

ATMOSPHERIC TRUST LITIGATION

Chapter in

CLIMATE CHANGE READER

*W.H. Rodgers, Jr. and M. Robinson-Dorn, eds.
Carolina Academic Press (forthcoming 2009)*

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I. The Stakes

Leading climate scientists warn that Earth is in “imminent peril,” on the verge of runaway climate heating that will impose catastrophic conditions on generations to come.² In their words, continued carbon pollution will cause a “transformed planet”³ – an Earth obliterated of its major fixtures, including the polar ice sheets, Greenland, the coral reefs,

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² James Hansen et al., *Climate Change and Trace Gases*, PHIL. TRANS. R. SOC. A, 1925, 1949 (2007) [hereinafter *Climate Change and Trace Gases*], available at <http://www.planetwork.net/climate/Hansen2007.pdf>. See also Steve Connor, *The Earth Today Stands in Imminent Peril*, THE INDEPENDENT, June 19, 2007, available at http://environment.independent.co.uk/climate_change/article2675747.ece.

³ Jim Hansen, *The Threat to the Planet*, 53 N.Y. REV. BOOKS, July 13, 2006, at 12, available at http://pubs.giss.nasa.gov/docs/2006/2006_Hansen.pdf.

and the Amazon forest. The annihilatory trajectory launched by humans over the past century threatens to trigger the planet's Sixth mass extinction – the kind that hasn't occurred on Earth for 65 million years.⁴ Should Business as Usual continue even for a few more years, our children and their descendants – future Humanity for untold generations -- will be pummeled by floods, hurricanes, heat waves, fires, disease, crop losses, food shortages, and droughts as part of a hellish struggle to survive within a deadly greenhouse of our own making.⁵ In a world of runaway climate heating, these unrelenting disasters would force massive human migrations and cause staggering numbers of deaths – ultimately resulting in Humanity's "self-destruction."⁶ As author Fred Pearce states: "Humanity faces a genuinely new situation. . . . a crisis for the entire life-support system of our civilization and our species."⁷

⁴ John Boitnott, *Berkeley Scientists: World in 'Mass Extinction Spasm'—Scientists: Humans to Blame*, NEWS REPORT NBC, Aug. 12, 2008, available at <http://www.nbc11.com/news/17171725/detail.html>.

⁵ See Geoffrey Lean, *A World Dying, But Can We Unite to Save It?* THE INDEPENDENT UK, Nov. 18, 2007.

⁶ See Joseph Romm, *Is 450 ppm (or less) Politically Possible? Part 0: The Alternative is Humanity's Self-Destruction*, available at <http://climateprogress.org/2008/04/26/is-450-ppm-or-less-politically-possible-part-0-the-alternative-is-humanitys-self-destruction>. Joseph Romm is the author of HELL AND HIGH WATER (William Morrow Publishers 2007).

⁷ FRED PEARCE, WITH SPEED AND VIOLENCE: WHY SCIENTISTS FEAR TIPPING POINTS IN CLIMATE CHANGE (Beacon Press 2007); see also Al Gore, *Moving Beyond Kyoto*, N.Y. TIMES, July 1, 2007 ("This is a moral issue, one that affects the survival of human civilization. . . . Put simply, it is wrong to destroy the habitability of our planet and ruin the prospects of every

In face of this unprecedented “planetary emergency,”⁸ environmental law hasn’t changed that much.

When it comes to saving civilization, law should have a role to play. The very essence of the law is allocating responsibility for harm. Americans contribute nearly 30% of greenhouse gases to the atmosphere, but remarkably, U.S. law has not taken even modest steps towards assigning liability for greenhouse gas pollution. The scope and pervasiveness of carbon pollution is so vast that it slips through established legal paradigms. The time lag inherent in the future infliction of cruelty, deprivation, and death through pollution unleashed today defies causal linkages familiar to the law. Yet, law is a creative institution and, to be of any use at all, must mold to new and urgent circumstances. Climate crisis demands broad, system-changing solutions and doctrines. Tinkering around the edges with approaches that have failed in the past holds no more promise than throwing a

generation that follows ours.”).

⁸ See James Hansen, *Dangerous Human-Made Interference with Climate*, Testimony Before Select Committee on Energy Independence and Global Warming, U.S. House of Representatives 3 (April 26, 2007), available at http://www.columbia.edu/~jeh1/testimony_26april2007.pdf; Felicity Barringer & Andrew C. Revkin, *Al Gore Warns of ‘Planetary Emergency,’* INTERNATIONAL HERALD TRIBUNE, Mar. 21, 2007, available at <http://www.iht.com/articles/2007/03/21/america/web.0321goresub.php>.

rescue rope that is too short.

This chapter proposes an organizing legal framework based on the public trust doctrine to define government responsibility in climate crisis.⁹ The public trust doctrine imposes a fundamental limitation on the power of government over natural resources.¹⁰ Government holds crucial natural resources in trust for its citizens and bears the fiduciary obligation to protect such resources for present and future generations.¹¹ Broadly viewed, the trust is embedded in the law as an attribute of sovereignty itself.¹² An ancient and enduring principle, it

⁹ For a fuller description of the proposed framework and additional citations to authority supporting the principles described herein, see Wood, *Atmospheric Trust Litigation*, *supra* note 1. This article does not delve into private liability for carbon pollution, which is the subject of ongoing climate nuisance suits.

¹⁰ For sources and materials on the public trust doctrine, see JAN G. LAITOS, SANDRA B. ZELLMER, MARY C. WOOD & DAN H. COLE, *NATURAL RESOURCES LAW*, Chapter 8.II (2006). For discussion of the public trust doctrine, see Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 558-66 (1970); Harrison Dunning, *The Public Trust: A Fundamental Doctrine of American Property Law*, 19 ENVTL. L. 515 (1989); Mary Christina Wood, *Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations* (Parts I and II), 39 ENVTL. L. ____ (forthcoming 2009), available through request at <http://www.law.uoregon.edu/faculty/mwood/publications.php>.

¹¹ *Illinois Cent. R. Co. v. Illinois*, 146 U.S. 387, 455 (1892); *Arizona Ctr. for Law in the Pub. Interest v. Hassell*, 837 P.2d 158, 169 (Ariz. Ct. App. 1991) (“The beneficiaries of the public trust are not just present generations but those to come.”); see also sources cited in *supra* note 10.

¹² See Jan S. Stevens, *The Public Trust: A Sovereign’s Ancient Prerogative Becomes the People’s Environmental Right*, 14 U.C. DAVIS. L. REV. 195, 196 (1980) (noting jurisprudence “in the form of declarations that the public trust is inalienable as an attribute of sovereignty no more capable of conveyance than the police power itself.”). Professor Douglas Grant ties the public trust doctrine to the Constitutional reserved

has roots and reasoning that put it on par with the highest liberties of citizens living in a free society. Yet, the principle has all but been obfuscated in a mudflow of regulations and statutes that have oozed thickly across the legal landscape during the past three decades of environmental law.

This chapter seeks to bring definition to the trust framework as a paradigm of responsibility for addressing climate crisis. Section One presents the basic elements of the trust doctrine. Section Two introduces six attributes of legal responsibility necessary for controlling carbon pollution, discusses why existing environmental law does not measure up to the task ahead, and suggests the trust paradigm as a galvanizing legal principle in face of climate crisis. Section Three describes atmospheric trust litigation as a tool for enlisting the judiciary to define the fundamental rights of citizens against their government amidst this unfolding climate catastrophe. It maps out a remedy by which courts can invoke their injunctive powers to impose carbon

powers doctrine, which prevents any one legislature from taking acts that would compromise a future legislature's ability to exercise sovereignty on behalf of the people. See Douglas L. Grant, *Underpinnings of the Public Trust Doctrine: Lessons from Illinois Central Railroad*, 48 ARIZ. ST. L.J. 849 (2001).

responsibility on government at all levels.

II. THE PEOPLE'S NATURAL TRUST

The public trust has been described in depth elsewhere and will only be sketched here. Deriving from the common law of property, the doctrine is evident in hundreds of judicial decisions, including landmark Supreme Court opinions.¹³ Arguably an implied, inherent constitutional limit on legislative power,¹⁴ the principle asserts that government holds vital natural resources in “trust” for the public.¹⁵ As trustee, government must protect the natural assets for the beneficiaries of the trust, which are present and future generations of citizens.¹⁶

Under this doctrine, government may not allow private interests to cause irrevocable harm to critical public trust resources. As the

¹³ See discussion at Allen Kanner, *The Public Trust Doctrine, Parens Patriae, and the Attorney General as the Guardian of the State's Natural Resources*, 16 DUKE ENVTL. L. & POL'Y F. 57, 71-72 (2005); Gerald Torres, *Who Owns the Sky?* 19 PACE ENVTL. L. REV. 515 (2002).

¹⁴ See Grant, *supra* note 12, at 872.

¹⁵ See *supra* note 11.

¹⁶ *Geer v. Connecticut*, 161 U.S. 519, 534 (1896) (“The ownership of the sovereign authority is in trust for all the people of the state; and hence, by implication, it is the duty of the legislature to enact such laws as will best preserve the subject of the trust, and secure its beneficial use in the future to the people of the state.”). While *Geer* was later overruled for its treatment of commerce clause issues, the underlying trust basis of the decision holds force today. For discussion, see Mary Christina Wood, *The Tribal Property Right to Wildlife Capital (Part 1): Applying Principles of Sovereignty to Protect Imperiled Wildlife Populations*, 37 IDAHO L. REV. 1 (2000), at notes 276-95 and accompanying text.

Supreme Court said in *Geer v. Connecticut* :

[T]he power or control lodged in the State, resulting from this common ownership, is to be exercised, like all other powers of government, as a trust for the benefit of the people, and not as a prerogative for the advantage of the government, as distinct from the people, or for the benefit of private individuals as distinguished from the public good. . . . [T]he ownership is that of the people in their united sovereignty.¹⁷

The lodestar public trust opinion is *Illinois Central Railroad Co. v. Illinois*, where the Supreme Court announced that the shoreline of Lake Michigan was held in public trust by the State of Michigan and could not be transferred out of public ownership to a private railroad corporation. In broad language expressing the public's fundamental right to natural resources, the Court stated:

[T]he decisions are numerous which declare that such property is held by the state, by virtue of its sovereignty, in trust for the public. The ownership of the navigable waters of the harbor, and

¹⁷ *Geer*, 161 U.S. at 529. See also *Lake Michigan Federation v. U.S. Army Corps of Engineers*, 742 F. Supp. 441, 445 (D. Ill. 1990) (“[T]he public trust is violated when the primary purpose of a legislative grant is to benefit a private interest.”).

of the lands under them, is a subject of public concern to the whole people of the state. The trust with which they are held, therefore, is governmental, and cannot be alienated. . . .¹⁸

While traditionally applied to water-based resources, the public trust doctrine logically encompasses air and atmosphere as assets in the people's trust. In defining the scope of the trust endowment, courts have looked to the needs of the public as the primary guiding factor. At the time of the *Illinois Central* case, lakebeds served a vital function in supporting fishing, navigation and commerce. Describing the lakebed as property in which "the whole people are interested," the Court reasoned: "The trust with which they are held, therefore, is governmental This follows necessarily from the *public character of the property* ."¹⁹

As Professor Charles Wilkinson explains, "[The public trust doctrine is rooted in the precept that some resources are so central to

¹⁸ *Illinois Cent. R. Co.*, 146 U.S. at 455 (but noting that parcels could be alienated "when parcels can be disposed of without detriment to the public interest in the lands and waters remaining."). *Id.* at 453.

