

**A COMMON MORALITY:
TOWARD A FRAMEWORK FOR DESIGNING FISCAL
INSTRUMENTS TO RESPOND TO GLOBAL CLIMATE CHANGE**

ELEANOR WESTON BROWN*

“How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it.”¹

ABSTRACT

Global climate change, largely the result of carbon emissions brought about by a global economy addicted to fossil fuel and committed to economic expansion, threatens the very viability of the economy that causes it. The relatively cheap price of fossil fuels does not account for the costs to society as a whole, thus evidencing a Tragedy of the Commons, where an individual’s exploitation of a finite resource is borne by the society in common. Fiscal instruments can and should be designed to send a price signal to the market to account for that cost, but must be designed within a moral framework. Wealth, created by unfettered economic expansion and fueled by over-consumption, has not brought happiness. This article will argue that global climate change should be addressed by a reexamination of our common morality. The market driven by self-interest must be assisted by fiscal policies that reflect a sense of community. Tax incentives, subsidies, and environmental taxes must be designed to unravel negative business consolidations and concentrations of power while promoting local communities and economies.

INTRODUCTION

Global climate change brought about—at least in part—by a global economy addicted to fossil fuel² and committed to laissez faire economic

* Eleanor Weston Brown, Associate Professor of Law, Regent University School of Law, United States of America, LLM-Taxation Marshall-Wythe School of Law, College of William & Mary, JD T.C. Williams School of Law, University of Richmond. My thanks to the Widener University School of Law and *Widener Law Review* for the invitation to participate in the symposium *Living with Climate Change: Legal Challenges in a Warmer World*, my presentation remarks formed the framework for this article. I am grateful to my colleagues, Professors Thomas Folsom and Kathleen McKee, for their useful comments which informed my thinking and for their support during this project; any errors are strictly my own. My thanks also to Dean Jeffrey Brauch, Regent University School of Law and the American Center for Law and Justice, for providing a grant in support of this work. Finally, I offer my heartfelt gratitude to my husband, William T. Brown, for his love, support and patience during this project.

1. ADAM SMITH, *THE THEORY OF MORAL SENTIMENTS* 9 (1759).

expansion threatens the very viability of the economy that causes it. The precise impact of global climate change on the Earth's delicate balance of life is uncertain. Floods in low-lying areas, droughts in sub-Saharan Africa, heat waves, and the spread of disease and pests are only some of the potential results of climate change. Nature as we know it may be irreversibly altered.³

Public awareness of the potential severity of the harm is finally gaining. In 2006, Al Gore, the former Vice President of the United States and Presidential candidate, won an Academy Award for *An Inconvenient Truth*, his documentary about climate change. In 2007, Al Gore and the Intergovernmental Panel on Climate Change shared the 2007 Nobel Peace Prize “for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.”⁴ In its announcement awarding the prize, the Norwegian Nobel Committee sought to highlight climate change and environmental stewardship:

Indications of changes in the earth's future climate must be treated with the utmost seriousness, and with the precautionary principle uppermost in our minds. Extensive climate changes may alter and threaten the living conditions of much of mankind. They may induce large-scale migration and lead to greater competition for the earth's resources. Such changes will place particularly heavy burdens on the world's most vulnerable countries. There may be increased danger of violent conflicts and wars, within and between states.⁵

The potential for climate change to cause significant adverse effects to life on Earth—especially when such changes may disproportionately impact the poor—is a call to action. Principles of justice are implicated. The climate change crisis has been framed as a human rights issue: “Profound moral issues demand a profound response from law.”⁶ Indeed, the consequences of global climate change upon the Earth present perhaps the most profound moral dilemma of our day. This article will argue that the framework for any solution addressing such a profound moral dilemma must consider a moral basis. Part I will explain the problem and review the current debate regarding the fact of global climate change, concluding that global climate change is real and its cause may very well be anthropogenic. Notwithstanding the causes of

2. President George W. Bush declared, “America is addicted to oil” in his annual State of the Union Address. President's Address Before a Joint Session of the Congress on the State of the Union, 42 WEEKLY COMP. PRES. DOC. 145, 150 (Jan. 31, 2006).

3. See generally BILL MCKIBBEN, *THE END OF NATURE* (1989).

4. Nobelprize.org, The Nobel Peace Prize 2007, http://www.nobelprize.org/nobel_prizes/peace/laureates/2007 (last visited May 2, 2009).

5. Nobelprize.org, The Nobel Peace Prize 2007, Press Release, http://nobelprize.org/nobel_prizes/peace/laureates/2007/press.html (last visited Jan. 31, 2008).

6. Amy Sinden, *Climate Change and Human Rights*, 27 J. LAND RESOURCES & ENVTL. L. 255, 257 (2007).

global climate change, scientists predict that drastic alterations to the Earth's delicate ecosystems may result. Operating under this precautionary principal, action is required both to mitigate and to adapt to global climate change. Part II explores one explanation for the exploitation of planetary resources, retelling the parable of the Tragedy of the Commons. The parable teaches that where the use of common resources is open to all without cost, individuals will exploit the commons to the detriment of all. The solution to such exploitation is usually suggested as the choice between two options: privatization of the common-pool resource, or regulation of that resource. The second section of Part II seeks to sharpen the question further by suggesting that the solution is not a choice between two opposing perspectives but one among a range of options forming a continuum based on ancient Roman notions of property upon which the two suggestions rest yet form only a part. Part III builds on the structure of the continuum by placing specific examples of ways to address global climate change in the rubric of that continuum, creating a framework for evaluating the appropriateness of the proposed solution. Part IV suggests that global climate change cannot be redressed by the implementation of any one of the proposed strategies, but rather that the merit of all potential solutions must be evaluated by reference to common morality.

