoto Protocols, could resolve the conflicts by forcing the regimes to coordinate their regulation of chemicals and apply the best available substitutes.

III. ANALYSIS

The conflicts between the Kyoto and Montreal Protocols are between permissive and prohibitive norms. The Vienna Convention on the Law of Treaties and the principle of *lex specialis* cannot adequately resolve these conflicts. However, the principle of "most favorable treaty" can resolve the HFC-134a conflict. Likewise, the

93. See SADAT-AKHAVI, *supra* note 68, at 168 (citing Hague Convention on the Taking of Evidence Abroad in Civil or Commercial Matters art. 32, Mar. 18, 1970, 847 U.N.T.S. 241 [hereinafter Hague Evidence Convention]) (stating that the Hague Evidence Convention makes exceptions for treaties that have more effective evidence rules).

94. See SADAT-AKHAVI, *supra* note 68, at 169 (citing Hague Convention on International Access to Justice art. 21, Oct. 25, 1980, 19 I.L.M. 1505 [hereinafter Hague Access Convention]) (stating that the Hague Access Convention makes exceptions for treaties that are more effective in achieving its objectives).

95. See Convention on Long Range Transboundary Air Pollution art. 3, Nov. 13, 1979, 1302 U.N.T.S. 217 [hereinafter CLRTAP] (stating as principles the effective coordination of efforts to contain air pollution).

96. See Regulation of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH), at art. 57, COM (2003) 644 final (Oct. 29, 2003) [hereinafter REACH Directive] (describing the process by which the European Union will authorize a chemical under REACH). The REACH Directive implements the "substitution principle." *Id.* The European Community is unlikely to authorize the use of a chemical that damages the environment if there is a more environmentally sound substitute available. *Id.*

principles of “most effective treaty” and principles of cooperation can resolve the HCFC-22/HFC-23 conflict.

A. The Conflicts between the Kyoto and Montreal Protocols are Between Permissive and Prohibitive Norms

The conflicts between the Kyoto and Montreal Protocols are between permissive and prohibitive treaty provisions, also called treaty norms.⁹⁷ There are three different kinds of treaty norms in international law: obligatory,⁹⁸ permitted,⁹⁹ and prohibited.¹⁰⁰ Types of conflicts between these treaty norms include when one action is subject to both a permitted and prohibited norm,¹⁰¹ and when a treaty permits one action but another permits its unavoidable consequence.¹⁰² Generally, the international legal community does not accept the possibility of permissive norms conflicting with one another.¹⁰³

The Kyoto Protocol discourages the use of HFC-134a because it is a greenhouse gas; the Montreal Protocol encourages the use of HFC-134a as a substitute for CFC in refrigeration and air conditioning

97. See SADAT-AKHAVI, *supra* note 68, at 5 (defining a treaty norm as a treaty provision that compels, allows, or prohibits an action).

98. See *id.* (defining an obligatory norm as a treaty provision that mandates a certain action); see, e.g., Montreal Protocol *supra* note 12, at art. 2A (stating that parties must phase-out the use of CFC by a certain date).

99. See SADAT-AKHAVI, *supra* note 68, at 5 (defining a permissive norm as a treaty provision that allows an action but does not mandate it); see, e.g., Basel Convention, *supra* note 87, at art. 11 (stating that parties may enter into agreements so long as they are at least as favorable as the Basel Convention to the goal of environmentally sound transport of hazardous wastes).

100. See SADAT-AKHAVI, *supra* note 68, at 5 (defining a prohibitive norm as a treaty provision that prohibits the parties from taking a certain action); see, e.g., Montreal Protocol, *supra* note 12, at art. 4 (stating that parties cannot purchase CFC from non-parties after a certain date).

101. See SADAT-AKHAVI, *supra* note 68, at 8 (describing a conflict in which one treaty says parties must give medical aid to prisoners of war in hospitals while another treaty says that the parties may aid them in prison camps).

102. See *id.* at 10 (describing a conflict in which one treaty allows the replacement of railroad tracks while another prohibits interrupting the flow of traffic, an unavoidable consequence of replacing railroad tracks).

103. See *id.* at 35 (stating that permissive norms regulating the same activity cannot conflict). But see Erich Vranes, *The Definition of ‘Norm Conflict’ in International Law and Legal Theory*, 17 EUR. J. INT’L L. 395 (2006) (arguing that permissive norms can conflict if they are “norms of conduct”).

equipment.¹⁰⁴ The caps in the Kyoto Protocol are numbers unrelated to specific substances,¹⁰⁵ and countries could cap the emissions of other greenhouse gases and leave HFCs alone and choose to cap other substances,¹⁰⁶ making the caps permissive norms. However, the use of HFCs as substitutes for CFCs could take the production of HFCs past the Kyoto Protocol caps, especially in developing countries where HFCs are funded by the Montreal Protocol's Multilateral Fund.¹⁰⁷ Therefore, prohibitive norms in the Kyoto Protocol,¹⁰⁸ conflict with permissive norms in the Montreal Protocol.¹⁰⁹

The Kyoto Protocol regime indirectly supports the production of HCFC-22, a substance that the Montreal Protocol Regime phases-out, by giving emissions credits for the destruction of HFC-23.¹¹⁰ Although the Montreal Protocol regime does not require developing

104. See EIA REPORT, *supra* note 5, at 6 (stating that the while HFCs are capped by the Kyoto Protocol the Montreal Protocol regime encourages their use as substitutes for CFC).

105. See Kyoto Protocol, *supra* note 4, at annex B, (displaying the greenhouse gas emission cap goals for various states).

106. See *id.* at art. 3 (demonstrating that parties can reach cap obligations by capping the emissions of greenhouse gases in a variety of ways).

107. See generally Project Completion Report ALG/REF/26/INV/30, *supra* note 54 (demonstrating the funding of HFCs as CFC replacements in developing countries).

