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Solving Smog Outsourcing: Domestic and International Solutions for Curbing Transboundary Sulfur Emissions

James Bonar-Bridges*

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I. Introduction

Late in 2014, the White House announced a historic agreement with China, which set ambitious goals for reducing carbon emissions.¹ While this announcement did not garner the international attention that Nixon’s visit to China had forty years earlier, the implications were just as momentous—bringing the two largest economies in the world together to combat rising carbon emissions is a clear signal that things have changed.² The failure of the Kyoto Protocol to establish limits on carbon emissions left the global environmental community waiting for the moment when it would become clear to world leaders that the problem was serious enough to warrant real and immediate action.³ This pressing urgency, combined with recent advancements in clean energy technology, has created a climate that is more hospitable to multi-lateral environmental agreements.⁴

This note argues that the reflexive actions countries have taken to curb air pollution within their borders are no longer enough, given the transient nature of airborne pollutants. In addition, future regulatory attempts to solve the problem must consider the broader scope of global impacts. Fortunately, the legal groundwork to handle transboundary air pollution has been in place

1. See John Kerry, *Our Historic Agreement with China on Climate Change*, N.Y. TIMES (Nov. 29, 2014), <http://www.nytimes.com/2014/11/12/opinion/john-kerry-our-historic-agreement-with-china-on-climate-change.html>; Office of the Press Secretary, U.S.-China Joint Agreement on Climate Change, THE WHITE HOUSE (Jan. 19, 2015, 8:57 PM), <http://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change>.

2. United Nations Statistics Division, *Basic Data Selection* (Jan. 12, 2015, 5:04 PM), <http://unstats.un.org/unsd/snaama/selbasicFast.asp>.

3. Cass R. Sunstein, *Of Montreal and Kyoto: A Tale of Two Protocols*, 31 HARV. ENVTL. L. REV. 1, 61 (2007).

4. *Id.*; Office of the Press Secretary, U.S.-China Joint Agreement on Climate Change, THE WHITE HOUSE (Jan. 19, 2015, 8:57 PM), <http://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change>.

for more than 60 years.⁵ This note attempts to contextualize these problems and solutions using the recent revelations that air pollution in China is having severe consequences on the air quality in the Western United States.

A. Transboundary Air Pollution: A Hidden Catastrophe

It is becoming increasingly apparent that our planet is smaller than we think, and that changing one element in a closed system invariably has consequences elsewhere. In February 2014, a study published by Proceedings of the National Academy of Sciences (PNAS) found that air pollution being blown across the Pacific from China was significantly harming the air quality in the Western United States.⁶ As much as a quarter of the sulfur dioxide pollution, harmful chemicals responsible for acid rain on the West Coast, is thought to originate in Chinese factories.⁷ This news followed at least twenty years of research showing that air pollutants like ozone, particulate matter, and mercury were moving across the Pacific Ocean.⁸ One can understand the frustration this news would generate in Western states, given that the majority of restrictive Class I Federal Air quality areas are in the Western United States and that California has a history of exceeding Federal Clean Air Act requirements.⁹ Regulating greenhouse gasses seems to have displaced the conversation on other harmful air pollutants like sulfur dioxide and nitrogen

5. Transboundary pollution is defined as “pollution whose physical origin is situated wholly or in part within the area under the jurisdiction of one Party and which has adverse effects, other than effects of a global nature, in the area under the jurisdiction of the other Party.” Agreement on Air Quality, U.S.-Can., art. 1(2), Mar. 13, 1991, 30 I.L.M. 676, 679 (1991). For more specific instances of pollution migrating across states with shared borders, the term “transborder” will be used.

6. Edward Wong, *China Exports Pollution to U.S., Study Finds*, N.Y. TIMES (Aug. 27, 2014, 12:22 PM), <http://www.nytimes.com/2014/01/21/world/asia/china-also-exports-pollution-to-western-us-study-finds.html>.

7. William Wan, *Study: Pollution from Chinese factories is harming air quality on U.S. West Coast*, WASH POST (Aug. 28, 2014, 8:16 AM), http://www.washingtonpost.com/world/study-pollution-from-chinese-factories-is-harming-air-quality-on-us-west-coast/2014/01/21/225e9b1e-8281-11e3-bbe5-6a2a3141e3a9_story.html.

8. See Dan Jaffe, et al., *Transport of Asian Air Pollutants to North America*, 26 GEOPHYSICAL RESEARCH LETTERS 711 (1999).

9. Environmental Protection Agency, *List of 156 Mandatory Class I Federal Areas*, EPA (Oct. 26, 2014, 10:08 PM), <http://www.epa.gov/visibility/class1.html>; see generally John P. Dwyer, *The Practice of Federalism Under the Clean Air Act*, 54 MD. L. REV. 1183 (1995).

oxides, but it would be a mistake to assume that the existing legal regime is enough to regulate these pollutants.¹⁰

In many ways, the Chinese pollution settling on American shores are chickens coming home to roost.¹¹ Political pressure on heavy industry and on the high-sulfur coal which is mined in the Eastern United States has forced much of it overseas, and China has been a willing trade partner—importing the energy and exporting the air pollution.¹² The other major finding in the PNAS study, which went largely unreported in the western press, was that around one third of the anthropogenic sulfur dioxide and nitrogen oxides and around one fifth of the carbon monoxide and black carbon which plagued China in 2006, were created by export industries feeding Western demand.¹³

B. Legal Solutions to the Problem

The problem of air pollution, which begins in one country and damages another, is not new. As early as the decision in the 1941 *Trail Smelter* case, the global legal community has realized the effects of transboundary air pollution.¹⁴ The final finding of that tribunal—that “no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or person therein”—has persisted as the core rule in international environmental law.¹⁵ This same basic rule was included in Principle 21 of the UN Conference on the Human Environment in 1972, which says that: “States have . . . the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond

10. *Id.*; see *Massachusetts v. E.P.A.*, 549 U.S. 497, 528-531, 127 S. Ct. 1438 (2007).

11. See Alex L. Wang, *Regulating Domestic Carbon Outsourcing: The Case of China and Climate Change*, 61 UCLA L. REV. 2018, 2026 (2014) (citing Glen P. Peters et al., *Growth in Emission Transfers via International Trade From 1990 to 2008*, 108 PROC. NAT’L ACAD. SCI. U.S. 8903, 8903 (2011)).

12. *Id.*; Erin Ryan, *The Elaborate Paper Tiger: Environmental Enforcement and the Rule of Law in China*, 24 DUKE ENVTL. L. & POL’Y F. 183 (2013).

13. Jintai Lin et al., *China’s International Trade and Air Pollution in the United States*, 111 PROC. NAT’L ACAD. SCI. 1736 (2014) [hereinafter PNAS Study].

14. See Elena M. McCarthy, *International Regulation of Transboundary Pollutants: The Emerging Challenge of Ocean Noise*, 6 OCEAN & COASTAL L.J. 257, 258 (2001).

15. 3 United Nations Reports of International Arbitral Awards (U.N.-R.I.A.A.) 1905 (1941); also reported in 33 AM. J. INT’L L. 182 (1939) and 35 AM. J. INT’L L. 684 (1941); Wirth, John D., *The Trail Smelter Dispute: Canadians and Americans Confront Transboundary Pollution, 1927-41*, ENVIRONMENTAL HISTORY 1.2 (1996), 34-51.

the limits of national jurisdiction.”¹⁶ This was repeated verbatim as Principle 2 in the Rio Declaration twenty years later.¹⁷ This policy has unfortunately only been applied to restrict polluting countries, however, and not to empower victim countries downstream or downwind. When compared to § 401(b)(1) of the Clean Air Act, which states that the Act’s purpose is “to protect and enhance the quality of the Nation’s air resources. . .,” these two policies could arguably mandate taking actions to prevent transboundary air pollution.¹⁸

Even if our understanding of the causes of air quality impacts has outpaced the language in the Clean Air Act, there may be reliable answers in American relations with Canada and Mexico. Besides the *Trail Smelter* doctrine, recent developments like the Air Quality Agreement with Canada and the requirements of the NAFTA side agreements may provide a model for bilateral agreements with China.

This note will conclude by exploring multilateral approaches for controlling air pollutants, and will suggest that this potential conflict more closely resembles the situation leading to the Montreal Protocol (the 1980s treaty which has successfully led to the recovery of the planet’s Ozone layer) than the Kyoto Protocol (the treaty of the early 2000s which sought unsuccessfully to curb greenhouse gasses).¹⁹ The major global emitters of greenhouse gases rejected the Kyoto Protocol. The United States felt singled out because the treaty did not affect massive contributors to climate change like China and India.²⁰ The Montreal Protocol, however, was adopted by 196 countries and the European Union, in part because of the adoption of a multilateral fund, which requires developed countries to pay into a coffer used to encourage less developed countries to participate.²¹

16. 1972 Stockholm Conference, *Declaration of the United Nations Conference on the Human Environment*, UNITED NATIONS ENVIRONMENT PROGRAMME (Sept. 14, 2014, 11:32 PM), <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=97&articleid=1503>.

17. 1992 Rio Conference, *Rio Declaration on Environment and Development*, UNITED NATIONS ENVIRONMENT PROGRAMME (Sept. 14, 2014, 11:36 PM), <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>.

18. 42 U.S.C. § 7401(b)(1) (1973).

19. See generally, Sunstein, *supra* note 3.

20. Todd M. Lopez, *A Look at Climate Change and the Evolution of the Kyoto Protocol*, 43 NAT. RESOURCES J. 285, 295 (2003).

