

Global Warming: An Introduction to the State of the Science and a Survey of Some Legal Responses

by Dominick J. Graziano

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In 1979, James Speth, a member of the President's Counsel on Environmental Quality (CEQ), while completing a report on probable changes in global population, natural resources, and the environment through the end of the century, was asked by some prominent scientists to raise the profile of "global climate disruption." He was provided a report predicting "a warming that will probably be conspicuous within the next twenty years" and calling for "enlightened policies to manage fossil fuels and emissions." The report's conclusions were affirmed by the National Academy of Scientists' Climate Research Board that warned "a wait and see policy may mean waiting until it is too late."¹

Despite these "early" warnings, the United States has followed a "wait and see" attitude while numerous studies repeatedly "confirm" what was strongly suspected in the late 1970s. Now, with the science having arrived at a point to support sound policy, the question is what catalyst will spur "enlightened policies" on a federal, or even statewide, level.² This article addresses the state of the science on global warming and surveys some legal responses that might ultimately result in governmental action.

The Science of Global Warming — A Brief History

The science of global warming can be traced back as early as 1863,³ and to human activity as a possible material cause to 1938.⁴ There is now little serious doubt that the earth has undergone a measurable warming trend over the last century.⁵ The real debate has centered on whether human activity has materially contributed to the increase in global temperature.

Primarily through the study of ice cores, scientists estimate that the concentration of atmospheric CO₂ was 290 ppm⁶ at the beginning of the industrial revolution (circa 1750), 315 ppm in 1960, 350 ppm in 1988, and 370 ppm today.⁷ Some leading scientists believe we must prevent atmospheric CO₂ concentrations from reaching 450 ppm if we are to avoid "catastrophic" global climate impacts.⁸ Despite the well documented increase in atmospheric CO₂ concentration, the debate on the contribution by human activity lingers.

The first "official" acknowledgment linking human activity to global warming, or climate change,⁹ occurred in 1980 when the CEQ issued *The Global 2000 Report to the President — Entering the Twenty-First Century*.¹⁰ The CEQ defined the "climate disruption issue" as: "The concentration of carbon dioxide (CO₂) in the atmosphere . . . that corresponds closely with the increasing global use of fossil fuels . . . Atmospheric CO₂ . . . absorbs heat radiation from the earth's surface, trapping it and preventing it from dissipating into space. As the concentration of CO₂ in the atmosphere increases, more of the earth's radiation heat is trapped."¹¹

When the CEQ was first presented the issue in 1979, the Carter administration "responded by asking the National Academy of Sciences (NAS) to assess the scientific basis for concerns about man-made climate change."¹² The NAS issued a report reaffirming earlier reports that the rise in CO₂ concentrations was likely being caused by human activity.¹³ Over the next 20 years, numerous scientific reports would "reaffirm" this conclusion, but

skeptics remain.¹⁴ Apparently not convinced by another NAS report issued in 2001 reaffirming previous reports,¹⁵ the Bush administration appointed its own group of policymakers and scientists to study the issue.¹⁶ Not surprisingly (at least to scientists), President Bush's panel concluded the scientific evidence supporting global warming can only be explained by the contribution of "anthropogenic forces."¹⁷

The majority of scientists now accept that human activity is the primary cause of increased atmospheric CO₂.¹⁸ In recent years, reports by the Pew Center on Global Climate Change¹⁹ and the United Nation's Intergovernmental Panel on Climate Change (IPCC)²⁰ have consistently found that global warming is the result of human activity. Scientists predict global warming will manifest itself with rising sea levels, a complete loss of arctic ice, and the material loss of plant and animal life.²¹ Moreover, global warming's effects are becoming observable within the United States.²²

Possible Impacts on Florida

Global warming's environmental impacts may be especially significant for Florida. Florida's economy is driven by tourism and agriculture, and global warming takes dead aim at both. Florida's coastline and beaches draw millions of visitors annually, and its agricultural industry contributes significantly to the state's economy.²³ Global warming's attendant sea level rise and weather pattern changes could have devastating effects on Florida. Simulation models show sea levels rising around the Florida coast by more than one-half meter over the next century, potentially inundating some 4,000 square kilometers of Florida.²⁴

According to a report issued by EPA, the "[a]dverse impacts in these areas could include loss of land and structures, loss of wildlife habitat, accelerated coastal erosion, exacerbated flooding and increased vulnerability to storm damage, and increased salinity of rivers, bays, and aquifers which would threaten supplies of fresh water."²⁵ Projected temperature increases could decrease citrus crop yields due to an insufficient dormant period. Moreover, unpredictable changes in rainfall and the availability of freshwater for irrigation could reduce the value of farm production.²⁶

Survey of Some Legal Responses to Global Warming

Despite scientists' warning of imminent environmental and economic impacts from global warming,²⁷ the United States has taken surprisingly little action toward decreasing its CO₂ emissions.²⁸ To date, no federal legislation has been passed addressing CO₂ emissions, and the EPA has decided it has no authority under the Clean Air Act (CAA) to regulate CO₂ emissions.²⁹ But because the U.S. contributes 25 percent of total global greenhouse gas (GHG) emissions, it is a frequent target of critics calling for action.