¹⁹ *Id.* at 452-456 (emphasis added). *See also id.* at 455 ("It would not be listened to that the control and management of the harbor of that great city – *a subject of concern to the whole people of the state* – should thus be placed elsewhere than in the state itself. . . .") (emphasis added).

the well-being of the community that they must be protected by distinctive, judge-made principles.”²⁰ Not surprisingly, courts have expanded the assets constituting the *res* of the public trust on the rationale that such assets are necessary to meet society’s changing needs.²¹ The doctrine, for example, has pushed beyond the original societal interests of fishing, navigation and commerce to protect modern concerns such as biodiversity, wildlife habitat, aesthetics and recreation.²²

Guided by the essential doctrinal purposes expressed by courts in public trust cases, it is no great leap to recognize the atmosphere as one of the crucial assets of the public trust. The public interests at stake in climate crisis are unfathomable leagues beyond the traditional fishing, navigation and commerce interests at the forefront of *Illinois Central*. Atmospheric health is essential to all civilizations and to human survival across the globe. As one climate analyst put it, carbon

²⁰ Charles F. Wilkinson, *The Public Trust Doctrine in Public Land Law*, 14 U.C. DAVIS L. REV. 269, 315 (1980).

²¹ *See, e.g.,* *Matthews v. Bay Head Improvement Association*, 471 A.2d 355, 365 (N. J. 1984). As the New Jersey Supreme Court said, “[W]e perceive the public trust doctrine not to be ‘fixed or static,’ but one to be ‘molded and extended to meet changing conditions and needs of the public it was created to benefit.’” (citation omitted).

²² *Matthews*, 471 A.2d at 363; *National Audubon Society v. Superior Court*, 658 P.2d 709, 719-22 (Cal. 1983).

reduction is necessary for averting “the end of life as we know it.”²³

There is no question that treating the atmosphere as a public trust asset is consistent with the central purpose of the trust doctrine.

It should be noted that, while air has not previously been the subject of trust litigation, the Roman origins of the public trust doctrine classified air – along with water, wildlife and the sea – as “*res communes* .”²⁴ In a landmark public trust decision, *Geer v. Connecticut* , the Supreme Court relied on this ancient Roman classification of “*res communes* ” to find the public trust applicable to wildlife.²⁵ Since then, the Court has also recognized the states’ sovereign interests in air as a basis upon which to bring an interstate nuisance suit. In *Georgia v. Tennessee* , the Court upheld an action brought by the state of Georgia against Tennessee copper companies for discharging noxious gas that drifted across state lines, stating: “[T]he state has an interest

²³ See Joseph Romm, post, *Study: Water-Vapor Feedback is “Strong and Positive,” So We Face “Warming of Several Degrees Celsius,”* CLIMATE PROGRESS BLOG (A “warming of several degrees Celsius” = the end of life as we know it.”), available at <http://climateprogress.org/2008/10/26/study-water-vapor-feedback-is-strong-and-positive-so-we-face-warming-of-several-degrees-celsius>.

²⁴ See *Geer*, 161 U.S. at 525 (“These things are those which the jurisconsults called ‘res communes’ – the air, the water which runs in the rivers, the sea and its shores . . . [and] wild animals.”). See also Torres, *supra* note 13, at 529-30 (discussing res communes).

²⁵ See *Geer*, 161 U.S. at 523

independent of and behind the titles of its citizens, in all the earth and air within its domain.”²⁶ Given the essential nature of air, it is unsurprising that numerous state court decisions, constitutions, and codes have recognized air as part of the *res* of the public trust,²⁷ and commentators have urged that characterization as well.²⁸ In sum, courts have a solid legal rationale from which to draw in designating the atmosphere as a public trust asset.

III. LEGAL REQUIREMENTS FOR SAVING THE PLANET

Three decades ago, Congress passed a set of ambitious environmental statutes, such as the Clean Air Act, the Clean Water Act,

²⁶ *State of Ga. v. Tennessee Copper Co.*, 206 U.S. 230, 237 (1907). The passage was cited in *Massachusetts v. U.S. Environmental Protection Agency*, 127 S. Ct. 1438, 1454 (2007).

²⁷ *See, e.g., Her Majesty v. City of Detroit*, 874 F.2d 332, 337 (6th Cir. 1989) (citing Michigan act that codifies public trust to include “air, water, and other natural resources”); Haw. Const., art. XI, §1 (stating, “All public natural resources are held in trust by the State for the benefit of the people,” and “the State and its political subdivisions shall conserve and protect Hawaii’s . . . natural resources, including land, water, air, minerals and energy resources”); LA. Const., art. IX, §1 (“natural resources of the state, including air and water . . . shall be protected”); R.I. Const., art. I, §16 (duty of legislature to protect air), interpreted as codification of Rhode Island’s public trust doctrine in *State ex. Rel. Town of Westerly v. Bradley*, 877 A.2d 601, 606 (R.I. 2005); *National Audubon Society v. Superior Court of Alpine County*, 658 P.2d 709, 720 (1983) (“purity of the air” protected by the public trust).

²⁸ *See Torres, supra* note 13, at 533, 526 (“Properly understood . . . the traditional rationale for the public trust doctrine provides a necessary legal cornerstone . . . to protect the public interest in the sky.”); PETER BARNES, *WHO OWNS THE SKY: OUR COMMON ASSETS AND THE FUTURE OF CAPITALISM* (2006).

the Endangered Species Act, and many others. States and local governments also enacted a suite of environmental statutes. Most climate litigation strategies rely on claims deriving from these laws. Before relying exclusively on these statutes, however, it is worth isolating the legal requisites necessary to achieving sufficient carbon reduction in the short window of time remaining before irrevocable climate thresholds are passed. This section suggests six basic criteria for such a legal formulation and contrasts existing environmental statutory law with the trust approach in terms of their capacity to satisfy the criteria.

A. PROTECTING NATURE'S ASSETS AS A MATTER OF OBLIGATION, NOT DISCRETION

The most glaring and inexcusable deficiency of modern environmental law is the apparent lack of governmental obligation to protect natural resources. Ironically, while the vast body of statutory law was designed to safeguard natural resources for the American public, instead, the law itself has become a major engine of environmental destruction.²⁹ Nearly all existing environmental and land

²⁹ For discussion, see Wood, *Advancing the Sovereign Trust*, *supra* note 10, at Part I, Section II.

use statutes give agencies authority to issue permits to allow the very damage that the statutes were designed to prevent. The permit systems were never intended to subvert the goals of the statutes, but the vast majority of agencies use their permit discretion to allow nearly unending damage.³⁰ Agencies are subject to intense political pressure by developers, industrialists, private property owners, and politicians to issue permits.³¹ Internal political drivers are rarely exposed, concealed by a strong bureaucratic façade of neutrality and nearly impenetrable technical regulatory language.

Because of this dysfunction, government squandered years of precious time in which it could have controlled carbon pollution to avert the crisis society now faces. The federal agency in charge of regulating air pollution, the U.S. Environmental Protection Agency, has been the

³⁰ See *id.* at note 63 and sources cited therein. See also JAMES GUSTAVE SPETH, *THE BRIDGE AT THE END OF THE WORLD: CAPITALISM, THE ENVIRONMENT, AND CROSSING FROM CRISIS TO SUSTAINABILITY* 84 (Yale University Press 2008); ROBERT F. KENNEDY JR., *CRIMES AGAINST NATURE* 32-33 (2004) (Federal agencies in the Bush II administration “have given quick permit approvals and doled out waivers that exempt campaign contributors and polluters from rules or regulations.”).

³¹ See generally KENNEDY, *supra* note 30; SPETH, *supra* note 30, at 85 (also citing William Greider, Washington Post writer: “The regulatory state has become a deeply flawed governing mess. . . . Many of the enforcement agencies are securely captured by the industries they regulate. . . .”). For a discussion of politicized agency decision-making, see Holly Doremus, *Scientific and Political Integrity in Environmental Policy*, 86 *TEX. L. REV.* 1601 (2008).

target of political subversion from the highest appointees over the past eight years. While the agency has ample tools and expertise to regulate carbon and holds a clear statutory duty to the American public to protect it from endangerment as a result of air pollution,³² the Bush II EPA – particularly Administrator Steve Johnson -- persistently resisted regulating carbon under the Clean Air Act and rejected California's efforts to increase motor vehicle fuel efficiency standards.³³ Considerable evidence suggests that these EPA decisions, along with other high-level Bush II administration decisions, were made to favor the fossil fuel industries with which the administration had a close political alliance.³⁴ Elevating the interests of political cronies over the general

³² See 42 U.S.C. 7521(1)(1), *discussed in* *Massachusetts v. U.S. Environmental Protection Agency*, 127 S. Ct. 1438 (2007).

³³ See generally GLOBAL CLIMATE CHANGE AND U.S. LAW 143 (ABA 2008, Michael B. Gerrard, Editor).

³⁴ See H. Joseph Herbert, *EPA Scientists Complain about Political Pressure*, ASSOCIATED PRESS, Apr. 23, 2008, available at <http://www.cnn.com/2008/TECH/04/23/epa.scientists.ap/index.html>; General Accounting Office, *Toxic Chemical Releases: EPA Actions Could Reduce Availability of Environmental Information to the Public*, GAO-08-128 (2007), available at <http://www.gao.gov/new.items/d08128.pdf> (discussing political factors influencing denial of California waiver by Stephen Johnson, head of EPA); Richard Simon, *Lawmaker Alleges Whitehouse Role in Stopping California Emissions Law*, L.A. TIMES, May 20, 2008, available at <http://www.latimes.com/news/nationworld/washingtondc/la-na-epa20-2008may20,0,113981.story>; Jody Freeman & Adrian Vermeule, *Massachusetts v. EPA: From Politics to Expertise*, 2007 SUPREME COURT REVIEW 54-61 (2008) (compiling accusations of politicized decision-making by EPA surrounding global warming regulation within the context of the Clean Air Act, noting broad allegations of “an unprecedented

public welfare is a hallmark of governmental corruption. Remarkably, however, the point seems to have been lost in the highly technical statutory litigation challenging the actions.³⁵

Such politicization of agency decision-making undermines the very premise of administrative law – namely, that agencies are constituted to carry out statutory objectives in neutral fashion. The systemic corruption of agencies – and society’s passive acceptance of it -- represents one of the most consequential breakdowns in administrative law. Legal reform must be geared towards producing a firm, abiding obligation to protect natural resources. Engineering such reform need not entail changing the environmental laws themselves, but rather changing the way such laws are construed, applied, and enforced.³⁶ In

degree of politicization of agency expertise under the George W. Bush administration”); Doremus, *supra* note 31, at 1632-33 (reviewing politicization of Bush II agencies and noting, “Political appointees throughout the administration have proved willing to substitute the least attractive form of politics for principles.”).

