Why Environmental Policies Fail

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with Juliana Okulski

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WHY ENVIRONMENTAL POLICIES FAIL

This book is for those who are not just interested in the ways humans have harmfully altered their environment, but instead wish to learn why the many governmental policies in place to curb such behavior have been unsuccessful. Since humans began to exploit natural resources for their own economic ends, we have ignored a central principle: nature and humans are not separate, but are a unified, interconnected system in which neither is superior to the other. Policy must reflect this reality. We failed to follow this principle in exploiting natural capital without expecting to pay any price, and in hurriedly adopting environmental laws and policies that reflected how we wanted nature to work instead of how it does work. This study relies on more accurate models for how nature works and humans behave. These models suggest that environmental laws should be consistent with the laws of nature.

JAN LAITOS holds the John A. Carver, Jr. Chair in Environmental and Natural Resources Law at the University of Denver Sturm College of Law. He has previously published natural resources and environmental law books and treatises with all the major law publishers in the United States as well as several in Europe. He has taught and lectured throughout America as well as in Spain, Hungary, Argentina, Ireland, Turkey, and Scotland. He is a graduate of Yale College and the University of Colorado Law School. He has a Doctorate in American Legal History from the University of Wisconsin Law School.

To
Erik Jan Peter Laitos

May you live in a world where you and your
environment are in harmony

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A book of this scope is due to the insight, inspiration, support, and encouragement of many people. I would like here to acknowledge some of those who helped contribute to the ideas and arguments set forth in many of the chapters. Certain people directly educated me in matters about which I had a thin background. Either directly or metaphorically, they sat me down and "taught" me the science behind our natural environment. Or they wrote about environmental law and policy, and about how policy has too often fallen short, or how it has been endlessly tinkered with in attempts to make it more effective. Some of these sources have written about concepts, usually grounded in science, that I have relied on to make proposals about how better to shape workable environmental policy. Some have written groundbreaking studies about humans and their environmental surroundings, pointing out how law and policy have often conspired to facilitate anthropomorphic alteration of Nature, natural resources, and natural systems. Others have simply directly encouraged me, or have made it possible for me to acquire the best thinking out there on this important topic, and to analyze just why some of our best ideas about affecting our natural world have not been able to slow the pace of environmental damage. To each of them, listed here, and cited elsewhere in the book, I am grateful. Although I am solely responsible for the contents of this book, and although there is only one "author," that author is indebted to a number of scholars, thinkers, scientists, and truly creative individuals who helped educate and inspire in countless ways.

First and foremost, I must acknowledge and express my gratitude to Juliana Okulski. In many ways, this book is as much her idea, her product, as it is mine. She was the one who first introduced me to the importance of science – particularly biology and the workings of Earth's natural systems – as an important element in environmental policy that too often has been underplayed by policymakers. She also introduced me to how modern ecologists perceive Nature, and humans' effect on Nature, and how Nature operates. She also alerted me to the role humans play in affecting

the interconnected human-Nature unit, termed a Social Ecological System. She was the first one who urged me to explore the underlying explanations for policy ineffectiveness, instead of simply focusing on the effects of policy disappointments and then proposing some grandiose solution. She helped me understand how policy models, when flawed, cause policy failures, and how many of the models that we have been using are flawed because they are too often not based on good science. This book is a testament to all of her hard work, and infinite patience in me. She has been, in effect, my copilot on this journey.

Several people set in motion events that permitted me to think through, organize, propose, and write this book. I must acknowledge the support and confidence in me by John Berger, Senior Editor at Cambridge University Press. John too has been patient with me, and had confidence in the idea of a book that dealt with the "why" question of environmental policy failures. I am grateful that he waited for me to hatch the concept, and stood by me when I first raised with him the central idea behind the book. Dean Marty Katz of the University of Denver Sturm College of Law was also supportive. He granted me a timely research leave in order to allow me the time to actually sit down and write the book. Micah Desaire, part of the support staff at my law school, labored through draft after draft of the book, mastering without complaint topics far from traditional legal scholarship, such as complex adaptive systems management, behavioral economics, the science of symmetry, and Einstein's "unification" principle, extending even to the underlying unity of humans and Nature originally espoused by Taoism.