108. See Kyoto Protocol, *supra* note 4, at art. 3 (stating that parties will reduce greenhouse gas emissions to their required point by the year 2012, including HFCs). *But see* Kyoto Protocol, *supra* note 4, at annex B (Listing the countries that have emissions caps). The Kyoto Protocol only regulates emissions in developing countries through granting Certified Emissions Reductions credits for Clean Development Mechanism projects. This calls into question the scope of the Kyoto Protocol's prohibitive norms.

109. See Montreal Protocol, *supra* note 12, at art. 2 (implying that the Montreal Protocol allows parties to use HFCs as replacements for CFCs because the Montreal Protocol regime does not specifically regulate them). Article Two lists the substances controlled by the Montreal Protocol. *Id.*; Project Completion Report ALG/REF/26/INV/30, *supra* note 54 (HFC-134a is funded by the Montreal Protocol regime as a CFC replacement); *but see* UNEP, MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL: POLICIES, PROCEDURES, AND GUIDELINES 29-30 (2006) [hereinafter MULTILATERAL FUND] available at <http://www.multilateralfund.org/files/Policy49.pdf> (stating that developing nations work with the Multilateral Fund to develop projects) The Multilateral Fund's close association with the parties calls into question whether it directly encourages the use of any chemicals as substitutes for CFCs.

110. See TEAP HCFC REPORT, *supra* note 43, at 23-26 (discussing progress made towards ending the use of HCFCs).

countries to phase-out the use of HCFCs until 2015,¹¹¹ it is contrary to the purpose of the HCFC phase-out for countries to increase production of HCFC before the Montreal Protocol regime requires them to decrease their production.¹¹² The Kyoto Protocol regime indirectly encourages the production of HCFC-22 by allowing industries to profit by destroying the byproduct of its manufacture, HFC-23.¹¹³ Therefore, permissive norms in the Kyoto Protocol which allow and indirectly encourage HCFC-22 production¹¹⁴ implicitly conflict with prohibitive norms in the Montreal Protocol that plan to phase-out HCFCs.¹¹⁵

B. The VCLT Framework Cannot Adequately Resolve the Conflicts between the Montreal and Kyoto Protocols

Article 30 of the VCLT cannot adequately resolve the conflict between the Montreal and Kyoto Protocols. Article 30 governs the relationship between successive treaties to the same subject matter.¹¹⁶ The international legal community generally agrees that courts should narrowly construe the “same subject” provision of Article 30.¹¹⁷ When a treaty sets forth that it is either subject to or not in-

111. See Montreal Protocol, *supra* note 12, at art. 2F (describing the schedule by which HCFCs will be phased out).

112. See *id.* (stating that the Montreal Protocol regime plans to phase-out the use of HCFCs because of their potential to damage the ozone layer); TEAP HCFC REPORT, *supra* note 43, at 75-76 (demonstrating the Montreal Protocol regime’s concern about developing countries increasing their production of HCFCs before they are required to phase them out); EIA REPORT, *supra* note 5, at 8 (stating that production of HCFC-22 is expected to increase dramatically in China before 2015).

113. See EIA REPORT, *supra* note 5, at 9 (demonstrating the profit that industries can make by capturing and destroying HFC-23).

114. See Kyoto Protocol, *supra* note 4, at art. 2 (demonstrating that the Kyoto Protocol exempts from its controls any substance “controlled by the Montreal Protocol”).

115. See Montreal Protocol, *supra* note 12, at art. 2F (describing the process by which the Montreal Protocol regime has begun to phase-out HCFCs).

116. See VCLT, *supra* note 71, at art. 30 (setting forth the governance of treaties relating to the same subject matter).

117. See Borgen, *supra* note 82, at 603 (citing Anthony Aust, *Modern Treaty Law and Practice* 183 (2000)) (summarizing Aust’s argument that the “same subject matter” provision should be narrowly construed so that a general treaty and a specific treaty do not conflict); see also SADAT-AKHAVI, *supra* note 68, at 60

compatible with an earlier treaty, the earlier treaty prevails.¹¹⁸ If there is no specification, parties to both treaties must only follow the earlier treaty where it is not compatible with the later treaty.¹¹⁹

Article 30 does not apply to treaties with different overall subject matters even if the treaties contain conflicting issues.¹²⁰ For example, if the Convention on International Trade in Endangered Species conflicted with a treaty conserving the habitats of endangered species, the treaties would not govern the same subject matter sufficient for Article 30.¹²¹ CITES would have to conflict with another treaty dealing with trade in endangered species for Article 30 to apply.¹²² Likewise, if a protocol to the Convention on Biological Diversity governing trade in bio-engineered organisms conflicted with a World Trade Organization (“WTO”) agreement, Article 30 does not apply because one treaty deals with the environment and the WTO deals with trade, instead of both treaties dealing with trade or the environment.¹²³

(questioning the whether Article 30’s scope is too indefinite to make it applicable to real-world situations).

118. See VCLT, *supra* note 71, at art. 30 (stating that earlier treaties prevail over latter treaties that are either subject to or compatible with the earlier treaty).

119. See *id.* at art. 30 (stating that parties to two treaties are only bound to the earlier one as far as it does not conflict with the later treaty).

120. See Borgen, *supra* note 82, at 600-04 (arguing that a conflict between a human rights treaty and a trade treaty with provisions impacting human rights would be outside the scope of Article 30); *Id.* at 602-04. Therefore, the treaties would not govern the same subject matter necessary for Article 30. *Id.*

121. See *id.* at 610-13 (outlining an argument that CITES cannot conflict with the Protocol Concerning Specially Protected Areas of Wildlife, because CITES governs trade in endangered species and SPAW governs habitat conservation).

