CLI RECOMMENDATION NO. 1

Define and Develop a Law of the Ecological Commons for Present and Future Generations*

In market economies that have long valorized private property rights, markets, and economic growth as preeminent values, *the commons* is a seemingly archaic concept. Yet a closer look reveals that it is not just an artifact of medieval life and English history. From time immemorial, it has been an abiding social system for managing collective resources. Even in modern times, the commons flourishes in the shadow of market culture, largely ignored by economists, politicians, and policy experts.

Yet as countless examples from developing countries, the Internet, natural ecosystems, and creative communities demonstrate, the commons is very much alive. It is an eminently viable if not robust system by which communities manage shared resources. Contrary to conventional understandings that regard markets and the state as the only significant vectors of power and governance, the commons is in fact a third significant realm for generating value and managing resources.

A commons arises whenever a community, from local to global, decides that it wants to manage a resource in a communal manner; the resulting commons consists of both the resource and the activities and relationships that enable communal management. A commons can arise around a fishery or an irrigation source, for example, or around civic institutions such as public libraries or government-financed drug research. Scientists typically create a commons of specialized knowledge as a way to advance their discipline, just as online amateurs participating in Wikipedia have created and manage an unprecedented commons of millions of reference articles with web links. Indigenous peoples share a commons of ethnobotanical knowledge and culture.

But what, exactly, is "the commons"?

We take our cue from the 2003 Tomales Bay Institute *Report on The State of the Commons.*[1] Generically, it says, "the commons" embraces "all the creations of nature and society that we inherit jointly and freely, and hold in trust for future generations."[2] It thus encompasses common assets,[3] common property,[4] and common wealth.[5]

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[1] The State of the Commons: Report to Owners from the Tomales Bay Institute (co-authored by Peter Barnes, Jonathan Rowe & David Bollier). The Tomales Bay Institute has been renamed "On the Commons."

[2] *Id*. at 3.

[3] "Common assets are those parts of the commons that have a value in the market. Radio airwaves are common asset, as are timber and minerals on public lands. So, increasingly, are air and water." *Id*.

[4] "Common property refers to a class of human-made rights that lies somewhere between private property and state property. Examples include conservation easements held by land trusts, Alaskans' right to dividends from the Alaska Permanent Fund, and everyone's right to waterfront access." *Id*.

[5] "Common wealth refers to the monetary and non-monetary value of the commons in supporting life and well-being. Like stockholders' equity in a corporation, it may increase or decrease from year to year depending on how well the commons is managed." *Id*.

In this recommendation, we focus on those elements of the commons that are nature-based or nature-derived, including the atmosphere, outer space, the oceans, fresh water systems, the biosphere, wilderness areas, public spaces, roads, parks, seeds, wildlife, the genome, the sound of silence.[6] Sometimes managed by and for a discrete roster of member-participants, sometimes by government or government-sanctioned bodies for everyone on a non-discriminatory basis, these commons differ as a class from cultural commons or civic commons because they tend to be finite—degradable and depletable. Unlike cultural commons on the Internet or commons of scientific knowledge in which the greater the participation makes greater the value generated ("the more, the merrier"), commons of nature can be used up; one person's use can preclude another's use,[7] even to the point of extinction.

Nowhere is this distinction more evident and urgent to understand than in the context of climate change where some of the commons of nature being degraded and depleted are those that are required for our very survival. A critical challenge for our times, therefore, is to learn how the commons, a system of resource management important to human well-being and that of other living things, can be accepted and used to ecological advantage even on the global plane and in the context of severe threats such as climate change.

While much of the value and power associated with commons both historically and contemporaneously is extra-governmental, and while not disputing the vital role—indeed, responsibility—of commons participants (the commoners) to help safeguard the assets, property, and wealth of any given commons at any given place or time, it is essential for government and intergovernmental institutions to be centrally involved in facilitating and protecting ecological commons of global consequence and particularly so when they are severely threatened.

Regrettably, the present world order does not boast decisive commoner (civil society) participation in global policy- and decision-making beyond intelligence-serving, recommendation, and advocacy functions.[8] The United Nations and emerging intergovernmental regional institutions notwithstanding, our world remains dependent for its governance on a rivalrous interstate system born at Westphalia in 1648 in which national governments, separately and together, play the dominant policy- and decision-making role in transnational and planetary affairs. There are at present no other institutions of governance that are capable of meeting the unprecedented threats to our planet's ecosystems that now present themselves as a result of global warming and climate change, and not even they can assure success in time to avert disaster.

A. A Brief History of the Commons

Historically, commons of nature have revolved around fairly discrete and local resources—a lake, a fishery, a forest, a wild herd, a sacred mountain. Not surprisingly, therefore, governance of a commons has varied not just by the nature of the resource, but by the specific community that manages it. The specific culture, geography, history, and other variables that define a community affect the "social physics" of a given commons management regime, for there is no "standard ideal" for a commons in the way that supply/demand equilibrium is the universal ideal for markets

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[6] *See, e.g.*, Ivan Illich, *Silence is a Commons* (remarks at the Asahi Symposium on Science and Man: The Computer-managed Society," Tokyo, Mar. 21, 1982"), *available at* http://www.preservenet.com/theory/Illich/Silence.html.

[7] This distinction is analyzed at length by Carol Rose "The Comedy of the Commons: Custom, Commerce and Inherently Public Property," *in Property and Persuasion: Essays on the History, Theory and Rhetoric of Ownership* 105–62 (1994).

[8] For a more participatory role for civil society in the international system, see, *e.g.*, Andrew L. Strauss, *Overcoming the Dysfunction of the Bifurcated Global System: The Promise of a Peoples Assembly*, 9 Transnat'l L. & Contemp. Probs. 489 (1999). *See also* Mary H. Kaldor *The Ideas of 1989: The Origins of the Concept of Global Civil Society in id.* at 475.

in neoclassical economics. While scholars have identified important design principles of managing commons,[9] one commons is likely to function in very different, idiosyncratic ways than another commons.

As a matter of history and practice, "common rights are embedded in a particular ecology with its local husbandry," writes historian Peter Linebaugh.[10] "For commoners, the expression 'law of the land' . . . does not refer to the will of the sovereign. Commoners think first not of title deeds, but of human deeds: how will this land be tilled? . . . You might call it an attitude. . . . [C]ommoning is embedded in a labor process; it inheres in a particular praxis of field, upland, forest, mash, coast."[11] It is collective in nature, "independent of the temporality of the law and state," and "goes deep into human history."[12]

In recent years, the term "commons" has taken on more expansive meanings to denote resources that are legally shared and administered by the state. Increasingly, the term is applied to national and global resources that morally or legally belong to everyone. In the United States, for example, some commons may consist of public property that is shared through equal legal ownership and managed through government stewardship on behalf of all citizens. Others, such as shorelines, are shared by legal rights of equal or open access.

The common denominator among the diverse commons, it bears emphasis, is their shared nature and the way they provide an infrastructure of social relationships and institutions that makes them valuable, sometimes more than economists and lawyers recognize. The resulting commons are not just entities that perform important economic work; they are structures that order people's lives and shape their identities. Members of a commons have a different, more personal and enduring relationship to a resource than, for example, consumers who are interested chiefly in transactional bargains. In this sense, because so many particularistic variables come into play and evolve over time, the commons is a more expansive and complicated paradigm than conventional economics and law are prone to allow.