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Eric Biber of the University of California Law School at Berkeley have engaged in scholarship that I found incredibly useful – indirectly helping me in their various articles to test my ideas against their well-thought-through arguments about environmental policy. Professor Dan Tarlock from IIT Chicago Kent College of Law was and is a scholar who long ago saw that environmental policies were too eager to return the planet to some kind of ideal natural "baseline" that in fact never existed. I have been influenced by his thinking. Professor Mary Christina Wood from the University of Oregon Law School and Professor Michael Blumm from the Lewis and Clark Law School are two nationally leading advocates of the public trust doctrine as potential paradigm-shifting environmental policy, and I have cited and referred to their influential thinking. Professor Shi-Ling Hsu has also been influential with respect to his important scholarship in the field of resource economics.

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Other researchers have written on disparate topics that were instrumental in some of the conclusions and proposals offered in the book. Mario Livio and Frank Wilczek have written extensively and eloquently on the Law of Symmetry. Their scholarship and explanations of the ubiquitousness of symmetry in Nature helped persuade me that symmetry needs to

underscore any environmental policy designed to address Nature. Mario Livio's important book – The Equation That Couldn't Be Solved (2005) – was a catalyst for much of my thinking laid out in Chapter 9 of this book. Similarly, the earlier writings of the late Willard Hurst, one of America's most outstanding legal historians, helped me, and many others, see how laws themselves could contribute to and even encourage the eradication of natural goods and ecosystem services. I have tried to acknowledge the influence Hurst has had on my thinking, particularly in Chapter 2.

Finally, I wish to acknowledge that much of what appears in the first two chapters first appeared in articles I have had published elsewhere. These are the *Environmental Law Reporter*, Volume 45, No. 5 (May 2015) (coauthored with Juliana Okulski) (Chapter 1), and the *William and Mary Environmental Law and Policy Review*, Volume 39, Issue 1 (Fall 2014) (coauthored with Lauren J. Wolongevicz) (Chapter 2).

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Prologue

This is a book about environmental policy, and how this policy, in its many forms, has largely failed to prevent a human-caused deterioration of the Earth's natural systems. There are three storylines. First, there is an economic system, embraced by most societies on this planet, that rewards and encourages anthropogenic growth and development. Second, there are the Earth's natural systems, ranging from stock resources like soil and minerals, to renewable resources like water and fisheries and trees, to environmental sinks like the atmosphere and the oceans, to ecosystems. These have been the preconditions to capitalist production. These natural systems have either been "fuels" used and exploited by humans to achieve economic growth, or a seemingly limitless dumping ground for our wastes and by-products of resource development. Third, when human societies began to realize that economic growth had overused or destroyed natural resources, and failed to internalize the environmental social costs of pollution and waste disposal, they turned to legal-governmental institutions. These institutions were tasked with devising environmental policy in order to address the disturbing consequences of our unchecked reliance on earth systems and natural resources for economic success.

The focus of this book is this third storyline – the saga of various proposed and tried environmental policies and their disappointing or failed record. The book reviews the history of these policies and critiques their outcome. It then attempts to explain *why* these good-faith attempts at environmental policy have all failed to do what they were intended to do – mitigate anthropogenic changes to natural systems and restore environmental conditions on this planet to the point where humans can continue to survive and even thrive. The book then proposes a new policy paradigm that might bring about a happy ending to this third storyline. This proposed policy will hopefully have a better chance of success than past and present policies because it seeks to conform to a universal truth that is consistently followed by Nature on Earth, as well as the larger forces of the Universe.

But before we consider the failed policies, we should have as our starting points the first and second storylines, because they caused the initial need for environmental policy. It was an anthropocentric choice to create societies that coveted a particular kind of growth, economic growth, that in turn put growing pressures on the natural world. There have historically been close links between social economic systems and the natural world. However, human activities based on economic drivers have so expanded recently that the planet's natural environment is for the first time being altered not by natural forces, such as glacial epochs or asteroids or volcanoes, but by purely anthropogenic actions.