I argue that this common morality is best evaluated at the local, community level. Anecdotal evidence suggests that locally determined solutions are gaining force while attempts at global solutions stall. Finally, I conclude that exploitation of the global commons is a global problem of the highest moral imperative, and suggest that further work is needed to understand a common morality upon which the law can rely to respond to the crisis.

I. A COMMON PROBLEM: GLOBAL CLIMATE CHANGE

Clearly, the Earth's climate and the delicate relationship between weather and life systems is complex. The Earth's temperature is affected by a phenomenon known as the "greenhouse effect." The greenhouse effect is a natural occurrence whereby certain gases in the Earth's atmosphere absorb heat radiating from the Sun. Without those gases to trap the heat, the Earth would be substantially cooler and "life as we know it today would not be possible."⁷ Those greenhouse gases include carbon dioxide, methane, and

7. E.P.A.: U.S. Environmental Protection Agency, Climate Change - Science, <http://www.epa.gov/climatechange/science/index.html> (last visited Jan. 18, 2009); *see also* JOINT SCIENCE ACADEMIES' STATEMENT: GLOBAL RESPONSE TO CLIMATE CHANGE 1 (2005) (signed by Scientific Academies from Brazil, Canada, China, France, Germany, India, Italy, Japan, Russia, the United Kingdom and the United States stating "[t]he existence of greenhouse gases in the atmosphere is vital to life on Earth").

nitrous oxide. The concentration of those gases has increased noticeably in the post-industrial age.⁸

Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years The global increases in carbon dioxide concentration are due primarily to fossil fuel use and land use change, while those of methane and nitrous oxide are primarily due to agriculture.⁹

Scientists studying the Earth's climate report a marked warming of the Earth's surface in the twentieth century and attribute that warming to the increased concentration of greenhouse gases.¹⁰ The causes of those increases and the associated global warming have been a source of much debate and controversy.¹¹ Nevertheless, scientific evidence clearly points to the Earth's rising temperature.¹² Much of the focus of the debate has been whether those rising temperatures are caused by human activities.¹³ A scientific consensus¹⁴ pronounces global climate change¹⁵ as fact¹⁶ and asserts that its cause is, at

8. See Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Summary for Policy Makers 2* (2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf> [hereinafter IPCC, *Summary for Policy Makers*].

9. *Id.*

10. See Pew Center on Global Climate Change, *The Causes of Global Climate Change*, SCIENCE BRIEF 1 (updated Aug. 2008), available at <http://www.pewclimate.org/docUploads/global-warming-science-brief-august08.pdf> (describing the well-documented warming trend) [hereinafter Pew Center, *Causes*].

11. See, e.g., Joel Achenbach, *The Tempest*, THE WASH. POST, May 28, 2006, at W08 (quoting Colorado State University Professor Emeritus, Bill Gray, as stating "Global warming is a hoax").

12. See Pew Center, *Causes*, *supra* note 10.

13. See, e.g., the differences of opinion as expressed by Sarah Palin (hedging a previously stated opinion that global warming is man-made) and Joseph Biden (stating definitively that the cause is man-made) in the 2008 Vice Presidential debate. CQ Transcriptions, *Transcript: The Vice-Presidential Debate*, N.Y. TIMES, Oct. 2, 2008, available at <http://elections.nytimes.com/2008/president/debates/transcripts/vice-presidential-debate.html>.

14. The IPCC is comprised of hundreds of scientists from 113 countries. See IPCC, *Climate Change 2007: The Physical Science Basis* (2007), available at <http://www.ipcc.ch/ipccreports/ar4-wg1.htm> [hereinafter IPCC, *Physical Science Basis*].

15. The terms *global warming* and *global climate change* are often used interchangeably in discourse about the effects of increased concentrations of greenhouse gases. The United States Environmental Protection Agency (EPA) defines climate change as "any significant change in measures of climate (such as temperature, precipitation or wind) lasting for an extended period (decades or longer)." See E.P.A.: U.S. Environmental Protection Agency, *Climate Change - Basic Information*, <http://epa.gov/climatechange/basicinfo.html> (last visited May 2, 2009). Some use the terms specifically to mean a change in climate caused by human activity. See, e.g., United Nations Framework Convention on Climate Change art. 1, Mar. 21, 1994, available at <http://unfccc.int/resource/docs/convkp/conveng.pdf> (defining climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of

least in part, and likely substantially, man-made.¹⁷ The Intergovernmental Panel on Climate Change (IPCC) noted:

Human activities contribute to climate change by causing changes in Earth's atmosphere in the amounts of greenhouse gases, aerosols (small particles), and cloudiness. The largest known contribution comes from the burning of fossil fuels, which releases carbon dioxide gas to the atmosphere. Greenhouse gases and aerosols affect climate by altering incoming solar radiation and outgoing infrared (thermal) radiation that are part of Earth's energy balance. Changing the atmospheric abundance or properties of these gases and particles can lead to a warming or cooling of the climate system. Since the start of the industrial era (about 1750), the overall effect of human activities on climate has been a warming influence. The human impact on climate during this era greatly exceeds that due to known changes in natural processes, such as solar changes and volcanic eruptions.¹⁸