The mother of all commons is, of course, Earth itself. The Earth belongs to all of us. It is our home—our only home at present—and all of us depend on it to live. As stated in the United Nations 2005 Millennium Ecosystem Assessment: "Everyone in the world depends completely on Earth's ecosystems and the services they provide, such as food, water, disease management, climate regulation, spiritual fulfillment, and aesthetic enjoyment."[13]

The Earth, for which none of us can claim creative ownership, is also for us to share; and as Earth's resources come under mounting stress from human activity—particularly through global warming and the accelerating worldwide spread of toxic chemicals and loss of biodiversity—we are summoned to develop new and better ways of managing them for all. Most of our current legal structures, however, fail to take appropriate cognizance of the ecological commons. Built as they are on the premise that individual ownership leads to the most efficient use of most resources and that efficient resource use is the ultimate goal, they do not recognize its finite nature, and therefore the need for limits on human activity.

Nor do they recognize the role of communities and their governments in sustaining the commons, or the holistic and long-term calculus of commons, which stands in sharp contrast to the short-term, monetizing biases of

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[9] The classic text is Elinor Ostrom, Governing the Commons: The Evolution of Institutions for Collective Action (1990). But other notable books include Susan J. Buck, The Global Commons: An Introduction (1998); Joanna Burger, Elinor Ostrom, et al., Protecting the Commons: a Framework for Resource Management in the Americas (2001); and The Question of the Commons: The Culture and Ecology of Communal Resources (Bonnie J. McCay & James M. Acheson eds., 1987).

[10] Peter Linebaugh, The Magna Carta Manifesto: Liberty and Commons for All 44-5 (2008).

[11] *Id*. at 45.

[12] *Id*.

[13] U.N. Env't Program (UNEP), Millennium Ecosystem Assessment, *Ecosystems and Human Well-being: Current State and Trends* 1 (Sept. 8, 2005).

markets. The ultimate goals are seen as efficient resource use, technological innovation, and capital accumulation, and economic growth—"progress." With the globalization of capital and markets since the fall of the Berlin Wall, this central premise has come to dominate virtually all economies of the world and their supporting legal systems. Despite the palpable contribution of commons to human well-being, neoliberal economic policies generally prevail and the commons remains largely invisible.

B. The Market and the Commons

Of course, ownership permits excluding non-owners from free access to what is owned, be it land, manufactured goods, or ideas. Because non-owners are excluded altogether or have to pay for access, owners reap benefits. Often this gives them the incentive to transform resources efficiently into the goods and services that provide those benefits. Society as a whole, the argument goes, benefits from the multiplication of private benefit and the watchful care that an owner can apply to the resource owned. Indeed, in his now famous essay on *The Tragedy of the Commons*, published in 1968, sociobiologist Garrett Hardin maintained that private ownership of the commons is the only way apart from governmental regulation to prevent the despoliation of the commons as a result of no one exercising proper care over things that belong to everyone.[14]

There exists, however, a dark side to privatization. While it makes it possible for private owners to convert environmental, life-supporting assets into financial and consumer goods beneficial to themselves and others in society, it often destroys, permanently, long-term and life-supporting assets in the process. Wetlands, for example, are frequently filled in or drained for farms or housing developments. While the private owner gains economically and consumers enjoy the finite fruits of a dwindling resource, the value of wetlands to migratory birds and amphibians is diminished, and its value as a water purifier is lost to the public in both the present and future.[15]

The problem with the market is that it is capable of eroding the value that inheres in the commons, often in invisible fashion. Indeed, conventional economic metrics deliberately ignore or discount the hidden subsidies that come from the commons as well as the free use of the commons as a waste dump. The Tomales Bay Institute Report sums it up crisply: "The market assault comes from two sides. With one hand, the market takes valuable stuff from the commons and privatizes it. Historians have called this 'enclosure.' With its other hand, the market dumps wastes and side-effects into the commons and says, 'It's your problem.' Economists call this 'externalizing.'"[16]

Some economists and lawyers have developed a detailed philosophy that explains how private property and markets tend to erode the commons over the long term.[17] As they conventionally function, markets essentially ignore the fundamental need to treat the commons of nature as finite resources that must be protected for the survival of current and future generations. Conventional economics and market participants fail to appreciate that "the commons precedes and surrounds the market, is the source of most that enters it and the sink for all that leaves."[18]

The ecological failings of the market are thus manifest. But three in particular stand out.

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[14] *See* Garrett Hardin, *The Tragedy of the Commons*, 162 Science 1243, 1244–47 (1968), *available at* http://dieoff.org/page95.htm.

[15] Other examples are resources that should not be privatized because they transcend all human-made jurisdictional boundaries—the atmosphere, the oceans, and the moon, for example.

[16] The State of the Commons, *supra* note 1, at 5.

[17] *See, e.g.*, CLI Recommendation No. 11 by Joseph H. Guth in this Appendix B.

[18] The State of the Commons, *supra* note 1, at 5.

First, private property owners perceive little advantage in creating or preserving benefits that will accrue to future generations, particularly when other property owners are doing the same. Their valuations of resources extend over too short a time to protect and perpetuate them; the "throwaway society" is economically "rational." As a result, prices do not reflect actual scarcity values and market activity easily exhausts finite supplies resources, so that future generations are deprived of their rightful inheritance—a scenario now playing out for many planetary resources, most notably oil and the atmosphere.[19]

Second, market participants and economic theory seek to maximize economic activity because of the private wealth that results. But there is no mechanism intrinsic to the market for setting limits, for constraining the total impact of market activity on the commons. External interventions are necessary—precisely what free-market theorists and practitioners condemn and resist. But the reality is that even the planet has its limits, and we are running up against them.

Finally, the market model does not promote cooperation and equity even when such socially enlightened modes of production create value. Indigenous peoples and other stable communities are often exemplary long-term stewards of ecosystems while meeting their own social needs with sensitivity and fairness. By marginalizing the social aspects of the commons, and focusing only on short-term monetary valuations, the market model tends to impoverish us as individuals and as social communities, now and in the future.

Of course, the market is an important generator and indicator of value. But its calculus of valuation is selective and short-term. It privileges individual financial benefits (especially ones that can be measured and reduced to a price) at the expense of collective benefits that may be intangible and evident only over the long term. Individual private owners find it difficult to resist environmentally destructive exploitation of property for their own gain if other property owners are doing the same. Since environmental harm is often cumulative and subtle, property owners may find it more profitable to monetize their short-term gains rather than act as conscientious long-term stewards of the land.

Some theorists note the economic and social importance of treating vital infrastructure as a commons because infrastructure resources are fundamental "inputs" for a wide range of productive and non-market purposes. It may make sense to regard certain classes of natural resources as "infrastructure" and manage them as commons for this reason. For example, markets may value a lake for commercial fishing and fresh-water extraction while ignoring or discounting its aesthetic, recreational, and ecological value. Markets tend to favor short-term, privately appropriable uses of natural resources while a commons regime is more likely to generate public goods and non-market benefits, and to leave future options open rather than preclude them. "The problem with relying on the market," writes law scholar Brett Frischmann, "is that potential positive externalities may remain unrealized if they cannot be easily valued and appropriated by those that produce them, even though society as a whole may be better off if those potential externalities were actually produced."[20] In this sense, treating a lake (or other natural resource) as a vital form of social and ecological infrastructure offers a way to recognize its full spectrum of value, as opposed to its market value alone.