21. Ozone Secretariat, *Status of Ratification*, UNITED NATIONS ENVIRONMENT PROGRAMME (Aug. 28, 2014, / 9:30 AM), http://ozone.unep.org/new_site/en/treaty_ratification_status.php; Jason M. Patlis, *The Multilateral Fund of the Montreal Protocol: A Prototype for Financial Mechanisms in Protecting the Global Environment*, 25 CORNELL INT’L L.J. 181 (1992).

More than ever, bringing the United States and China to the table to reduce air pollution levels is demonstrably in both countries' best interests. In addition, China is just now harnessing the political will that the United States had when it created the bulk of its environmental laws in the 1970s.²² In Part I, this paper will explore the roots of the problem and its severity. Part II will examine options in United States law to control Chinese air pollution. Part III will look at the interrelation of Mexican, Canadian and American environmental responses to transboundary air pollutants. Finally, Part IV will compare this problem to the ones the global community faced in Montreal (ozone depletion) and in Kyoto (global warming), and will argue that the circumstances this time around indicate that broad participation may be on the horizon.

Part II: Chickens Coming Home to Roost—Outsourcing Air Pollution and the Unforeseen Effects of American Air Pollution Laws

A. The Cause: Concerns over Acid Rain Lead to Changes in How Sulfur Dioxide and Nitrogen Oxides are Regulated

Acid rain is created when Sulfur Oxides (SO_x) and Nitrogen Oxides (NO_x) react with water in the atmosphere to form either Sulfuric Acid (H₂SO₄) or Nitric Acid (HNO₃), which falls back down to earth as rain droplets.²³ The resulting pollution has a number of adverse effects such as lowering the pH of the soil and bodies of water, weakening trees and other plants, and damaging buildings and sculptures.²⁴

22. Johnathan Kaiman, *China Strengthens Environmental Laws*, GUARDIAN (Aug. 28, 2014, 12:30 PM), <http://www.theguardian.com/environment/2014/apr/25/china-strengthens-environmental-laws-polluting-factories>; Justin Blood, *Energy Production Pollution in China - the Effectiveness of Two Forms of Chinese Governmental Response to the Problem*, 19 COLO. J. INT'L ENVTL. L. & POL'Y 155 (2008) (detailing Chinese environmental laws and China's push for renewables-including the oft-criticized Three Gorges Dam); *see also* *Beijing to Shut All Major Coal Power Plants to Cut Pollution*, BLOOMBERG (Mar. 16, 2015, 3:13 AM), <http://www.bloomberg.com/news/articles/2015-03-24/beijing-to-close-all-major-coal-power-plants-to-curb-pollution>.

23. *See* Amy A. Fraenkel, *The Convention on Long-Range Transboundary Air Pollution: Meeting the Challenge of International Cooperation*, 30 HARV. INT'L L.J. 447, 449 (1989); Joseph Mac D. Schwartz, *On Doubting Thomas: Judicial Compulsion and Other Controls of Transboundary Acid Rain*, 2 AM. U. J. INT'L L. & POL'Y 361, 400 (1987).

24. The Honorable Henry A. Waxman, *An Overview of the Clean Air Act Amendments of 1990*, 21 ENVTL. L. 1721, 1790 (1991).

Sulfur Oxides (SO_x) and Nitrogen Oxides (NO_x) were first regulated under the Clean Air Act as “criteria pollutants” in April of 1971.²⁵ Sulfur Oxides—primarily released into the atmosphere by burning or processing fossil fuels—have harmful effects on human respiratory functions, particularly in asthmatics, in addition to causing acid rain.²⁶ Large concentrations of SO_x can cause death through asphyxiation.²⁷ Nitrogen Oxides are produced by a variety of sources including power plants and vehicle engines, and are also one of the causes of acid rain.²⁸

By and large, however, the Clean Air Act failed to take into account the transitory nature of these pollutants, which can travel thousands of miles from their point of origin.²⁹ This meant that simply monitoring levels of the pollutants at the source provided an inaccurate picture of the total levels of SO_x and NO_x in the region, particularly once the regulated industries learned that they could put taller smokestacks on their facilities, which would carry the air pollution further away from the source.³⁰ This presented obvious problems for State Implementation Plans mandated in the Clean Air Act, as well as abroad, and created something of a prisoner’s dilemma: With no way to be sure *where* the acid rain-causing pollution was coming from, where was the incentive to be the first to undertake expensive regulations?³¹

Congressional actions began in 1980 with the passage of the National Acid Precipitation Act, which provided funding for a ten-year study of the causes and effects of acid rain.³² In 1990, before that study had been finished,

25. Richard E. Ayres & Jessica L. Olson, *Setting National Ambient Air Quality Standards*, in THE CLEAN AIR ACT HANDBOOK 32, 34 (Julie R. Domike & Alec C. Zaccaroli, eds., 2011). “Criteria pollutants” are so named because the EPA is required to issue air quality criteria for these six wide-spread pollutants. They are: SO_x, NO_x, atmospheric particulate matter (PM_{2.5} and PM₁₀), Lead (Pb), Ozone (O₃), and Carbon Monoxide (CO). *Id.* at 13-15.

26. *Id.* at 31-32; Russell Korobkin, *Sulfur Dioxide and the Constitution: Legal Doctrine and Responses to the Clean Air Act Amendments of 1990*, 13 STAN. ENVTL. L.J. 349, 350 (1994).

27. Blood, *supra* note 22, at 160 (2008).

28. AYRES & OLSON, *supra* note 25, at 34; United States Environmental Protection Agency, *Nitrogen Dioxide* (Nov. 30, 2014, 8:46 AM), <http://www.epa.gov/airquality/nitrogenoxides/>; currently every region in the country is in attainment with the National Ambient Air Quality Standards (NAAQS) for NO_x. *Id.*

29. Fraenkel, *supra* note 23, at 453.

30. David Rubin, *Acid Rain in the European Community: A Hard Rain’s A-Gonna Fall*, 16 BROOK. J. INT’L L. 621, 642 (1990).

31. See Harold Hongju Koh, *Why Do Nations Obey International Law*, 106 YALE L.J. 2599, 2632 (1997).

32. Korobkin, *supra* note 26, at 353.

Congress passed a series of amendments to the Clean Air Act.³³ Title IV of these amendments contained the Congressional plan to curb emissions.³⁴

The Acid Rain Program controlled SO_x emissions in two phases, using a cap-and-trade system to achieve compliance.³⁵ In Phase I, which took effect on January 1, 1995, the largest coal-fired plants were required to make initial reductions in their SO_x emissions.³⁶ In Phase II, which started five years later, plants regulated under Phase I were required to make further reductions, and all remaining coal-fired plants were required to comply with the Phase II limits capping annual SO_x emissions from utilities to 8.95 million tons.³⁷ The amendments had a surprising amount of bipartisan support for an environmental law, and conservatives were drawn in by the use of market forces and by the flexibility in the Act.³⁸ Phase I utilities that still preferred to burn coal (or had enough capital tied up in coal-burning facilities to foreclose any other options) had three basic options: (1) burn cleaner coal, (2) install scrubbers to eliminate 90% of the emissions, or (3) purchase enough allowances on the market to still meet compliance standards.³⁹

The Acid Rain Program reduced SO_x emissions more quickly and more cheaply than anticipated, and thus has been widely considered a success.⁴⁰ This note does not dispute the efficacy of the law in reducing domestic sources of air pollution, but instead asks for the consideration of its unintended side effects. Coal from the Powder River Basin in Wyoming and Montana is significantly lower in sulfur than its eastern counterparts, and its composition has led to its other widely used name: "compliance coal."⁴¹ The preference for the low-sulfur coal in the 1990 amendments was strong enough, according to the Seventh Circuit, to necessitate shipping low-sulfur

33. *Id.* at 353-354.

34. Waxman, *supra* note 24, at 1790-1791.

35. Debra J. Jezouit, *The Acid Rain Program*, in *THE CLEAN AIR ACT HANDBOOK* 449 (Julie R. Domike & Alec C. Zaccaroli, eds., 2011).

36. *Id.*

37. *Id.*

38. Korobkin, *supra* note 26, at 350.

39. John R. Rhorer, Jr. & Penny R. Warren, *Force Majeure Implications of Acid Rain Legislation: The Litigation Battle of the 1990s*, 8 *J. NAT. RESOURCES & ENVTL. L.* 23, 28 (1992).

40. Joseph Dawley, *Unintended Consequences: Clean Air Act's Acid Rain Program, Mountaintop Mining and Related Litigation*, *ABA TRENDS*, January/February 2005, at 13.

41. Richard T. Stuebi, *Eastern Low Sulfur Coal Markets and Acid Rain Legislation*, *PUB. UTIL. FORT.*, April 26, 1990, at 46; *see generally* John Q. Anderson & Jerry C. Bartlett, *The Economics and Politics of Western Coal*, *PUB. UTIL. FORT.*, April 1, 1996, at 35.

coal across the country to power plants built at the mouth of high-sulfur mines.⁴² Not about to simply shutter what had previously been profitable operations, mine operators in the Eastern United States quickly found other markets.