Skeptics disagree with the IPCC's assertion that climate change is anthropogenic.¹⁹ Regardless of its source, the fact of global climate change appears undeniable.²⁰ The melting of the polar ice caps and the iconic image of the polar bear adrift have come to symbolize the dire consequences.²¹ The United Nations expressed concern in its Framework Convention on Climate Change, noting, "The resulting increase in global temperatures is altering the complex web of systems that allow life to thrive on earth, such as cloud cover, rainfall, wind patterns, ocean currents, and the distribution of plant and animal species."²²

the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."). For purposes of this article, I will use the IPCC definition which does not connote the source of the change: "Climate change . . . refers to any change in climate over time, whether due to natural variability or as a result of human activity." IPCC, *Summary for Policy Makers*, *supra* note 8, at 2 n.1.

16. See IPCC, *Physical Science Basis*, *supra* note 14, at 751.

17. See IPCC, *Summary for Policy Makers*, *supra* note 8, at 2.

18. See IPCC, *Physical Science Basis*, *supra* note 14, at 100.

19. NATURE, NOT HUMAN ACTIVITY, RULES THE CLIMATE: SUMMARY FOR POLICYMAKERS OF THE REPORT OF THE NONGOVERNMENTAL INTERNATIONAL PANEL ON CLIMATE CHANGE iii (S. Fred Singer ed., The Heartland Institute) (2008).

20. See, e.g., Gregg Easterbrook, *Case Closed: The Debate About Global Warming is Over*, ISSUES IN GOVERNANCE STUDIES, June 2006, at 2, available at http://www.brookings.edu/~media/Files/rc/papers/2006/06energy_easterbrook/20060517.pdf (reporting "near-unanimity among credentialed researchers that an artificially warming world is a real phenomenon posing real danger").

21. The U.S. Fish and Wildlife Service declared the polar bear threatened under the Endangered Species Act on May 15, 2008 in part relying on data reporting habitat loss by the IPCC. See Determination of Threatened Status for the Polar Bear, 73 Fed. Reg. 28, 211 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17).

22. United Nations Framework Convention on Climate Change, Essential Background – Feeling the Heat, Climate Change Science, available at http://unfccc.int/essential_background/feeling_the_heat/items/2902.php (last visited May 2, 2009).

Alterations in climate, weather, and habitat impact all of humanity, which is a problem of global proportions. The Earth's climate is of concern to all inhabitants. The issue is how to manage a global commons. More generally, the question is how to manage the Earth's resources for the optimization of the common good.

II. A COMMON RESOURCE: THE TRAGEDY OF THE COMMONS



A. The Tragedy of the Commons

Free market advocates advance the theory that the marketplace will provide the optimal allocation of goods and services; that the choice made by each individual, acting in his own interest, will aggregate with all of the other individual preferences exercised in the free market to achieve economic efficiency. The individual, thereby, in his selfish effort to maximize his personal wealth, optimizes the wealth of the whole.²³ Those theorists argue that in order to operate efficiently, interests in property must be exclusively allocated. Once property is privatized, the free market will operate efficiently to optimize the utility of the good. To operate properly, the free market must indeed be free; that is, free from governmental regulation and intervention, free from coercion, and free from fraud.

Global climate change is often viewed as the result of the failure of the free market to apportion optimal allocations of resources in the society. That failure results where the costs of goods in the marketplace do not accurately reflect the true costs of production. Economists call those unaccounted-for costs, “negative externalities”—that is, costs that are borne by one who is not a party to the transaction.²⁴

In the determination of the optimal level of the allocation of global goods such as air, water, and climate, the market does not effectively and efficiently account for utilization. Such environmental goods are freely available to all. Because those goods are available to all, they are said to be global commons. Because they are free, they are subject to exploitation. Such exploitation arises when an actor in the marketplace utilizes the resource, or harms the resource and is not required to compensate for its use or for the harm done. Pollution is a classic example of a negative externality. A factory pollutes the air and water during production without accounting for the cost to society of the exploitation of those resources. Consider also, for example, a traveler who journeys away from home by driving his Sport Utility Vehicle (“SUV”), exhausting oil resources and polluting the air. Although he must purchase the gasoline to operate his SUV, and although he must use more fuel than if he drove a more fuel-efficient vehicle the same distance, he is willing to pay more for the SUV. In his individual self-interest, he weighs the costs of driving the

23. The theory of self-interest aggregating for the optimization of the whole is most commonly attributed to Adam Smith who called such action in the free market “the invisible hand.” An individual “intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote . . . the public good.” ADAM SMITH, *AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS* 423 (Edwin Cannan ed., Random House 1937) (1776).

24. Externalities can also be positive. A third party may benefit from some aspect of an activity or exchange for which he has not paid; e.g., when an individual is immunized against a contagious disease, the individual who undertook the activity gains the protection against the disease but the whole of society benefits from the limitation of the spread of communicable diseases.

SUV against the benefits he enjoys from the luxury and comfort of the ride. He determines that the costs do not exceed the benefits he expects to enjoy because the price of the good—the purchase and operation of the SUV—does not account for the true costs of the fossil fuel he burns. The emissions from his vehicle cost him very little because the resultant pollution falls upon everyone, that is, all those who must breathe the air he pollutes. While he may be one of those who must breathe the air he pollutes, in relative terms, his cost is a mere fraction of the cost to the society as a whole.