If we follow the market-efficiency philosophy exclusively, we squander the value generated by the commons. The free and discounted subsidies from the commons will eventually disappear, along with the free and discounted access to the commons as a waste dump. Under the market paradigm we also lose the value that we would otherwise reap from meeting collective social needs through cooperation. We cheat ourselves and future generations, to say nothing of Earth itself, as humans fundamentally alter Earth's "ecosystem services." From the water purification of swamps to the crop pollination performed by bees, the conditions essential to life for present and future generations are being jeopardized.

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[19] In a related vein, property law assumes that land and other natural resources can be placed in an envelope of property rights and managed independently of the larger ecosystem of which they are a part. Yet dividing a natural asset such as a watershed into private pieces often diminishes the organic integrity of the system, its overall generativity and the viability of any individual element of it.

[20] Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management,* 89 Minn. L. Rev. 917, 989 (2005).

C. Law and the Commons

The relationship between the formal law of modern-day civil societies and the socially constructed customary law of commons (which functions as a distinct locus of law-making[21]) is theoretically underdeveloped. A great deal of new research and creative analysis needs to be conducted. However, it is clear from the evolutionary sciences and anthropology that the commons and commons governance—built on social trust and cooperation, or "social exchange," each with a long history in human evolution—precede the formal institutions of law as we know them today.[22]

Legal systems from the Roman Empire to the present have recognized the commons as a distinct force of social and moral order in the form of distinct categories of shared wealth. Roman law recognized four distinct categories of property: *res publica*, for public resources administered by the government on behalf of everyone, such as highways and navigable rivers; *res communes*, for things like air and light that are accessible to everyone and never to be exclusively possessed; *res nullius*, for things that have been abandoned or that no one has acquired, such as stray animals; and *res privatae*, for things that individuals have taken possession of, i.e., private property.[23]

The first record of a formal rule governing the commons is derived from an ancient Roman principle codified in the law of the Roman Emperor Justinian. "By the law of nature these things are common to mankind—the air, running water, the sea and consequently the shores of the sea."[24] Thus, Justinian law expresses several tenets basic to commons law: the right of access to essential commons, equality of access, and inalienability of the right of access.

It has been used also to allocate the responsibility to care for the commons to the state, serving as trustee. As trustee, the state may not grant exclusive rights of access or use to one individual or private entity to the exclusion of others. This rule is the basis of what today is known as the public trust doctrine.[25]

Historically, the functional power of the commons resides with the social practices of a community and its morality and traditions—its customary law. The formal law may ratify the commons and fortify it through state power, but throughout history the efficacy and stability of a given commons, typically modest in locale or scope, has originated with the commoners themselves. They have been the animating force for asserting the value of the commons to them, especially in the face of stateless societies and monarchs, who generally regarded the commons as a rival sphere of political power. A dialectic of struggle between the commoners and formal legal process has been the norm.

Peter Linebaugh excavates this history in his book, *The Magna Carta Manifesto*, which describes the Magna Carta as a "treaty" to settle the civil war between King John and commoners.[26] The 1215 document enunciated written

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[21] The notion of the commons as a distinct mode of "law-making" is developed in the context of the Internet by David R. Johnson, *The Life of the Law Online*, First Monday 11, No. 2 (Feb. 2006), *available at* http://firstmonday.org/issues/issue11_2/johnson/index.html.

[22] Social exchange has been found to be an "evolutionary stable strategy" that has served as a critical platform for the development of the human species, powerfully adaptive and resistant to competing evolutionary strategies, therefore likely to persist over time and become embedded in heritable genes.

[23] *See* Buck, *supra* note 9, at 4.

[24] Institutes of Justinian 158 (Thomas C. Sandars transl., 1876), *available at* http://www.fordham.edu/halsall/basis/535institutes.html#I.%20Divisions%20of%20Things (follow the link for Book Two, Title 1) (last visited Apr. 8, 2008).

[25] *See* Jose L. Fernandez, *Untwisting the Common Law: Public Trust and the Massachusetts Colonial Ordinance,* 62 Alb. L. Rev. 623, 627 (1998) (stating that "the public trust doctrine was assigned to the Magna Carta and refined in the common law"). *See also* Linebaugh, *supra* note 10, at 10, 28. Regarding the public trust doctrine in U.S. law, see CLI Background Paper No. 6 by Professor Tracy Bach in Appendix A of this CLI Policy Paper. *See also* CLI Recommendation No. 8 by Professor Mary Christina Wood in this Appendix B.

[26] Linebaugh, *supra* note 10, at 45.

legal protections for stipulated rights of commoners—the right of access to beech mast for pigs ("pannage"), the right to collect wood from the forest ("estovers"), and to have access to pasture for livestock ("common of herbage"), among many other rights involving due process such as habeas corpus and the right to a jury of one's peers.

In England, the legal issues of the commons did not revolve around ownership—private vs. public—so much as access. Since King John owned most of the land, the Magna Carta limited his power to exclude people from "commoning," the practice of obtaining the necessities of life from the commons be it the gathering fallen wood as fuel, "gleaning" the fields for food after a harvest, or hunting for game in open forests. One principle set forth in the Magna Carta has evolved in the intervening centuries into the public trust doctrine, which limits the right of legislatures to alienate or grant exclusive private rights in public property.

The commons as a matter of property law was brought to the United States and found in the form of town squares and village greens. But the struggle to establish a new form of government, a democracy rather than a monarchy, meant that in the New World, private property became tightly associated with citizenship and the right to vote. Since the people were the sovereign, there was no need to limit the power of the sovereign through a law of the commons. In addition, because there was so much land in North America, protecting shared resources through the rule of law was not deemed especially necessary.

Accordingly, laws protecting the commons became ad hoc, piecemeal rules associated with diverse vestigal commons not fixed in place (e.g., wild game) or unique commons such as streams or lakes. In the United States, commons-based legal doctrines came to govern hunting rights, the right of access to waterways, and, eventually, national parks and other similarly unique resources.

Of all these piecemeal rules, the public trust doctrine, with government serving as trustee on behalf of the citizenry, has been the most enduring and is part of the common law in most of the fifty U.S. states.[27] As noted above, the doctrine stands for the principle that government holds the resources of the earth in trust for the benefit of everyone within its jurisdiction. This is conceived as an affirmative responsibility of government to manage these resources for the long-term benefit of the public.[28]

Historically in the United States, the public trust doctrine has been most often applied—narrowly—to seashores, to waters influenced by the tides (irrespective of navigability), and to mineral and animal resources contained in the soil and water over public trust lands,[29] including waters used for fishing.[30] But the core values and interests of the

[27] *See* Alisha Alexandra B. Klass, *Modern Public Trust Principles: Recognizing Rights and Integrating Standards,*" 2 Notre Dame L. Rev. 699, 707–14 (2006) (discussing various state court opinions the enforcement of the common law public trust doctrine in their respective states).

[28] Hope M. Babcock, *Has the U.S. Supreme Court Finally Drained the Swamp of Takings Jurisprudence?: the Impact of Lucas v. South Carolina Coastal Council on Wetlands and Coastal Barrier Beaches,* 19 Harv. Envtl. L. Rev. 1, 45 (1995) (citing *Illinois Central R.R. v. Illinois*, 146 U.S. 387 (1892) (where the Court applied the public trust doctrine to disallow conveyance of Lake Michigan lakebed to a private railroad).