B. The Effect: Outsourcing Sulfur Dioxide and Nitrogen Oxides, and its Attendant Effects on American Air Quality

Limits on sulfur dioxide emissions pushed high-sulfur coal to other markets that had no restrictions in place, and the downscaling of Eastern Coal in the United States coincided with the growth of a Chinese manufacturing economy hungry for cheap energy. The United States currently exports about 7,500,000 metric tons of coal to China every year, almost half of which is high-sulfur coal that can't be burned in the United States.⁴³ Coal has accounted for around 70% of China's energy portfolio over the last decade.⁴⁴ At least one study has predicted coal consumption to grow at least through 2030, mostly to continue providing cheap energy to the manufacturing sector.⁴⁵

China is still the largest single contributor to global SO_x levels, representing almost 30% of the total emissions in 2010.⁴⁶ The overall trends seem promising, however, and sulfur emissions have been declining in China since 2006, due in large part to the mandatory installation of Flue Gas Desulfurization technology on new and existing power plants.⁴⁷ Switching to "compliance coal" would further decrease sulfur emissions, since more than half of these emissions come from power plants, and there are indications that this may be the path China decides to take.⁴⁸ Regulation is still extremely

42. *Sierra Club v. U.S. E.P.A.*, 499 F.3d 653, 657 (7th Cir. 2007).

43. See John W. Miller, *The New Future for American Coal: Export It*, WALL ST. J. (Nov. 28, 2014, 2:33 PM), <http://online.wsj.com/articles/SB10001424052702303563304579447582374789164>; Fitri Wulandari, *China Plan Puts High-Sulfur Coal From U.S. at Risk, XCOAL Says*, BLOOMBERG (Nov. 28, 2014, 2:33 PM), <http://www.bloomberg.com/news/2013-06-13/china-plan-puts-high-sulfur-coal-from-u-s-at-risk-xcoal-says.html>.

44. Dabo Guan, et al., *Journey to World's Top Emitter: An Analysis of the Driving Forces of China's Recent CO₂ Emissions Surge*, 36 GEOPHYSICAL RESEARCH LETTERS L04709 (2009).

45. Dabo Guan, et al., *The Drivers of Chinese CO₂ Emissions from 1980 to 2030*, 18(4) GLOBAL ENVIRONMENTAL CHANGE 626, 632.

46. Z. Klimont, S.J. Smith, & J. Cofala, *The Last Decade of Global Anthropogenic Sulfur Dioxide: 2000-2011 Emissions*, 8 ENVIRON. RES. LETT. 014003 (2013).

47. *Id.*

48. Z. Lu, et al., *Sulfur Dioxide Emissions in China and Sulfur Trends in East Asia Since 2000*, 10 ATMOS. CHEM. PHYS. 6327 (2010); see Chuin-Wei Yap, Rhiannon Hoyle, & Andreas Ismar, *China to Ban Coal with High Ash, Sulfur*, WALL

lax in China compared to the United States, resulting in the emission of six to thirty-three times more pollutants per unit of GDP in 2006 than in the United States.⁴⁹ In many cases, the environmental laws or goals that do exist are largely ignored.⁵⁰

Emissions from developed countries⁵¹ have flattened, but this is attributable in significant part to the outsourcing of emissions to the developing world.⁵² From 2000 to 2007, the volume of exports from China grew by 390%.⁵³ The February 2014 PNAS study found that “in 2006, 36% of anthropogenic sulfur dioxide, 27% of nitrogen oxides, 22% of carbon monoxide, and 17% of black carbon emitted in China were associated with production of goods for export. For each of these pollutants, about 21% of export-related Chinese emissions were attributed to China-to-US export.”⁵⁴ These numbers seem to be growing, as one study found that half of China’s emissions increases from 2002 to 2007 could be attributed to the export of goods.⁵⁵

Apart from its secondary effects on air quality in the United States, high-sulfur coal is having a disastrous effect on life in China.⁵⁶ Not surprisingly,

St. J. (Nov. 28, 2014, 2:20 PM), <http://online.wsj.com/articles/china-coal-ban-highly-polluting-types-banned-starting-in-2015-1410852013> (indicating that China will ban some high-sulfur coal starting in 2015).

49. This gap does seem to be decreasing, however. PNAS Study, *supra* note 13, at 1736, 1739. Lax regulations influence not only how dirty the energy is, but also the industries this energy supplies. See Wang, *supra* note 11, at 2027-2028 (noting that, in 2012, China accounted for 60% of cement, 43% of aluminum, and 50% of steel production worldwide—all of which are energy intensive).

50. See Ryan, *supra* note 12, at 190.

51. “Developed countries” are characterized by the Kyoto Protocol as those nations which “dominate world trade.” This term has traditionally excluded “developing countries” like China and India. Mustafa Babiker, John M. Reilly, & Henry D. Jacoby, *The Kyoto Protocol and Developing Countries* 17, MIT JOINT PROGRAM ON THE SCIENCE AND POLICY OF GLOBAL CHANGE (Nov. 28, 2014, 11:10 AM). A further discussion of this dichotomy can be found later in the article.

52. Wang, *supra* note 11, at 2026.

53. PNAS Study, *supra* note 13, at 1736.

54. This equates to about 7.5% of the SO_x emissions in China being the direct result of the American export industry. *Id.*

55. Guan, *Journey to the World’s Top Emitter*, *supra* note 44, at L04709.

56. See Gareth Porter, *Pollution Standards and Trade: The “Environmental Assimilative Capacity” Argument*, 4 GEO. PUB. POL’Y REV. 49, 58 (1998) (detailing Chongqing, China in 1994—before the most serious problems began—which had

China is suffering from the same acid rain problems that plagued North American 25 years ago, and they are intensifying.⁵⁷ China's SO_x emissions are also causing problems in East Asia, where they account for more than 90% of the total emissions since the 1990s.⁵⁸ Volcanic activity in Japan makes it difficult to reliably ascertain the effects of transboundary air pollution on their air quality, but several reports indicate that half of the air pollution and half of the acid rain problems facing South Korea are Chinese in origin.⁵⁹

The reason the February 2014 PNAS study made headlines in the United States, however, was because Chinese emissions were negatively affecting air quality in this country.⁶⁰ Most shockingly, the study found that Chinese pollution contributed a maximum of 12%-24% of the sulfate pollution over the Western United States on a daily basis, as well as 2%-5% of the ozone, 4%-6% of carbon monoxide, and up to 11% of black carbon.⁶¹

Because it is the continental state with the longest Pacific coastline, California may have the most to gain from reducing the SO_x pathway from China. California has been granted special status under the Clean Air Act since it was passed. California had adopted regulations aimed at curbing vehicle tailpipe emissions in 1960, and Pennsylvania and New York were about to pass of their own by the mid-60s.⁶² Faced with a nation of 50 different standards for automobile emissions, which that industry feared as much as

enough sulfur dioxide in the air to blanket the city and its citizens in "acid fog" for all but sixteen days of the year); Edward Wong, *Most Chinese Cities Fail Minimum Air Quality Standards, Study Says*, N.Y. TIMES (Nov. 28, 2014, 8:30 AM), <http://www.nytimes.com/2014/03/28/world/asia/most-chinese-cities-fail-pollution-standard-china-says.html> (finding that only three of the seventy-four cities monitored in China met minimum air quality standards in 2013); Edward Wong, *Air Pollution Linked to 1.2 Million Premature Deaths in China*, N.Y. TIMES (Nov. 28, 2014, 8:55 AM), <http://www.nytimes.com/2013/04/02/world/asia/air-pollution-linked-to-1-2-million-deaths-in-china.html> (linking air pollution to 1.2 million deaths in China in 2010).

57. Z. Lu, et al., *Sulfur Dioxide Emissions*, *supra* note 48, at 6321; see Blood, *supra* note 22, at 161 ("[a]cid rain ... affects nearly one-third of China's territory").

58. *Id.* at 6311-6312.

59. Laura S. Henry et al., *From Smelter Fumes to Silk Road Winds: Exploring Legal Responses to Transboundary Air Pollution over South Korea*, 11 WASH. U. GLOBAL STUD. L. REV. 565, 568 (2012).

60. See Wong, *supra* note 6; Wan, *supra* note 7.

61. PNAS Study, *supra* note 13, at 1739.

62. E. Donald Elliott, Bruce A. Ackerman & John C. Millian, *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, 1 J.L. ECON. & ORG. 313, 330-31 (1985); Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 HARV. L. REV. 553, 585 (2001).

the Federal Government, Congress passed the Air Quality Act of 1967, which funded much of the initial research leading up to the passage of the Clean Air Act.⁶³ As part of this Act, the automobile industry also insisted that the Federal Standards would establish a nationwide *ceiling*, unlike other cooperative federalism statutes where a *floor* is set which states can build upon with their own standards.⁶⁴ California was expressly exempted from the section however, after state lawmakers convinced Congress that its standards would be better suited for solving the air quality problems in Los Angeles.⁶⁵ The 1977 Clean Air Act amendments recognized the effectiveness of California's "pioneering efforts" in controlling air pollution from mobile sources, and allowed other states the choice between adopting the federal regulations or following California's more stringent requirements.⁶⁶ Eleven Northeastern states have elected to opt-in to at least part of California's mobile sources program.⁶⁷

In addition, a large number of the Class I Air Quality Areas in the United States are in regions potentially affected by this transboundary air pollution: 50 of the 156 areas are in California, Oregon, and Washington.⁶⁸ Class I Air Quality Areas figure into the Prevention of Significant Deterioration (PSD) process added to the Clean Air Act in the 1977 Amendments to preserve clean air in attainment areas.⁶⁹ The PSD process sprang from the 1972 ruling in *Sierra Club v. Ruckelshaus*, where the D.C. District Court held that the EPA had a duty prevent the significant deterioration of existing high air quality levels.⁷⁰ In short, any new facilities or major modifications to existing facilities made

63. *Id.*

64. Revesz, *Federalism*, *supra* note 62, at 573.

65. Dwyer, *supra* note 9, at 1225 fn. 65.

66. Deborah Keeth, *The California Climate Law: A State's Cutting-Edge Efforts to Achieve Clean Air*, 30 *ECOLOGY L.Q.* 715, 723-24 (2003) (citing *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. New York State Dep't of Env'tl. Conservation*, 17 F.3d 521, 525 (2d Cir. 1994)).