A. The Economic System

The chief "driver" behind these human activities affecting our environmental surroundings has been a generally shared belief among organized societies and nation-states about the benefits of economic development and capitalistic production and material accumulation of goods and wealth. This resource *use* is elevated over collective stewardship and conservation of natural resources and environmental goods and systems. Faith in economic growth has meant that the natural world around humans – trees, minerals, land, water, air – has been seen as a means of achieving human-centric ends such as population growth and urbanization, higher gross domestic product, increasing personal wealth, more carbon-based energy use, and competitive market advantage.[1] As a result, this natural world has been overused, degraded, polluted, poisoned, and sometimes destroyed, because prior to the advent of environmental policy, Nature had no voice and no legal protection. It was just there to be taken, or to be used as an endless waste dump, usually free of charge.[2] The dominant worldview that emerged from Judeo-Christian and Greek thought characterized Nature as nothing other than an array of seemingly limitless raw commodities, to be exploited, used, and changed to benefit people. Nature became commodified; land and natural resources belonged to humans.

This emphasis on economic, material prosperity, fueled by resource use, overuse, and abuse, has been grounded in several near-irrebutable

[1] Gar Alperovitz, America Beyond Capitalism: Reclaiming Our Wealth, Our Liberty, and Our Democracy (2d ed. 2011); Cormac Cullinan, Wild Law: A Manifesto for Earth Justice (2d ed. 2011); Charles Derber, Greed to Green: Solving Climate Change and Remaking the Economy (2010); William Greider, The Soul of Capitalism: Opening Paths to a Moral Economy (2003).

[2] Elizabeth Kolbert, Field Notes From a Catastrophe: Man, Nature, and Climate Change (2006); David Korten, The Great Turning From Empire to Earth Community (2006).

presumptions. One has been the presumption that the present is more valuable than the future. We can phrase this principle using a scientific example. If we can benefit today by cheaply or freely emitting greenhouse gases that will adversely affect global temperatures fifty years from now, we should not sacrifice now, by reducing reliance on cheap carbon-based fuels, to gain benefits or to avoid costs fifty years from now. Or to put the presumption even more succinctly, we prefer instant, real-time present gratification, even if by doing so we are sacrificing the benefits that could be experienced by others in the (not so) distant future.

Most legal policies, even environmental policies, are skewed toward the present while marginalizing the future. For example, it is quite difficult for anti-pollution rules to reflect in present emission control rules the damage that continual emissions will cause later. It is difficult because policymakers have a hard time determining how much future pollution mitigation is worth to us today.[3] And policymakers have an even more difficult political task in convincing constituents that a (relatively) distant future in which there is less pollution should be preferred over present needs that are satisfied by polluting enterprises.[4] This reality has led environmental policy, affected by economic growth pressures, to discount the value of future benefits while encouraging choices that yield present benefits.

Another presumption justifying a close connection between economic systems and the natural world has been the Myth of Inexhaustible and Unpollutable Resources. For centuries, humans believed that the Earth's natural bounty was so large and plentiful as to be, in effect, infinite. No matter how many trees were cut down, or fish caught, or oil pumped out of the earth, or water diverted, the assumption was that there would always be more of the needed resource available for both present and future use. A parallel belief arose about the three great environmental "sinks" that humans used as waste receptacles: the planet's atmosphere, the world's water sources, particularly the oceans, and the soils and dirt under the earth's surface. Each was so vast that none could ever be permanently impaired by pollution.

A textbook example of the Myth of Inexhaustible Resources is the case of Easter Island. The Easter Island "natives" first arrived on an island that

[3] See, e.g., Laurie T. Johnson & Chris Hope, The Social Cost of Carbon in U.S. Regulatory Impact Analyses: An Introduction and Critique, 2 Journal of Environmental Studies and Sciences 205 (Sept. 2012).

[4] Jacob Hacker and Paul Pierson, American Amnesia (2016); Daniel A. Farber & Paul A. Hemmersbaugh, The Shadow of the Future: Discount Rates, Later Generations, and the Environment, 46 Vanderbilt L. Rev. 267 (1993).

supported a healthy, subtropical forest whose trees were suitable for building homes and seaworthy canoes so that the island inhabitants could live off a steady diet of ocean porpoise. The trees could also be used to make rope latticing so that the great stone Easter Island statues could be moved from the rock quarries to their positions overlooking the ocean. Because of the Myth of Inexhaustible Resources and the revealed time preference where the present benefits of tree harvesting outweighed future benefits of forest conservation, the island's forests were eventually decimated and the last tree was finally cut down. Deforestation caused the quality of life for the Easter Islanders to plummet, and the society there collapsed.[5] The key natural resource on Easter Island was not inexhaustible, and when it was gone, it would never return there. The notion that there was always one more tree to cut down turned out to be a myth.[6]