The remainder of this article addresses some legal responses to global warming that could encourage governmental, or even corporate, action.

Legal responses to global warming run the gamut from an international protocol (the Kyoto Protocol)³⁰ to local referenda,³¹ and from corporate boardroom resolutions³² to statehouse actions.³³ It is not possible to address the full range of legal responses here, and so only three will be briefly reviewed: 1) possible actions against the United States under the Alien Tort Claims Act; 2) forcing the EPA to regulate GHG emissions under the Clean Air Act; and 3) suing potentially responsible parties under tort theories.³⁴ In reviewing these possible legal responses, the focus will be on which offers the greatest potential for ultimately reducing GHG emissions.

- *Claims Under the Alien Tort Claims Act*

The effects of global warming have become painfully obvious to people of Tuvalu, whose nine tiny islands in the South Pacific rest just above sea level. Indeed, Tuvalu may be global warming's first sovereign victim. For nearly 10 years now, Tuvalu has been lobbying nations and corporations to reduce their GHG emissions in hopes of saving the country. But it may be too late to save Tuvalu, and the government has already embarked on a resettlement plan with New Zealand.³⁵

Tuvalu is also reportedly considering legal action against countries and industries responsible for its anticipated demise. One possible course of action is a claim brought under the Alien Tort Claims Act (ATCA).³⁶ Enacted in 1789, ATCA provides "the district courts shall have original jurisdiction of any civil action by an alien for a tort only, committed in violation of the law of nations or a treaty of the United States."³⁷ In order to bring a cognizable ATCA claim seeking redress for global warming, the claimant would have to establish that an international environmental law has been violated, or that international norms and the laws of nations include "environmental human rights."³⁸ To date, no ATCA claim asserting breach of an international environmental law has been successful. Establishing the existence of an environmental human right, while challenging, has found some support, however.

For example, the court in *Beanal v. Freeport-McMoRan, Inc.*, 969 F. Supp. 363 (E.D. La. 1997), ultimately dismissed a complaint alleging cultural genocide resulting from environmental destruction, because the claim was never pled with sufficient specificity. The inference to be drawn from *Beanal* is that an ATCA claim for violating an environmental human right may be viable provided sufficient facts are available to support it. There is also some support in international law for concluding that the right to a "healthy environment" is an international norm.³⁹

But even assuming the essential elements of an ATCA claim could be pled, there remain enormous obstacles to ultimately prevailing. For example, is the United States legally responsible for global warming? If so, how and to what extent? The time and costs involved in bringing an ATCA claim may also be prohibitive. Nonetheless, an ATCA claim brought by indigenous (and seemingly helpless) people would highlight the plight of many peoples and countries likely to be first in the line of fire of global climate change.⁴⁰ This, in itself, could provide political pressure for action.

- *Regulating GHGs Under the Clean Air Act*

In October 2003, 12 states, several cities, and over a dozen environmental groups challenged EPA's decision that heat trapping gases like CO₂ do not meet the Clean Air Act's (CAA) definition of a "pollutant."⁴¹ The arguments on both sides of this debate are simple, yet compelling.

The CAA §202(a)(1) gives EPA the authority to regulate the emissions of "air pollutants from motor vehicles." CAA §302(g) defines "air pollutant" as "any air pollution agent . . . including any physical, chemical, biological, radioactive . . . matter which is emitted into . . . the ambient air."⁴² Under the CAA, EPA has been given the authority to determine which substances pose a threat to "public health, welfare or the environment,"⁴³ but once having made this finding, EPA must then set standards for each such pollutant.⁴⁴ EPA has established standards for lead, ozone, sulfur dioxide, nitrogen dioxide, and carbon monoxide. EPA also has authority to regulate stationary sources of air pollution and motor vehicles.⁴⁵ Determining whether EPA has authority to regulate CO₂ emissions begins with analyzing whether CO₂ is an "air pollutant."⁴⁶

The plain wording of the statute supports the conclusion that CO₂ is an air pollutant, but the real issue is whether CO₂ presents “actual or potential harmful effects on public health, welfare or the environment.” CAA §302(h) defines “welfare” broadly and includes the pollutant’s effect on “weather, visibility, and climate. . . .”⁴⁷ Thus, on its face, the CAA seems to provide EPA authority to regulate CO₂ emissions from motor vehicles provided EPA can demonstrate its effect on “climate.” And given the state of global warming science, EPA should be able to establish CO₂’s deleterious effects on climate.