[29] *See* CLI Background Paper No. 6 by Professor Tracy Bach in Appendix A of this CLI Policy Paper, discussing public and private trusts.

[30] *See* Nat'l Audubon Soc'y v. Superior Court, 658 P.3d 709, 719 (Cal. 1983) (stating "[p]ublic trust easements [were] traditionally defined in terms of navigation, commerce and fisheries," though the court later included tidelands within the historical protections as well).

doctrine are capable of much broader application.[31] Versions of this concept have appeared in state constitutions[32] and have been adjudicated in state and federal courts.[33]

It was not until 1968, however, that the commons became a key issue in American political philosophy. In that year, as noted above, Garrett Hardin published *The Tragedy of the Commons*,[34] an essay that laid out a class of problems that had no technical solutions, only moral and legal ones. Hardin described the problem as follows:

> The rational herdsman [receiving all his income from the sale of additional animals] concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another. . . . But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.[35]

Hardin went on to describe pollution as another and particular manifestation of the tragedy of the commons:

> In a reverse way, the tragedy of the commons reappears in problems of pollution. Here it is not a question of taking something out of the commons, but of putting something in—sewage, or chemical, radioactive, and heat wastes into water; noxious and dangerous fumes into the air, and distracting and unpleasant advertising signs into the line of sight. The calculations of utility are much the same as before. The rational man finds that his share of the cost of the wastes he discharges into the commons is less than the cost of purifying his wastes before releasing them. Since this is true for everyone, we are locked into a system of "fouling our own nest," so long as we behave only as independent, rational, free-enterprisers.[36]

As previously noted, Hardin's answer to the tragedy of the commons was, essentially, privatization. While he admitted to the utility of contextually sensitive regulatory solutions, fundamentally he believed that private property owners alone have adequate incentive to make necessary investments to protect and improve the commons. As we have seen, however, privatization risks potentially severe ecological harm and social injustice, which of course is no solution at all.

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[31] *See, e.g.*, CLI Recommendation No. 8 by Professor Mary Christina Wood in this Appendix B, recommending the infusion of public trust principles into the administrative, judicial, and legislative branches of government geared to treating all natural assets as subject to a sovereign trust interest that government at all levels holds for the public.

[32] *See* Alaska Const. art. 8, § 3 (reserving fish, wildlife, and waters that occur in their natural state "to the people for common use"); Colo. Const., art. 16, § 5 (declaring waters of all natural streams to be public property, dedicated to public use, subject to appropriation); La. Const., art. 9, § 1 (stating "[t]he natural resources of the state, including air and water, and the healthful, scenic, historic and esthetic quality of the environment shall be protected, conserved, and replenished insofar as possible and consistent with the health, safety and welfare of the people."); Mont. Const., art. 9, § 3(3) (declaring "surface, underground, flood, and atmospheric" waters to be the property of the state subject to appropriation for beneficial use); N.D. Const., art. 11, § 3 (water shall remain state property for mining, irrigating, and manufacturing purposes); Pa. Const., art. 1, § 27 (stating "Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people."); Wyo. Const., art. 8, § 1 (declaring water to be the property of the state).

[33] *See* CLI No. 6 by Professor Tracy Bach in Appendix A of this CLI Policy Paper.

[34] *Supra* note 14, at 1244-47.

[35] *Id.* at 1244.

[36] *Id.* at 1245.

In the years since Hardin wrote his essay, economists and conservative commentators have elevated the "tragedy" parable into an economic truism that they regard as hardly meriting discussion. The narrative has been buttressed by a large "prisoner's dilemma" literature that purports to show that cooperative strategies are doomed to fail; rational individuals will invariably find it in their self-interest to defect, cheat or "free ride" on the goodwill and resources of others.[37]

As a matter of empirical reality, however, Hardin's "tragedy" thesis is deeply flawed. As the Tomales Bay Institute Report puts it, "there are many kinds of commons and many ways to run them"—e.g., "a fenced commons with a gate-keeper, or fishing limits with licenses, or a cultural commons with infinite possibilities"—with no tragedy inherent in them.[38] Hardin's model described, in fact, an open access regime, in which there are no rules to constrain unfettered appropriation of resources. Ironically, the "tragedy" scenario more accurately describes the laissez-faire marketplace in which over-exploitation of natural resources for private monetary gain is commonplace,[39] precisely the crucible that has delivered us unto global warming and wider climate change, imperilling both present and future generations.

The first major empirical and theoretical study to rebut Hardin's tragedy essay was Elinor Ostrom's 1990 book, *Governing the Commons: The Evolution of Institutions for Collective Action.*[40] While the over-exploitation of finite shared resources is always a plausible danger, especially in the global warming context, Ostrom, a political scientist, identified a series of design principles characteristic of successful commons. The presence of clearly defined boundaries, congruence of appropriation rules and local conditions, monitoring, and other operational rules and social norms all contribute to a sustainable commons, Ostrom showed. A tragedy is not inevitable.

Over the past twenty years, a robust sub-discipline of commons scholars has arisen to study the workings of commons, most of them natural resource commons in developing nations.[41] In recent years, interest in the commons has soared as the Internet has become a host infrastructure for countless self-organized commons.[42] An essential point of this considerable scholarship and experimentation is that there are many kinds of commons and many ways to run them effectively, as well as many impediments.

In terms of protecting natural resources, numerous citizen organizations now invoke the commons as a tool for fighting market enclosures and asserting collective moral and legal claims on such resources as water, land, seeds, and genes.

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[37] A leading text on this point is Mancur Olson, The Logic of Collective Acxtion: Public Goods and the Theory of Groups (1965).

[38] *Supra* note 1, at 7. *See also id.*, at 27 where the report lists many "working models" of successfully managed commons, including, e.g., public libraries, parks, wildlife populations, state land trusts, seed banks, soil and air quality districts, and water trusts, among others. An excellent review of a variety of successful "knowledge commons" is Charlotte Hess & Elinor Ostrom, Understanding Knowledge as a Commons: From Theory to Practice (2007).

[39] *See, e.g.*, Elinor Ostrom, *Extensions of "The Tragedy of the Commons,"* 280 Science, May 1, 1998, at 682; Thomas Dietz, Elinor Ostrom & Paul C. Stern, *The Struggle to Govern the Commons,* 302 Science, Dec. 12, 2003, at 1907; and Ian Angus, *The Myth of the Tragedy of the Commons,* The Bullet, E-Bulletin No. 133, Aug. 25, 2008, at http://www.socialistproject.ca/bullet/bullet133.html.

[40] *Supra* note 9.

[41] Two key centers for this scholarship are the Ostrom-founded Workshop on Political Theory and Policy Analysis at Indiana University and the International Association for the Study of the Commons.

[42] These self-organized commons consist of such diverse communities as hackers building shared bodies of software code, photographers sharing their images on Flickr, music remix and video mashup artists sharing their works on websites, creators generating open repositories of content using Creative Commons licenses, social networking websites like Facebook and MySpace, and scholars publishing their research in open-access journals available to all, without subscriptions or fees. *See* David Bollier, Viral Spiral How the Commoners Built a Digital Republic of Their Own (2009). Organizations such as the Free Software Foundation, Creative Commons, Science Commons, iCommons, On the Commons, and the open educational resources movement are demonstrating the value-generating potential of the commons, especially on Internet platforms.

