

**"Resolving Conflicts Between Multilateral Environmental
Agreements: The Case of the Montreal and Kyoto Protocols"**

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Abstract

The Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Montreal Protocol on Substances that Deplete the Ozone Layer are multilateral environmental agreements that regulate the use of chemicals that contribute to climate change and ozone depletion. The Montreal Protocol, however, encourages the replacement of ozone depleting substances with chemicals that contribute to climate change. Likewise, the Kyoto Protocol encourages the production of an ozone depleting substance by allowing companies to profit by destroying the byproduct of its manufacture. This comment attempts to resolve these conflicts through conventional and customary international law. It concludes that the treaty regimes can apply favorability, effectiveness, and cooperation principles to resolve the conflicts, and recommends changes to the Montreal Protocol regime to implement these principles.

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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.¹"

-Charles Dickens, from Hard Times, 1854.

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

¹ **Charles Dickens, Hard Times** 115 (Karen Oden ed., Barnes & Noble Classics 2004) (1854).

² See generally Air Emissions Trends: Continued Progress through 2005, <http://www.epa.gov/airtrends/econ-emissions.html> (last visited Nov. 1, 2006) (demonstrating that air quality has improved in the United States over the last several decades).

increasingly concerned 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

³ See **Michael Grubb with 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).

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 ("CFC's")⁷ and other,

⁵ See **Environmental Investigation Agency, Turning Up the Heat: Linkages between Ozone Layer Depletion and Climate Change: The Urgent Case of HCFC's and HFC's** 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 CFC's are stable, nonflammable, odorless chemicals that industries often used in refrigeration, as propellants, and as insulators).

methane based chemicals⁸ have caused the deterioration of the stratospheric ozone layer.⁹ The stratospheric ozone layer repels harmful ultraviolet radiation 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

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

⁹ See generally British Antarctic Survey: Natural Environment Research Council, Meteorology and Ozone Monitoring Unit, Antarctic Ozone, <http://www.antarctica.ac.uk/met/jds/ozone/index.html> (last visited Sept. 14, 2006) (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.

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

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. 19, 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, 801-802 (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 [UNFCCC] (stating that the goal of UNFCCC as the prevention of radical change in the earth's climate system); see also Kyoto Protocol, supra note 4, at pmb1.

Protocol a more successful treaty than the Kyoto Protocol.¹⁴

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

(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. Id. 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.

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

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 I briefly describes the Montreal and Kyoto Protocols. Part I then details how, by encouraging the replacement of CFC's with greenhouse gases, the Montreal Protocol undermines the effectiveness of the Kyoto Protocol. Part I then details how the Kyoto Protocol gives its parties incentive to produce substances that the Montreal Protocol attempts to phase out. Next, Part I describes sources of conventional international conflict of treaty law. Finally, Part I describes sources of customary international law, especially regarding multilateral environmental agreements.

Part II 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 II also discusses how the "most favorable treaty" principle

prevent. Id. at 9 (citing **Intergovernmental Panel on Climate Change and Technological & 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**])).

commonly included in multilateral environmental agreements can adequately address part of the conflict. Part II then analyzes how the "most effective treaty" principle and principles of treaty cooperation can solve the remainder of the conflict. Lastly, Part III 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.

I. 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

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).

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

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.

controlled by the Montreal Protocol include CFC's,²² which are aerosol propellants and refrigeration chemicals²³ such as CFC-11 and CFC-12.²⁴ The Montreal protocol also controls hydrochlorofluorocarbons (HCFC),²⁵ such as the refrigeration chemical HCFC-22,²⁶ and pesticides such as Methyl Bromide.²⁷

²² See Montreal Protocol, supra note 12, at art. 2A (establishing the phase-out schedule for CFC's).

²³ See Elias Mossos, The Montreal Protocol and the Difficulty with International Change, 10 **Alb. L. Env'tl. Outlook J.** 1, 2-8 (2005) (mentioning that CFC's 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 CFC's 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., supra note 12, at art. 2F (establishing the phase-out schedule for HCFC's).

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. 2H (establishing the phase-out schedule for methyl bromide); Sondra Goldschein,

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

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.**

Law. 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 pmb1. (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).

radical climate change include rising ocean levels and the spread of disease.³²

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

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).

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).

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 Secondly, 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 CFC's, contribute to

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 Thoms, 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,

both problems.⁴⁰ Although the Montreal Protocol is responsible for combating climate change by phasing out CFC's,⁴¹ it is also responsible for the replacement of CFC's with hydro fluorocarbons ("HFC's") and hydro chlorofluorocarbons ("HCFC's"),⁴² which serve the many of the same functions as CFC's

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 CFC's, HCFC's, and HFC's). The global warming potential of CFC's ranges from 10,720 times that of carbon dioxide to 4680 times. Id. The global warming potential of HCFC's range from 3270 times that of carbon dioxide to 76 times. Id. Finally, the global warming potential of HFC's range from 14,310 to 122 times that of carbon dioxide. Id.