Of course, nothing in the law is that simple. Counter arguments abound,⁴⁸ and many rely primarily on the U.S. Supreme Court’s decision in *Food and Drug Administration v. Brown & Williamson*, 529 U.S. 120 (2000). In *Brown & Williamson*, the Supreme Court found the FDA did not have authority to regulate tobacco despite broad language in the Food, Drug and Cosmetic Act (FDCA) seemingly supporting the FDA’s position that it did. The court stated “[r]egardless of how serious the problem an administrative agency seeks to address . . . it may not exercise its authority ‘in a manner that is inconsistent with the administrative structure that Congress enacted into law.’”⁴⁹

Under a *Brown & Williamson* analysis, the following points support EPA’s position that the CAA does not provide it the authority to regulate CO₂ emissions:⁵⁰ 1) three “provisions of the CAA expressly touch on matters related to global climate change. . . . [but] none of these provisions authorize regulation. . . .”⁵¹; 2) Congress was well aware of the global warming issue in 1990 when the CAA was significantly amended and did not expressly grant EPA authority to regulate CO₂; 3) Congress debated adding certain provisions related to regulating CO₂ when amending the CAA, but failed to pass any such provision; and 4) Congress passed specific legislation as part of the CAA to address stratospheric ozone depletion, recognizing EPA needed specific authority to deal with this global threat.

On July 15, 2005, the D.C. Circuit denied the petition. In a relatively brief opinion, *Commonwealth of Mass v. U.S. EPA*, No. 03-1361, 2005 WL 1653055 (D.C. Cir. July 15, 2005), the court deferred to the administrator’s discretion under CAA §202(a)(1). The court stated “a reviewing court will uphold agency conclusions based on policy judgments . . . when an agency must resolve issues on the frontiers of scientific knowledge.”

- *The Public Nuisance Remedy*

In the summer of 2004 nine states and the City of New York sued six power companies for causing the “public nuisance of global warming” (“Connecticut/AEP”).⁵² The complaint seeks injunctive relief capping the defendants’ CO₂ emissions and then reducing them over the next decade. Despite alleging injuries to public health, coastal resources, water supplies, agriculture, forests, fisheries, and wildlife, the plaintiffs seek no damages.

Generally, liability for a public nuisance extends to anyone who substantially participates in activities that create “an unreasonable interference with a right common to the general public.”⁵³ The allegations cited above pass this threshold test. The next issue is determining whether the conduct complained of was “unreasonable.” Unreasonableness can be established by showing the conduct: 1) significantly interferes with the public health, welfare, safety, comfort, or convenience; 2) has knowingly produced a long-lasting significant effect on the “common right;” or 3) is unlawful.⁵⁴ In the global warming context, items 1) and 2) could likely be satisfied.

For a court to issue an injunction, it must finally find that the conduct is so unreasonable it must be stopped or abated. In balancing the interests of the parties, a court could not enter an order stopping all emissions because this would destroy a company. But, public

nuisance law would allow the court to fashion a remedy similar to the relief sought in the Connecticut/AEP suit.

Conclusion

Of the three legal responses briefly reviewed, the third option of pursuing potentially responsible parties under a public nuisance theory probably has the greatest likelihood of success, but all three could encourage governmental action. There have been some legislative proposals recently, yet none have garnered sufficient support for passage.⁵⁵ Currently, there does not appear to be the political will or leadership in Washington to pass legislation addressing greenhouse gas emissions within the United States. Nonetheless, as more of the public comes to accept global warming as a fact, federal action will likely ensue.

¹ James Gustave Speth, *Red Sky at Morning*, p. 4 (2004).

² See generally, Hans Jonas, *The Imperative of Responsibility — In Search of an Ethics for the Technological Age* (1984), who offers compelling arguments in support of what has come to be called the “precautionary principle,” *i.e.*, a small risk of great harm calls for action on a moral basis.