West Marin Commons in northern California is a local citizen group trying to protect its many community commons from private enclosure.[43] The Conservation Commons is a cooperative effort among diverse nonprofits, academics, and companies to improve access to and unrestricted use of information about biodiversity.[44] International activists seeking to prevent the commodification and privatization of fresh water supplies are asserting the need to protect the water commons.[45] Indian activist Vandana Shiva, gene-patenting expert Pat Mooney and their allies criticize proprietary, genetically modified organisms as attacks upon the commons and the types of values it generates and sustains.[46]

Remaining to be achieved are robust commons institutions of global and regional scope capable of revitalizing and protecting the atmosphere, the oceans, fresh water entities, and other large-scale ecosystems now severely threatened by human-caused global warming and consequent climate change, and therefore deserving of immediate action. It is no exaggeration to say that the basic elements of life for present and future people and other living beings worldwide—water, food, health, habitat—depend on it.

This ambitious goal cannot be realized, however, without taking governments as well as commoners seriously. Given the still primitive circumstance of our present world order and the complexity of ecosystems, governments, however imperfect or imperfectly constituted, must be engaged in this critical enterprise. But not as would-be owners of the atmospheric, oceanic, or other planetary commons; rather, as trustees of them, required and committed to learn and institute the conditions, rules, and collaborative monitoring skills that contribute to sustainable commons.

D. Toward a Law of the Ecological Commons

With support from government in trustee capacity, the commons—ecological and otherwise—offers a promising framework for addressing the health of the atmosphere, the oceans, fresh water entities, and other planetary ecosystems. But if government is to succeed in this regard, particularly in relation to ecosystems large and small, it must not simply rehabilitate and refund the regulatory apparatus of government past. Governments as trustees of the ecological commons must strenthen their democratic capabilities, confront the myopia of the market order, and recalibrate antiquated legal mechanisms. Further, it must commit to engaging and empowering diverse communities—scientists, environmentalists, economists, sociologists, jurists, agriculturists, industrialists, laborers, recreationists, etc.—to become active participants in managing the planetary commons that matter to them. Instead of "business as usual," much of which serves to exclude ordinary citizens and bolster the advantages of regulated industries, government as trustee must take the commons seriously, as a partner in achieving good ecological results. Engaging commoners offers great potential for developing solutions that are locally responsive, socially supported, and ecologically sound.

Limited delegations of authority to robust, quasi-autonomous communities of practice can help achieve regulatory results while limiting the opportunities for capture and corruption by vested interests. Decentralization where possible is

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[43] *See* http://www.westmarincommons.org.

[44] *See* http://www.conservationcommons.org.

[45] *See* Maude Barlow (on behalf of the Council of Canadians), *Our Water Commons: Towards a New Freshwater Narrative, at* http://www.canadians.org/water/publications/water%20commons/index.html. Even many businesses in the computer and pharmaceutical industries are fighting the over-expansion of private property rights because it is impeding research and innovation. The fragmentation of intellectual property rights for basic knowledge—a phenomenon called the "tragedy of the anti-commons" – is preventing entire fields of commercial research from developing. If only to enhance their commercial prospects, companies are voluntarily creating "patent commons" to share basic research knowledge. *See* Michael Heller, The Gridlock Society: How Too Much Ownership Wrecks Markets, Stops Innovation and Costs Lives (2008).

[46] *See, e.g.*, Pat Mooney, *Who Owns Nature?* [report], Nov. 2008, *available at* http://www.etcgroup.org/en/materials/publications.html?pub_id=706. *See also* Vandana Shiva, Earth Democracy: Justice, Sustainability and Peace (2005); _____, Stolen Harvest: The Highjacking of the Global Food Supply (2001).

a virtue in managing a commons because it opens up new space for experimentation and innovation as well as building in systemic resilience. It enables the development of solutions, so long as effective performance standards are met. Even delegating governance to credibly feasible lower levels while maintaining effectiveness—the principle of "subsidiarity"—is a way to mobilize the engagement of commoners and elicit more timely and local knowledge about a resource.

Of course, integrating commons management into the modern regulatory state is a complicated matter. It requires thought and creativity; but it can help clarify how government as trustee might deliver more effective, ecologically and socially beneficial results. Adopting or embracing commons-based strategies could help Maine lobstermen avoid over-harvesting their catches; enable northern California cattle ranchers to negotiate grazing practices among themselves with minimal intrusions of law; and facilitate climate-friendly energy solutions simultaneously sensitive to geographic location. Indigenous peoples have managed their commons sustainably for centuries in the absence of law issued from governmental authority.[47]

Still, the complexity of many ecosystems and resources clearly requires the kind of expertise and knowledge that governmental systems can provide. Moreover, government often must act as a proxy for, or guardian of, the public and care for a commons in their stead, a necessity when the interests of future generations are implicated. A case in point is the U.S. Social Security system. Another is the Alaska Permanent Fund, which collects and distributes royalties from oil drilling in that state. In these models, government acts as a surrogate for the citizenry as a whole; the actual participation and consent of a distinct community may be nominal or irregularly expressed.

It is important, therefore, to distinguish between *government-managed commons* and *traditional commons.* Much of the power of the latter as a system for managing shared resources stems from its organic connections to social communities that have shared moral values and governance rules. Such realities may or may not be present in government-managed commons, especially on the global plane. But government should strive to nurture shared moral values and governance rules for commons under its care.The government-managed commons is not just another name for traditional government functions. It is a re-conceptualization of those functions that explicitly acknowledges the commons as a distinct realm requiring a new vision of the role of government. By making this acknowledgement, and by understanding the sovereign dynamics of commons and the interests of commoners, government can fulfill its trustee responsibilities and enhance democracy as well as protect the long-term ecological functioning of the commons. It can respect them and channel their energies, much as government's regulation of market activity acknowledges the market as a sovereign force.

In truth, "government" and "market" are institutional and cultural expressions for denoting aspects of ourselves and the personal relationships we share with others at home and abroad. Just as our identities as citizens revolve around government and our identities as consumers and producers revolve around markets, so also do our identities as commoners revolve around diverse commons that make explicit whole sets of interests and relationships that likewise define our lives. Historically, these interests and relationships have had little or no discourse to validate them. Yet they often flourish independently of our roles as citizens and consumers. Commoners are creatures who are elementally connected to each other and to our planet, and this fact needs to be more fully acknowledged by government and law so that this aspect of ourselves can flourish and be helpful to the greater common good. This is especially important in the context of climate change and those commons of nature—the atmosphere, the oceans, fresh water systems, etc.—that are affected by it.

To understand how a commons-based approach to the protection of our environment for both present and future generations can be assisted by law, and in a manner that is sensitive to the unique needs and interests that differentiate each

[47] *See* Robert Ellickson, Order Without Law: How Neighbors Settle Disputes (1991).

level of social organization, we propose the ten "Tenets of the Ecological Commons" that follow and, along the way, reflect briefly on some of the ways in which they can be made operational in positive law, nationally and internationally.

This set of legal principles, derived from ancient doctrines, from environmental and property law, and from the theory, law, and policy of human rights (broadly defined to include the right of all human beings to the widest possible biotic and abiotic diversity and health), can help define the roles that government can and must play in and with commons of nature that is up to the challenge of meeting the needs and rights of future as well as present generations at this time of unprecedented ecological peril. In the process, they also provide an interpretative space that invites the emergence of a particular kind of democratic society which, akin to most indigenous societies, views itself at one with nature rather than in opposition to or would-be master of it—much as the First Amendment and Bill of Rights set broad parameters that allowed a certain kind of open, diverse culture to arise in the United States.