³⁵ See *Massachusetts v. U.S. Environmental Protection Agency*, 127 S.Ct. 1438 (2007).

³⁶ The trust doctrine can operate as an interstitial duty of protection that is compatible with statutory law. Most environmental statutes provide agencies with ample authority and administrative mechanisms to protect the environment. What is lacking is the clear obligation to exert such authority. The EPA, for example, has broad authority under its statutory emergency powers to bring a suit against sources of pollution that pose an “imminent and substantial endangerment to public health or welfare, or the environment,” 42 U.S.C. §7603, a provision that could support action against carbon polluters. Professor Robert L. Glicksman has analyzed the statutory authority to regulate under statutory endangerment provisions in his article, *Coal-Fired*

holding government accountable for greenhouse gas pollution, the political discretion model of administrative law must yield to fixed restraints on government actors.

In contrast to statutory law, trust principles infuse obligation into governmental management of natural resources. Under well-established principles of private trust law, trustees may not sit idle and allow damage to occur to the trust.³⁷ Unlike principles of administrative discretion, the governmental trustee bears a strict fiduciary obligation to protect the people's trust assets from damage.³⁸ Scores of cases emphasize this duty of protection.³⁹

Moreover, public trust jurisprudence makes clear that government is

Power Plants, Greenhouse Gases, and State Statutory Substantial Endangerment Provisions: Climate Change Comes to Kansas, U. KANSAS L. REV. 517 (April 2008). While the interface between the trust doctrine and statutory law is well beyond the scope of this chapter, it is considered in Wood, *Advancing the Sovereign Trust*, *supra* note 10 at Part I, Section III.

³⁷ See GEORGE T. BOGERT, *Trusts*, 6th Ed. (West Pub. Co., 1987) § 99 at 358 ("The trustee has a duty to take whatever steps are necessary . . . to protect and preserve the trust property from loss or damage."); AM. JUR. 2D TRUSTS § 656 (noting the "power, and a duty of the trustee, to initiate actions . . . for the protection of the trust estate").

³⁸ See, e.g., *Geer*, 161 U.S. at 534 ("[I]t is the duty of the legislature to enact such laws as will best preserve the subject of the trust, and secure its beneficial use in the future to the people of the state."); *State v. City of Bowling Green*, 313 N.E.2d 409, 411 (Ohio 1974) ("[W]here the state is deemed to be the trustee of property for the benefit of the public it has the obligation to bring suit . . . to protect the corpus of the trust property.").

³⁹ For sources, see Wood, *Advancing the Sovereign Trust*, *supra* note 10, at notes 30-32.

not at liberty to disclaim its fiduciary obligation to protect crucial natural resources. As the Court said in *Illinois Central*: “The state can no more abdicate its trust over property in which the whole people are interested . . . than it can abdicate its police powers in the administration of government and the preservation of the peace. . . . Every legislature must, at the time of its existence, exercise the power of the state in the execution of the trust devolved upon it.”⁴⁰ Litigation strategy to force government to reduce carbon will face an uphill battle as long as it is based on a system of laws premised on administrative political discretion. By emphasizing strict obligation, the trust represents a fundamentally different and potentially more promising legal approach.

B. CARBON MATH IN A MINUTE GLASS: IT ALL MUST ADD UP IN TIME

A legal formulation of carbon responsibility must comport with ecological reality. In order to stem global warming, the law must recognize and calibrate to the physical, chemical, and biological requirements for achieving climate equilibrium. Such requirements are set by Nature, not politicians. Stated another way, averting climate disaster is a matter of carbon math, not carbon politics. Moreover, it's

⁴⁰ *Illinois Central*, 146 U.S. at 460.

math in a minute glass. Scientists warn that the world has only a short time to begin reversing global emissions of carbon before the planet passes a “tipping point,”⁴¹ at which point, dangerous feedback loops will unravel the planet’s climate system -- despite any subsequent carbon reductions achieved by Humanity.⁴² While just a year ago scientists believed the “tipping point” would be triggered at 450 parts per million of carbon in the atmosphere, some now believe the threshold

⁴¹ See PEARCE, *supra* note 7; DAVID SPRATT & PHILIP SUTTON, CLIMATE CODE RED: THE CASE FOR A SUSTAINABILITY EMERGENCY (FRIENDS OF THE EARTH 2008), available at <http://www.climatecodered.net/> (hereinafter CLIMATE CODE RED) (summarizing science). The tipping point concept has been recognized by the Ninth Circuit in a recent climate case. See *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 508 F.3d 508, at slip op. 34 (9th Cir. 2008) (“Several studies also show that climate change may be non-linear, meaning that there are positive feedback mechanisms that may push global warming past a dangerous threshold (the ‘tipping point’)”).

⁴² See Hansen, *Testimony*, *supra* note 8, at 5 (“In the past few years it has become clear that the Earth is close to dangerous climate change, to tipping points of the system with the potential for irreversible deleterious effects.”); Hansen, *Threat to the Planet*, *supra* note 3, at 14 (“[B]ecause of the global warming already bound to take place as a result of the continuing long-term effects of greenhouse gases and the energy systems now in use, . . . it will soon be impossible to avoid climate change with far-ranging undesirable consequences. We have reached a critical tipping point.”); *Climate Change and Trace Gases*, *supra* note 2, at 1925, 1949 (discussing positive feedback loops); James Hansen *et al.*, *Dangerous Human-Made Interference With Climate: A GISS Model Study*, 7 *ATMOS. CHEM. PHYS.* 2287, 2303 (2007) [hereinafter *Dangerous Human-Made Interference*], available at <http://www.atmos-chem-phys.net/7/2287/2007/acp-7-2287-2007.pdf> (discussing tipping point: “[W]e must be close to such a point, but we may not have passed it yet.”). While the term “tipping point” is often used, in actuality there are many dangerous feedback loops, each representing a destabilizing tipping point. For discussion of the many tipping points, see PEARCE, *supra*, note 7.

is at 350 parts per million.⁴³ Present levels are at 387 parts per million and climbing at an unprecedented pace.⁴⁴ Analysts are repeatedly warning in the clearest terms possible that the Earth is now in a danger zone – a state of planetary emergency⁴⁵ -- and that, if Humanity follows Business As Usual for even another few years, it will “lock in” future catastrophic global heating.⁴⁶ The head of the UN’s climate panel

⁴³ JAMES HANSEN, MAKIKO SATO, PUSHKER KHARECHA, DAVID BEERLING, VALERIE MASSON-DELMOTTE, MARK PAGANI, MAUREEN RAYMO, DANA L. ROYER & JAMES C. ZACHOS, TARGET ATMOSPHERIC CO₂: WHERE SHOULD HUMANITY AIM? (2008), ___ THE OPEN ATMOSPHERIC SCIENCES JOURNAL ___ (Nov. 2008), available at <http://arxiv.org/abs/0804.1126> [hereinafter HANSEN, 350 TARGET PAPER]; see Bill McKibben, *Remember This: 350 Parts Per Million*, WASHINGTON POST, Dec. 28, 2007, <http://www.washingtonpost.com/wp-dyn/content/article/2007/12/27/AR2007122701942.html>.

⁴⁴ David Adam, *World Carbon Dioxide Levels Highest for 650,000 Years, Says US Report*, THE GUARDIAN, May 13, 2008, at 16, available at <http://www.guardian.co.uk/environment/2008/may/13/carbonemissions.climatechange>. While the 350 target has been exceeded, climate scientists still offer hope of atmospheric stability if the “overshoot” is brief. See HANSEN, 350 TARGET PAPER, *supra* note 43, at 1 (“If the present overshoot of this target CO₂ is not brief, there is a possibility of seeding irreversible catastrophic effects.”).

⁴⁵ See CLIMATE CODE RED, *supra* note 41, at chapters 23, 24; SPETH, *supra* note 30, at 27 (quoting Jim Hansen: “The crystallizing scientific story reveals an imminent planetary emergency. We are at a planetary tipping point.”).

⁴⁶ See Hansen, *Testimony*, *supra* note 8 (“[I]gnoring the climate problem at this time, for even another decade, would serve to lock in future catastrophic climatic change and impacts that will unfold during the remainder of this century and beyond”); James Hansen, *Why We can’t Wait*, THE NATION, May 7, 2007 (“If we do follow that [Business as Usual] path, even for another ten years, it guarantees that we will have dramatic climate changes that produce what I would call a different planet”); Jim Hansen, *Climate Change: On the Edge*, THE INDEPENDENT, Feb. 17, 2006, available at <http://environmentindependent.co.uk/article345926.ece> (“How long have we got? We have to stabilize emissions of carbon dioxide within a decade, or temperatures will warm by more than one degree. That will be warmer than it has been for half a million years, and many things could become unstoppable.”). A disturbing United Nations IPCC report indicates that the planet has already reached the danger point of atmospheric carbon

recently told the world, “What we do in the next two to three years will determine our future. This is the defining moment.”⁴⁷ Legal strategies must account for this time frame.

For the law to have any chance at being effective, it must be tied to a carbon prescription set by leading climate scientists. The prescription must have immediate, short-term targets that create sufficient carbon reduction in the near future to avert the tipping point. The prescription must also have regularly spaced longer-term targets geared towards achieving a zero-carbon society over the next few decades. Many current climate policy initiatives are exactly backwards, governed by how much politicians are willing to give, not by the actual carbon reduction needed to recover the atmosphere.⁴⁸

dioxide equivalent concentrations, indicating that a decade is far too long to achieve significant greenhouse gas reduction. See Gregory M. Lamb, *A Key Threshold Crossed*, CHRISTIAN SCI. MONITOR, Oct. 11, 2007, available at <http://www.csmonitor.com/2007/1011/p11s01-wogi.html> (quoting climate scientist Tim Flannery, “[A]lso we have really seen an unexpected acceleration in the rate of accumulation of CO₂ itself, and that’s been beyond the limits of projection . . . beyond the worst-case scenario. We are already at great risk of dangerous climate change—that’s what the new figures say . . . It’s not next year, or next decade; it’s now.”).

⁴⁷ Elizabeth Rosenthal, *U.N. Chief Seeks More Climate Change Leadership*, N.Y. TIMES, Nov. 18, 2007, available at <http://www.nytimes.com/2007/11/18/science/earth/18climatenew.html?scp=1&sq=UN%20Panel:%20avert%20climate%20disaster&st=cse>.