⁴¹ See EIA Report, supra note 5, at 7 (stating that by successfully phasing out the use of CFC's, 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

with a lesser effect on the ozone layer (or no effect on the ozone layer in the case of HFC's).⁴³ However, both of these substances generally contribute to climate change.⁴⁴ Although

200-201 (stating that industries have often replaced CFC's with HFC's and HCFC's).

⁴³ See **IPCC/TEAP Special Report**, supra note 15, at 18 (stating that HFC's have no effect on ozone depletion because they do not contain chlorine); **Montreal Protocol on Substances that Deplete the Ozone Layer, United Nations Environmental Programme [UNEP], Report of the Technology and Economic Assessment Panel, HCFC Task Force Report 1-2** (May 2003) [hereinafter **TEAP HCFC Report**] (demonstrating that the ozone depletion potential of HCFC's 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 HFC's and HCFC's 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 HFC's, 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 Zaelke, Industry Genius:**

the Montreal Protocol regime has mandated the phase-out of HCFC's,⁴⁵ the manufacture of HCFC's has increased in developing

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 HCFC's). Developed nations, such as the United States and European Union nations, will gradually phase-out HCFC's 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).

nations that are not yet subject to the phase-out.⁴⁶ Finally, the Kyoto Protocol specifically regulates HFC's.⁴⁷

In 1994 the Montreal Protocol regime began phasing out HCFC's but not HFC's.⁴⁸ Industries commonly substitute HFC's for ozone depleting substances, especially HFC-134a, which has become the preferred substitute for CFC's in refrigerators, air conditioners, and heat pumps since the adoption of the Montreal

⁴⁶ See EIA Report, supra note 5, 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 HCFC's). However, he also states that the Montreal Protocol regime refused to phase-out HFC's despite their global warming potential. Id. HFC's do not contain chlorine, which is essential to the ozone depletion process. Id. Therefore, they do not contribute to ozone depletion. Id.

Protocol.⁴⁹ Also, the manufacture of HCFC's, 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

⁴⁹ See IPCC/TEAP Special Report, supra note 15, at 6 (describing the high global warming potential of HFC's); see also Montreal Protocol on Substances that Deplete the Ozone Layer, United Nations Environmental Programme [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 HFC's 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 CFC's and HCFC's. 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).

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

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

⁵³ See **United Nations Framework Convention on Climate Change [UNFCCC], Report of the Conference of the Parties on its Eighth Session, Oct. 23-Nov. 1, 2002, Part Two: Action Taken by the Conference of the Parties at its Eighth Session** 30 (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 CFC's 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

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 CFC's 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 The Kyoto Protocol exempts from its

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 global atmosphere because of HFC-23's high global warming

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

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 HCFC's by the targeted date of 2015). The European Union will ban imports of HCFC's 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 HCFC's 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).

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 Under the Kyoto Protocol's Clean Development

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 HFC's 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).

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

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. 2F (describing the phase-out of HCFC's). See also **TEAP HCFC Report**, supra note 43, at 2-3 (discussing progress made towards ending the use of HCFC's in developed countries).

⁶⁶ See Statute of the International Court of Justice, art. 38 (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).

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

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 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**

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

the Theory and Practice of the Interrelation of Sources 50 (2nd 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 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).

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

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

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

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).

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.

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

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 603-605. 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

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 International Trade in Endangered Species of Wild Fauna and Flora ("CITES"),⁸⁸ the

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 101-102 (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 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

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

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 driftnet fishing).

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

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).

("Hague Evidence Convention")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

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 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).

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.

II. 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.

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.

Likewise, the 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

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. at 5 (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 environmental sound transport of hazardous wastes).

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

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

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 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 HFC's alone and choose to cap other substances,¹⁰⁶ making the caps permissive norms. However, the use of HFC's as substitutes for CFC's could take the production of HFC's past the Kyoto Protocol caps, especially in developing countries where HFC's are funded

Theory, 17 *Eur. J. Int'l L.* 395 (2006) (arguing that permissive norms can conflict if they are "norms of conduct").

¹⁰⁴ See EIA Report, supra note 5, at 6 (stating that the while HFC's 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).

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 countries to phase-out the use of

¹⁰⁷ See generally **Project Completion Report ALG/REF/26/INV/30**, supra note 54 (demonstrating the funding of HFC's 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 HFC's).

¹⁰⁹ See Montreal Protocol, supra note 12, at art. 2 (implying that the Montreal Protocol allows parties to use HFC's as replacements for CFC's because they 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).

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

HCFC's 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

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

¹¹² See id. (stating that the Montreal Protocol regime plans to phase-out the use of HCFC's 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 HCFC's 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").

conflict with prohibitive norms in the Montreal Protocol that plan to phase-out HCFC's.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 incompatible with an earlier treaty,

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

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

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

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 600-604 (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 60-604. Therefore, the treaties would not govern the same subject matter necessary for Article 30. Id.