The parallel Myth of Unpollutable Resources was based on the sheer size and power of the Earth's atmosphere, oceans, waterways, and land. There was just so much there on this planet that it seemed inconceivable that puny humans could ever have much of an effect on them, or their functioning, no matter how many gigatons of waste we put in them. And not only were these sinks unimaginably large; there was "bad science" that for years held that they could not be polluted. For example, it took a long time to refute the hoary canard that "running water purifies itself to drinking water quality" within a stated distance.[7] Indeed, throughout the nineteenth century, air pollution was not feared, but considered a sign of economic progress; smokestacks belching black smoke were sought after for their symbolic value connoting a vibrant, thriving community.[8]

Another presumption was that the Earth's natural resources were there for a reason, which was for humans to exploit, develop, and use them. Moreover, much of American legal activity during the eighteenth and nineteenth centuries sought to further this larger purpose by devising ways to transfer natural resources – agricultural land, water, timber, mineral deposits, and energy resources – from public, state ownership to private control. That transfer was necessary so that these resources could be extracted and used, through an economic system based on private

[5] See Jared Diamond, Collapse: How Societies Choose to Fail or Succeed (2005).

[6] The same Myth of Inexhaustible Resources drove the deforestation of the vast virgin forests of Wisconsin throughout the nineteenth century. J. Willard Hurst, Law and Economic Growth: The Legal History of the Lumber Industry in Wisconsin, 1836–1915 (1964).

[7] U.S. Food and Drug Administration, PMO 2007: Appendix D-Standards for Water Sources at 10 ("the old saying ... is false").

[8] Jan Laitos, Legal Institutions and Pollution: Some Intersections Between Law and History, 15 Natural Resources Journal 423 (1975).

incentives and market transactions. In other words, legal policy assisted in creating the close link between the private economic system and the natural world.[9]

B. The Earth System

When the humans on this planet pursue economic growth requiring natural resource use and development, there will be effects on the Earth's natural systems.[10] There will be, and there has been, intensified use of Earth's resources, higher levels of pollution, loss of ecosystems, natural capital, and biodiversity, and changes to the world's oceans. There has been an anthropogenic alteration of the planet's biosphere, that thin layer on this Earth occupied by living organisms on the surface, atmosphere, and hydrosphere. Our use of natural resources has grown so dramatically that we are endangering the key environmental systems that we rely on. The Earth possesses the only known biosphere in the universe, and its stability and suitability for human life is now threatened.[11]

The most notorious and well publicized of these changes to the Earth system involves the phenomenal amount of atmospheric emissions of greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, which have caused climate change and global warming. The United Nations Intergovernmental Panel on Climate Change (IPCC) predicts that without significant mitigation of greenhouse gas emissions, the world will face a mean surface air temperature increase of 3°C in less than two decades.[12] Worse, these predicted temperature increases could be irreversible.[13] Already these changes in the concentrations of greenhouse gas have caused unprecedented record heat; loss of forests, freshwater systems,

[9] Paul W. Gates, History of Public Land Law Development (1968); J. Willard Hurst, Law and Conditions of Freedom in the Nineteenth Century United States (1956); Harry N. Scheiber, Ohio Canal Era: A Case Study of Government and the Economy, 1820–1861 (1969); Gary Lidecap, Economic Variables and the Development of the Law: The Case of Western Mineral Rights, 38 J. of Economic History 338 (Jun. 1978).

[10] Peter Victor, Questioning Economic Growth, 468 Nature 370 (Nov. 2010).

[11] World Wildlife Fund for Nature, Living Planet Report 2016; Bill McKibben, Earth: Making a Life on a Tough New Planet (2010).

[12] Intergovernmental Panel on Climate Change, www.ipcc.ch; Robin Kundis Craig & Stephen R. Miller, Contemporary Issues in Climate Change Law and Policy: Essays Inspired by the IPCC (2016).

[13] Patrick J. Egan & Megan Mullin, Recent Improvement and Projected Worsening of Weather in the United States, 532 Nature 357 (Apr. 2016); Kirstin Dow & Thomas A. Downing, The Atlas of Climate Change: Mapping the World's Greatest Challenge 40 (3d ed. 2011).