67. Proposed Rulemaking on Ozone Transport Commission; Emission Vehicle Program for the Northeast Ozone Transport Region, 59 FR 21720, 21722 (1994).

68. See 40 C.F.R. § 81.401-81.437 (1998) (listing all Class I Areas); United States Environmental Protection Agency, *List of 156 Mandatory Class I Federal Areas* (Nov. 30, 2014, 9:00 PM), <https://www.epa.gov/visibility/list-156-mandatory-class-i-federal-areas> (collecting federal regulations).

69. United States Environmental Protection Agency, *The Clean Air Act in a Nutshell: How it Works* 8 (Nov. 30, 2014, 9:45 PM), http://www.epa.gov/air/caa/pdfs/CAA_Nutshell.pdf.

70. *Sierra Club v. Ruckelshaus*, 344 F. Supp. 253, 254-256 (D.D.C. 1972). EPA's duty to preserve existing air quality is explored later in the article.

after 1977 must conduct a PSD analysis if the construction will be in an attainment area, and all existing facilities must retrofit their operations.⁷¹ If the construction is within 100 kilometers of a Class I area—which includes all national wilderness areas over 5,000 acres and national parks over 6,000 acres—it can be vetoed outright or, if allowed to proceed, must comply with strict standards.⁷²

The purpose of these regulations is to not only protect air quality, but to restore the visibility in these areas to a natural level and to prevent the “scenic vistas” which give these areas some of their majesty from being obscured by haze.⁷³ In many of these areas, SO_x emissions are the leading cause of reduced visibility.⁷⁴ The fact that visibility and air quality could be seriously impacted by the transboundary pollution detailed in the February 2014 study would undermine the effectiveness of an important section of the Clean Air Act.

Part III: Closing the Outsourcing Loop—Using Federal Environmental Law to Regulate Sulfur Exports

Air pollution control laws are a relatively modern invention, especially on the Federal level. Before 1955, the Federal Government was completely silent on the issue, and any restrictions came from city governments or state legislatures.⁷⁵ As is often the case with environmental regulations, the

71. United States Environmental Protection Agency, *Prevention of Significant Deterioration (PSD) Basic Information* (Nov. 30, 2014, 10:14 PM), <https://www.epa.gov/nsr/prevention-significant-deterioration-basic-information>.

72. 42 U.S.C. § 7472 (2012); Bernard F. Hawkins & Mary Ellen Ternes, *The New Source Review Program*, in *THE CLEAN AIR ACT HANDBOOK* 174-175 (Julie R. Domike & Alec C. Zacaroli, eds., 2011). Some Federal Land Managers (FLMs) have argued that projects within 200 kilometers of Class I areas should require further evaluation. *Id.*

73. See M. Lea Anderson, *The Visibility Protection Program*, in *THE CLEAN AIR ACT HANDBOOK* 201 (Julie R. Domike & Alec C. Zacaroli, eds., 2011) (citing H.R. Rep. No. 95-294, at 203-204 (1977)).

74. See United States Environmental Protection Agency, *Visibility in Our Nation's Parks and Wilderness Areas* (Nov. 29, 2014, 12:59 AM), <https://www.epa.gov/visibility/visibility-parks-and-wilderness-areas>.

75. Chicago and Cincinnati both passed smoke control ordinances in 1881, and Philadelphia passed an ordinance in 1904 regulating smoke. In 1947, California enacted an Air Pollution Control Act to combat a growing smog problem. Tianjia Tan, Bob O'Loughlin, Mike Roberts, and Edward Dancausse, *An Overview of Federal Air Quality Legislation*, U.S. Department of Transportation (Dec. 22, 2014, 9:15 AM), <http://www.fhwa.dot.gov/resource>

impetus to pass what became the Clean Air Act came from several environmental catastrophes that heightened awareness of the public health dangers of air pollution.⁷⁶ In October of 1948, toxic smog fell on the city of Donora, Pennsylvania, shrouding the town in sulfur dioxide from the local zinc and steel plants for five days.⁷⁷ The air pollution ultimately killed twenty people and made 6,000 ill.⁷⁸ Four years later, the Great Smog of London, caused by thousands of occupants in the city burning coal to heat their houses, killed over 4,000 over a span of four days.⁷⁹ The direct result of these catastrophes, which resemble the current air quality problems in industrialized China, was the passage of the Air Pollution Control Act of 1955, which authorized the Secretary of Health, Education and Welfare to research the causes and effects of air pollution.⁸⁰ This act was amended several times, and finally became what is widely called the Clean Air Act in 1970, when Congress gave the fledgling EPA the responsibility to protect public health and welfare.⁸¹

This charge was initially covered under § 101 of the reorganized act, which listed Congressional findings and declarations of purpose.⁸² The goals of the Clean Air Act include: protecting the quality of the Nation's air resources and promoting actions at all levels of government that prevent pollution in a manner consistent with the rest of the statute.⁸³ The findings and purposes section of the 1990 amendments focused on limiting annual emissions of sulfur dioxide in the United States, not on limiting the total

center/teams/airquality/teamaq_law.pdf; see also Michael R. Barr, *Setting National Ambient Air Quality Standards*, in *THE CLEAN AIR ACT HANDBOOK 5* (Julie R. Domike & Alec C. Zaccaroli, eds., 2011).

76. See Jonathan H. Adler, *Fables of the Cuyahoga: Reconstructing A History of Environmental Protection*, 14 *FORDHAM ENVTL. L.J.* 89, 94 (2002) (discussing how the burning of Cleveland's Cuyahoga River in 1969 led to the Clean Water Act); Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 *STAN. L. REV.* 683, 692 (1999) (detailing Love Canal and CERCLA).

77. Tan, et al., *supra* note 75; David Templeton, *Cleaner Air is Legacy left by Donora's Killer 1948 Smog*, *PITTSBURGH POST-GAZETTE* (Dec. 29, 2014, 10:15 AM), <http://old.post-gazette.com/magazine/19981029smog1.asp>.

78. Templeton, *supra* note 77.

79. Chirag Trivedi, *The Great Smog of London*, *BBC NEWS* (Dec. 29, 2014, 10:23 AM), http://news.bbc.co.uk/2/hi/uk_news/england/2545759.stm.

80. See David Stanway, *Beijing's Toxic Smog was Years in the Making, Had Many Sources*, *REUTERS* (Dec. 29, 2014, 10:20 AM), <http://www.reuters.com/article/2013/01/17/us-china-pollution-sources-idUSBRE90G00V20130117>.

81. Tan, et al., *supra* note 75, at 3-4.

82. 42 U.S.C. § 7401.

83. *Id.*

amount of sulfur dioxide in the atmosphere.⁸⁴ This would seem to prevent using the Clean Air Act as a regulatory hook to reduce global emissions as this note proposes, but the section goes on to state that the Act is also concerned with “pollution prevention as a long-range strategy.”⁸⁵ Given that the focus on domestic emissions has led to the transboundary sulfur dioxide problem mentioned above, some creative interpretation of the Act is needed.

A. The Legality of Applying Federal Environmental Statutes to Foreign Polluters

Broadening the Clean Air Act to regulate foreign sources may seem at first glance to clearly violate the presumption against extraterritoriality, which prevents federal statutes from being applied on foreign soil unless Congress designated such an application.⁸⁶ *Envtl. Def. Fund, Inc. v. Massey*, a 1993 D.C. Circuit Case, sets out three of the categories where a presumption against extraterritoriality does not apply.⁸⁷ These are: first, where Congress has specifically stated in the statute that the scope extends outside of the United States; second, when failing to extend the scope of the statute to another country would have an adverse effect within the United States; and third, where the conduct being regulated occurs within the United States.⁸⁸ Given the findings of the 2014 PNAS study, the second category would clearly apply—the present failure of extraterritorial application of the Clean Air Act *has* damaged the air quality in the Western United States.⁸⁹

The Clean Air Act already considers at least two scenarios where transboundary pollutants can adversely affect air quality, both of which probably satisfy the first category established in *Massey*. Section 115 of the Clean Air Act allows the EPA Administrator to act if *domestic* facilities are harming the air quality in foreign countries.⁹⁰ This could probably be applied in reverse, as well, assuming that using the Clean Air Act here would not interfere with foreign sovereign authority.⁹¹ Second, Section 179B of the Act allows the EPA Administrator to approve a State Implementation Plan would meet the National Ambient Air Quality Standards “but for emissions

84. 42 U.S.C. § 7651(b).

85. *Id.*

86. See Browne C. Lewis, *It's A Small World After All: Making the Case for the Extraterritorial Application of the National Environmental Policy Act*, 25 CARDOZO L. REV. 2143, 2152 (2004).

87. 986 F.2d 528, 531-32 (D.C. Cir. 1993).

88. *Id.*

89. Wong, *supra* note 6.

90. 42 U.S.C.A. § 7415 (2012).

91. *Am. Banana Co. v. United Fruit Co.*, 213 U.S. 347, 29 S. Ct. 511, 53 L. Ed. 826 (1909).

emanating from outside the United States.”⁹² The title of this section, “International Border Areas,” would imply that this would apply to states sharing a physical border with Canada or Mexico, but this could easily be expanded to cover “outside” emissions from countries like.⁹³

Finally, there may be an abstract argument here for the third category, as well. According to the policy section of the Clean Air Act, the *purpose* of the Act is “to protect and enhance the quality of the Nation’s air resources, not to regulate *facilities* producing air pollution.”⁹⁴ Therefore, one could argue the subjects of the regulation are the air pollutants harming the quality of the Nation’s air resources, and not the facilities which are producing these pollutants.⁹⁵ Because a showing on only one of the categories in *Masse*y is necessary, resorting to this final argument would be unnecessary.