Garrett Hardin described such an exploitation of a common resource in his seminal 1968 article, *The Tragedy of the Commons*.²⁵ In that oft-quoted piece, Hardin explains the “Tragedy of the Commons,” a phrase first coined by William Forster Lloyd²⁶ in 1833, using Lloyd’s example of a common grazing land. Where each herder is permitted unlimited use of the land, he has no disincentive to add additional cows to graze on the land. His incremental exploitation of the commons is a minor cost to him individually as compared to the whole. Hardin offers two solutions to such overexploitation: 1) division of the commons into private property, or 2) regulation of the commons by the polity.²⁷

Hardin raises the exploitation of the commons in the context of overpopulation, and he uses pollution as an example of the difficulty of controlling a common resource that is not readily subject to privatization.²⁸ Hardin suggests that over the course of human history, the commons has been abandoned as human population has increased.²⁹ Hardin seems to hold that the commons was a viable method for allocating resources so long as the common resource was large enough to withstand the pressures of the Tragedy of the Commons.³⁰ Once those pressures acted to begin the despoiling of the commons, society acted to privatize or regulate the common resource.³¹ He cites the fencing of farm and pasture lands as a private property solution for food gathering, and the restrictions on disposal of domestic sewage as a

25. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE, Dec. 13, 1968, at 1243, 1244.

26. William Forster Lloyd (1795 - 1852) was a professor of political economy at the University of Oxford. *The History of Economic Thought*, <http://cepa.newschool.edu/het/profiles/lloyd.htm> (last visited Mar. 13, 2009).

27. Hardin, *supra* note 25, at 1245, 1246.

28. *Id.* at 1245.

29. *Id.* at 1248.

30. Hardin summarizes: “Perhaps the simplest summary of this analysis of man’s population problems is this: the commons, if justifiable at all, is justifiable only under conditions of low-population density. As the human population has increased, the commons has had to be abandoned in one aspect after another.” *Id.*

31. Whether, indeed, the increasing privatization and regulation of common resources was caused by pressures on the commons, or rather instead due to an evolving market economy with an increasing appetite for resources is an interesting question, but one that is beyond the scope of this article.

regulatory solution to dealing with waste.³² Hardin's conclusion, even at the time of his writing forty years ago,³³ is that uncontrolled population growth will continue to pressure the commons, indeed all of the world's finite resources regardless of how they are held.³⁴ Therefore, he advocates mandated population control as a solution. After declaring unconstrained freedom to breed as "intolerable"³⁵ and discounting the impact of conscience³⁶ as "self-eliminating,"³⁷ Hardin declares that "[T]he social arrangements that produce responsibility are arrangements that create coercion, of some sort."³⁸ Hardin concludes, therefore, that coercion must be employed, but he declares "[T]he only kind of coercion I recommend is mutual coercion, mutually agreed upon by the majority of the people affected."³⁹

The management of common resources is often described, as Hardin frames it, as a choice between the two options: regulation versus the free market.⁴⁰ Hardin clearly comes down on the side of regulation, what he terms as "mutual coercion, mutually agreed upon."⁴¹ The advocates for regulation view governmental action as being required because many of the benefits of environmental stewardship are "public goods," i.e., nonexcludable: one person's enjoyment does not preclude another's.⁴² The argument proceeds by asserting that the market does not normally take into account those environmental public goods. Therefore, public intervention is justified. The proponents of privatization argue that the free market is the best arbiter in the allocation of resources. Those free market advocates argue that private property rights create self-interested incentives to stewardship. Where private property interests collide, the parties will work to create mutually beneficial solutions.

Certainly, one can make opposing arguments for each of the proposed options: regulations are difficult to administer; the sheer number of private landowners and individualized environs makes enforcement difficult, costly, and often ineffectual. Landowners may fail to disclose valuable conservation resources found on their land, notwithstanding the compulsory nature of the regulations, for fear of limitations on their private property rights. Penalties

32. Hardin, *supra* note 25, at 1248.

33. The United Nations estimates that the world population in 1968 was approximately 3.5 billion and in 2008, approximately 6.6 billion. *See* United Nations, World Population Prospects, <http://esa.un.org/unpp/index.asp?panel=1> (last visited Mar. 28, 2009).

34. Hardin, *supra* note 25, at 1248.

35. *Id.* at 1246.

36. To the contrary, *see* discussion at Part IV *infra*.

37. Hardin, *supra* note 25, at 1246.

38. *Id.* at 1247.

39. *Id.*

40. *Id.* at 1248.

41. *Id.* at 1247.

42. *See infra* Part III (analyzing potential solutions to allocation of common resources by reference to whether the resource is subject to exclusive use).

and enforcement action garner negative attitudes toward environmental stewardship and create hostility toward supporting the common good.⁴³ Compulsory regulations also have constitutional limits; no regulation can require a landowner to maintain his lands in a natural or undeveloped state without compensation.⁴⁴ Free markets also have limitations. Private property interests must be delineated. Ownership does not always engender long-term stewardship as actors in a free market economy generally seek to achieve short-term profits.