122. See also *id.* at 612 (implying that for Article 30 to apply to a conflict between the CITES and another treaty, the other treaty would have to deal specifically with trade in endangered species).

123. See Borgen, *supra* note 82, at 614 (stating that the Biosafety Protocol to the Biodiversity Convention may conflict with WTO obligations, but Article 30 would not apply because the treaties govern different subject matters); cf. Sikin Jinnah, *Emissions Trading Under the Kyoto Protocol: NAFTA and WTO Concerns*, 15 *GEO. INT’L ENVTL. L. REV.* 709, 717-18 (2003) (describing Article Ten of the General Agreement on Trade and Tariffs (“GATT”), which is the precursor of the World Trade Organization (“WTO”), as granting exceptions to WTO commitments in favor of conditions that could include environmental treaties). The environmental side of a trade and environment dispute would likely try to persuade the WTO to grant it a human or environmental health exemption, while the trade side of the dispute would claim that such an exemption would not be necessary. *Id.* at 733-34. This means that a trade and environment dispute would more

Although the Kyoto and Montreal Protocols both govern the global atmosphere,¹²⁴ the Kyoto Protocol governs the chemical process of climate change, and the Montreal Protocol governs the chemical process of ozone depletion.¹²⁵ For Article 30 to apply, both treaties would have to govern climate change or both would have to govern ozone depletion. Therefore the treaties do not govern the same subject matter sufficiently for Article 30 to apply.

If the common subject of governing the global atmosphere was narrow enough for Article 30 to apply, several ambiguities between the protocols would render it useless to solve the conflicts between them. Article 30's conflict resolution principles rely on the time that treaties open for signature.¹²⁶ Article 30 fails to distinguish if this refers to amended treaties or the original treaties.¹²⁷ This ambiguity is especially problematic in regard to the Montreal and Kyoto Protocols, which are both protocols to previous treaties.¹²⁸ Furthermore, the Montreal Protocol contains several amendments,¹²⁹ and both treaties have meetings/conferences of the parties that continually

likely deal with Article Ten of the GATT rather than Article 30 of the VCLT or customary international law. *Id.* at 722-23.

124. See UNFCCC, *supra* note 13, at art. 2 (stating that the purpose of the UNFCCC and its protocols is to stabilize greenhouse gas emissions in the global atmosphere); Vienna Ozone Convention, *supra* note 12, at art. 2 (stating that the purpose of the Vienna Ozone Convention and its protocols is to protect the ozone layer in the global atmosphere).

125. See EIA REPORT, *supra* note 5, at 4 (describing the differences between the chemical processes which result in ozone depletion and climate change).

126. See VCLT, *supra* note 71, at art. 30 (stating that treaty conflict resolution under Article 30 is contingent on which treaty is "earlier" and which one is "later").

127. See Ryan L. Winter, Comment, *Reconciling the GATT and WTO with Multilateral Environmental Agreements: Can We Have Our Cake and Eat it Too?*, 11 COLO. J. INT'L ENVTL. L. & POL'Y 223, 237 (2000) (questioning which treaty comes first when a treaty has been amended several times); see also SADAT-AKHAVI, *supra* note 68, at 73-76 (describing how it is unclear based on Article 30 whether treaties should date from adoption or entry into force). *But see* Borgen, *supra* note 80, at 602-04 (stating that many countries interpret Article 30 to mean adoption and to disregard entry into force, but also stating that a treaty technically has no parties until it enters into force).

128. See Kyoto Protocol, *supra* note 4, at pmb1. (stating that the Kyoto Protocol is a protocol to the United Nations Framework Convention on Climate Change); Montreal Protocol, *supra* note 12, at pmb1. (stating that the Montreal Protocol is a protocol to the Vienna Convention on the Protection of the Ozone Layer).

129. See DeSombre, *supra* note 21, at 53-54 (listing the amendments to the Montreal Protocol).

make policy decisions on implementation.¹³⁰ Therefore, even if Article 30 applied to the common subject matter of regulating substances that damage the global atmosphere, it would not apply to conflicts between the Montreal and Kyoto Protocols because of ambiguities related to which treaty would be “first in time.”

C. The Principle of Lex Specialis Does Not Apply to the Conflicts between the Kyoto and Montreal Protocols

Lex specialis¹³¹ does not apply to the conflicts between the Kyoto and Montreal Protocols. The rule of lex specialis states that a specialized treaty will prevail over a general one.¹³² Generally, lex specialis can only apply to a treaty conflict if the treaties have different subject matters for Article 30 of the VCLT purposes.¹³³ For lex specialis to apply, conflicting treaties must have a conflict between generality and specificity.¹³⁴ For example, if a an international civil procedure rules convention conflicted with a bilateral agreement with a different subject matter, but the convention had more specialized rules, the convention would prevail.¹³⁵

The Kyoto and Montreal Protocols have different subject matters for Article 30 purposes.¹³⁶ However, the Kyoto Protocol regime

130. See Kyoto Protocol, *supra* note 4, at art. 9 (describing the role of the Conference of the Parties); Montreal Protocol, *supra* note 12, at art. 11 (describing the role of the Meeting of the Parties).

131. See Borgen, *supra* note 82, at 589 (defining the principle of lex specialis as the principle which states that narrow treaties shall prevail over broad treaties).

132. See Winter, *supra* note 127, at 238-39 (2000) (outlining the rule of lex specialis in the international environmental law context).

133. See Borgen, *supra* note 82 at 604-05 (citing ANDREA SCHULTZ, *THE RELATIONSHIP BETWEEN THE JUDGMENTS PROJECT AND OTHER INTERNATIONAL INSTRUMENTS* 14 (2003)) (summarizing an argument that article 30 of the VCLT is narrowly construed to allow for the rule of lex specialis).