³ John Tyndall, *On Radiation Through the Earth’s Atmosphere*, *Philosophical Magazine*, §4, 25, pp. 204-05 (1863), as cited in **Spencer Weart, The Discovery of Global Warming** (2004).

⁴ G.S. Callendar, *The Artificial Production of Carbon Dioxide and Its Influence on Climate*, *Quarterly J. Meteorological Soc.* 64, pp. 223-40, (1938), as cited in Weart, ch. 1.

⁵ Speth, pp. 3-4.

⁶ Parts per million.

⁷ Weart, p. 203; and Speth, p. 62.

⁸ See Speth, p. 62.

⁹ The terms “global warming” or “climate change” are often used interchangeably, and will be in this article. In his important book **Red Sky at Morning**, James Speth uses the phrase “global climate disruption,” which perhaps more accurately reflects the expected effects from the buildup of greenhouse gases worldwide because some areas will likely experience warming, and others cooling.

¹⁰ U.S. Council on Environmental Quality and U.S. Department of State, *The Global 2000 Report to the President — Entering the Twenty-First Century*, 2 vols., (1980), as cited in Speth, p. 2.

¹¹ Speth, pp. 3-4.

¹² *Id.* at p. 3.

¹³ National Research Council, *Carbon Dioxide and Climate: Report of an Ad Hoc Study Group on Carbon Dioxide and Climate*, (Nation Academy of Sciences 1979), as cited in Speth, p. 3.

¹⁴ See, *e.g.*, **Bjorn Lomborg, The Skeptical Environmentalist** (2001).

¹⁵ National Research Council, *Climate Change Science: An Analysis of Some Key Questions*, (2001).

¹⁶ U.S. Climate Change Science Program and the Subcommittee on Global Change Research, *Our Changing Planet*, (July 2004). www.climatechange.gov/.

¹⁷ *Id.* at p. 47.

¹⁸ On June 8, 2005, it was reported that the leading science academies from all G8 nations (U.S., Britain, France, Russia, Germany, Japan, Italy, and Canada) signed a joint statement

calling on all G8 nations to reduce greenhouse gas emissions.
www.guardian.co.uk/life/science/story/0,12996,1501661,00.html.

¹⁹ Since 1998, the Pew Center on Global Climate Change has issued 11 reports “chronicling the projected impact of climate change on important economic, social, human health, and natural resources.” The reports are available at www.pewclimate.org/. The center was established by the Pew Charitable Trusts.

²⁰ The IPCC is an intergovernmental panel of worldwide experts assembled to study global warming.

²¹ Speth, pp. 55-72.

²² See Pew Center on Global Climate Change, *A Synthesis of Potential Climate Change Impacts on the U.S.*, (April 2004); and **Mark Lynas, High Tide**, chs. 2 and 5 (2004).

Despite the ongoing debate of what (or who) is responsible for global warming, the scientific evidence linking it to anthropogenic forces grows. Scientists have recently reported that the earth is absorbing more energy from sunlight than it emits back to space. Using millions of temperature measurements from the oceans, scientists have concluded that the oceans act as a brake on surface air warming by “absorbing” excess energy. Accordingly, even if CO₂ concentrations were held constant, the earth’s temperature would still rise by about 1° Fahrenheit during the current century (equaling last century’s rise). **Hansen, Science**, April 28, 2005.

²³ Florida Quick Facts, www.stateofflorida.com.

²⁴ See James G. Titus and Charlie Richman, *Maps of Lands Vulnerable to Sea Level Rise: Modeled Elevations along the U.S. Atlantic and Gulf Coasts*, at p.25, table 3 (2004), on file with the author, and based on the author’s extrapolations of the data, available at yosemite.epa.gov/oar/globalwarming.nsf/content/resourcecenterpublicationssslmaps.html; see also, *Climate Change and Florida*, EPA Office of Policy, Planning and Evaluation, EPA 230-F-97-008 (1997); and National Resources Defense Council and Florida Climate Alliance, *Feeling the Heat in Florida*, (Oct. 2001).

²⁵ EPA, *Climate Change and Florida*, p.3.

²⁶ *Id.* at 4.

²⁷ Pew Center on Global Climate Change, *U.S. Market Consequences of Global Climate Change*, (April 2004), www.pewclimate.org/.

²⁸ In a speech given on February 14, 2002, President Bush introduced the administration’s “Clear Skies and Global Climate Change Initiative,” purporting to reduce the “nation’s greenhouse gas intensity,” that is, reduce the rate of growth of greenhouse gas emissions, www.whitehouse.gov/news/releases/2002/02/20020214-5.html.