Extending Federal Environmental law to reach past the borders of the United States has been applied in several instances. As with Section 115 of the Clean Air Act, the international provisions in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) apply to prospective foreign plaintiffs who have been wronged by American polluters.⁹⁶ In addition, the National Environmental Policy Act (NEPA), which requires the Federal Government to “stop and think” about potential effects to the “human environment,” has been applied by several courts to actions outside of the United States.⁹⁷ Finally, the DC District Court found that the Endangered Species Act could require the federal government to consult with the Secretary of the Interior before taking actions that would potentially result in the take of Endangered Species in Mexico.⁹⁸

92. 42 U.S.C.A. § 7509a(a)(2) (2012). *See also* subsections (b), (c), and (d), expanding this to specifically cover ozone, carbon monoxide, and PM-10. *Id.* at § 7509a(b-d).

93. *Id.*

94. 42 U.S.C.A. § 7401(b)(1) (2012).

95. *Id.*

96. Jonathan Remy Nash, *The Curious Legal Landscape of the Extraterritoriality of U.S. Environmental Laws*, 50 VA. J. INT’L L. 997, 1004 (2010) (citing CERCLA § 111(i)(4), 42 U.S.C. § 9611 (2012)).

97. *See* Steven Ferrey, *EXAMPLES & EXPLANATIONS: ENVIRONMENTAL LAW* 82 (5th ed, 2010); Lois J. Schiffer, *The National Environmental Policy Act Today, with an Emphasis on Its Application Across U.S. Borders*, 14 DUKE ENVTL. L. & POL’Y F. 325 (2004) (collecting cases).

98. The court found for plaintiffs on this issue because the government advanced no contrary theories. *Defenders of Wildlife v. Norton*, 257 F. Supp. 2d 53, 66 (D.D.C. 2003).

B. The Toxic Substances Control Act as a Limit on United States Coal Exports

Given that China has faced unprecedented air quality problems since it began rapidly industrializing, recent efforts to curb these problems is not surprising.⁹⁹ Starting on January 1, 2015, China banned the importation of coal with more than three percent sulfur content in a bid to combat high smog in urban areas.¹⁰⁰ While this is an admirable first step towards combatting air pollution in that country and its effects across borders, the ban appears to have been specifically designed to reduce the amount of incoming Australian lignite, which often has sulfur contents higher than three percent.¹⁰¹ In October of 2014, China's finance ministry also announced tariffs on coal imports for the first time in nearly a decade, though analysts believed that this decision was rooted entirely in the desire to improve domestic coal production.¹⁰²

In spite of these apparent indications, some policy analysts and industry experts have predicted increasing demand for American coal in China, India, and Japan.¹⁰³ In 2013, the U.S. Energy Information Administration reported that 25% of the United States' coal exports were going to Asia, and predicted

99. WONG, *supra* note 53.

100. Yap, Hoyle, & Ismar, *supra* note 47.

101. *Id.*

102. Chuin-Wei Yap, *China Reviving Tariffs on Coal Imports*, WALL ST. J. (Feb. 28, 8:45 PM), <http://www.wsj.com/articles/china-reviving-tariffs-on-coal-imports-1412867896>. These were then very quickly rendered largely effective in the wake of a Free Trade Agreement signed between China and their largest coal provider Australia. Babs McHugh, *Chinese Free Trade Agreement Includes Major Tariff Reductions for Australian Mineral Exports, Including Coal, Alumina and Nickel*, ABC RURAL (Feb. 28, 8:59 PM), <http://www.abc.net.au/news/2014-11-17/chinese-fta-a-boon-for-australian-mining-industry/5896830>.

103. See Henry, *supra* note 58, at 567 (noting that the IEA World Energy Outlook from 2011 predicted that China would, at a minimum, account for more than half of the global coal use by 2020); see also *Exports Benefit Every Region*, U.S. COAL EXPORTS (Feb. 28, 2015, 8:30 PM), <http://www.uscoalexports.org/exports-benefit-every-region/>; Barbara Vergetis Lundin, *Report Says U.S. Should Take Advantage of Coal Exports*, NATIONAL CENTER FOR POLICY ANALYSIS (Feb. 28, 2015, 9:02 PM), <http://www.npc.org/media/report-says-us-should-take-advantage-of-coal-exports>. Admittedly, taking industry prognostications at face value is rarely wise. See Babs McHugh, *Australian Coal and Natural Gas Looking for the Upside to the China, USA Pact to Reduce Carbon Emissions*, ABC RURAL (Feb. 28, 2015, 8:56 PM), <http://www.abc.net.au/news/2014-11-13/coal-Ing-opportunities-seen-in-china-emissions-reductions/5888580> (predicting an *increase* in Australian coal and natural gas exports to China in the wake of recent Chinese environmental decisions).

that this number would grow significantly.¹⁰⁴ As such, some domestic controls over this exportation merits consideration.

Precedent exists for controlling the export of potentially hazardous materials. The Toxic Substances Control Act, passed in 1976, created a national labelling system for all chemicals coming onto the market or known to be toxic at the time the act was passed.¹⁰⁵ This is extremely broad and includes “any organic or inorganic substance of a particular molecular identity, including . . . any combination of such substances . . . occurring in nature.”¹⁰⁶ In addition, anthracite coal that has been prepared for shipping appears in the TSCA registry at Chemical Abstracts Service (CAS) Registry No. 68187-59-7.

Section Six of TSCA, 15 USC § 2605, allows the EPA Administrator to impose some combination of seven different requirements on toxic substances if the agency finds some “unreasonable risk of injury to health or the environment.”¹⁰⁷ Given that the findings of the 1990 amendments to the Clean Air Act noted that: “the presence of acidic compounds and their precursors in the atmosphere. . .represents a threat to natural resources, ecosystems, materials, visibility, and public health,” showing an unreasonable risk of injury would not be that difficult.¹⁰⁸ The Administrator can take steps including the prohibition or restriction of distributing the goods in commerce, so this could be a legitimate avenue to prevent harmful high-sulfur coal from entering the global energy market.¹⁰⁹

C. Practical Realities and the Contemporary Limits of the Clean Air Act

Unfortunately, using the Clean Air Act or TSCA to control high-sulfur coal exports faces several real challenges. The Environmental Protection Agency, particularly when it is trying to regulate anything affecting the coal industry, is extremely unpopular with the current membership in the Federal legislature, and any further limits—even to improve the health and welfare of

104. 25% of U.S. Coal Exports go to Asia, but Remain a Small Share of Asia's Total Coal Imports, U.S. ENERGY INFORMATION ADMINISTRATION (Feb. 28, 2015, 9:15 PM), <http://www.eia.gov/todayinenergy/detail.cfm?id=11791>.

105. Environmental Protection Agency, *Overview of the Toxic Substances Control Act (TSCA)*, EPA (Dec. 29, 2014, 10:55 AM), [http://www.epa.gov/agriculture/lasca.html# Summary of Toxics Substances Control Act \(TSCA\)](http://www.epa.gov/agriculture/lasca.html#Summary%20of%20Toxics%20Substances%20Control%20Act%20(TSCA)).

106. 15 U.S.C. § 2602(2)(A)(i); *see also* 40 C.F.R. § 710.4.

107. 15 U.S.C. § 2605(a).

108. 42 U.S.C. § 7651(b).

109. 15 U.S.C. § 2605(a)(1).

other Americans—could be met with adversity.¹¹⁰ Finally, the Clean Air Act has difficulties regulating transboundary pollutants between states, which could call into question its potential efficacy in shaping global policy.¹¹¹

Part IV: Applying the Polluter Pays Principle to the Global Commons: Trail Smelter and the History of Transboundary Pollution Controls

The very nature of transboundary pollution—which begins in one country and affects the environment of another, lends itself to international dispute resolution.¹¹² Two significant problems have arisen in crafting solutions for air pollutants in particular making implementation difficult for bilateral and multilateral arrangements.

First, the technology to establish causation has limited the growth of legal responses, and thus all of the relevant law concerns transborder situations where one source or a group of sources is clearly and measurably affecting the air quality in a nearby country. The PNAS study and many others are built on the improving technological capabilities of air quality monitoring, however, and the EPA is optimistic that new satellite-based methods will make the data far more accurate.¹¹³

Second, as mentioned above, the Trail Smelter decision and subsequent declarations impose a duty on nations not to export pollutants, but do not give affected countries any recourse once these pollutants cross their borders.

110. See Erica Werner, *AP Interview: McConnell Wants to Stop Coal Rules*, ASSOCIATED PRESS (Dec. 29, 2014, 1:10 PM), <http://bigstory.ap.org/article/7ecf9cd4d6a84758a12e4ebf0cb46cf3/ap-interview-mcconnell-cool-obamas-cuba-move>.

111. See *Implementation Plans-Interstate Effects*, 1 ENVTL. L. (West) § 3:16; *Clean Air Act-Cost Considerations-EPA v. Eme Homer City Generation, L.P.*, 128 HARV. L. REV. 351 (2014); *Cross-State Air Pollution Rule (CSAPR)*, UNITED STATES EPA (Feb. 28, 2015, 11:00 PM), <http://www.epa.gov/crossstaterule/>. States have also been given leniency from NAAQS compliance under the Clean Air Act when pollution from Canada or Mexico have placed them in nonattainment. A. Dan Tarlock, *The Influence of International Environmental Law on United States Pollution Control Law*, 21 VT. L. REV. 759, 767 (1997).