134. See also *id.* at 589 (stating that lex specialis only applies to the “breath or narrowness of certain clauses”).

135. See, e.g., SADAT-AKHAVI, *supra* note 68, at 101, (describing conflict between the Hague Convention on Civil Procedure and a bi-lateral arbitration treaty between Germany and Switzerland). A Swiss Federal Court found that the Hague Convention on Civil Procedure prevailed because it had more specific provisions in regard to Civil Procedure than the arbitration treaty. *Id.*

136. See UNFCCC, *supra* note 13, at art. 2 (stating the purpose of the UNFCCC and its protocols is to prevent radical changes in the earth’s climate); Vienna Ozone Convention, *supra* note 12, at art. 2 (stating the purpose of the Vienna Ozone Convention and its protocols is to prevent ozone depletion); see also Borgen, *supra* note 82, at 603-04 (stating that two treaties must have the same

exempts from its regulations substances controlled by the Montreal Protocol.¹³⁷ Likewise, the Montreal Protocol does not control substances regulated by the Kyoto Protocol.¹³⁸ Neither protocol governs substances more generally or more specifically than the other because they govern different substances. Therefore, the principle of *lex specialis* does not apply to the conflicts between them.

D. The “Most Favorable Treaty” Concept from Customary International Law Can Resolve the HFC-134a Conflict, but not the HCFC-22/HFC-23 Conflict

The “most favorable treaty” concept can resolve one of the conflicts between the Kyoto and Montreal Protocols. Many multilateral environmental agreements contain variations of the concept of giving preference to the “most favorable treaty.”¹³⁹ For a subsequent treaty to be more favorable, it first has to be relevant to the goal of the original treaty.¹⁴⁰ Then, the subsequent treaty has to be at least as

subject matter for Article 30 to apply). Borgen states, for instance, that a human rights treaty can only conflict with another human rights treaty, not a human rights treaty concerning trade, for Article 30 to apply. *Id.*

137. See Kyoto Protocol, *supra* note 4, at art. 2 (stating in several places that the Kyoto Protocol regime does not regulate substances controlled by the Montreal Protocol).

138. Compare Kyoto Protocol, *supra* note 4, at annex A (stating the chemicals regulated by the Kyoto Protocol) with Montreal Protocol, *supra* note 12, at art. 2 (listing the Montreal Protocol regime’s control measures for an entirely separate group of substances).

139. See, e.g., Basel Convention, *supra* note 87, at art. 11 (stating that the Basel Convention does not conflict with another treaty that is at least as favorable as it is towards the goal of environmentally sound trade in hazardous wastes); see also SADAT-AKHAVI, *supra* note 68, at 164 (stating that generally multilateral environmental agreements follow the “most favorable treaty” concept, including the Basel Convention and the Convention on the Prohibition of Fishing with Long Driftnets in the South Pacific); DOWNES, *supra* note 89, at 55 (citing Convention on Biological Diversity, *supra* note 89, at art. 22) (quoting the Convention on Biological Diversity, which states that an international convention only conflicts with the Convention on Biological Diversity if it causes serious damage or a threat to biological diversity).

140. See CITES, *supra* note 88, at art. 14 (stating that treaties regulating trade in endangered species do not conflict with CITES as long as they are at least as strict as CITES in their governance); see also SADAT-AKHAVI, *supra* note 68, at 163-64 (interpreting the Basel Convention as stating that a treaty must have the common goal of environmentally sound trade of hazardous wastes to be considered more favorable).

favorable to accomplishing that goal as the original treaty.¹⁴¹ Unlike Article 30, the “most favorable treaty” principle can apply to conflicts between treaties with overlapping issues but different overall subject matters.¹⁴²

The Montreal Protocol regulates the use of greenhouse gases in the case of HCFCs,¹⁴³ and the Kyoto Protocol regulates the use of a commonly used substitute for ozone depleting substances in the case of HFCs.¹⁴⁴ Therefore, like a bilateral treaty dealing with trade in hazardous waste would be relevant to the goal of the Basel Convention,¹⁴⁵ and a treaty protecting fish stocks in the South Pacific would be relevant to the Driftnet Convention,¹⁴⁶ the Kyoto and Montreal Protocols are relevant to each other’s goals because they have different positions as to HFCs and HCFCs, which both contribute to problems with the global atmosphere.¹⁴⁷

The “most favorable treaty” concept, can resolve the HFC-134a conflict between the Kyoto and Montreal Protocols. The principle of “most favorable treaty” would mean that the relevant treaty would prevail over a previous or subsequent treaty that is hostile to its

141. See also SADAT-AKHAVI, *supra* note 68, at 163-64 (stating that the Basel Convention allows for treaties that are more conducive to the environmentally sound transport of hazardous wastes as it is and the Driftnet Convention allows for treaties that are more protective of fish than it is).

142. See Borgen, *supra* note 82, at 603-04 (stating that legal authorities interpret “same subject matter” in Article 30 of the VCLT narrowly); SADAT-AKHAVI, *supra* note 68, at 168 (arguing that the “most favorable treaty” principle allows treaties to most favorably achieve common goals regardless of the status of the treaties).

143. See Montreal Protocol, *supra* note 12, at art. 2F (stating the regulations of HCFCs); IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (stating that HCFCs are generally potent greenhouse gases).

144. See Kyoto Protocol, *supra* note 4, at annex A (listing HFCs among other greenhouse gases); EIA REPORT, *supra* note 5, at 6 (describing HFCs as substitutes for ozone depleting substances).

145. See also SADAT-AKHAVI, *supra* note 68, at 163 (arguing that the “most favorable treaty” provision of the Basel Convention foresees bilateral and regional agreements that would regulate the trade of hazardous wastes).

146. See also *id.*, *supra* note 52, at 164 (arguing that the Driftnet Convention allows for treaties that better regulate South Pacific fish stocks).