The ten legal principles fall into three categories: the Rights and Responsibilities of Commoners, Government Responsibilities as Trustee of the Commons, and the Commons and Economics. Keenly aware of the increasingly rich scholarly discourse concerning the commons and its governance that extends beyond the law, we offer them with humility and the hope that they will be useful. At the same time, we view them as a foundation upon which a modern Law of the Ecological Commons can be developed and acted upon at all levels of social governance, from local to global. And as soon as possible.

Tenets of the Ecological Commons—Part I

Rights and Responsibilities of Commoners

1. A life-sustaining, community-nourishing, and dignity-enhancing ecological commons is a fundamental human right of present and future generations.
2. It is the duty of each generation to pass the commons on to future generations unimpaired by any degradation or depletion that compromises the ability of future generations to secure their rights and needs.
3. The services and infrastructure of the Earth necessary for humans and other living beings to be fully biological and communal creatures shall reside within the domain of the commons.
4. All commoners (the public or a defined community) have rights of access to, and use of, the ecological commons without discrimination unrelated to need. Such rights shall not be alienated or diminished except for the purpose of protecting the commons for future generations.

These four tenets broadly state the importance of the commons to human well-being now and in the future, and the importance of access and social equity. Legal mechanisms need to be established to assure that one commoner (now or in the future) receives neither more nor less than her or his share.

For instance, the 1982 Law of the Sea Convention fully embraces the idea of equal access by asserting that places and things that are our common heritage (i.e., the deep seabed) do not belong to any one nation but, rather, to

all humanity.[48] As such, no nation can claim exclusive ownership or dominion over the treasures of the oceans' deep seabed.[49] Imagine a corresponding designation of the atmosphere as a common heritage of humanity![50]

A related principle that emerges from these legal rules is assuring social equity, both within the present generation and between generations. Access must be granted in a way that is nondiscriminatory—that is, not based on the ability to pay or any other distinction except, in some cases, membership in a designated community, e.g., residence in a state or commons, possibly also merit and need in credible circumstances.

Access to the commons can and should be qualified if that is necessary to protect a depletable resource; obviously some resources like air or fisheries can be damaged if access is unlimited. But access cannot be denied discriminatorily. When the general public ("we the people") is the "owner" of the resource, all citizens, including future generations, should have equal opportunity of access to it.

The rights of future generations to access the commons have been primarily aspirational and mentioned more frequently in political rhetoric than in legally binding statutes. But this is gradually changing. One of the most exciting developments in environmental law is the recognition by human rights lawyers that future generation might have rights that can be protected by law, including a right to a commons unimpaired by significant degradation or depletion.[51] In fact, moving environmental law out of the rigid confines of property law and into human rights law, holistically conceived, could promote a healthy reconciliation of economics and ecological principles with the needs of future generations to the commons necessary for dignity, community, and life. As things now stand, arguments based on property rights and economics undercut sound ecological policy at almost every turn.

We also can build legal mechanisms for protecting the interests of future generations on the foundations of a few American constitutional and statutory provisions (though treated as aspirational rather than legally binding). We can also explore some promising international approaches.[52] For example, the constitution of the State of Montana provides:

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[48] U.N. Convention on the Law of the Sea, art. 137(2), Dec. 10, 1982, U.S. Treaty Doc. 103–39, *reprinted in* 21 I.L.M. 1245, 1252 (1982) and 5 Weston & Carlson V. F.22 (stating that "[a]ll rights in the resources of the Area [seabed, ocean floor and subsoil beyond the limits of national jurisdiction] are vested in mankind as a whole.").

[49] *Id.*, art. 137(1) (stating that "[n]o State shall claim or exercise sovereignty or sovereign rights over any part of the Area or its resources, not shall any State or natural or juridical person appropriate any part thereof. No such claim or exercise of sovereignty or sovereign rights nor such appropriation shall be recognized").

[50] *See, e.g.*, CLI Recommendation No. 13(c) by Burns H. Weston, Wan-chun Dora Wang, & Suzan M. Pritchett in this Appendix B.

[51] In the 1994 case of *Oposa et al. v. Factoran,* G.R. No. 101083 (S.C., July 30, 1993), *reprinted in* 33 I.L.M. 173 (1994), for example, the Supreme Court of the Philippines granted standing to 44 minors to sue on behalf of themselves and future generations to stop the destruction of the fast disappearing rain forests in their country. *See also* Philippe Sands, *Protecting Future Generations: Precedents and Practice, in* Future Generations and International Law 89 (Emmanuel Agius & Salvino Busuttil eds., 1998) (citing Minors Oposa v. Secretary of the Department of the Environment and Natural Resources, 33 I.L.M. 173 (1994)). *See also* Burns H. Weston, *Climate Change and Intergenerational Justice: Foundational Reflections,* 9 Vt. J. Envtl L. 375 (2008), *available as* CLI Background Paper No. 2 in Appendix A of this CLI Policy Paper.

[52] *See* National Forest Management Act (NFMA), 16 U.S.C. §§ 1600(3) & 1601(a) (1) (2000) (mandating that the federal land is managed according to "multiple use" and "sustained yield" principles, which requires the government to consider the needs of future generations); National Environmental Policy Act (NEPA), 42 U.S.C. § 4331(a) (2000) (where Congress stated the purpose of the statue was to "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic and other requirements of present and future generations of Americans."); Federal Land Policy and Management Act (FLPMA), 43 U.S.C. § 1702(c) (2000) (this statute also uses the "multiple use" and "sustained yield" principles, which requires the government to consider the needs of future generations); Haw. Const. art. 11, § 1 (stating "[f]or the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their

"The state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations."[53] Similarly, the goal of the act governing U.S. national parks is to promote and regulate the use of the parks "by such means as will leave them unimpaired for the enjoyment of future generations."[54] This clause has not been adjudicated in court as of this writing.

Law can help vouchsafe the rights of commoners in innovative ways, too. One of the most interesting commons experiments began in the 1970s with the Alaska Permanent Fund. The brainchild of then Alaska Governor Jay Hammond, the Fund is a constitutionally established semi-independent corporation that is managed by trustees answerable to the citizens of Alaska. The Fund serves as an agent of the state to set aside and distribute, to present and future generations of Alaskans, an equitable share of revenues derived from the exploitation of commons resources, primarily oil and mineral resources on state lands.[55] The Permanent Fund's earnings are distributed to each Alaskan as a dividend and the principal is allowed to grow so that significant dividends will still be generated when Alaska no longer gets significant revenue from oil production.[56]

Especially noteworthy for present purposes, however, is that the Alaska Permanent Fund establishes the rights of commoners (the general public or a designated public) to the commons. In Alaska, after having proved residency for a certain period of time, each Alaskan receives a check for her or his share of the resource revenues regardless of age or financial status, not as a share in a private corporation to be traded in the market, but as a birthright to "the gifts of nature" based on membership in a community. These "birthright shares" accrue to each citizen automatically upon birth, disappear upon death, and cannot be traded, sold, bequeathed, or otherwise alienated.

While the Alaska Permanent Fund is an example of providing every commoner with her or his share, it does have some perverse incentives to continue the damaging practice of oil drilling. As such, arguably it violates the principle that access must be granted in a way that does not degrade or deplete the commons (e.g., the atmosphere) significantly. Further, it does not provide future generations with equal rights to the Alaskan oil resources.