²⁹ 68 Fed. Reg. 52,922-933 (Sept. 8, 2003).

³⁰ The Kyoto Protocol, which was signed in 1997, but did not become international law until adopted by the Russian Dumas in February 2004, binds 141 nations, but not the United States and Australia, to limit GHG emissions and reduce worldwide GHG emissions by 5.2 percent by 2012, unfccc.int/resource/docs/convkp/kpeng.html

³¹ More than 100 American cities have passed resolutions related to global warming.

³² See, e.g., Cinergy Corp., *Air Issues Report to Stakeholders — An Analysis of the Potential Impact of Greenhouse Gas and Other Air Emission Regulations on Cinergy Corp.*, (December 2004); Jeffrey Immelt, General Electric’s CEO, has called for a national policy to address global warming and stated that he expects the U.S. to eventually limit CO₂ emissions, **N.Y. Times**, May 10, 2005, C.2.1. For a thorough discussion of corporate governance issues associated with GHG emissions and climate change, see *Corporate Governance and Climate Change: Making the Connection*, (CERES 2003), www.ceres.org/, and Jeffrey M. Toapick and J. Kevin Healy, *Climate Change — It’s Not Just a Policy Issue for Corporate Counsel — It’s a Legal Problem*, 29 **Colum. J. Envtl. L.** 89.

³³ See generally Pew Center on Global Climate Change, *Greenhouse and Statehouse — The Evolving State Governance Role in Climate Change*, (Nov. 2002).

³⁴ According to one source, there were seven legal actions pending responsive to global

warming as of December 2004, www.climatelaw.org/, last visited on May 31, 2005.

³⁵ **Mark Lynas, High Tide**, ch. 3 (2003).

³⁶ For a thorough examination on the viability of an ATCA claim to secure foreign assistance to combat the effects of global warming see Rosemary Reed, *Rising Seas and Disappearing Islands: Can Island Inhabitants Seek Redress Under the Alien Tort Claims Act?*, 11 **Pac. Rim L. & Pol. J.**, 399.

³⁷ 28 U.S.C. §1350.

³⁸ Reed, at 408.

³⁹ See Reed, at pp. 410-20.

⁴⁰ *Id.* at 427.

⁴¹ *Commonwealth of Mass. v. U.S. EPA*, Nos. 03-1361 and 03-1365, D.C. Cir., and see www.climatelaw.org/media/states.challenge.bush.

⁴² 42 U.S.C. §7602(g).

⁴³ 42 U.S.C. §7408(a)(1).

⁴⁴ 42 U.S.C. §7408. The standards are called “National Ambient Air Quality Standards” (NAAQS).

⁴⁵ 42 U.S.C. §§7411(b)(1)(B) and 7521.

⁴⁶ This analysis is based upon what is often referred to as the “Cannon Memorandum,” prepared by then EPA general counsel, Jonathan Z. Cannon (April 10, 1998), available at www.law.umaryland.edu/faculty/bpercival/casebook/documents/epaco2memo1.pdf; see also J. Christopher Baird, *Trapped in the Greenhouse: Regulating Carbon Dioxide after FDA v. Brown & Williamson Tobacco Corp.*, 54 **Duke L.J.** 147, 155-57.

⁴⁷ 42 U.S.C. §7602(h).

⁴⁸ See, e.g., Marlo Lewis, Jr., *The Anti-Energy Litigation of the State Attorneys General: From Junk Science to Junk Law*, (March 2003). www.cei.org/.

⁴⁹ *Id.* at 127 (citations omitted).

⁵⁰ See “Fabricant Memorandum” prepared by then EPA general counsel, Robert E. Fabricant in August 2003 supporting EPA’s decision that it did not have authority to regulate CO2 emissions, www.epa.gov/opptintr/pcb/distincommerce.pdf.

⁵¹ *Id.*

⁵² *State of Connecticut, et al. v. Am. Electric Power Co., et al.*, Case No. 04-05669 (filed July 21, 2004 S.D. N.Y.)

⁵³ Restatement 2d of Torts §§821B(1) and 834 (1979).

⁵⁴ *Id.*

⁵⁵ McCain-Lieberman Climate Stewardship Act, S. 342; a summary is available at www.pewclimate.org/policy_center/analyses/s_139_summary.cfm.

Dominick J. Graziano is a shareholder in *Bush Graziano & Rice, P.A.*, Tampa, where he practices primarily in the areas of environmental and toxic tort litigation. He graduated from the University of Toledo with degrees in biology, philosophy, and law. He is admitted to practice in Florida, Ohio, and Texas.

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