112. See Noah D. Hall, *Transboundary Pollution: Harmonizing International and Domestic Law*, 40 U. MICH. J.L. REFORM 681 (2007) (“Transnational pollution is an international problem that demands and deserves the attention of international legal mechanisms such as treaties, agreements, arbitration, and international management and governance.”).

113. See generally PNAS study, *supra* note 12; Environmental Protection Agency, *Discover-AQ* (Mar. 27, 2015, 9:09 PM), <http://www.epa.gov/nerl/features/discover-aq.html>.

This essentially creates a global situation where, absent binding international agreements, the countries with the least restrictive environmental laws end up dictating what their neighbors can do.

This section will attempt to contextualize the present problem by looking at past disputes between the United States and its neighbors, looking at the European response to acid deposition, and by scrutinizing the language in the Rio Declaration on Environment and Development produced in the 1992 summit.

A. Transboundary Pollutants in North America: From Trail Smelter to NAFTA

Because transboundary air pollution has historically only been actionable when it occurred over short distances, the best historical indications of a U.S. response here probably come from their dealings with Canada and Mexico over transborder air pollution.¹¹⁴ In addition, the United States and its citizens have pursued a variety of legal methods to bring polluters to justice: international arbitrations, bi- and multi-lateral agreements, and citizen suits.

i. Conflicts and Resolutions with Canada

The first case to recognize the harms caused by transboundary air pollution was the Trail Smelter dispute, which has been described as the foundational case of international environmental law.¹¹⁵ In the above case, farmers in Washington State in the 1930s sought action by the U.S. government against a smelting plant across the Canadian border for damage to their crops and trees.¹¹⁶ The zinc and lead smelter in that case was the largest in the whole of the British Empire, and was seven miles north of the United States.¹¹⁷

The case was initially submitted to the International Joint Commission (IJC), a bilateral panel with three American and three Canadian

114. It may also be worthwhile to consider the actions taken by countries in the shadow of Chinese air pollution. Nearly half of the air pollution in South Korea is estimated to come from China, and Japan also suffers from their western neighbor's industrial activities. Despite the clear benefits of taking some action, however, both of these countries have avoided seeking binding agreements for transborder air pollutants for fear of alienating a valuable trade partner. Henry, *supra* note 58, at 568-570.

115. Hall, *supra* 111, at 696.

116. Henry, *supra* note 58, at 571-72.

117. Jason Buhi, Lin Feng, *The International Joint Commission's Role in the United States-Canada Transboundary Air Pollution Control Regime: A Century of Experience to Guide the Future*, 11 VT. J. ENVTL. L. 107, 113 (2009).

Commissioners.¹¹⁸ This commission recommended damages of \$350,000 to the plaintiffs, but this recommendation was ignored by both parties.¹¹⁹ Canada agreed to pay for the previous damage at this point, but decided to put the case before three arbitrators—an American, a Canadian, and a neutral commissioner from Belgium—to determine future payments and mitigation measures.¹²⁰

What these arbitrators ultimately held has become enshrined as the key tenant of international environmental law: “[N]o State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the cause is of serious consequence and the injury is established by clear and convincing evidence.¹²¹ This was carried over into the 1972 Declaration from the United Nations Conference on the Human Environment in Stockholm in 1972 as well as in the United Nations Conference on Environment and Develop held in Rio de Janeiro in 1992.¹²² These have been called declarations of “soft law,” meaning that they are not binding, but they nonetheless reflect the goals of the global community.¹²³

Even though its recommendations were ultimately ignored in the Trail Smelter dispute, the IJC has been a valuable tool in handling transborder disputes between the United States and Canada.¹²⁴ The IJC was created as part of the Boundary Waters Treaty, ratified by both countries in 1909 principally to handle the management of the numerous shared waterways, including four of the Great Lakes.¹²⁵ The IJC is still well funded and commonly used today, and its strength seems to come from taking a bilateral approach.¹²⁶ More

118. *Id.*

119. Jeffrey L. Roelofs, *United States-Canada Air Quality Agreement: A Framework for Addressing Transboundary Air Pollution Problems*, 26 CORNELL INT’L L.J. 421, 428 (1993).

120. Hall, *supra* note 111, at 697; Roelofs, *supra* note 118, at 429.

121. Hall, *supra* note 111, at 698 (citing Trail Smelter II, 3 R.I.A.A. at 1965); see Henry, *supra* note 58, at 590 (noting that the Trail Smelter ruling basically extended the ancient maxim of sic utere tuo ut alienem non laedus (“one must use their property so as not to harm that of another”) to international law).

122. Rubin, *supra* note 29, at 626; Rio Declaration, *supra* note 16.

123. Hall, *supra* note 111, at 746 fn. 92.

124. Since Trail Smelter, the IJC has handled hundreds of transboundary disputes with nonbinding arbitrations. Shi-Ling Hsu & Austen L. Parrish, *Litigating Canada-U.S. Transboundary Harm: International Environmental Lawmaking and the Threat of Extraterritorial Reciprocity*, 48 VA. J. INT’L L. 1, 12-13 (2007).

125. Buhi, Feng, *supra* note 116, at 110-111.

126. *Id.* at 112.

recently, the role of the IJC has been supplemented by the Canada-United States Air Quality Agreement of 1991, which adds a role for citizens in the process.¹²⁷ Now the IJC must invite comments on each air quality report they submit and impose mandatory consultation requirements based on the content of these comments.¹²⁸ Unfortunately the IJC has found the only two citizen complaints submitted through this process to be deficient for procedural reasons.¹²⁹

The most effective way of curbing transborder pollution between these two countries continues to be bringing suits in the country of the polluter. This is an effective workaround in countries that allow foreign plaintiffs and have strong environmental enforcements, and is currently the only way to hold polluter nations accountable under the Trail Smelter doctrine.¹³⁰ It also works both ways: in the landmark case of *Michie v. Great Lakes Division*, thirty-seven Canadian citizens from Ontario brought a nuisance suit against three corporations operating seven plants in the greater Detroit area.¹³¹ The Sixth Circuit Court of Appeals ruled both that the multiple defendants could be held jointly and severally liable for their combined air pollution, and that the Canadian plaintiffs had a right to bring an action in U.S. Federal Court.¹³² The U.S. Supreme Court declined a review of these holdings, and the case eventually settled, which led to \$105,000 for the plaintiffs and a promise from the plants to spend \$4,000,000 on pollution abatement technologies.¹³³

Finally, there has been one other major environmental compact involving the United States and Canada, which came after an expansive trade agreement. The North American Free Trade Agreement (NAFTA), the massive trade agreement between Canada, the United States, and Mexico, was signed into law by President Bush and the Mexican President and Canadian Prime Minister in December 17, 1992.¹³⁴ NAFTA did not address concerns over labor, the environment, or import surges, and these were dealt with in side agreements signed a year later by President Clinton.¹³⁵ The North American

127. *Id.* at 127.

128. *Id.*

129. Hall, *supra* note 111, at 720-721.

130. *Michie*, *supra* note 130.

131. Hall, *supra* note 111, at 721.

132. *Id.* at 725 (citing *Michie v. Great Lakes Division*, 495 F.2d 213 (6th Cir. 1974), cert. denied, 419 U.S. 997 (1974)).

133. *Id.* at 726.

134. Steve Charnovitz, *The Nafta Environmental Side Agreement: Implications for Environmental Cooperation, Trade Policy, and American Treaty-making*, 8 TEMP. INT'L & COMP. L.J. 257, 258 (1994).

135. Elizabeth A. Ellis, *Bordering on Disaster: A New Attempt to Control the Transboundary Effects of Maquiladora Pollution*, 30 VAL. U. L. REV. 621, 626 (1996);

Agreement on Environmental Cooperation (NAAEC) sought to answer concerns that increased trade, particularly along the U.S.-Mexico border, would create a “pollution haven” where industry could go to escape more rigorous environmental regulations up north.¹³⁶ The NAAEC addresses transboundary pollution through a “citizen submission procedure,” which allows affected parties to bring suits against the polluter in the courts of the country where the pollution is being generated—a right which was already present in the United States and Canada according to the *Michie* decision.¹³⁷ This right is protected by procedural guarantees in the NAAEC, which require each country to assure that these suits are not unnecessarily time consuming or expensive.¹³⁸

ii. Mexico, Maquiladoras, and the Use of the NAFTA Side Agreements

The passage of NAFTA obviously affected more than the United States and Canada, and probably had a much more profound environmental impact on US-Mexico relations. In addition, the story of this relationship carries many of same themes of wealth disparity and pollutant outsourcing that continue to crop up in U.S. dealings with China. Starting in the sixties, foreign industry began building maquiladoras near the northern border of Mexico.¹³⁹ These facilities were factories that were allowed to import raw materials duty free, and promised low overheads because of relaxed labor and environmental regulations.¹⁴⁰ While these factories were already causing problems along the borders by the 1980s, they grew exponentially with the ratification of NAFTA, which removed even more barriers to trade.¹⁴¹ As of 2009 there were 26,000 U.S. companies providing raw materials to these

see also Charnovitz, *supra* note 133, at 257-258 (noting that candidate Bill Clinton’s first speeches about the proposed North American Free Trade Agreement on the 1992 campaign trail expressed concern about potential ramifications on the environment and labor relations).

136. Hall, *supra* note 111, at 717-718.

137. *Id.* at 718-719; *Michie*, *supra* note 130.