Finally, other policy mechanisms might be fashioned to help protect the rights of future generations to common wealth. Ombudspersons, trustees, and guardians could be appointed to represent those interests in every branch of government.[57] Some countries have created positions like a guardian of future generations. The Israeli government, for instance, has a commissioner for future generations, who reviews Israeli Knesset proposals for their impact on generations to come.[58]

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conservation and in furtherance of the self-sufficiency of the State."); Ill. Const. art. 11, § 1 (stating "[t]he public policy of the State and the duty of each person is to provide and maintain a healthful environment for the benefit of this and future generations."). *See also* discussion of these provisions in CLI Background Paper No. 6 by Professor Tracy Bach in Appendix A of this CLI Policy Paper. *See also* CLI Recommendation No. 8 by Professor Mary Christina Wood in this Appendix B of this CLI Policy Paper.

[53] Mont. Const. art. 9, § 1(1).

[54] 16 U.S.C. § 1 (2008).

[55] *See* Joan Kasson, Trustee's Papers Volume V: The Creation of the Permanent Fund: A Short History, Alaska Permanent Fund Corp. (1983), *available at* http://www.apfc.org/ home/Content/reportspublications/tp5-2.cfm. *See also* Peter Barnes, Capitalism 3.0 44–6, 106–7 (2006).

[56] *What is the Alaska Permanent Fund?*, Alaska Permanent Fund Corp., *available at* http://www.apfc.org/home/Content/permFund/aboutPermFund.cfm.

[57] *See* CLI Background Paper No. 6 by Professor Tracy Bach in Appendix A of this CLI Policy Paper and CLI Recommendation No. 10 by Carolyn Raffensperger & Joseph H. Guth in this Appendix B. *See also* CLI Background Paper No. 14 in Appendix A of this CLI Policy Paper, written under the auspices of the Science and Environment Health Network (SEHN) and the International Human Rights Clinic of the Human Rights Program of Harvard Law School.

[58] The Knesset Research & Info. Ctr., Commission on Future Generations, Overview of the Commission for Future Generations (2004), *available at* http://knesset.gov.il/sponsorship/future/eng/overview.pdf.

Tenets of the Ecological Commons—Part II

Government Responsibilities as Trustee of the Commons

5. Publicly owned commons belong not to the state but to the commoners (the public or a defined community), both present and future, who are entitled to the benefits of their commons.
6. It is the responsibility of government to serve as trustee of commons assigned to it by law for present and future generations. In fulfillment of this responsibility, governments may create new institutions and mechanisms as well as authorize responsible parties to manage the commons or resources therein. All actions taken by government or its designees must be transparent and accountable to commoners.
7. The precautionary principle is a useful guide for protecting the commons for present and future generations.
8. Eminent domain (the "taking" of private property for a public use and subject to payment of just compensation) is the principal legal process for moving private property into the commons and protecting or enhancing the commons.

The relationship between government and the commons—and therefore how to allocate responsibility for protecting the commons of nature—is a complicated one. Clearly commoners bear a direct responsibility to know their shared resources and negotiate functional, socially acceptable ways to manage them. Yet government, as the larger political entity responsible for the common wealth and citizen rights, has a responsibility to manage that wealth responsibly and for the benefit of all among both present and future generations. Property rights owners, too, sometimes have affirmative responsibilities to protect the public goods that are associated with their land (e.g., the ecological functions of wetlands or the biodiversity that species habitat provide).

Government's role as a trustee serving the public is well-established through the public trust doctrine, which holds that the state does not own the commons outright, not even the publicly owned commons. Rather, it holds them in trust.[59] The people share them as beneficiaries of that trust, and the government serves as the trustee, managing them on behalf of the public, providing for equitable access, and protecting them.[60] This is the true meaning of the ancient public trust doctrine: the air, the water, agricultural seeds and stock, wildlife, the Great Lakes—all belong wholly and indivisibly to the public of both present and future generations.

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[59] *See* Elizabeth F. Brown, *In Defense of Environmental Rights in East European Constitutions*, 1993 U. Chi. L. Sch. Roundtable 191, 204 (1993) (Stating that "[u]nder the public trust doctrine, the citizens own or have a 'right' to those things committed to the trusteeship of the state," and "[t]he state has a fiduciary duty as trustee to preserve and protect this right."). CLI No. 6 by Professor Tracy Bach in Appendix A of this CLI Policy Paper. *See also* CLI Recommendation No. 8 by Professor Mary Christina Wood in this Appendix B.

[60] *See* Julie E. Steiner, *The Illegality of a Contingency-Fee Arrangement When Prosecuting Public Natural Resource Damage Claims and the Need for Legislative Reform*, 32 Wm. & Mary Envtl. L. & Pol'y Rev. 169, 200 (2007) ("The public trust doctrine recognizes that the government holds certain lands in trust for the benefit of the public. As trustee, the government has a 'duty to manage trust resources in a manner that is consistent with the trust.' When that trust is violated, suit can be brought to recover damages to the resources.").

Many legal rulings and state constitutions assert the government's trustee role. One of the clearest statements of the public trust doctrine can be found in the constitution of the State of Hawaii: "All public natural resources are held in trust by the State for the benefit of the people."[61]

Other constitutions, Montana's for example, make clear what the trustee must do: to protect and maintain the environment for present and future generations, the legislature is charged with "administration and enforcement of this duty."[62] This means providing "adequate remedies for the protection of the environmental life support system from degradation"[63] and "adequate remedies to prevent unreasonable depletion and degradation of natural resources."[64]

Besides this affirmative obligation, government has the means to protect the public health, safety, and welfare under the "police power." The power to prevent degradation and depletion of the commons is at the heart of the police power; and the best way to give it effective expression is make use of the precautionary principle.[65] Where there are reasonable grounds for concern, the precautionary approach to decision-making is meant to prevent harm by, among other things, initiating a process to select the best alternative to meet the societal and ecological goal.

It should be noted that the precautionary principle has been affirmed as a responsibility of a trustee in caring for a commons. For example, the Supreme Court of Hawaii enforced the state's trusteeship over surface water and called for Hawaii to use the precautionary principle to protect its natural resources into the future.[66] Essentially, the court required the state to take precautionary action in the face of scientific uncertainty to prevent harm.[67]

Of course, as trustees, governments can create new institutions and mechanisms for fulfilling its responsibility. It can, for example, designate guardians and ombudspersons to guarantee that it has fulfilled its responsibility to care for the commons on behalf of present and future generations. However, all actions and decisions taken by government or its designees must be fully transparent and accountable to commoners.

This responsibility of government comes with a corresponding power, the power to move private property to the commons through exercise of the power of eminent domain. Eminent domain is the prinicpal process by which an authorized government unit takes possession of private property for a public use, such as a road or a public park, and compensates the previous owner for the "taking."[68]

As a power of the government on behalf of the commons, eminent domain is a power narrower than that currently used by states, protecting private property more widely than when states use the power of eminent domain to move private property into the hands of other private owners. Under a law of the ecological commons, this use of eminent domain would be prohibited. States could use eminent domain and take property for something like a railroad, but they could not sell or give it to the railroad. Instead, the government would establish a long-term lease that keeps the land within the commons yet permits its public use.

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[61] Haw. Const. art. 11, § 1 (1978).