⁴⁸ State and regional climate initiatives are emerging, and many incorporate reduction targets. But such targets are widely variable, and many create a shortfall of carbon reduction in comparison to the atmospheric requirements established by

The present body of environmental statutory law is not geared to achieving overall carbon reduction necessary for climate equilibrium. The laws are micro in orientation, focusing on specific governmental actions. Any carbon reduction they accomplish will be incremental and haphazard in the aggregate. The trust approach, by contrast, is designed as a macro level legal strategy to enable enforcement of scientific prescriptions for carbon reduction.⁴⁹ It does so by characterizing the atmosphere in its entirety as a defined trust asset. A

scientists. *Compare infra* notes 52-58 and accompanying text (scientific targets) and Western Climate Initiative Statement of Regional Goal 4, *available at* <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf> (chart summarizing widely varied state goals). The Western Climate Initiative, for example, announced a regional, economy-wide greenhouse gas emissions target of only 15 percent below 2005 levels by 2020. *See id.* at 1. The first compliance period does not even begin until 2012 under the current design. *See* Western Climate Initiative, Design Recommendations for the WCI Regional Cap-and-Trade Program 4 (Sept. 23, 2008), *available at* <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F19866.PDF>. This is two years after the scientific targets call for arresting the growth of U.S. emissions. *See infra* note 56 and accompanying text.

⁴⁹ *See* Torres, *supra* note 13, at 532 (“The public trust doctrine supplies a broad framework that supports the establishment of a mechanism . . . to supervise the government dealings in relationship to the carrying capacity of the atmosphere.”). It should be noted, however, that a carbon prescription standing alone, even if faithful to the best science, will likely not solve our global warming crisis. As Professor Howard Latin notes, society must deploy multiple strategies to arrive at carbon reduction. He points out that climate policy should focus on carbon-replacement, rather than carbon-reduction, and to this end he advocates for a Fund to finance new carbon-replacing technology. The idea has considerable merit. For every unit of carbon replaced by green energy, a unit of doubt is eliminated from a deeply flawed legal system, which relies on administratively-forced pollution reduction. In the long term, a carbon-replacing strategy will no doubt prove far more effective, efficient, and enduring. But it is entirely possible that such strategy will not come to fruition in time without a clear framework of legal responsibility that forces carbon reduction. A carbon prescription mandating regular cuts on a path to a zero-carbon endpoint seemingly reinforces the other strategy by mandating the transition sooner rather than later.

trustee's primary fiduciary obligation is to ensure overall health of the asset – a standard defined by objective criteria. Scientific prescriptions for achieving climate equilibrium amount to, in essence, the yardstick of fiduciary obligation for protecting the atmosphere. This formulation is both designed to create a uniform approach to climate responsibility and also to divest the politicians of their assumed prerogative to take action only if consistent with their political ambition.

Of course, defining the fiduciary obligation by reference to science involves hurdles, not the least of which is that climate scientists are often reticent to provide prescriptions for action, because doing so has the appearance of treading into the policy realm.⁵⁰ Such reluctance leaves a treacherous gulf between science and the law. Officials, judges, and citizens need to have scientific information expressed into

⁵⁰ Moreover, as different scientific prescriptions emerge, there will be inevitable choice-making. In this regard, courts may invoke the precautionary approach to define the fiduciary obligation. Reasonable guesses on the part of qualified, independent scientists as to a precautionary approach will carry weight in the climate context as they do in any other trial proceeding involving science.

While beyond the scope of this chapter, courts may invoke several procedural tools to gain the scientific expertise necessary to define the fiduciary standard of care. Increasingly, judges use court-appointed experts, technical advisors, and special masters to resolve difficult scientific questions in environmental, toxic torts and product liability cases. *See* FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE (1994); THE CARNEGIE COMMISSION ON SCIENCE, TECHNOLOGY, AND GOVERNMENT, SCIENCE AND TECHNOLOGY IN JUDICIAL DECISION MAKING: CREATING OPPORTUNITIES AND MEETING CHALLENGES (1993).

terms that they can translate into mandates. While scientists have been forthright as to dangerous atmospheric carbon loads and average temperature increases resulting from such loads,⁵¹ these numbers alone do not provide meaningful parameters for legal or policy initiatives. A mayor, county commissioner, or state legislator, for example, would have no idea how much carbon reduction to achieve for his or her particular jurisdiction merely by knowing that 350 parts per million may be the climate threshold for runaway heating as recently projected by some climate scientists. There is a need to *extrapolate* planetary carbon levels into numeric reduction targets that leaders and policy-makers can implement through legal mechanisms. Much like a doctor would offer a heart patient a cholesterol reduction regime, scientists -- not politicians -- are qualified to map out a quantitative carbon reduction regime for restoring atmospheric health.

The Union of Concerned Scientists has detailed a cleanup prescription for industrialized nations in its report, *Targets for U.S.*

⁵¹ See HANSEN, 350 TARGET PAPER, *supra* note 43 (suggesting 350 parts per million of carbon as the threshold).

Emissions Reduction.⁵² The report represents a major advancement, because it distills an extensive body of climate science into reduction targets that law-makers can implement on the ground. The TARGET delineates a “reasonable emissions pathway” for the United States⁵³ calibrated to the goal of not exceeding 450 parts per million (ppm) carbon equivalent in the atmosphere.⁵⁴ Establishing separate assumptions and targets for the industrialized world and the developing

⁵² A. LUERS, M. D. MASTRANDREA, K. HAYHOE, & P. C. FRUMHOFF, HOW TO AVOID DANGEROUS CLIMATE CHANGE: A TARGET FOR U.S. EMISSIONS REDUCTIONS 5 (UNION OF CONCERNED SCIENTISTS 2007) [hereinafter *UCS Target*], available at http://www.ucsusa.org/assets/documents/global_warming/emissions-target-report.pdf.

⁵³ *Id.* at 14. Of course, the developing world and the industrialized world are not similarly situated in terms of their carbon pollution. Recognizing this, the *UCS Target* provides separate assumptions and timelines for the developing world. It should be noted that the *UCS Target*, in establishing essentially uniform goals for the industrialized world (with some minor adjustment for the United States, because of its dominating polluter status), embraces a “cleanup” approach to carbon reduction. Under this approach, each sovereign reduces from a baseline of historic levels. The cleanup liability operates according to proportionate shares of pollution. There is another, arguably more equitable, approach called “contraction and convergence” that sets carbon quotas among nations based on population. See PEARCE, *supra* note 7, at 246. While there may be much merit in such an approach, it is doubtful a court would enforce it in domestic lawsuits. The advantage of the cleanup approach is that it grows out of a legal tradition of holding parties responsible for their proportionate share of the damage incurred. Because time is of the essence, a straightforward approach that can be implemented through judicial decrees at any level of government carries advantage over an international approach that, while in some sense more equitable, is still uncertain. The judicial approach set forth herein in no way precludes other regimes or international agreements. It is simply a domestic form of liability imposed to spur action towards carbon reduction within the United States.

⁵⁴ *UCS Target*, *supra* note 52, at 3, 8, 14.

world,⁵⁵ the report sets forth the following trajectory of U.S. greenhouse gas emissions reduction: 1) arrest the rise of greenhouse gas emissions by 2010;⁵⁶ 2) reduce emissions by 4% each year thereafter; and 3) ultimately bring emissions down to 80% below 2000 levels by 2050.⁵⁷ Even this path may not be sufficiently ambitious, as the climate threshold is now thought by some scientists to be 350 parts per million.⁵⁸ Nevertheless, the *USC Target* is a model for the type of clear, quantitative prescription that scientists should develop and continually revise as necessary. While its long-term goal might be inadequate to bring about climate equilibrium, the short-term goal of arresting the growth of emissions by 2010 is justifiable in terms of avoiding shorter-

⁵⁵ *Id.* at 9-12. The report groups the U.S. with other industrialized nations and then sets forth specific U.S. targets. The report assumes that developing nations like China and India are going to take more time to arrest emissions.

⁵⁶ *Id.* at 14. The call for arresting U.S. emissions growth by 2010 is in line with a call by the United Nations to arrest the growth of world-wide emissions by 2015. See Cahal Milmo, "Too Late to Avoid Global Warming," *Say Scientists*, THE INDEPENDENT UK, Sept. 19, 2007, available at <http://www.independent.co.uk/environment/climate-change/too-late-to-avoid-global-warming-say-scientists-402800.html>. The Kyoto Protocol established a short term reduction goal of 5% emissions reduction by 2012. Kyoto Protocol to the United Nations Framework Convention on Climate Change, United Nations, Dec. 11, 1997, available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>.

⁵⁷ The *USC Target* delineates a "reasonable emissions pathway" for the United States calibrated to the goal of not exceeding 450 parts per million (ppm) carbon equivalent in the atmosphere. *USC Target*, *supra* note 52, at 3, 8, 14.

⁵⁸ See *supra* note 43 and accompanying text.

term climate tipping points.⁵⁹

Casting a prescription in terms of percentage carbon reduction from current levels creates a “scale-up/scale-down” method transferable to any jurisdictional level.⁶⁰ Every jurisdiction, in theory, has the ability to measure its carbon footprint, however rough around the edges such measurement may be. The carbon reduction formula such as that developed in the *UCS Targets* can apply to any city, county, state, or national government in the industrialized world. Tied into a fiduciary obligation applicable to government trustees, the standard has a mechanism of judicial enforcement through atmospheric trust litigation.

Some will criticize any reduction regime on the basis that its mileposts are inherently random. To be sure, there is no scientific assertion that the prescribed 4% annual reduction is materially different from a 3.99% reduction. Such criticism, however, could apply to any pollution reduction regime. There are, of course, no absolutes in

⁵⁹ For discussion of the need for an emergency response by government, see CLIMATE CODE RED, *supra* note 41.

⁶⁰ See Hari M. Osofsky, *The Geography of Climate Change Litigation Part II: Narratives of Massachusetts v. EPA*, 8 CHICAGO J. INT’L L. 573, 583 (2008) (concept of “scaling up and down” in climate strategies).

climate science or any other field of science.⁶¹ But society and law would be paralyzed if it could not draw lines or set quantitative goals, despite the inherent random in the details of such an exercise. The well-established precautionary approach gives a basis for scientists to designate reasonable mileposts and to err on the side of caution.⁶² It is predictable that there will be scientific disputes over carbon reduction targets, but courts, as in other areas of the law, have the fact-finding ability to judge scientific adequacy and adopt a cautionary course of action. Judicial enforcement of scientific targets as a fiduciary obligation in no way precludes more ambitious action by any jurisdiction – though such action is highly unlikely given that most climate initiatives likely arise from the lowest common denominator of political acceptability.

C. THE INEXCUSIBILITY OF ORPHAN SHARES

⁶¹ See James E. Hansen, *A Brighter Future*, CLIMACTIC CHANGE, Vol. 52, No. 4, 2002, at 438 (“There is no fixed ‘truth’ delivered by some body of ‘experts.’ Doubt and uncertainty are the essential ingredients in science.”).

⁶² The UNFCCC sets forth the precautionary approach as a principle to guide climate policy. See UNFCCC, Principle 3.3: “The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures. . . .” In the area of private trust law, courts expect a trustee to use caution in choosing investments and avoid “new, speculative, or hazardous ventures” that could risk depleting the trust. See BOGERT, *supra* note 37, § 102, at 367.