147. See IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (demonstrating the climate change potential of HFC-134a); BENEDICK, *supra* note 3, at 126 (stating that the Montreal Protocol regime promotes the use of HFCs as substitutes for ozone depleting substances because they do not contribute to ozone depletion, despite their contribution to climate change).

goals.¹⁴⁸ Although the Kyoto Protocol is subsequent to the Montreal Protocol,¹⁴⁹ it is more favorable to the goal of protecting the global atmosphere in regard to HFCs, because the Kyoto Protocol regime caps their emission and the Montreal Protocol regime does not.¹⁵⁰ Therefore, the Kyoto Protocol would prevail over the Montreal Protocol in regard to the HFC-134a conflict.

However, because the Kyoto Protocol exempts substances controlled by the Montreal Protocol from its regulations,¹⁵¹ This provision renders moot the “most favorable treaty” principle concerning the HCFC-22/HFC-23 conflict. The Montreal Protocol regime actively works against the use of HCFC-22, restricting its funding by the Multilateral Fund,¹⁵² and setting a schedule to phase-out the substance’s use.¹⁵³ Meanwhile, the profitability of destroying HFC-23, the byproduct of HCFC-22s production, results in the Kyoto Proto-

148. See Basel Convention, *supra* note 87, at art. 11 (stating that the “most favorable treaty” principle applies to treaties entered into before the Basel Convention as well as subsequent treaties); see also DOWNES, *supra* note 89, at 55 (citing Convention on Biological Diversity, *supra* note 89, at art. 22) (quoting the Convention on Biological Diversity, which states that an international convention conflicts with the Biodiversity Convention if it causes serious damage or a threat to biological diversity).

149. See Kyoto Protocol, *supra* note 4, at art. 28 (stating that the Kyoto Protocol was adopted in 1997); Montreal Protocol, *supra* note 12, at art. 15 (stating that the Montreal Protocol opened for signature in 1987).

150. See Kyoto Protocol, *supra* note 4, at annex A (listing HFCs as substances controlled by the Kyoto Protocol); Montreal Protocol, *supra* note 12, at art. 2 (demonstrating that HFCs are not regulated by the Montreal Protocol); IPCC/TEAP SPECIAL REPORT, *supra* note 15, at 6 (demonstrating the greenhouse gas potential of HFCs). *But see* MULTILATERAL FUND, *supra* note 109 (stating that developing nations work with the Multilateral Fund to develop projects). The Multilateral Fund’s close association with the parties calls into question whether it directly encourages the use of any chemicals as substitutes for CFCs. This may mean that the “most favorable treaty” concept does not apply to the HFC-134a.

151. See Kyoto Protocol, *supra* note 4, at art. 2 (demonstrating that the Kyoto Protocol exempts from its regulation substances controlled by the Montreal Protocol).

152. See BENEDICK, *supra* note 3, at 377-78 (demonstrating that the Multilateral Fund originally would not promote the use of HCFCs if there is a more environmentally sound alternative); *but see* EIA REPORT, *supra* note 5, at 8 (stating that the Multilateral Fund has refused to fund the phase-out of HCFC-22).

153. See TEAP HCFC REPORT, *supra* note 43, at 81 (describing the scheduled phase-out of HCFCs).

col indirectly supporting the production, and therefore the use of, HCFC-22.¹⁵⁴

Even if the Montreal Protocol were to prevail in a conflict with the Kyoto Protocol because it is more favorable to the goal of ending the use of chemicals that damage the global atmosphere, the Kyoto Protocol could not regulate HCFC-22 because it exempts substances controlled by the Montreal Protocol.¹⁵⁵ Therefore, the most favorable treaty principle cannot resolve the HCFC-22/HFC-23 conflict between the Montreal and Kyoto Protocols.¹⁵⁶

E. The Montreal Protocol is More Effective Than the Kyoto Protocol in Regard to the HCFC-22/HFC-23 Conflict, but the "Most Effective Treaty" Principle Does Not Resolve the Conflict

The "most effective treaty" principle and principles of treaty cooperation can resolve the HCFC-22/HFC-23 conflict. The "most effective treaty" principle states that if there is a conflict between two treaties with a common objective, the treaty that is most effective in achieving that objective applies.¹⁵⁷

The principle of "most effective treaty" often applies to conflicts between international judicial treaties.¹⁵⁸ Treaties such as the Hague Evidence Convention work together with other treaties with common goals, and therefore any conflict between these treaties would result in the application of the treaty most suitable to achieving the goal.¹⁵⁹ For example, if the Hague Evidence Convention conflicted with a

154. See EIA REPORT, *supra* note 5, at 9 (demonstrating the profitability of the destruction of HFC-23, the byproduct produced during the manufacture of HCFC-22).

155. See Kyoto Protocol, *supra* note 4, at art. 2 (stating that the Kyoto Protocol only regulates greenhouse gases that the Montreal Protocol regime does not control).

156. But see Kyoto Protocol, *supra* note 4, at art. 9 (describing the Conference of the Parties apparatus and leaving open the possibility that the Kyoto Protocol regime could reduce the credit for the destruction of HFC-23).

157. See SADAT-AKHAVI, *supra* note 68, at 168-69 (demonstrating the principle of most effective treaty in the Hague Evidence Convention, the Convention on the Civil Aspects of International Child Abduction, and the Hague Access Convention).

158. See SADAT-AKHAVI, *supra* note 68, at 170 (concluding that treaties dealing with judicial matters often employ the "most effective treaty" principle).