The dichotomy that Hardin suggests greatly oversimplifies the issue. The solution is not a choice between two options. Rather, regulation and privatization lie on a continuum of alternatives, representing a range of public policy choices that might be aimed at determining the optimal allocation of global goods. The alternatives posited by Hardin, and many others who accept the Tragedy of the Commons as the *de facto* result of free access to common pool resources, presume that effective resource management of common resources is impossible. In fact, many decry Hardin's *Tragedy* as myth, pointing to examples of successful common use through cooperation.⁴⁵ Elinor Ostrom's influential research provides ample evidence of successfully managed common ownership regimes.⁴⁶ Confirmation of some forms of successful cooperative management does not, however, prove the *Tragedy* is myth; certainly, examples of exploitation of common resources abound.⁴⁷ Given that some forms of common ownership operate effectively and others do not, the question must be framed differently than as presented by Hardin.

B. Defining the Commons

Garrett Hardin's imprecision in defining the problem points to the confusion in the use of the term "the commons":

[The term] tends to conflate two distinct regimes: common ownership regimes and open access regimes. The former is a property rights system – group members jointly hold property rights in the resource as against the rest of the world. Thus, while they cannot exclude each other from the resource, they can

43. See Stephanie Stern, *Encouraging Conservation on Private Lands: A Behavioral Analysis of Financial Incentives*, 48 ARIZ. L. REV. 541, 547 (2006).

44. *Lucas v. S. C. Coastal Council*, 505 U.S. 1003, 1027 (1992).

45. See, e.g., Andrew Leonard, *A Tree Grows in the Sabel: Fighting Back the Desert with the Zai Holes of Yacouba Sawadogo*, SALON, Oct. 4, 2006, http://www.salon.com/tech/htww/2006/10/04/zai_holes (citing successful reforestation efforts by farmers on their own initiative in the Sahel region of West Africa).

46. See ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* (James E. Alt & Douglass C. North eds., 1990).

47. See *supra* Part I (discussing global climate change as caused, at least in part, by exploitation of common resources).

exclude outsiders. An open-access regime, on the other hand, is an absence of property rights.⁴⁸

Or stated differently, an open access regime is not the absence of property rights but rather is a system of non-exclusive property rights. Clarifying that Hardin means the term “commons” to apply to an open access regime begs the question: What differentiates a common ownership regime from an open access regime? Obviously, access is the distinguishing factor. Understanding rights to the utilization of resources by reference to access presents a framework in which to place the range of public policy choices that might be aimed at determining the optimal allocation of global goods. Distinguishing common schemes of ownership from methods of private ownership might delineate the spectrum.

Access to the commons is often regarded as non-exclusive, but the term non-exclusive is also imprecise. The Romans delineated a range of legal categories of non-exclusive property law. Reference to those broad categories illuminates distinctions which are often overlooked when “the commons” is carelessly categorized as one type of property. Carol Rose explores the question of governing the commons in the context of intellectual property rights and compares the commons in *Intellectual Space* with the commons in *Tangible Space*.⁴⁹ She offers, in that regard, what she terms as a “rough typology of nonexclusive property under the Roman law.”⁵⁰ Professor Rose ably illustrates each category of non-exclusive property and provides application of that category to examples in what she terms as Tangible Space and Intellectual Space.⁵¹ I adopt her typology here for purposes of creating a continuum upon which the range of solutions to global climate change might rest.

Consider a continuum, which might begin with non-exclusive property rights and exclusive property rights at opposite ends. Non-exclusive property might break into five categories, as under Roman law. At the farthest end,⁵² one might place property known as *res divini juris*: “things that are unowned by any human being because they are sacred, holy, or religious.”⁵³ For the Romans, temples and tombs were held for the gods.⁵⁴ The property, in fact, was disposed to private ownership by its nature as tangible and divisible but because of religious belief was not converted to private ownership.

48. Amy Sinden, *The Tragedy of the Commons and the Myth of a Private Property Solution*, 78 U. COLO. L. REV. 533, 547 (2007).

49. Carol M. Rose, *Romans, Roads, and Romantic Creators: Traditions of Public Property in the Information Age*, 66 LAW & CONTEMP. PROBS. 89, 90 (2003).

50. *Id.* at 92.

51. *Id.* at 90.

52. Perhaps, *res divini juris* more accurately should sit outside of the continuum because the property is considered neither publicly nor privately owned.

53. Rose, *supra* note 49, at 108.

54. *Id.* at 108-09.

Proceeding from the farthest end, one might place *res communes*: “things open to all by their nature.”⁵⁵ *Res communes* resources would be those resources not reducible to exclusive ownership, like the sky and the sea. *Res communes* is the type of property to which Garrett Hardin meant to ascribe in his theory of the Tragedy of the Commons.⁵⁶ Next along the continuum might be *res publicae*: “things belonging to the public and open to the public by operation of law.”⁵⁷ Examples of *res publicae* in Roman times would be roads, bridges, and waterways.⁵⁸ These passages were non-exclusive and open to all, but the maintenance and governance of those resources would be vested in the state. Proceeding along the continuum might next be *res universitatis*: “property belonging to a (public) group in its corporate capacity.”⁵⁹ In Roman times, *res universitatis* would represent a public facility owned in common, usually by a municipality, such as a theater.⁶⁰ But *res universitatis* expanded to include other forms of collective ownership, such as a guild or corporation.⁶¹ Perhaps closest to the exclusive side of the continuum, one might delineate *res nullius*: “things that are not by their nature nonexclusive; they have simply not yet been appropriated by anyone.”⁶² In this category the Romans placed things that might be reduced to private ownership but had not yet been so appropriated, such as unsettled land, and fish and wild game.⁶³ Consider then, finally at the opposite end, exclusive property rights, known by the Romans as *Res privatae*, which consisted of things capable of being possessed by an individual or family.