In hazardous waste cleanups, there is a concept of “orphan shares.”⁶³ If 20 different companies contribute waste to a toxic dump, all 20 are liable for the cleanup costs. If one company has gone bankrupt, it leaves an orphan share. In order for the site to be totally cleaned up, there can be no orphan shares. All must be adopted.

Carbon pollution should be analyzed in similar terms. The carbon load on the atmosphere can be viewed as one pollution “pie,” with each government having a current emissions share of that pie. In order for the *aggregate* industrialized share of the carbon pie to shrink by the amount it needs to, the law must not excuse any orphan shares of liability. This is because any unaccounted share could provide a critical deficit in the overall reduction needed to meet the carbon math. The orphan share concept is particularly important for the United States, which, through its sheer failure to act, has abdicated responsibility for its nearly 30% emissions in the global carbon pie.⁶⁴ The orphan share principle scales down to the state and local level as well. If any city,

⁶³ See *Arkema, Inc. v. ASARCO*, 2007 U.S. Dist. LEXIS 45511, 65 ERC (BNA) 1952 (W.D. Wash. 2007).

⁶⁴ Hansen, *Testimony*, *supra* note 8, at 16 (depicting emissions of various nations, showing U.S. emissions as 27.8 % of the world’s total emissions).

county, or state fails to reduce carbon sufficiently, it leaves an orphan share or partial orphan share that could sink overall efforts.

For any legal framework of carbon responsibility to work, it must respond to this macro level of necessary carbon reduction by imposing across-the-board obligations on the local level. In order to avert orphan shares, the law must impose an organic responsibility on virtually each government to reduce carbon. Orphan shares must be wholly inexcusable.⁶⁵

There is a second reason for imposing an organic obligation to reduce carbon on all levels of government. As a practical matter, different types of government have different tools to bring to the task. They also have different sources of carbon within their jurisdictions. A county government has control over local transportation infrastructure, while a state environmental agency has authority over air pollution permits, and a federal agency manages timber harvest on public lands.

⁶⁵ It should be noted that cap and trade programs for carbon that rely on financial tools to shift carbon pollution among various emitters do not represent a manner of excusing orphan shares. Rather, they are mechanisms by which states carry out their share of carbon reduction while allowing as much financial flexibility as possible. Whether they will work or not is yet to be determined. Their sheer complexity presents a time drag on the expediency called for in face of climate urgency.

Because the required carbon reduction is so steep, it cannot be achieved through the efforts of just a handful of agencies. It will require all of the mechanisms of government across all sectors. Taxes, regulations, infrastructure projects, finance, programs, public lands management, government operations, and education must all be geared to carbon reduction at every level of government in order to meet the steep climate prescriptions advised by scientists.

Again, the statutory body of environmental law alone will not create sufficient progress towards overall carbon reduction goals. Largely procedural, it is geared towards specific, discrete government actions. Present statutorily-based climate litigation concerns the listing of polar bears under the Endangered Species Act, fuel efficiency standards under the Clean Air Act, environmental analysis requirements for specific federal actions under the National Environmental Policy Act, and a host of other claims tailored towards individual actions. None of these suits creates a macro framework of obligation that reaches to all governments and captures all orphan shares.

The trust principle can be tapped as a source of governmental

obligation that creates a macro approach designed to leave no orphan shares of responsibility. Viewed organically, the trust is a fundamental limit on sovereignty itself, arguably generic to all states and the federal government.⁶⁶ As one federal district court said in applying the doctrine to both the federal and state governments, “The trust is of such a nature that it can be held only by the sovereign, and can only be destroyed by the destruction of the sovereign.”⁶⁷ The atmospheric trust approach characterizes the United States as a trustee, and each of the 50 states as co-trustees, of the atmosphere. All share the basic fundamental obligation to protect the asset for their present and future generations of citizens. Each agency or sub-jurisdiction of government is as agent of the trustee, held to the same fiduciary standards. By

⁶⁶ See *Geer*, 161 U.S. at 528 (referring to the trust over wildlife as an “attribute of government” and tracing its historical manifestation “though all vicissitudes of government.”). While most public trust cases involve states, the doctrine logically applies to the federal government as well. See *Complaint of Steuart Transp. Co.*, 495 F. Supp. 38, 40 (E.D. Va. 1980) (applying doctrine to federal government); *U.S. v. 1.58 Acres of Land*, 523 F. Supp. 120, 124 (D. Mass. 1981); see also ZYGMUNT J.B. PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY 1103 (Erwin Chemerinsky et al., eds., Aspen Publishers, 3d Ed. 2004) (“In several cases, courts have asserted that the federal government is equally accountable and restricted under the terms of the public trust doctrine. . . .”).

⁶⁷ *1.58 Acres of Land*, 523 F. Supp. at 124. Within the United States, layered sovereign interests in natural resources arise from the constitutional configuration of states and the federal government. Where the federal government has a national interest in the resource, it is a co-trustee along with the states. For an extensive discussion of these co-trustee interests, see *id.*

applying the trust as an inherent limitation on government and invoking a uniform fiduciary obligation for all, the trust presents a holistic approach designed to leave no orphan shares of carbon in the United States.

D. A FRAMEWORK OF OBLIGATION FOR THE WHOLE WORLD

On a global level, the traditional means of allocating responsibility for trans-border or planetary pollution has been through reliance on international law mechanisms such as treaties. The Kyoto Protocol, for example, provides a framework for carbon pollution. While the hope is that all culpable nations will accept and carry out their responsibilities under the treaty, the Kyoto experience has demonstrated that this is not the case. The U.S., for example, never ratified the commitment. Due to the autonomy of nations and the lack of any world “super-power,” there is no certain way of forcing direct accountability for orphan shares left by deadbeat sovereigns. The bottom line for international “law” is, unfortunately, voluntary compliance.

Climate law must develop alternative, yet complimentary, strategies

to spur carbon reduction across the globe.⁶⁸ One promising approach is to design legal models for climate responsibility that are transferable to domestic legal systems of other nations. Many nations share similar doctrinal principles for addressing environmental problems. Climate solutions should tap the deepest roots of such approaches to find a generic obligation of carbon reduction that that can be invoked by citizens against their own governments, world-wide. The goal should be to develop a construct of liability that is applicable to governmental institutions despite differences in nationality and culture. There is, of course, no assurance that citizens of other nations will be equipped to hold their own governments accountable,⁶⁹ but this reality should not diminish the effort. A framework that pursues uniformity in defining carbon obligation among nations in the industrialized world may have political sway with even recalcitrant governments.

⁶⁸ See Jennifer M. Gleason & Bern A. Johnson, *Environmental Law Across Borders*, 10 J. ENVTL. L. & LITIG. 67, 76 (1995) (advocating transference of legal principles across national borders to augment international law). The organization, Environmental Law Alliance Worldwide, is dedicated to promoting such a strategy. See <http://www.elaw.org/>.

⁶⁹ Barriers such as standing may prove unsurmountable bars in some nations. In other nations, sheer corruption of the judiciary may impede legal recourse. Needless to say, tyrannical governments will likely not be held accountable by citizens through any legal procedure.

Some of the ongoing climate litigation in the United States arguably advances domestic efforts in other nations. The carbon nuisance lawsuits draw on principles that are likely common to many countries. The NEPA lawsuits reflect an approach that may have transferability to other nations having NEPA-like statutes. But none of the litigation brought so far establishes a clear framework of government responsibility on a macro level that may be exported to other legal systems world-wide.

A notable strength of the trust doctrine's property framework is that it creates logical rights to shared assets that are not confined within any one jurisdictional border. The trust both provides a framework of international obligation and a liability principle that is potentially transferable to other nations through domestic legal systems. It is well established that, with respect to transboundary trust assets, all sovereigns with jurisdiction over the natural territory of the asset have legitimate property claims to the resource.⁷⁰ In this vein, all nations on

⁷⁰ States that share a waterway, for example, have correlative rights to the water. *State of Ariz. v. State of Cal.*, 373 U.S. 546, 601 (1963). Similarly, states and tribes have co-existing property rights to share in the harvest of fish passing through their borders. *Washington v. Washington State Commercial Passenger Fishing Vessel Ass'n*, 443 U.S. 658, 676-79 (1979). *See also Idaho ex rel. Evans v. Oregon*, 462 U.S. 1017, 1031 n.1

Earth may be viewed as trustees of the global atmosphere.⁷¹ This conception is reinforced by the United Nations Framework Convention on Climate Change, which essentially declares an atmospheric trust obligation by calling upon nations to “protect the climate system for the benefit of present and future generations of humankind. . . .”⁷²

Shared interests in the common asset are best described as a sovereign co-tenancy. A co-tenancy is “the ownership of property by two or more persons in such manner that they have an undivided . . . right to possession.”⁷³ Courts have used the co-tenancy model to describe shared sovereign interests in other natural resources. In landmark treaty litigation, the Ninth Circuit invoked the model to

(1983) (O'Connor, J., dissenting) (noting “recognition by the international community that each sovereign whose territory temporarily shelters [migratory] wildlife has a legitimate and protectible interest in that wildlife”).

⁷¹ For the concept of a “planetary trust,” see Edith Brown Weiss, *The Planetary Trust: Conservation and Intergenerational Equity*, 11 *ECOL. L.Q.* 495 (1984); Peter H. Sand, *Sovereignty Bounded: Public Trusteeship for Common Pool Resources*, 4 *GLOBAL ENVIRONMENTAL POLITICS* 47, 57-58 (2004), available at <http://www.mitpressjournals.org/doi/pdfplus/10.1162/152638004773730211?cookieSet=1> (suggesting trust principles as framework for international law and stating, “[A] transfer of the public trust concept from the national to the global level is conceivable, feasible, and tolerable . . . the essence of transnational environmental trusteeship . . . is the democratic accountability of states for their management of trust resources in the interest of the beneficiaries – the world’s ‘peoples’”) (emphasis in original).

⁷² United Nations Framework Convention on Climate Change, Article 3, Principle 1 (1992).

⁷³ 20 *AM. JUR. 2D COTENANCY AND JOINT OWNERSHIP* § 1 (1995); JOSEPH WILLIAM SINGER, *PROPERTY LAW: RULES, POLICIES, AND PRACTICES* 711 (2d ed. 1997).

describe shared tribal and state sovereign rights to migrating salmon.⁷⁴

The court also recognized the bedrock principle that a co-tenancy relationship gives rise to correlative duties not to waste the common asset.⁷⁵ Thus, in addition to a fiduciary obligation owed to their own citizens to protect the atmosphere, all nations have duties to prevent waste arising from their co-tenancy relationship to one another.