¹²¹ See id., at 610-613 (outlining an argument that CITES cannot conflict with the Protocol Concerning Specially Protected Areas

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

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, 717-718 (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

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

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

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

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 602-604 (stating that many countries interpret Article 30 to mean adoption and to disregard

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 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."

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).

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).

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

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 604-605 (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)

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 exempts from its regulations substances controlled by the

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 603-604 (stating that two treaties must have the same 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.

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

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

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 favorable to

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).

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 HCFC's,¹⁴³ and the Kyoto Protocol regulates the use of a commonly used substitute for ozone depleting substances

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 603-604 (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 HCFC's); **IPCC/TEAP Special Report**, supra note 15, at 6 (stating that HCFC's are generally potent greenhouse gases).

in the case of HFC's.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 HFC's and HCFC's, which both contribute to problems with the global atmosphere.¹⁴⁷

¹⁴⁴ See Kyoto Protocol, supra note 4, at annex A (listing HFC's among other greenhouse gases); **EIA Report**, supra note 5, at 6 (describing HFC's 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 HFC's as substitutes for

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 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 HFC's, because the Kyoto Protocol regime caps their

ozone depleting substances because they do not contribute to ozone depletion, despite their contribution to climate change).

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).

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

¹⁵⁰ See Kyoto Protocol, supra note 4, at annex A (listing HFC's as substances controlled by the Kyoto Protocol); Montreal Protocol, supra note 12, at art. 2 (demonstrating that HFC's are not regulated by the Montreal Protocol); **IPCC/TEAP Special Report**, supra note 15, at 6 (demonstrating the greenhouse gas potential of HFC's)

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 HCFC's 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).

to phase-out the substance's use.¹⁵³ Meanwhile, the profitability of destroying HFC-23, the byproduct of HCFC-22's production, results in the Kyoto Protocol 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

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

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

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

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).

most suitable to achieving.¹⁵⁹ For example, if the Hague Evidence Convention conflicted with a 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 HCFC's and the Kyoto Protocol does not,¹⁶¹ meaning that the Montreal Protocol is more effective

¹⁵⁹ See Sadat-Akhavi, supra note 68, at 170 (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).

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 HCFC's as regulated by the Kyoto Protocol); Montreal Protocol, supra note 12, at art. 2F (detailing the Montreal Protocol regime's regulation of HCFC's).

at controlling HCFC's. 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

¹⁶² See Montreal Protocol, supra note 12, at art. 2F (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 implement a faster phase-out of HCFC's to resolve the conflict).

pollution respectively.¹⁶⁴ Parties to these agreements share research and consultation to achieve maximum effectiveness.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

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).

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

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

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 convention and its protocols."); Montreal Protocol, supra note 12, at art. 14 (establishing that the provisions in the Vienna Ozone Convention relating to its

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

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

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

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).

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

Kyoto Protocol regime in ending the HCFC-22/HFC-23 conflict as soon as possible instead of starting in 2015.¹⁷³

III. RECOMMENDATIONS

To resolve the conflicts between the Kyoto and Montreal Protocol regimes, the Montreal Protocol regime should implement a phase-out of HFC's and speed up the phase-out of HCFC's. 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.

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

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

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

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 HCFC's. 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-

¹⁷⁴ See **Benedick**, supra note 3, at 126 (stating that because HFC's do not contain chlorine, they do not contribute to ozone depletion).

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

¹⁷⁶ See Montreal Protocol, supra note 12, at art. 2F (describing the phase-out of HCFC's in the Montreal Protocol regime).

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

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 HCFC's. Currently, the Montreal Protocol sets the phase-out for HCFC's 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 Therefore, the Montreal

¹⁷⁸ See id. (stating that Montreal Protocol regime will cap the production of HCFC's 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 HCFC's in the atmosphere may delay ozone layer recovery); **EIA Report**, supra note 5, at 9 (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).

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

¹⁸¹ See Montreal Protocol, supra note 12, at art. 2F (stating that the phase-out of HCFC's 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 HCFC's).

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

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 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

of an 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

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 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

Even if the European Community authorizes a 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.

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 HCFC's.¹⁹³ By

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 CFC's with a long life cycle, high energy efficiency, and low ozone depletion and global warming potentials).

¹⁹³ See id., at 168-68 (arguing that the Montreal Protocol regime should exempt emissions free HCFC's because of their longer life cycle and high energy efficiency when compared to non-HCFC's).

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.

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 Montreal 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,

¹⁹⁴ See **ICPP/TEAP Special Report**, supra note 15, at 6

(demonstrating that HCFC's and HFC's 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).

and energy efficiency, the Montreal Protocol regime will fulfill its present legal obligation to cooperate with the Kyoto Protocol regime.