	Non-Exclusive					Exclusive				
<i>Res Divini Juris</i>	→	<i>Res Communes</i>	→	<i>Res Publicae</i>	→	<i>Res Universitatis</i>	→	<i>Res Nullius</i>	→	<i>Res Privatae</i>
Things not Owned by Anyone as Sacred, Holy, Religious		Things Open to All by their Nature Air - Water		Things Belonging to the Public and Open to the Public by Operation of Law		Property Belonging to a Private Group in its Corporate Capacity		Things Belonging to No One but Not by their Nature Non-Exclusive		Privately Held Lands Capable of being Possessed by an Individual or Family

55. *Id.* at 93.

56. See Hardin, *supra* note 25; see also *supra* Part II (A).

57. Rose, *supra* note 49, at 96.

58. *Id.*

59. *Id.* at 105.

60. *Id.*

61. *Id.*

62. *Id.* at 92.

63. Rose, *supra* note 49, at 92.

III. A COMMON RESPONSE

By understanding the range of options, a more thoughtful response to global climate change may be fashioned. Building on the continuum set forth above, I seek to place on the Roman framework the modern notions of public and private property. As will be discussed, I seek only to structure a loose framework, as many of the lines of demarcation between these interests are blurred, and as will be noted, some disagree about the proper categorization of certain types of property.

Res divini juris: Some would argue that vast areas of wilderness, the oceans, certain tribal lands, traditional knowledge, ancient forests, and even biodiversity and seed-saving, should sit outside of property interests completely and should be categorized as “unownable.” But although these things may be determined to be “unownable,” notwithstanding the ability to physically appropriate them, these things of the divine jurisdiction, nevertheless, require governance and dominion.⁶⁴ Some belief system, custom, or law will be required to protect even the things of divine jurisdiction.⁶⁵

Res communes: Most would agree that air, flowing streams, and oceans are classic open access commons, by their very non-exclusive nature, as they are not readily susceptible to appropriation. Historically, open grazing lands were also considered *res communes*, open to all. The overuse/misuse of such open access commons has led to efforts to regulate use of the commons, or to create private property rights in the commons. As mentioned, the commons is not readily divisible into interests in private property.⁶⁶ To create such rights is to make political decisions about the levels of acceptable usage of the particular right being created. Attempts to privatize the commons take many forms, perhaps the most vogue at present is the tradable environmental allowance (TEA).⁶⁷ Free market advocates propose that, once a market is created in the rights, the market will operate to maximize the utility of the resource. To state that such a scheme is not somehow protectionist is to misunderstand the level of collective decision-making incident in determining the design of the rights. The current fashion favoring cap-and-trade carbon emissions schemes tell the story by its name. A cap must first be designed, then the rights distributed. That distribution scheme must also be collectively determined. Will the permits be sold at a pre-determined price? Auctioned?

64. See *Genesis* 1: 27-30 (Revised Standard Version).

65. See *infra* Part IV.

66. See discussion *supra* Part II.

67. See generally, Carol M. Rose, *Expanding the Choices for the Global Commons: Comparing Newfangled Tradable Allowance Schemes to Old-Fashioned Common Property Regimes*, 10 *DUKE ENVTL. L. & POL'Y F.* 45 (1999) (comparing common property management regimes with tradable pollution permits such as TEAs); see also Sinden, *supra* note 48.

Distributed without consideration? Based upon existing levels of emissions? Many collective decisions must be made before the free market can work its magic in the free trade of the rights. The use of the resource is therefore not limited by the market; the limitation is already created before going to market. A predetermined scarcity is programmed into the design.

Res publicae: Certainly most roads, bridges, harbors and waterways are publicly owned and afford open access. The use of those resources is governed by social norms, custom, and law. Over-use pressures, such as road congestion, lead to limitations on non-exclusivity, such as tolls and restrictions. Tolls present a type of market solution affording the agent whose travel offers him the highest utility the opportunity to pay for the privilege, but the market does not set the price. The toll is prescribed in advance. Restrictions are a regulatory solution, such as requiring vehicles to carry at least three passengers to travel on a certain roadway. Oceans and fisheries have also been categorized as *res publicae* because they are considered non-exclusive, open-access resources. Yet, ocean waters have been delineated as under the jurisdiction of adjacent territories, i.e., territorial waters, providing legal jurisdiction to govern. Fisheries suffering from over-fishing are subject to regulation.⁶⁸ Other responses include creating limited exclusive rights, such as issuing permits to create caps or retiring permits, as compulsory or voluntary action, coupled with reimbursements for relinquishing permits.⁶⁹ Limits on the privatization of such natural resources have been proposed using theories of the modern public trust.⁷⁰

Res universitatis: The traditional notion of property owned by a municipality, as in a university or hospital, contemplates public ownership for public groups, but *res universitatis* may also be used to describe common ownership by cooperative individuals. Elinor Ostrom's work explains that individuals agreeing to share a common resource can create internal norms for the successful management of the resource.⁷¹ One proposal for owning the air in common is the Sky Trust. Similar to the public trust notion, the Sky Trust would administer the rights to emit noxious gases, determine limits, and manage the resource.⁷²

68. See, e.g., 4 VA. ADMIN CODE § 20-880-10 et. seq. (2008), available at <http://www.mrc.state.va.us/Regulations/FR880.shtm> (describing the limitations on blue crab harvest in Virginia's Chesapeake Bay).