These principles, applied to the international context, frame the liability for carbon pollution by defining respective sovereign obligations. Trust principles, or close legal cousins, are found in the legal systems of many other countries on Earth.⁷⁶ Indeed, one of the strongest judicial

⁷⁴ Puget Sound Gillnetters Ass'n v. U. S. Dist. Court, 573 F.2d 1123, 1126 (9th Cir. 1978) (holding that the treaty established "something analogous to a co-tenancy, with the tribes as one cotenant and all citizens of the Territory (and later of the state) as the other."); United States v. Washington, 520 F.2d 685, 686, 690 (9th Cir. 1975) (applying co-tenancy construct, by analogy, to Indian fishing rights).

⁷⁵ Acts that amount to permanent damage to the common property are held to constitute waste. E. HOPKINS, HANDBOOK ON THE LAW OF REAL PROPERTY § 214, at 342 (1896); 2 W. WALSH, COMMENTARIES ON THE LAW OF REAL PROPERTY § 131, at 72 (1947). See also *Washington*, 520 F.2d at 685 (stating, in context of fisheries shared between states and tribes:

Cotenants stand in a fiduciary relationship one to the other. Each has the right to full enjoyment of the property, but must use it as a reasonable property owner. A cotenant is liable for waste if he destroys the property or abuses it so as to permanently impair its value. A court will enjoin the commission of waste. . . . By analogy, neither the treaty Indians nor the state on behalf of its citizens may permit the subject matter of these treaties to be destroyed.

⁷⁶ See Gleason & Johnson, *supra* note 68, at 76 ("The public trust doctrine, having roots in ancient Roman law, appears in many legal systems."); Ved P. Nanda & William

iterations of the public trust came from the Philippines Supreme Court in a case brought on behalf of children.⁷⁷ India, one of the world's fastest growing carbon polluters, has a robust public trust doctrine in its jurisprudence.⁷⁸ Trust principles reflect a shared human understanding that ecological heritage essential to human survival is inviolate.⁷⁹ With a fundamental basis that can transcend many national and cultural differences, a trust approach provides a potential strategy for citizens of other nations to establish carbon liability against their own governments.

E. RESTORING THE ROLE OF THE COURTS

It is highly unlikely that, absent judicial intervention, the political branches will achieve the requisite carbon reduction in the short time remaining before irrevocable climate thresholds are passed. Straight-

K. Ris, Jr., *The Public Trust Doctrine: A Viable Approach to International Environmental Protection*, 5 *ECOL. L. Q.* 291, 306 (inventorying trust concepts in other countries and concluding, "The principles of public trust are such that they can be understood and embraced by most countries of the world.").

⁷⁷ Juan Antonio Oposa v. Fulgencio S. Factoran, Jr., G.R. No. 101083 (Sup. Ct. Phil. 1993), *as excerpted in* LAITOS, ZELLMER, WOOD & COLE, *supra* note 10, at 443-44.

⁷⁸ *See, e.g.*, M.C. Mehta v. Kamal Nath, 1 SCC 388 (India 1997); Karnataka Industrial Areas Development Board v. C.Kenchappa, AIRSCW 2546 (India 2006).

⁷⁹ The petitioners in *Oposa* -- children and their parents--characterized their right to self-preservation and perpetuation as "the highest law of humankind--the natural law." *Oposa*, *supra* note 77. For discussion of a natural law basis for the public trust, see Victor John Yannacone, Jr., *Agricultural Lands, Fertile Soils, Popular Sovereignty, The Trust Doctrine, Environmental Impact Assessment and the Natural Law*, 51 *NORTH DAKOTA L. REV.* 615-53 (1975).

jacketed by political concerns, the legislative and executive branches and their representative agencies continue to permit actions that drive runaway greenhouse gas emissions.⁸⁰ In both the legislative and executive arenas, lobbyists for huge carbon industries viciously fight climate legislation and regulation.⁸¹

For several reasons, the American public is a weak political counterweight to these dynamics. Global warming is a complex phenomenon and not readily understood by the average citizen. Attempts by the fossil fuel industries to obfuscate the threat, combined with outright suppression of scientific conclusions by the Bush II administration,⁸² has engendered climate confusion among citizens.⁸³ Moreover, as leading psychologists observe, humans are hard-wired by evolution to ignore long-term threats like global warming.⁸⁴ Until

⁸⁰ Two-thirds of the greenhouse gas pollution emitted in this country is pursuant to government-issued permits. *See Global CLIMATE CHANGE, supra* note 33, at 259.

⁸¹ For investigative journalism into the lobbying against climate legislation, see PBS Documentary, *HEAT, available at* <http://www.pbs.org/wgbh/pages/frontline/heat/>.

⁸² *See Rewriting the Science*, CBS NEWS, July 30, 2006; SETH SHULMAN, *UNDERMINING SCIENCE: SUPPRESSION AND DISTORTION* (University of California Press, 2006); MARK BOWEN, *CENSORING SCIENCE: INSIDE THE POLITICAL ATTACK ON JAMES HANSEN AND THE TRUTH OF GLOBAL WARMING* (Dutton Adult, 2007).

⁸³ James Hansen, *Why We Can't Wait*, THE NATION, May 7, 2007 (noting “gap between what the relevant scientific community understands and what the public and policy-makers know.”).

⁸⁴ *See* Daniel Gilbert, Op-Ed., *If Only Gay Sex Caused Global Warming: Why We're More Scared of Gay Marriage and Terrorism Than a Much Deadlier Threat*, L.A. TIMES, July

Americans actually feel the consequences of global heating on a daily basis, the issue may not become salient enough to create the political pressure for a national carbon reduction effort – and by then it may be too late. Finally, even when Americans demand climate action, they are easily misled to believe that small measures will achieve climate stability. Citizens are accustomed to addressing social problems through progressive, incremental policy that creates building blocks to larger transformation. Few citizens understand the concept of “carbon math” or deadlines imposed by Nature.

While these political encumbrances are classic to natural resource issues, they are dangerously amplified in the present situation, because the imminence of the climate tipping point forecloses many of the standard political processes that would normally provide solutions over the years. Time-consuming educational and democratic initiatives may not propel the citizenry to force government action in the narrow window of time remaining. Professor Joseph Sax, a leading scholar on public trust law, pointed to these “insufficiencies of the democratic

2, 2006, at M1, *available at* <http://www.latimes.com/news/opinion/commentary/la-op-gilbert2jul02,0,7539379.story?coll=la-news-comment-opinions>.

process” as reason to invoke judicial power over crucial natural resources that are irrevocably jeopardized by legislative or executive action – or in this case, inaction.⁸⁵ A legal strategy for holding government accountable for carbon pollution should invoke the power of the judiciary as an enforcement arm of government. Courts hold the power to order swift and decisive injunctive relief necessary to address urgent problems.⁸⁶

Unfortunately, over the past few decades, courts have significantly diluted their role in environmental law by invoking the administrative deference doctrine, which allows judges to give undue weight to agency decisions. At the heart of this deference principle is an abiding faith in administrative expertise and a corresponding

⁸⁵ Sax, *supra* note 10, at 521, noting also:

Public trust problems are found . . . in a wide range of situations in which diffused public interests need protection against tightly organized groups with clear and immediate goals. Thus, it seems that the delicate mixture of procedural and substantive protections which the courts have applied in conventional public trust cases would be equally applicable and equally appropriate in controversies involving air pollution Of course, the insufficiencies of the democratic process do not mean that efforts to mobilize the citizens should not advance with as much momentum possible, but only that the courts must intervene to protect the natural status quo while environmental democracy struggles to keep up with the threats on the horizon.

⁸⁶ While litigation is notoriously time-consuming, judges have the ability to expedite hearings and arrange their calendars to prioritize urgent matters.

perception that courts are no match for agencies in the scientific and technical realm.⁸⁷ As noted earlier, however, agency neutrality is often a myth. While there are many good reasons behind the deference doctrine, they are now offset by the realities of administrative practice, which often responds to inappropriate internal or external political drivers. Judges have not innovated any standards for applying the deference doctrine to sift out politically-driven decisions from neutral ones.

A trust approach has potential to overcome the deference doctrine that characterizes the statutory setting. Courts approach traditional trust cases with strong judicial scrutiny. Public trust jurisprudence in particular reflects a judicial suspicion towards legislative or administrative actions that cause permanent impairment of the corpus of natural resources needed for public welfare and survival. As an Arizona court explained, “The check and balance of judicial review provides a level of protection against improvident

⁸⁷ See e.g., *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 378 (1989); *Mt. Graham Red Squirrel v. Espy*, 986 F.2d 1568, 1575 (Ariz. 1993); RONALD A. CASS, ET. AL., *ADMINISTRATIVE LAW, CASES AND MATERIALS*, 2D. 216-17.

dissipation of an irreplaceable res.”⁸⁸ A federal district court said in the submersible lands context: “The very purpose of the public trust doctrine is to police the legislature’s disposition of public lands.”⁸⁹

F. FINDING MORAL AND ECONOMIC FORTIFICATION FOR THE LAW

Finally, in order for society to accomplish massive carbon reduction in the window of time remaining, a legal framework must engage other realms of society in pursuit of the same goals. Legal principles should reflect a strong moral culture that can inspire massive political support, and they should dovetail with a new sustainable vision of the economy. No legal framework can accomplish these ends if it is detached from a common well-spring of human thought and experience, or too complex to engage political coalitions comprised of ordinary citizens.

Statutory environmental claims typically gain little fortification from the economic, moral, or political realms. This is largely because they are mired in complexity and beyond the understanding of most

⁸⁸ Arizona Ctr. for Law in the Pub. Interest v. Hassell, 837 P.2d 158, 169 (Ariz. Ct. App. 1991).

⁸⁹ Lake Michigan Federation v. U.S. Army Corps of Engineers, 742 F. Supp. 446 (D. Ill. 1990).

ordinary people. Citizens are removed from the value-core of the statutes by several impenetrable layers of procedure understood only by lawyers and judges. The acronyms and techno-jargon embedded in the regulations and their endless iterations cast a mind-numbing pall over the moral hazards of environmental harm. They readily obfuscate the ethical abomination of creating a world of runaway heating that would subject the children living today, at some point during their life spans, to unthinkable natural damage and social calamity.

To exacerbate the problem, the environmental laws have no corollary vision in economics that affords hope of prosperity consistent with ecological protection. Typically the statutes operate at cross grains to economic objectives, as captured by the “jobs versus environment” dichotomy that so often demolishes environmental advocacy in the courts of public opinion. In trying to control some of the ill effects of the industrial pollution economy, the environmental statutes nevertheless sanction that same economy. Rarely do system-changing economic alternatives emerge from environmental statutory litigation. Relying on a set of laws so detached from the moral and economic facets of civic

life and far removed from the realm of popular understanding, the environmental movement has hemorrhaged its own political base.⁹⁰ A synergistic relationship between law, morality, economics, and politics must materialize rapidly in order to force necessary carbon reduction.

Atmospheric trust litigation has seemingly greater potential as a legal vessel for moral and economic reasoning. On a moral level, trust principles reflect a primeval ethic towards children. A trust approach underscores the strong urge of human beings to pass estates along to future generations.⁹¹ The atmosphere is an endowment to which future generations have a legitimate moral claim: failure to safeguard it amounts to generational theft. Litigation that takes shape around this moral structure draws from a wellspring of human understanding that is

⁹⁰ See Michael Shellenberger & Ted Nordhaus, *The Death of Environmentalism: Global Warming Politics in a Post Environmental World* (2004), available at http://www.thebreakthrough.org/images/Death_of_Environmentalism.pdf.