159. See *id.* (citing Hague Evidence Convention, *supra* note 91, at art. 32) (stating that the Hague Evidence Convention does not conflict with treaties that have more accessible evidence gathering procedures).

bilateral arbitration treaty with less restrictive evidence taking procedures in some capacities, but not in others, the bilateral treaty would apply to situations where it is more effective and the Hague Convention would prevail in areas where it is more effective.¹⁶⁰

If the Montreal and Kyoto Protocols both regulate chemicals that damage the global atmosphere, within this framework the treaty that is more effective in preventing damage would apply. The Montreal Protocol controls HCFCs and the Kyoto Protocol does not,¹⁶¹ meaning that the Montreal Protocol is more effective at controlling HCFCs. The Montreal Protocol would therefore prevail over the Kyoto Protocol in the HCFC-22/HFC-23 conflict. However, because the Montreal Protocol does not control HCFC-22 in developing countries until 2015,¹⁶² the Montreal Protocol regime cannot resolve the HCFC-22/HFC-23 conflict until 2015.¹⁶³

F. The Montreal Protocol Regime Has a Present Legal Obligation to Cooperate With the Kyoto Protocol Regime in Resolving the HCFC-22/HFC-23 Conflict

The Montreal Protocol regime must presently cooperate with the Kyoto Protocol regime to achieve the most effective regulation of the global atmosphere. The International Watercourse Convention and CLRTAP state that the parties to these treaties will cooperate to achieve the maximum effectiveness of containing transnational water and air pollution respectively.¹⁶⁴ Parties to these agreements share research and consultation to achieve maximum effective-

160. See *id.* (arguing that the parties used the “most effective treaty” principle so that the Hague Evidence Convention would not conflict with bilateral or regional treaties that have less restrictive evidence taking systems).

161. See Kyoto Protocol, *supra* note 4, at annex A (not listing HCFCs as regulated by the Kyoto Protocol); Montreal Protocol, *supra* note 12, at art. 2 (detailing the Montreal Protocol regime’s regulation of HCFCs).

162. See Montreal Protocol, *supra* note 12, at art. 2 (stating that while developed countries phase-out HCFC-22, developing countries do not have to phase-out HCFC-22 until a production freeze in 2015).

163. See EIA REPORT, *supra* note 5, at 8-10 (arguing that the Montreal Protocol regime cannot currently resolve the HCFC-22/HFC-23 conflict because it would have to implement a faster phase-out of HCFCs to resolve the conflict).

164. See CLRTAP, *supra* note 95, at art. 3; (demonstrating that CLRTAP mandates party cooperation in research and implementation); RIEU-CLARKE, *supra* note 92, at 169 (citing Convention on International Watercourses, *supra* note 92, at art. 8) (establishing that the parties have an “obligation to cooperate” on the regulation of international watercourses).

ness.¹⁶⁵ The Vienna Ozone Convention takes this principle a step further and mandates cooperation between the parties to its protocols and “relevant international bodies.”¹⁶⁶

Parties to the International Watercourse Convention and CLRTAP have to cooperate with each other to ensure the most effective regulation of water and air pollution through their domestic, regional, and bilateral apparatus.¹⁶⁷ The Vienna Ozone Convention states that its parties must cooperate with international bodies when implementing its protocols, including the Montreal Protocol.¹⁶⁸ Like parties in the International Watercourse Convention and CLRTAP have to cooperate with each other, parties to the Montreal Protocol regime have to cooperate with “competent international bodies.” Both the Kyoto and Montreal Protocol regimes regulate substances that damage the global atmosphere.¹⁶⁹ Therefore, the Kyoto Protocol regime could be a “competent international body” for Montreal Protocol purposes.¹⁷⁰

165. See CLRTAP, *supra* note 95, at art. 3 (demonstrating that the parties to CLRTAP share information to achieve maximum effectiveness); RIEU-CLARKE, *supra* note 92, at 169 (citing Convention on International Watercourses, *supra* note 92, at art. 9) (demonstrating that parties to the International Watercourses Convention exchange data and information so that the treaty can achieve maximum effectiveness).

166. See Vienna Ozone Convention, *supra* note 12, at art. 2 (stating that parties to the Vienna Ozone Convention and its protocols will cooperate with competent international bodies); Montreal Protocol, *supra* note 12, at art. 14 (stating that the Montreal Protocol defers to the Vienna Ozone Convention unless otherwise stated).

167. See CLRTAP, *supra* note 95, at art. 3 (demonstrating that the parties to CLRTAP share information to achieve maximum effectiveness); RIEU-CLARKE, *supra* note 92, at 169 (citing Convention on International Watercourses, *supra* note 92, at art. 9) (demonstrating that parties to the International Watercourses Convention exchange data and information so that the treaty can achieve maximum effectiveness).

168. See Vienna Ozone Convention, *supra* note 12, at art. 2 (stating that parties to the Convention and its protocols will “co-operate with competent international bodies to implement effectively this [C]onvention and its protocols.”); Montreal Protocol, *supra* note 12, at art. 14 (establishing that the provisions in the Vienna Ozone Convention relating to its protocols apply to the Montreal Protocol unless the text of the Protocol states otherwise).

169. See Kyoto Protocol, *supra* note 4, at annex A (listing substances regulated by the Kyoto Protocol because their emission results in climate change); Montreal Protocol, *supra* note 12, at art. 2 (listing substances controlled by the Montreal Protocol because of their ozone depletion potential).

170. See Vienna Ozone Convention, *supra* note 12, at art. 2. (stating that the Vienna Ozone Convention and its protocols must cooperate with “competent international bodies”). The Vienna Ozone Convention does not state what it means

The cooperation principle encourages parties to cooperate with each other and relevant international bodies to provide the best way of achieving a common goal.¹⁷¹ If the parties apply these principles to the HCFC-22/HFC-23 conflict, no treaty prevails over the other. Instead, this principle mandates that the parties to the Montreal Protocol, amend the Montreal Protocol regime to cooperate with the Kyoto Protocol regime, a competent international body.¹⁷² Therefore, the parties to the Montreal Protocol, and through them the Montreal Protocol regime, have a present legal obligation to cooperate with the Kyoto Protocol regime in ending the HCFC-22/HFC-23 conflict as soon as possible instead of starting in 2015.¹⁷³

IV. RECOMMENDATIONS

To resolve the conflicts between the Kyoto and Montreal Protocol regimes, the Montreal Protocol regime should implement a phase-out of HFCs and speed up the phase-out of HCFCs. It should also better encourage parties to replace ozone depleting substances with the best environmentally sound substitute. Finally, the Montreal Protocol regime should implement a structure that allows for greater coordination with the Kyoto Protocol regime.

by a “competent international body.” *Id.*; see generally UNEP, et al., *Inter-Linkages between the Ozone and Climate Change Conventions: Part I: Inter-Linkages between the Kyoto and Montreal Protocols* (Jong Malabed et al. eds., 2001) (describing various links between the Kyoto and Montreal Protocol regimes).