138. Charnovitz, *supra* note 133, at 262.

139. Bret Benedict, *Transnational Pollution and the Efficacy of International and Domestic Dispute Resolutions Among the Nafta Countries*, 15 L. & BUS. REV. AM. 863, 887 (2009).

140. *Id.*

141. *Can Voluntary Compliance Protect the Environment?: The North American Agreement on Environmental Cooperation*, 50 U. KAN. L. REV. 867 (2002); *Transboundary Movement of Hazardous Waste from Mexico to the United States: EPA’s Authority to Enforce Rcra Requirements Against*, 8 ENVTL. LAW. 1, 19-20 (2001).

facilities, and there were at least 1,000 maquiladoras known to be producing hazardous waste.¹⁴²

At least as a response to the maquiladoras, the NAAEC has been criticized as ineffective because it lacks standalone fines or sanctions and depends on voluntary cooperation from the three signatory nations.¹⁴³ The ability to *bring* environmental lawsuits in countries with weak environmental protections doesn't mean all that much, and Mexican standards for stationary air pollution are nearly nonexistent compared with those in the United States.¹⁴⁴ If a Mexican citizen had been harmed by pollution from a facility in the American southwest, that individual would be able either request an EPA investigation or pursue court action (which acts as a strong incentive for the agency to perform an adequate investigation).¹⁴⁵ If an American citizen, on the other hand, petitions the Ministry of Urban Development and Ecology (SEDUE), they can expect little action, since administrative agencies in Mexico are more immunized from citizen suits than in this country.¹⁴⁶

Thus, American relations with Canada and Mexico show two different sides of bringing actions against foreign polluters. China probably more closely resembles Mexico, because Chinese citizens do not have wide access to litigation against their government in environmental cases and Chinese law does not even recognize the responsibility of industry to consider the transboundary impacts of their projects.¹⁴⁷ In addition, including NAAEC-style citizen action provisions in trade agreements with China may be opening a Pandora's box.¹⁴⁸ Though complaints brought against any of the three signatories to NAFTA through the NAAEC are rare, the United States legal and administrative system could conceivably handle many more—the United States has a population roughly twice the size of Canada and Mexico together. Allowing almost 1.4 billion people to have access to legal complaints against American-owned industrial polluters in China could easily flood our administrative and legal channels.

142. Benedict, *supra* note 138, at 887.

143. *Voluntary Compliance*, *supra* note 140, at 868.

144. Charnovitz, *supra* note 133, at 280.

145. Ellis, *supra* note 134, at 664-665.

146. *Id.*

147. Nadia Sánchez Castillo & Yongmin Bian, *China's Obligation to Conduct Transboundary Environmental Impact Assessment (Teia) in Utilizing Its Shared Water Resources*, 55 NAT. RESOURCES J. 105, 106 (2014).

148. David A. Wirth, *International Trade Agreements: Vehicles for Regulatory Reform?*, 1997 U. CHI. LEGAL F. 331 (1997).

Part V: Examining the Problem in the Context of Montreal and Kyoto

A. The Global Response to Ozone Depletion: The Success of Montreal

In 1985, three British climate scientists published a study that shocked the world. While scientific research had indicated the link between certain industrial chemicals (chlorofluorocarbons, or CFCs) and a thinning ozone layer, the 1985 study was the first to conclusively show the result—a visible *hole* on the planet's protective atmospheric layer.¹⁴⁹ The 1987 Montreal Protocol reduced these harmful CFCs by instituting sharp goals, including a 50% reduction in 1986 levels of CFC production and consumption by 1995 and a total cessation of all use and production by 2000.¹⁵⁰ Developing countries, which used fewer CFCs in general (but were rapidly increasing their use),¹⁵¹ were aided in their compliance by a staggered compliance schedule to allow these countries to meet their base domestic needs.¹⁵² In addition, the costs of compliance for these countries comply with a multilateral fund which was approved in 1990 and managed by the World Bank.¹⁵³ To assure global compliance, the protocol imposed trade sanctions that created a strong

149. See Justin Gillis, *The Montreal Protocol, a Little Treaty that Could*, N.Y. TIMES (Mar. 1, 2015, 12:11 PM), http://www.nytimes.com/2013/12/10/science/the-montreal-protocol-a-little-treaty-that-could.html?_r=0 (before the conclusive scientific evidence was published in 1985, industry-funded “merchants of doubt” were quick to question the scientific basis of the link between CFCs and ozone depletion); (J. C. FARMAN, B. G. GARDINER & J. D. SHANKLIN, *Large Losses of Total Ozone in Antarctica Reveal Seasonal ClOx/NOx Interaction*, 315 NATURE 207-210 (May 16, 1985). It warrants mention here that atmospheric ozone and ground level ozone—a criteria pollutant—are both the same molecule (O₃), but while ozone forms a protective layer around the earth at atmospheric levels, it causes human health and environmental harms when it is at ground level. *Ground Level Ozone*, U.S. EPA (Mar. 2, 2015, 1:32 PM), <http://www.epa.gov/airquality/ozonepollution/>.

150. Patlis, *Multilateral Fund* at fn. 85-86.

151. China and India at the time accounted for only 2% of the world's CFC use. *Id.* at 193.

152. Although replacements were already in use, CFCs were still prevalent in older refrigeration and air conditioning systems. *Id.* at 191.

153. The initial size of the fund was \$1.2 billion. Jason M. Patlis, *The Multilateral Fund of the Montreal Protocol: A Prototype for Financial Mechanisms in Protecting the Global Environment*, 25 CORNELL INT'L L.J. 181, 200-202 (1992).

incentive for compliance.¹⁵⁴ The Montreal Protocol had unprecedented global support, and was the UN treaty to be universally ratified.¹⁵⁵

Montreal was also a key political success for the Reagan administration, which had previously been viewed as an outright enemy of political causes.¹⁵⁶ The treaty was ratified unanimously by the Senate, and President Reagan's signing statement extols the Montreal Protocol as a necessary safeguard for the environment and the global human population.¹⁵⁷ Montreal was able to achieve this broad political backing in the United States for several reasons. First, the Montreal Protocol provided benefits to the United States in excess of its costs.¹⁵⁸ Second, the "hole in the ozone layer" galvanized public support because of the public health implications (increased skin cancer rates) and because the visceral reminder of humanity's impact on the planet "spooked" many people, including world leaders.¹⁵⁹ While nothing in this case is probably so shocking, the potential return of serious acid rain and smog problems in the Western United States (to say nothing of the air quality catastrophe in major Chinese cities) could once again draw public support. In addition, lung problems caused by sulfur dioxides and other category pollutants are at least as harmful in this country as *all* incidents of melanoma, which can have other causes besides reduced ozone protection from UV rays.¹⁶⁰

B. Differential Treatment for "Developing" Powers: The Failure of Kyoto

The Kyoto Protocol, finalized in 1997, was seen at the time as the first major push by the global community to curb greenhouse gas emissions and

154. Sunstein, *supra* note 3, at 17; but see Tarlock, *supra* note 110, at 779 (noting that some commentators are inherently suspicious of discriminatory trade policies disguised as "environmental protection").

155. Brian Handwerk, *Whatever Happened to the Ozone Hole?*, NATIONAL GEOGRAPHIC NEWS (Feb. 28, 2015, 7:17 PM), <http://news.nationalgeographic.com/news/2010/05/100505-science-environment-ozone-hole-25-years/>.

156. Gillis, *supra* note 148, *Statement on Signing the Montreal Protocol on Ozone-Depleting Substances* (April 5, 1988), THE AMERICAN PRESIDENCY PROJECT (Mar. 1, 2015, 1:00 PM), <http://www.presidency.ucsb.edu/ws/?pid=35639>.

157. *Id.*

158. *See* Sunstein, *supra* note 3, at 5.

159. Gillis, *supra* note 148.

160. ICF Consulting, *Human Health Benefits of Stratospheric Ozone Protection 1*, U.S. EPA (Mar. 2, 8:44 AM), <http://www.epa.gov/spdpublic/science/effects/AHEFApr2006.pdf>.

stem the threat of climate change.¹⁶¹ The treaty set limits on greenhouse gas emissions based on 1990 levels, requiring reductions specifically tailored to each affected “developed” country, which all were greater than 5% by 2008-2012.¹⁶² Had the United States ratified the treaty, for example, they would have been required to reduce emissions by 7% of 1990 levels in that period.¹⁶³ Japan, by contrast, was only required to reduce their emissions by 6%.¹⁶⁴ In achieving these goals, nations had some flexibility beyond improving stateside technology or shuttering greenhouse gas-emitting facilities, and could trade emission credits with countries that *were* in compliance.¹⁶⁵

The protocol, like every international agreement, was the product of a compromise, and in navigating between Scylla and Charybdis its drafters erred too much in favor of “developing” countries.¹⁶⁶ The 1972 Stockholm Declaration, cited above as one of the standard-bearers of the rule established in Trail Smelter, was also one of the first international environmental proclamations to state that different countries could participate differently in international environmental agreements based on their economic status.¹⁶⁷ The United Nations Framework Convention on Climate Change, a treaty negotiated at the 1992 Rio Summit, stated that developed countries should bear the onus in stopping climate change, since they could better afford to shoulder the load and because developed countries had historically contributed more greenhouse gases into the atmosphere.¹⁶⁸ This theory is at work in the Kyoto Protocol, which establishes a two-tiered framework for cooperation. Under this plan, “developed countries” like the United States and Germany were required to cooperate

161. A *Summary of the Kyoto Protocol*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (Mar. 2, 2015, 9:07 pm), http://unfccc.int/Kyoto_protocol/background/items/2879.php.