69. See generally A. Scott, *Introducing Property in Fishery Management*, 1999 PROCEEDINGS OF THE FISH RIGHTS 99 CONFERENCE 1, available at <http://www.fao.org/docrep/003/x7579e/x7579e00.HTM>.

70. See generally BONNIE J. MCCAY, OYSTER WARS AND THE PUBLIC TRUST: PROPERTY, LAW, AND ECOLOGY IN NEW JERSEY HISTORY (1998).

71. See OSTROM, *supra* note 46.

72. See PETER BARNES, WHO OWNS THE SKY?: OUR COMMON ASSETS AND THE FUTURE OF CAPITALISM (2001).

Res nullius: Encompassing wilderness, fish, and game not yet prescribed, little remains of the Earth’s resources that sit in a null set. Fish and game may still fit in this category, but we have seen the regulation of large-scale fisheries, and local jurisdictions have enforced limits on hunting and fishing, even on private lands.⁷³

Res privatae: Private property rights may be viewed as complete freedom in the use of privately, exclusively owned property. But while some ownership of property permits completely unconstrained uses of the property, private property may also be subject to restrictions. Those restrictions may come in the form of positive regulation such as zoning that proscribes certain uses. Other restrictions may be voluntary, such as the grant of a conservation easement limiting development of private lands.⁷⁴ Private property is not only vested in individuals and families, but is also vested in corporate interests as well.

From this exercise, it is clear that the proposed dichotomy opposing government regulation to free-market actors is misplaced. The range of choices along a spectrum between the two includes a quasi-exclusive hybrid that has taken a number of forms. Further, the overlap along the spectrum is considerable suggesting that something other than an economic factor will be required to determine the most appropriate responses to the environmental harms that include global climate change.

		Non-Exclusive				Exclusive
	<i>Res Divini Juris</i>	<i>Res Communes</i>	<i>Res Publicae</i>	<i>Res Universitatis</i>	<i>Res Nullius</i>	<i>Res Privatae</i>
Regulation	Governance by belief system, custom, or law	Clean Air Act; Clean Water Act	HOV lanes; restrictions on weight; condition of vehicle (inspections)		Licenses and permits to hunt and fish; off-limits marine refuges	Privately held lands with legislated prohibitions
Hybrid		Tradeable Environmental Allowances (TEA); Cap and Trade; Sky Trust	Tolls	Public trust	Transferrable fisheries quotas	

73. See, e.g., Virginia Department of Game and Inland Fisheries, <http://www.dgif.virginia.gov/hunting/regulations/licenses.asp> (requiring licenses and permits to hunt and fish in Virginia, as well as regulations creating “seasons” for the hunting and fishing of game and fish) (last visited May 2, 2009).

74. See Eleanor Weston Brown, *Transferable Conservation Easement Tax Credits...The Virginia Experience*, in 6 CRITICAL ISSUES IN ENVIRONMENTAL TAXATION: INTERNATIONAL AND COMPARATIVE PERSPECTIVES, 681 (Jacqueline Cottrell, et al. eds., 2009)(detailing the success of transferable conservation easement tax credits in meeting land preservation goals).

Privatization	Riparian rights	Private roads with tolls	Cooperatives; corporations	Privately held lands with economic incentives (conservation easement)
---------------	-----------------	-----------------------------	-------------------------------	---

IV. A COMMON MORALITY: THE COMMON GOOD

Global climate change cannot be redressed by the implementation of any one of the proposed strategies alone. The merit of any potential solution must be evaluated by reference to some framework for making decisions. Given the current popularity of *laissez faire* economics, it is no surprise that proponents of Law and Economics suggest the market will correct whatever is presented, and the law will follow to support and enforce it. The increasing shift toward privatization of things which humanity once thought irreducible to exclusive ownership, reflects, at best, a misplaced confidence in imperfect markets, and at worst, an exercise by the powerful to further concentrate wealth and control of precious global resources. Private property ownership was once viewed as being in the hands of the individual or the family.⁷⁵ Now, much private wealth is concentrated in large, international corporate interests. Such concentrations of power have led to large-scale corporate enterprise and control of major sectors of the society. Farming is agri-business. Fishing is aqua-culture. The consolidations in the financial sector have led to large-scale mismanagement of financial resources. The big-box retailer offers cheap goods without account for the exploitation of those who produce the products sold. The relationship of producer to consumer is distant and impersonal. The over-consumptive society relies on ever-expanding markets and increased consumption to fuel its habit for continued growth.