171. See CLRTAP, *supra* note 95, at art. 3 (stating that parties to CLRTAP must cooperate in research); RIEU-CLARKE, *supra* note 92, at 169 (citing Convention on International Watercourses, *supra* note 92, at art. 9) (mandating that parties cooperate in data sharing and implementation); see also MULTILATERAL FUND, *supra* note 109 (indicating that the Multilateral Fund encourages parties to cooperate in development projects).

172. See generally United Nations University, *supra* note 170 (demonstrating that the Kyoto and Montreal Protocol regimes have come together to study the connections between climate change and ozone depletion).

173. See Montreal Protocol, *supra* note 12, at art. 2 (stating that the phase-out of HCFC-22 in developing countries such as China and India will not begin until 2015).

A. The Montreal Protocol's Multilateral Fund Should Phase Out the Funding of HFCs and Implement a Faster Phase Out of HCFCs

To resolve the HFC-134a conflict with the Kyoto Protocol, the Montreal Protocol regime should stop encouraging the use of HFC-134a. The Montreal Protocol regime cannot directly control the use of the substance however, because it does not deplete the ozone.¹⁷⁴ Furthermore, the Kyoto Protocol controls the emissions of HFC-134a.¹⁷⁵

The Montreal Protocol regime should end the funding of HFC-134a in the same way that it mandates the phase-out of HCFCs. The Montreal Protocol sets a schedule for developed nations to end the use of HCFC by different percentages every few years.¹⁷⁶ Developing nations have HCFC use capped in 2014, and phased out by 2040 by a similar schedule.¹⁷⁷ Similarly, the parties to the Montreal Protocol should reduce the funding of HFC-134a by a percentage and on a schedule that they agree to as fair. This way, the Montreal Protocol regime will end its support of HFC-134a while doing it slowly enough so that companies who use the substance in cooling units can adapt to the new regulation.

Likewise, the Montreal Protocol regime should set a faster phase-out of HCFCs. Currently, the Montreal Protocol sets the phase-out for HCFCs in developing nations to begin in 2014.¹⁷⁸ However, the production of HCFC-22 has greatly increased in recent years, especially in China.¹⁷⁹ Furthermore, if the Montreal Protocol regime allows HCFC-22 production to continue at the present rate, HCFC-22 will have adverse effects on the ozone layer and climate system.¹⁸⁰

174. See BENEDICK, *supra* note 3, at 122 (stating that because HFCs do not contain chlorine, they do not contribute to ozone depletion).

175. See Kyoto Protocol, *supra* note 4, at annex A (listing HFCs along with other greenhouse gases regulated by the Kyoto Protocol regime).

176. See Montreal Protocol, *supra* note 12, at art. 2 (describing the phase-out of HCFCs in the Montreal Protocol regime).

177. See *id.* (demonstrating that the phase-out of HCFCs for developing countries mirrors the phase-out for developed countries, but begins later).

178. See *id.* (stating that Montreal Protocol regime will cap the production of HCFCs in developing countries in 2014 at whatever the production level is at that time).

179. See EIA REPORT, *supra* note 5, at 8 (stating that in the last five years, China has become the largest producer of air conditioners in the world and that the vast majority of these units use HCFC-22 as a coolant).

180. See BENEDICK, *supra* note 3, at 122 (demonstrating that that HCFCs in the atmosphere may delay ozone layer recovery); EIA REPORT, *supra* note 5, at 9

Therefore, the Montreal Protocol regime should set a faster timetable for the phase-out of HCFC-22 as soon as possible instead of beginning in 2015.¹⁸¹

B. The Montreal Protocol Regime Should Establish a Formal Review Process to Encourage the Best Environmentally Sound Substitutes for Ozone Depleting Substances

The Montreal Protocol's Multilateral Fund has not always funded the transfer of replacement substances for HCFC-22 between parties.¹⁸² The Montreal Protocol allows parties to use "transitional substances" such as HCFC-22 even if there is an environmentally sound substitute.¹⁸³ Parties must only take "every practicable step consistent with the programs supported by the financial mechanisms" when furthering the use of the best environmentally sound substitutes for ozone depleting substances.¹⁸⁴ Article 10 of the Montreal Protocol, which establishes the Multilateral Fund, does not contain provisions allowing for the review or authorization of the best environmentally sound substitutes.¹⁸⁵

The European Union's REACH Directive proposes a system that would usually mandate the best environmentally sound substitute for chemicals.¹⁸⁶ The REACH Directive will not authorize the use of an

(demonstrating that if current HCFC-22 production trends continue, the emission of HCFC-22 will negate any gains made by the Kyoto Protocol against climate change).

181. See Montreal Protocol, *supra* note 12, at art. 2 (stating that the phase-out of HCFCs in developing countries such as China and India will not begin until 2015).

182. See EIA REPORT, *supra* note 5, at 8 (arguing that the Multilateral Fund has been unwilling to help phase-out HCFC-22 because of its failure to fund replacement substances).