162. *Id.*

163. Sunstein, *supra* note 3, at 26-27.

164. *Id.*

165. UN, *supra* note 160.

166. Ferrey, *supra* note 94 at 632; *see* Mustafa Babiker, John M. Reilly, & Henry D. Jacoby, *supra* note 50.

167. This approach is also referred to as “common but differentiated responsibilities (CBDR).” Wang, *Regulating Domestic Carbon Outsourcing* at 2038.

168. *Id.* at 2037-2038; the treaty is *still* the only international climate change agreement with nearly universal membership. Robert Stavins and Zou Ji, *International Cooperation: Agreements and Instruments*, UNITED NATIONS 1005 (Feb. 28, 2015, 11:45 PM), http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_chapter13.pdf.

with emissions reduction targets, while “developing countries” like China and India were not.¹⁶⁹

The prospect of paying for China and India was especially galling to the West because these two countries were very quickly becoming global leaders in carbon emissions. In 2000, China (14.7%) and India (5.6%) were closing in on the United States’ place (20.6%) as the world’s leading greenhouse gas emitter.¹⁷⁰ China passed the United States as the leading emitter of carbon dioxide in 2007, and by 2013 had almost doubled their emissions (29% to 15%).¹⁷¹ In a March 13, 2011, letter to four Senators clarifying his stance on Climate Change, President Bush stated that he opposed the Kyoto Protocol because it unfairly targeted the United States economy while exempting 80% of the global population from compliance, including China and India.¹⁷² He also referenced the Senate vote on ratifying the treaty, which was unanimously against 95-0.¹⁷³ In addition, popular opinion of the protocol was that it wouldn’t have any meaningful effects on climate change *even if* industrialized nations all came to the table.¹⁷⁴

In conducting post-mortems of Kyoto, most analysts have pointed to this policy decision as the key reason for the protocol’s collapse.¹⁷⁵ Another significant aspect of the treaty which weakened its effectiveness seems to have been an overture toward countries which had limits to adhere to. Even if countries chose to ignore the provisions in the Kyoto Protocol which they had agreed to, the treaty attached no sanctions whatsoever, making

169. Wang, *supra* note 10, at 2036-37.

170. Sunstein, *supra* note 4, at 49.

171. Richard Harris, *Greenhouse Gas Emissions Rise in China*, NPR (Mar. 1, 2015, 8:11 PM), <http://www.npr.org/templates/story/story.php?storyId=88251868>; India is still around 6%. Jos G. J. Olivier, Greet Janssens-Maenhout, Marilena Muntean, Jeroen A. H. W.Peters, *Trends in Global CO₂ Emissions-2014 Report* 10, PBL NETHERLANDS ENVIRONMENTAL ASSESSMENT AGENCY (Mar. 1, 2015, 8:17 pm), http://edgar.jrc.ec.europa.eu/news_docs/jrc-2014-trends-in-global-co2-emissions-2014-report-93171.pdf.

172. George W. Bush, *Text of a Letter from the President to Senators Hagel, Helms, Craig, and Roberts*, THE WHITE HOUSE (Feb. 28, 2015, 5:15 PM), <http://georgewbush-whitehouse.archives.gov/news/releases/2001/03/20010314.html>.

173. *Id.*

174. *Tragically Difficult: The Obstacles to Governing the Commons*, 30 ENVTL. L. 241, 254 (2000) (“The U.S. Department of Energy estimates that, even if all industrialized countries ultimately comply with the Kyoto Protocol, carbon emissions in the year 2010 will still be thirty-two percent greater than they were in 1990 (compared to a forty-four percent increase if the industrialized countries do not comply)”).

175. *See generally* Sunstein, *supra* note 3.

complying with its terms (a very politically and economically costly proposition) optional.¹⁷⁶

C. What a Transboundary Air Pollution Protocol Would Look Like

Looking back on the “spectacular success” of the Montreal Protocol can be done with the wisdom of hindsight, but there is an apparent difference between the two protocols.¹⁷⁷ While both were ambitious, regulating ozone-depleting chemicals was an easier sell to many of the manufacturers of those products because American producers had already started preparing for life after CFCs, both because of a drop in consumer demand for these products and because of stringent regulations on their use in 1978 EPA regulations promulgated pursuant to TSCA.¹⁷⁸ From the perspective of American industry, the Montreal Protocol was inherently *fair*, and requiring global compliance served to limit competition from less environmentally friendly producers.¹⁷⁹ The Kyoto Protocol, however, sought to place limits that were two decades ahead of their time, and didn’t make any effort to spread the pain. Instead, Kyoto required a major conversation on the regulation of carbon emissions in this country, and on the web of power generation and transportation options which, until recently, made the United States the world’s leading emitter of greenhouse gasses. In this situation, the American industries once again sit in the catbird seat, having followed EPA regulations and the Clean Air Act for over forty years.

The single most important predictor of an environmental treaty’s success is American support—in discussing the Montreal and Kyoto protocols, Cass Sunstein called the United States “a critical actor, probably the most important in the world.”¹⁸⁰ Even when the other parties to the table are countries like China and India, the political will to enact a treaty in the United States will probably be the key determinant of whether the treaty is successful.

While the program faltered in Kyoto (in part, no doubt, because “cap-and-trade” requires capping *global* limits and not just the emissions of certain industrial powers), emission trading has already worked to combat sulfur dioxides in the 1990 Clean Air Act amendments.¹⁸¹ Reliable monitoring of

176. *Id.* at 27.

177. *Id.* at 4.

178. *Id.* at 11.

179. European countries, in particular, initially fought CFC bans stringently because they faced less substantial harms from a thinning of the ozone layer. Sunstein, *supra* note 3, at 11, 22.

180. *Id.* at 3.

181. Jezouit, *supra* note 34, at 449.

airborne pollutants over such a wide area could be problematic, but the PNAS Study indicates that this type of monitoring is possible.¹⁸² Finally, the political climate would probably be more receptive to a global treaty on sulfur dioxide emissions. Kyoto quickly became political poison in the United States, and was widely seen as the needless handcuffing of the United States economy.¹⁸³ Cap-and-trade, on the other hand, was a brainchild of free market think tanks in the 1980s, and the 1990 Clean Air Act amendments were signed and heralded by a Republican President, George H.W. Bush.¹⁸⁴ Even in today's political climate, the White House's recent climate change deal with China was met with surprisingly little resistance.¹⁸⁵

VI. Conclusion

The already sparse newspaper headlines dedicated to environmental stories have recently been monopolized by the threat of climate change, which the Intergovernmental Panel on Climate Change has stated will have "severe and pervasive" impacts on our planet in the coming years.¹⁸⁶ Focusing on this admittedly large problem, however, cannot come at the expense of considering the original criteria pollutants of the Clean Air Act, especially in light of the effects these airborne toxins have on human health and the environment.¹⁸⁷

182. Wong, *supra* note 6.

183. Bush, *supra* note 171.

184. Richard Conniff, *The Political History of Cap and Trade*, SMITHSONIAN MAGAZINE (Mar. 1, 2015, 6:15 AM), <http://www.smithsonianmag.com/air/the-political-history-of-cap-and-trade-34711212/?no-ist>.

185. See Ed O'Keefe, David Nakamura, and Steven Mufson, *GOP Congressional Leaders Denounce U.S.-China Deal on Climate Change*, WASH POST (Mar. 1, 2015, 7:04 PM), http://www.washingtonpost.com/politics/gop-congressional-leaders-denounce-us-china-deal-on-climate-change/2014/11/12/ff2b84e0-6a8d-11e4-a31c-77759fc1eacc_story.html. Opposition was loudest from Senators McConnell (R-KY) and Inhofe (R-OK) and Representative Cole (R-OK), all Congressional members from states with strong ties to fossil fuels.

186. Kerry, *supra* note 1; IPCC Report: 'Severe and Pervasive' Impacts of Climate Change will be Felt Everywhere, UNITED NATIONS (Feb. 28, 2015, 11:27 PM), <http://www.un.org/climatechange/blog/2014/03/ipcc-report-severe-and-pervasive-impacts-of-climate-change-will-be-felt-everywhere/>.

187. Wong, *supra* note 55 (estimating 1.2 million deaths a year in China from air pollution); Fabio Caiazza, et al., *Air Pollution and Early Deaths in the United States. Part I: Quantifying the Impact of Major Sectors in 2005*, 79 ATMOSPHERIC ENVIRONMENT 198 (NOV. 2013) (estimating 200,000 deaths a year in the United States related to air pollution). The World Bank has also estimated that air

The very purpose of the 1970 Clean Air Act, “to protect and enhance the quality of the Nation’s air resources,” is currently being jeopardized by overseas pollutants.¹⁸⁸ In addition, antiregulation groups in the United States have seized upon this argument in recent years, upgrading the Kyoto-era argument of malaise in the global community with evidence of foreign impacts on air quality.¹⁸⁹ Because much of this pollution has been generated burning American coal or manufacturing American goods, however, the Clean Air Act or TSCA may be applied to curb the export of high-sulfur coal to Asian markets. Even if these options aren’t feasible, there is a history of bilateral and multilateral agreements in international law which provide helpful guideposts in controlling transboundary air pollutants, even if the two countries are half a world away. Finally, any successful agreements must heed the lessons of Montreal and Kyoto and spread responsibility for solving this problem among all responsible parties.

pollution causes damage to the Chinese economy equal to 3.8% of their yearly GDP. Henry, *supra* note 58, at 579-580.

188. 42 U.S.C. § 7401(b)(1) (1973).

189. *See generally* “What are We Really Getting from China?” National Association of Manufacturers (Nov. 14, 2015), <https://www.youtube.com/watch?v=wXcw7-117mk>.