⁹¹ Civic and religious leaders have framed climate crisis in terms of a moral obligation towards future generations. See Al Gore, Op-Ed., *Moving Beyond Kyoto*, NEW YORK TIMES (July 1, 2007) available at <http://www.nytimes.com/2007/07/01/opinion/01gore.html?ex=1341115200&en=be0b465c91dbcaaf&ei=5124&partner=permalink&exprod=permalink> ("Our children have a right to hold us to a higher standard when their future – indeed, the future of all human civilization – is hanging in the balance."); Colin Woodard, *In Greenland, An Interfaith Rally for Climate Change*, CHRISTIAN SCIENCE MONITOR (Sept. 12, 2007), available at <http://www.csmonitor.com/2007/0912/p06s01-woeu.html?page=1> (Shiite, Buddhist, Hindu, Jewish, Christian, and Shinto leaders join in commitment at Greenland inter-faith climate rally to leave the planet "in all its wisdom and beauty to the generations to come.").

instinctive, passion-bound, and deeply shared among citizens of distant cultures.

In economic terms, the trust dovetails with principles of natural capitalism, which leading thinkers present as a paradigm of business and industrial reform.⁹² Natural capitalism urges business to structure operations using the Earth's interest, not its capital. Emphasis on renewable energy is an example of this approach. Commentators increasingly point to the prospect of millions of new green jobs and increased domestic security by converting from fossil fuels to wind, solar, tidal, and geothermal sources.

There is no silver bullet to solving climate crisis, in the law or elsewhere. But if the criteria of legal responsibility outlined above make

⁹² See PAUL HAWKEN, AMORY LOVINS, L. HUNTER LOVINS, *NATURAL CAPITALISM: CREATING THE NEXT INDUSTRIAL REVOLUTION* (Little Brown 1999); SPETH, *supra* note 30; PETER BARNES, *CAPITALISM 3.0: A GUIDE TO RECLAIMING THE COMMONS* (2007). Perhaps the best example of government pursuing a natural capital approach to both its fiscal and environmental policy comes from Ireland, a country that has enacted a carbon "budget." See *infra* note ___ and accompanying text. In a statement announcing the budget, Minister John Gormley said:

As I am speaking in a Budget debate, let me put it this way: all these activities are vital to protect our environmental capital into the future, and ensure that this most irreplaceable asset is not depreciated by damage to the different environmental media.

Gormley Delivers Carbon Budget, Dec. 6, 2007 (statement of John Gormley, Minister for the Environment, Heritage and Local Government), available at http://www.greenparty.ie/news/latest_news/gormley_delivers_carbon_budget.

any sense at all, clearly a shift from conventional legal strategies has to occur with all urgency. In the context of climate crisis, which threatens “life as we know it,”⁹³ the public trust doctrine can function as a judicial tool to ensure that the political branches of government protect the people’s basic right to survival and their expectations of civilizational stability.

IV. ATMOSPHERIC TRUST LITIGATION

Like any novel litigation strategy, atmospheric trust litigation has many unknowns. A number of defenses and legal issues may prove insurmountable in some courts. Nevertheless, climate litigation strategy must take shape around the magnitude of the threat facing society and the short window of time in which to address it. Whether an ATL claim will succeed depends largely on individual judges’ perception of the urgency of climate crisis, their belief as to whether the political system will address it, and their view of the judicial function. This section only briefly outlines the litigation strategy, as fuller treatment is provided

⁹³ See *supra* note 23.

elsewhere.⁹⁴

The ATL claim characterizes government as a sovereign trustee of natural resources with an organic fiduciary obligation to protect the atmosphere in order to ensure the survival and prosperity of present and future generations of citizen beneficiaries. Positioned along with other sovereigns, government is a co-tenant of the atmosphere and therefore holds a correlative duty to prevent waste to the asset. The fiduciary obligation of protection and the duty against waste are substantially the same, as quantified by reference to leading scientific prescriptions for carbon reduction, such as the one put forth by the Union of Concerned Scientists.

The trust framework presents two causes of action, available to different classes of parties. The first is an action by citizen beneficiaries against their governmental trustees to enforce the fiduciary obligation owed to them. It is well settled that beneficiaries may sue the trustee to protect their property.⁹⁵ Public trust cases have recognized citizen

⁹⁴ See Wood, *Atmospheric Trust Litigation*, *supra* note 1.

⁹⁵ See BOGERT, *supra* note 37, § 154 at 551 (“If the trustee is preparing to commit a breach of trust, the beneficiary need not sit idly by and wait until damage has been done. He may sue in a court of equity for an injunction against the wrongful act.”).

standing to enforce the trust.⁹⁶ Citizens are seemingly positioned to bring trust actions against their cities, counties, states, or the federal government.⁹⁷ The most compelling action may be a class action brought by children and their parents for breach of fiduciary duty that impairs the atmosphere and other natural resources needed for survival and prosperity later in the children's life spans. One of the most stirring public trust opinions ever written was in response to a case brought by children in the Phillipines opposed to logging the last of that nation's old growth forest. The Court found the claim compelling and awarded relief, stating:

[T]he right to a balanced and healthful ecology . . . belongs to a different category of rights altogether for it concerns nothing less than self-preservation and self-perpetuation . . . the advancement of which may even be said to predate all governments and constitutions. As a matter of fact, these basic rights need not even be written in the Constitution for they are assumed to exist from

⁹⁶ Marks v. Whitney, 491 P.2d 374, 381 (Cal. 1971) (private citizens have standing to sue under public trust though a court may raise the issue on its own).

⁹⁷ Of course issues of sovereign immunity may arise in such suits, and general Constitutional requirements of standing apply.

the inception of humankind. If they are now explicitly mentioned . . . it is because of the well-founded fear of its framers that unless the right to a balanced and healthful ecology and to health are mandated as state policies by the Constitution itself . . . the day would not be too far when all else would be lost not only for the present generation, but also for those to come – generations which stand to inherit nothing but parched earth incapable of sustaining life.⁹⁸

The second possible cause of action is a one brought by one sovereign trustee against another for waste to common property – the atmosphere. Co-tenants have a right against other co-tenants for waste and for failure to pay necessary expenses.⁹⁹ States may bring an action for waste against other states or the federal government. Tribal sovereigns may also bring actions.¹⁰⁰ Notably, both the waste and

⁹⁸ *Oposa*, *supra* note 77.

⁹⁹ *Willmon v. Koyer*, 143 P. 694, 695 (Cal. 1914); 63C AM. JUR. 2D PROPERTY § 31; *Chosar Corp. v. Owens*, 370 S.E.2d 305 (Va. 1988) (co-tenants who allowed mining without consent of all other co-tenants were liable for waste); *see also supra* note ___ (discussing waste in context of sovereign co-tenancy in migrating fishery).

¹⁰⁰ Tribes may be precluded in bringing actions against states under principles of sovereign immunity. *See Seminole Tribe v. Florida*, 116 S.Ct. 1114 (1996). Tribes, however, may have additional trust claims against federal agencies arising out of their unique trust relationship with the federal government. *See generally* Mary Christina Wood, *Indian Land and the Promise of Native Sovereignty: The Trust Doctrine Revisited*,

breach of trust claims find grounding within the same basic property framework.

As with any claim, a myriad of issues may bar recovery. Litigants must navigate potential barriers such as standing, sovereign immunity, preemption, political question doctrine, causation, ripeness, jurisdiction intervention, and others. While this chapter does not delve into such issues, it should be noted that courts recognizing the enormity of climate crisis, and the crucial role of the judiciary, may approach these barriers with a leniency that is not characteristic of past decisions. At its core, the unparalleled force of the public trust doctrine lies in its mandate to preserve survival resources for future generations – and the role of the court in policing the legislature and agencies in their management of such trust assets. Procedural barriers to meaningful relief may leave citizens without a remedy, a result that at least some courts will find unacceptable in view of the extraordinary stakes in climate crisis.¹⁰¹

UTAH L. REV. 1471 (1994).

¹⁰¹ While procedural issues are beyond the scope of this chapter, they are being considered in a work-in-progress by the author, *Courts as Guardians of the Global Atmospheric Trust*.

The remedy for an ATL claim consists of a declaratory judgment and injunctive measures. A declaratory judgment carries enormous importance for its potential impact beyond the courtroom, as it could be transmitted internationally through newsfeeds that reach thousands of climate professionals and activists in other countries. By clarifying a framework of carbon responsibility, a declaratory judgment could become a yardstick for political action worldwide and provide citizens with the conceptual tools they need to hold their own governments accountable in quantifiable terms at all jurisdictional levels. As such, the judgment should clearly iterate the following principles: 1) all governments have a fiduciary obligation, as trustees, to protect the atmosphere as a commonly shared asset; 2) all governments bear liability for reducing carbon; 3) the fiduciary obligation among industrialized nations and sub-jurisdictions is to comply with scientific prescriptions to reduce carbon sufficiently to avert runaway heating and restore climate equilibrium; 4) this fiduciary obligation is organic to government and permits no orphan shares or partial orphan shares.¹⁰²

¹⁰² However, a declaratory judgment should not be a “general admonition,” but must be narrowly crafted to define a duty according to “concrete facts presented in a particular dispute.” *United States v. Washington*, 2007 U.S. Dist. LEXIS 61850 *23

Declaratory relief should be accompanied by suitable injunctive relief that allows courts to provide a remedy on a macro level without invading the province of the political branches.¹⁰³ By drawing on traditional relief available against co-tenants and trustees for misuse of property, courts may require carbon accountings and enforceable carbon budgets as procedural remedies for sovereign breach of the atmospheric fiduciary obligation without reaching into the law-making purview of the other branches.

An accounting is a traditional remedy springing from the equitable powers of the court in both the co-tenancy and trust contexts.¹⁰⁴ It is a judicial process whereby co-tenants or trustees must account for expenses and/or profits in connection with the property.¹⁰⁵ The basic premise of an accounting in the co-tenancy context is that each co-

(W.D. Wash. 2007). Courts have rejected overly broad declaratory judgments. *See id.*
¹⁰³ *Winberger v. Romero-Barcelo*, 456 U.S. 305, 312 (1982) (the basis for injunctive relief is a finding of irreparable injury and the absence of an adequate legal remedy) (citations omitted).

¹⁰⁴ *See, e.g.*, *Evans v. Little*, 271 S.E. 2d 138, 141 (Ga. 1980) (co-tenancy); *Koyer*, 143 P. at 695 (same); *Zuch v. Conn. Bank & Trust Co.*, 500 A.2d 565, 568 (Conn. App. 1985) (“As a general matter of equity, the existence of a trust relationship is accompanied as a matter of course by the right of the beneficiary to demand of the fiduciary a full and complete accounting at any proper time.”) (citations omitted); *Cobell v. Norton*, 240 F.3d 1081 (D.C. Cir. 2001) (*Cobell VI*) (accounting against federal government for mismanagement of Indian trust funds).