183. See Montreal Protocol, *supra* note 15, at art. 10 (encouraging parties to transfer the best environmentally sound substitutes for ozone depleting substances to other parties but not mandating it); TEAP HCFC REPORT, *supra* note 43, at 75 (defining HCFC-22 as a transitional substance, along with other HCFCs).

184. See Montreal Protocol, *supra* note 12, at art. 10 ("Each party shall take every practicable step, consistent with the programmes supported by the financial mechanism . . . to ensure that the best available environmentally sound substitutes and related technologies are transferred).

185. See *id.* at art. 10A (stating that the Multilateral Fund should ensure that the developed parties transfer the best environmentally safe substitutes to developing nations, but not setting forth a process for reviewing substitutes).

186. See generally REACH Directive, *supra* note 96 (proposing the system that Regulates, Evaluates, and Authorizes the use of chemicals in the European Union). If the European Union passes REACH into law, it will require registration only in

environmentally damaging chemical generally unless the social utility of the chemical outweighs the risk of damage to the environment.¹⁸⁷ Specifically, organic pollutants and carcinogens are subject to strict authorization procedures.¹⁸⁸ Even if the European Community authorizes an environmentally dangerous substance, the REACH directive gives it broad powers over restricting its use.¹⁸⁹

The Montreal Protocol could implement a procedure similar to that of the REACH directive with an addition to Article 10.¹⁹⁰ The Montreal Protocol regime can implement a structure similar to the authorization procedure in the REACH Directive, allowing it to review, authorize, and restrict substitutes for ozone depleting substances. This would greatly discourage the use of environmentally damaging substances, such as HCFC-22, as replacements for ozone depleting substances.

regard to most chemicals, but the EU will not authorize a dangerous chemical unless there is a social or economic benefit that outweighs its effects. *Id.* at art. 57. First, an industry must register a chemical with the European Community. *Id.* at art. 6. If the chemical poses a risk to human health or the environment, the chemical then the EC must authorize it. *Id.* at art. 53. Most chemicals do not need to go through the authorization procedure, only the most dangerous ones. *Id.*

187. *See id.* at art. 53 (setting forth the authorization procedure in the REACH Directive).

188. *See* Sarah Harrell, *Beyond 'Reach'? An Analysis of the European Union's Chemical Regulation Program Under World Trade Organization Agreements*, 24 *WIS. INT'L L.J.* 471, 492 (2006) (describing the registration and authorization program in the REACH Directive proposal, and stating that if a substance is bio-accumulative or carcinogenic, the European Commission will not authorize its use unless it can be shown that the risks can be controlled or that the benefits outweigh the risk of use). *See also* REACH Directive, *supra* note 96, at art. 58 (stating that for the European Community to authorize the use of a dangerous chemical if risks cannot be controlled, the proposal for authorization has to include analysis of alternatives and an updated substitution plan).

189. *See* REACH Directive, *supra* note 96, at art. 64 (describing the process by which the European Union can restrict and regulate a chemical that has to go through the authorization procedure). An agency makes determination on regulation based on risk assessment and socio-economic analyses similar to that necessary for authorization. *Id.*

190. *See* Montreal Protocol, *supra* note 12, at art. 10 (setting forth the structure of the Multilateral Fund without allowing it to review substitutes for ozone depleting substances for potential harm to the environment).

C. The Montreal Protocol Regime Should Define "Most Environmentally Sound Alternative" Based on Integrated Analysis with the Kyoto Protocol Regime

When defining "most environmentally sound alternative," the Montreal Protocol regime should implement risk assessment techniques that consider both ozone depletion potential and global warming potential.¹⁹¹ For example, HCFC-123, which industries use for emissions-free heavy industrial cooling equipment, has a low global warming potential, a low ozone depletion potential, and its high energy efficiency.¹⁹² If the parties consider all three factors in analyzing the use of HCFC-123, there is a strong argument for the Montreal Protocol Regime to consider exempting emissions free use of HCFCs.¹⁹³ By balancing several factors in its analysis other than ozone depletion potential, the Montreal Protocol regime can find substitutes for ozone depleting substances that will not conflict with the Kyoto Protocol.

V. CONCLUSION

The Montreal Protocol currently encourages the use of greenhouse gases as substitutes for ozone depleting substances.¹⁹⁴ Likewise, the Kyoto Protocol's credit system encourages the production of ozone depleting substances.¹⁹⁵ However, because the Kyoto Protocol's regulation of HFC-134a is more favorable to the goal of regulating the emission of chemicals that damage the global atmosphere, the Montreal Protocol should phase-out its funding of HFC-134a as a substitute for ozone depleting substances. Furthermore, if the Mont-

191. See also GRUBB, *supra* note 3, at 265-66 (describing the Kyoto Protocol as insufficient for long term climate change control, and implying that the treaty is locked in place).

192. See ANDERSON & ZAELKE, *supra* note 44, at 171 (stating that the use of HCFC-123 in industrial chillers by the Trane Corporation has resulted in an alternative to CFCs with a long life cycle, high energy efficiency, and low ozone depletion and global warming potentials).

193. See *id.* at 168-69 (arguing that the Montreal Protocol regime should exempt emissions free HCFCs because of their longer life cycle and high energy efficiency when compared to non-HCFCs).

194. See ICPP/TEAP SPECIAL REPORT, *supra* note 15, at 6 (demonstrating that HCFCs and HFCs are greenhouse gases).

195. See EIA REPORT, *supra* note 5, at 8 (demonstrating the profit potential for the destruction of HFC-23, which is a byproduct of manufacturing HCFC-22).

real Protocol speeds the phase-out of HCFC-22, authorizes only the most environmentally sound substitutes for ozone depleting substances, and defines what is most environmentally sound using ozone depletion potential, global warming potential, and energy efficiency, the Montreal Protocol regime will fulfill its present legal obligation to cooperate with the Kyoto Protocol regime.