As stated here, the dialogue regarding response to global climate change speaks in terms of efficient management of resources, marginal utility, and optimization of wealth—all economic terms. The dominant legal thought that nature is merely “the amoral scene of Darwinian struggle”⁷⁶ disregards the widely-held intuition that humans have a moral obligation to protect nature.⁷⁷ Framing the question as a battle between government regulation of resources and free-market privatization of resources, as enumerated above, wrongly focuses the debate on nature as a material resource. No doubt, nature is the source of economically important resources, but focusing the debate on material wealth alone misses a critical component of man’s relationship with

75. See discussion of *res privatae supra* at Part III.

76. RICHARD A. POSNER, *THE PROBLEMS OF JURISPRUDENCE* 235 (1990).

77. Holly Doremus, *The Rhetoric and Reality of Nature Protection: Toward a New Discourse*, 57 WASH. & LEE L. REV. 11, 48 (2000).

nature. Man's relationship with nature is more than just a cost-benefit analysis of the maximization of the goods nature provides. "What is needed to foster further progress in nature protection is not a better explanation of the economic value of nature, but a better explanation of why nature should be protected when economics points in the other direction."⁷⁸

In shifting from the dominant economic framework to a new moral framework within which to design and implement responses to environmental degradation, especially those raised by global climate change, I propose beginning with the widely-held intuition that man has an ethical or moral duty to protect nature. Holly Doremus, in asserting that rhetoric has a significant role in nature discourse, argues that rhetoric must shift from a material discourse to one of an esthetic and an ethical discourse.⁷⁹ That shift responds to man's natural intuition toward stewardship of the Earth. Doremus cites a number of surveys where individuals espouse a moral obligation to preserve nature.⁸⁰ Many writers have noted the need to return to a direct relationship with nature as incident to human health and happiness.⁸¹

Fashioning a legal response to the management of global natural resources requires an examination of the purpose of law. The purpose of law, as articulated by Thomas Aquinas in the *Treatise on Law*, is the common good.⁸² Law must be based on reason, and practical reason begins with the pursuit of the good. The pursuit of the good for humans is happiness.⁸³

Now the first principle in practical matters, which are the object of the practical reason, is the last end; and the last end of human life is happiness or beatitude.... Consequently the law must regard principally the relationship to happiness. Moreover, since every part is ordered to the whole, as imperfect to perfect, and since one man is a part of the perfect community, the law must properly look to the relationship to universal happiness. Hence the Philosopher, in the above definition of legal matters mentions both happiness and the body politic; for he says that "we call those legal matters just which are adapted to produce and preserve happiness and its parts for the body politic," since the state is a perfect community Consequently, since the law is chiefly ordered to the common good, any other precept in regard to some individual

78. *Id.* at 65.

79. *Id.* at 47-49.

80. *Id.* at 48, n.222-24, 52 n.241.

81. For one profound example, see RICHARD LOUV, *LAST CHILD IN THE WOODS: SAVING OUR CHILDREN FROM NATURE-DEFICIT DISORDER* (2005).

82. SAINT THOMAS AQUINAS, *THE SUMMA THEOLOGICA* 206 (Daniel J. Sullivan ed. 1980) (1272).

83. Happiness may be defined as "a whole life well-lived in accordance with complete virtue and accompanied by at least a minimum sufficiency of external goods." Thomas C. Folsom, *Evaluating Supernatural Law: An Inquiry into the Health of Nations (The Restatement of the Obvious, Part II)*, 21 REGENT U. L. REV. 105, app. A at 173 (2008).

work, must be empty of the nature of a law, save in so far as it regards the common good. Therefore, every law is ordered to the common good.⁸⁴

In considering a moral framework for the design of laws to respond to global climate change, I draw from Aquinas, chiefly, the focus on the common good or happiness of the community. I propose here that the natural desire to promote the common good is best evaluated at the local, community level. Elinor Ostrom's work provides evidence of the success of community-based solutions.⁸⁵ Many community-based initiatives are taking hold.⁸⁶ Anecdotal evidence suggests locally determined solutions are gaining force, while attempts at global solutions stall. Kirsten Engel and Scott Saleska take issue with the "idealized" tragedy of the commons model as requiring a global solution to a global problem, and provide evidence of successful unilateral sub-global action.⁸⁷ Jamison Colburn also argues for localized solutions, relying on Catholic social thought's principals of solidarity and subsidiarity, suggesting that justice requires that such decisions (in his case, as applied to the regulation of the built environment) be made at the most subordinate level.⁸⁸

CONCLUSION

My aim in this work is to highlight the failure of a singular welfare economics approach to design responses to global climate change. The debate between advocates for regulation and so-called free market environmentalists frames the discussion as one of wealth maximization. The discussion is ultimately about deciding acceptable levels of exploitation without regard to principals of justice and virtue. My purpose here is to suggest evidence of the utility of a natural law approach to solving problems of our use of natural resources, and to invite further work. I propose that the continuum of solutions drawn in Part III presents only part of the framework for addressing global climate change. And while I concede that a moral intuition or moral basis is also only a partial explanation, I suggest that an evaluation of the two, in combination, by an interested community provides an appropriate framework for determining what is ultimately in the common good.

84. AQUINAS, *supra* note 82, at 206.

85. See OSTROM, *supra* note 46 and accompanying text.

86. See, e.g., MICHAEL H. SHUMAN, *THE SMALL-MART REVOLUTION: HOW LOCAL BUSINESSES ARE BEATING THE GLOBAL COMPETITION* (2006).

87. See Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 *ECOLOGY L.Q.* 183, 193-94 (2005).

88. See Jamison E. Colburn, *Solidarity and Subsidiarity in a Changing Climate: Green Building as Legal and Moral Obligations*, 5 *UNIV. OF ST. THOMAS L.J.* 232 (2008).