¹⁰⁵ *Evans*, 271 S.E.2d at 141.

tenant is responsible for his share of the expenses, and is due his share of the profit from the property.¹⁰⁶ An accounting is the procedural method by which this “fair share” principle is enforced by courts. In the trust context, an accounting is the method by which beneficiaries may ensure proper management of their property.¹⁰⁷ Accordingly, courts have held that “any beneficiary, including one who holds only a present interest in the remainder of a trust, is entitled to petition the court for an accounting.”¹⁰⁸

In the context of atmospheric trust litigation, an accounting would take the form of quantifying carbon emissions and tracking their reduction over time. Modern modeling is capable of quantifying a carbon footprint on virtually any scale, from individual to global.¹⁰⁹

¹⁰⁶ See, e.g., *Garber v. Whittaker*, 174 A. 34, 37 (Super. Ct. Del. 1934); *Koyer*, 143 P. at 695-96; see also WILLIAM B. STOEBUCK & DALE A. WHITMAN, *THE LAW OF PROPERTY* 205 (3d ed. 2000) (where a cotenant derives income from a use of property that permanently reduces its value, the cotenant must account to the other cotenants).

¹⁰⁷ See *Zuch*, 500 A.2d at 567 (“The fiduciary relationship is in and of itself sufficient to form the basis for the [accounting].”) (citations omitted).

¹⁰⁸ *In re Estate of Ehlers*, 911 P.2d 1017, 1021 (Wash. App. 1996) (citation omitted).

¹⁰⁹ See, e.g., UNFCCC, *Counting Emissions and Removals: Greenhouse Gas Inventories Under the UNFCCC*, available at <http://unfccc.int/resource/docs/publications/counting.pdf>; Seth Borenstein, *Texas Wyoming Take Lead in Emissions*, USA TODAY, June 2, 2007, available at http://www.usatoday.com/weather/climate/globalwarming/2007-06-02-emissions_N.htm (chart depicting state emissions); The Climate Registry, available at <http://www.theclimateregistry.org/index.html> (last visited Sept. 18, 2007) (tracks emissions from private industry).

Several cities, such as Seattle, Washington, have already quantified their carbon footprint.¹¹⁰

Carbon accounting allows co-tenants and beneficiaries of the trust to evaluate government's measures to protect the atmospheric asset. The accounting would determine jurisdictional compliance with the TARGET FOR U.S. EMISSIONS REDUCTIONS or other scientific prescription which, as explained previously, may express a quantitative standard of government's fiduciary obligation. This fiduciary obligation must be carried out through a "budget" for carbon reduction over time that sets forth clear mileposts, as well as a portfolio of measures designed to achieve the requisite reduction.¹¹¹ Developing such a portfolio is, by its

¹¹⁰ City of Seattle, Climate Change Action Plan, <http://www.seattle.gov/climate/carbonfootprint.htm> (last visited Sept. 18, 2007); City of Seattle, *Our Carbon Footprint*, available at http://www.seattle.gov/climate/PDF/Our_Carbon_Footprint.pdf ("Any serious initiative to reduce global warming pollution must begin with a very challenging first step: A greenhouse gas emissions inventory that establishes the baseline against which progress will be measured, and identifies the major sources of pollution that will be the focus of the program.").

¹¹¹ Ireland instituted a carbon budget that is in its second year. *See supra* note 92 Gormley Delivers Carbon Budget (Dec. 6, 2007) (statement of John Gormley, Minister for the Environment, Heritage and Local Government), available at http://www.greenparty.ie/news/latest_news/gormley_delivers_carbon_budget; Dail Statement by Mr. John Gormley TD, Oct. 15, 2008, available at <http://www.google.com/search?hl=en&client=safari&rls=en&q=protocol+for+carbon+budget&start=10&sa=N> Climate analysts have also developed a British carbon budget. *See* ECOFYS, *Developing a Carbon Budget for the UK: With Opportunities for EU Action* (2006), available at http://www.foe.co.uk/resource/reports/carbon_budgetting.pdf. By focusing

very nature, a political matter, but courts can supervise the process to ensure that the measures add up to the required carbon math. A court must maintain on-going jurisdiction over the case to receive periodic progress reports, a common procedure in accounting cases. The narrow window of time remaining before climate thresholds are crossed seemingly justifies carbon accounting reports every quarter.

Coordination in the carbon accounting ordered in various atmospheric trust litigation cases is made possible using the “nested jurisdiction” concept. Greenhouse gas reductions achieved on a sub-jurisdictional level (i.e., cities and counties) are readily and easily attributable to the umbrella jurisdiction (the state). For the same reason, reductions at the sub-national (state) level are easily accounted for at the federal level. Through open accounting processes, carbon reduction can simultaneously be attributed to the most immediate jurisdictional level as well as the broadest jurisdictional level.

on the actual bottom-line carbon reduction set by a budget, courts would not interfere with emerging regional and local initiatives such as carbon taxes and cap and trade schemes. Such climate measures are tools to achieving the requisite carbon reduction. *See id.* at 11 (“A budget refers to the actual amount of carbon that is available – be it to a nation, firm or individual. A trading mechanism is a way in which division of this budget can be made more flexible.”).

Procedural relief alone is insufficient in the case of jurisdictions that fail to carry out their budgets. Substantive injunctive relief, therefore, is necessary as a possible judicial “hammer” for carbon reduction. Such judicial enforcement likely cannot extend to every measure contained in a carbon reduction portfolio, as they are likely to contain a set of measures beyond the power of courts to enforce – measures such as carbon taxes, infrastructure projects and transfer of public investment. Nevertheless, courts have it well within their power to force carbon reduction through discrete injunctive measures tailored towards obvious carbon sources. An injunction may contain “backstops” that consist of measures the court will mandate if the budget is not carried out. Injunctions might prohibit, for example, new coal-fired plants,¹¹² large-scale logging, recreational vehicle use on public lands, airport expansions, sewer hook-ups, issuance of air pollution permits, and a myriad of other activities.¹¹³ Of course, perhaps

¹¹² See Hansen, *Testimony*, *supra* note 8, at 18 (“Thus the most critical action for saving the planet at this time, I believe, is to prevent construction of additional coal-fired power plants without CO2 capture capability.”).

¹¹³ Many of these injunctions have occurred in the statutory context. See, e.g., Jeffery J. Matthews, *Clean Water Act Citizen Suit Requests for Municipal Moratoria: Anatomy of a Sewer Hookup Moratorium Law Suit*, 14 J. ENVTL. L. & LITIG. 25 (1999); *American Motorcyclist Ass'n v. Watt*, 543 F. Supp. 789, 798 (C. D. Cal., 1982) (enjoining off-road vehicle use); *Pacific Rivers Council v. Thomas*, 30 F.3d 1050 (9th

the most effective enforcement mechanism is to hold government officials personally in contempt of court for failure to carry out court-ordered fiduciary duties.¹¹⁴

V. CONCLUSION

Inevitably, atmospheric trust litigation will encounter criticism that it invites courts to overstep their function whereas the matter of carbon reduction should be handled by the political branches. In a functioning democracy, that much would probably be true. We would expect legislatures and agencies to respond with all due speed to climate crisis, rendering litigation altogether unnecessary. But critics must take a step back and engage in a reality check. The political branches have not

Cir. 1994) (enjoining the U.S. Forest Service from proceeding with projects under land resource management plans); *Lane County Audubon Soc’y v. Jamison*, 958 F.2d 290, 294 (9th Cir. 1992) (enjoining the BLM from new timber sales); *Thomas v. Peterson*, 753 F.2d 754 (9th Cir. 1975) (enjoining construction of road); *Oregon Natural Desert Assn v. Singleton*, 75 F. Supp. 2d 1139 (permanently enjoining grazing).

¹¹⁴ Two Secretaries of Interior and one Secretary of Treasury have been held in contempt of court in an Indian case alleging breach of trust obligation. See Pierre Thomas, *Federal Judge Holds Babbitt and Rubin in Contempt*, CNN, Feb. 22, 1999, available at <http://www.cnn.com/ALLPOLITICS/stories/1999/02/22/cabinet.contempt/>; *Interior Secretary Cited for Contempt of Court*, NPR, Sept. 17, 2002, available at <http://www.npr.org/templates/story/story.php?storyId=1150178>. One district court threatened U.S. Agriculture Undersecretary Mark Rey with contempt of court and jail time for his agency’s “systematic disregard of the rule of law.” See Matt Gouras, *Judge: Ag Undersecretary Avoids Jail Time*, ASSOCIATED PRESS, available at http://hosted.ap.org/dynamic/stories/B/BUSH_OFFICIAL_CONTEMPT?SITE=AP&SECTION=HOME&TEMPLATE=DEFAULT&CTIME=2008-02-28-00-41-37.

responded to the threat of runaway heating. Instead, their sluggishness has left a deadly vacuum, putting the future of human civilization worldwide at stake over the coming century. Government has squandered any further opportunity for slow, incremental policy. Comprising a legitimate third branch of government, courts are a last resort -- but a resort nonetheless.

At a time in history when thinkers across the world are calling for new, innovative technologies and practices to address climate crisis, lawyers should pioneer promising, if untested, legal constructs to address carbon loading of the atmosphere. Exclusive reliance on statutory claims for imposing climate responsibility is treacherous. The body of statutory environmental law is a product of an altogether different era, formulated to respond to circumstances far less urgent, less dangerous, and less pervasive than those now confronting society. The environmental statutes were never crafted to address a planetary emergency.

Atmospheric trust litigation challenges lawyers and judges to take fundamental principles of public trust law and apply them in coherent

fashion to a new and urgent context so as to arrive at a uniform, quantifiable measure of governmental responsibility to reduce carbon. While unprecedented, the task is made easier by the fact that these principles are logical, compelling, and seemingly organic to all states and the federal government. The trust claim defines a binding fiduciary obligation that is calibrated mathematically to scientific understanding. In that way, it is perhaps the only claim that speaks directly to the sovereign's full duty to protect the atmosphere from greenhouse gas pollution.

Judges have it well within their ability to issue decisions that would force carbon reduction. In past eras, judges have called forth logic and principled reasoning to formulate common law in response to unprecedented circumstances. As Justice Holmes wrote, the common law is “[t]he felt necessities of the times.”¹¹⁵ Unfortunately, after three decades of interpreting statutory law, many judges are now so accustomed to issuing rulings within detailed confines of legislation or regulations that they may have lost their imagination to construct meaningful remedies using their traditional common law prerogatives.

¹¹⁵ O.W. HOLMES, THE COMMON LAW 1 (1881).

Nevertheless, history tells us that conditions of impossibility often inspire heroic imagination and courage. Handed the right complaint, judges may recognize this epoch moment in the course of human civilization and exert their common law authority to protect the globe's atmosphere -- and the billions of people dependent on it for all time to come.