[62] Mont. Const. art. 9, § 1(2).

[63] *Id*. at § (1) (3).

[64] *Id*.

[65] On the importance of the precautionary principle in environmental decision-making, see Background Paper No. 13 by Carolyn Raffensperger in Appendix A of this CLI Policy Paper.

[66] *See* In re Water Use Permit Applications, 9 P.3d 409 (Haw. 2000).

[67] *Id*. at 466–67 (where the court agreed with a state commission where it adopted the precautionary principle in a water permit hearing, arguing that "at minimum, the absence of firm scientific proof should not tie the Commission's hands in adopting reasonable measures designed to further the public interest.").

[68] 26 Am. Jur. 2d *Eminent Domain* § 2 (2008).

While eminent domain is a power of government to transfer property into the commons, it is to be distinguished from the exercise of the regulatory police power. One controversial application of eminent domain or "takings law" is what is known as a "regulatory takings": the assertion that an owner who loses effective use or control of a property through regulation must be compensated just as if the land had been purchased for public use.[69] But the legitimate scope of this police power in an era of increasing pressure on the commons is a significant and growing issue. Even conservative commentators agree that regulations and assertions of government police powers over activities that would constitute a public nuisance—activities that damage the public welfare—should not be considered "takings."[70] It therefore is crucial to establish that government has an affirmative obligation to use the precautionary principle—i.e., to take preventive, protective action—to regulate private activities that damage the common wealth and common health without requiring compensation to the private property owner.

Of course, courts are grappling with the proper exercise of this power.[71] A case in point is another eminent domain controversy stemming from the case of *Kelo et al. v. City of New London et al* decided by the U.S. Supreme Court in 2005.[72] In *Kelo*, the Supreme Court ruled that a government could take private property and transfer it to another private owner if it be for a "public purpose" such as economic development.[73] The owners of the condemned land argued that their property could not be taken unless it was for a "public use" such as parks, roads, or other public infrastructure.[74] Objections to this decision have been vociferous and widespread.[75] If eminent domain is seen, appropriately, as a power of government to expand the commons, it will not privilege one private party over another. It breaks a central rule of the commons: equity. Each commoner has an equal right to access regardless of the ability to pay.

Because of recent enormous legislative attention devoted to redefining the conditions under which eminent domain is to be used, there is at present a rare opportunity to enrich the law of the commons by establishing a clear principle on eminent domain: use it to expand the commons, but not to demonstrate preference between private owners.[76] This approach protects more private property rights as well as commons property interests.

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[69] 26 Am. Jur. 2d *Eminent Domain* § 11 (2008).

[70] *See, e.g.*, *Lucas v. South Carolina Coastal Council,* 505 U.S. 1003, 1031–32 (1992) (where the majority held that, in limiting development on a beach, the state "must identify background principles of nuisance and property law that prohibit the uses [the land owner] now intends in the circumstances in which the property is presently found. Only on this showing can the State fairly claim that, in proscribing all such beneficial uses, the Beachfront Management Act is taking nothing.").

[71] *See* Dana Berliner, *Public Power, Private Gain: A Five-Year, State-by-State Report Examining the Abuse of Eminent Domain* (April 2003), *available at* http://www.castlecoalition.org/pdf/report/ED_report.pdf.

[72] 545 U.S. 469 (2005).

[73] *Id.* at 477 (stating that it is "clear that a State may transfer property from one private party to another if future 'use by the public' is the purpose of the taking.").

[74] *Id.*

[75] *See* Nat'l Conf. of State Legislatures, Eminent Domain: 2006 State Legislation, http://www.ncsl.org/programs/natres/emindomainleg06.htm (last visited Nov. 18, 2008).

[76] For discussion of the public order policies available to distinguish compensable versus noncompensable deprivations of wealth, see Burns H. Weston, *"Constructive Takings" Under International Law: A Modest Foray into the Problem of "Creeping Expropriation,"* 16 Va. J. Int'l L. 102 (1975).

Tenets of the Ecological Commons—Part III

The Commons and Economics

9. The market, commerce, and private property owners shall not externalize damage or costs onto the commons. If the commons are damaged, the polluter, not the commoners, pays.
10. Future generations shall not inherit a financial debt without a corresponding commons asset.

As mentioned above, polluting a commons is a form of unequal access since the polluter is taking more than her or his share.[77] When that happens, two consequences follow from the equity tenet or principle. First, the polluter must pay for the damage.[78] Second, each commoner must be compensated for the loss of her or his share (while not presuming that compensation makes the commoner whole).

Many legal strategies have emerged to guarantee polluters pay so that future generations are not encumbered with damaged commons. Beginning in the 1970s, a number of states amended their constitutions to grant new rights and assign new duties reflecting the increasing burden of pollution and degradation of the commons of nature.[79] Florida, for example, crafted a polluter-pays provision to force agriculture to clean up Lake Okeechobee.[80]

Similarly, benefits of commons under government trusteeship should accrue equally to all commoners. That is, there must be equity within a generation and between generations. From this assertion, another tenet of a law of the ecological commons emerges: future generations should not inherit a debt without a corresponding asset. Consider, for example, bonds that were used to purchase and improve parks around the United States. The state park system in California is a wonderful case study. In 1928, Californians voted in favor a six million dollar bond for parks.[81] Those bonds were a debt that future generations had to pay, but they received a significant asset along with the debt.

Some forms of energy production—nuclear power, for instance—leave future generations with debt and environmental liabilities rather than an asset that corresponds with the debt. Disposing of radioactive waste requires vast sums of money now and in the future as well as leaving disposal facilities that can only be considered liabilities. This

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[77] *See* Hardin, *supra* note 14, at 1245. The term "tragedy of the commons" refers to the degradation of communal resources due to the self-interest of free riders who use or destroy more than their fair share of common property to the detriment of the common good.

[78] *Id.* (stating—erroneously—that the commons cannot be fenced in like other private property. Hardin argues that the polluting of "commons" must be prevented by other means, including coercive laws or taxing devices.)

[79] *See* Alaska Const. art. 8, § 3 (stating that "[w]herever occurring in their natural state, fish, wildlife, and waters are reserved to the people for common use."); N.C.Const. art. 14, § 5 (1971) (stating that N.C. should seek to "control and limit the pollution of our air and water, to control excessive noise, and in every other appropriate way to preserve as a part of the common heritage of this State its forests, wetlands, estuaries, beaches, historical sites, openlands, and places of beauty."); Pa. Const. art. 1, § 27 (1971) (stating that [t]he people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people."); Va. Const. art. 11, § 1 (1971) (stating that "it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth.").

[80] F.S.A. § 373.4592 (2008) (The "Everglades Forever Act" imposed an "everglades agricultural privilege tax" on any "agricultural land" next to the everglades in order to fund the clean up of the Florida Everglades).

[81] See *A State Park System is Born*, http://www.parks.ca.gov/?page_id=940: "The actions of turn-of-the-century citizens and lawmakers to preserve islands of California's most valuable lands for future generations put the Golden State in the forefront of the preservation movement". . . . [In 1928,] "a newly-established State Park Commission began gathering support for the first state park bond issue. Its efforts were rewarded in 1928 when Californians voted nearly three-to-one in favor of a $6 million park bond act."

violates a fundamental principle of sustainability and of equity between generations, and it violates a fundamental tenet of a modern-day law of the ecologcial commons.

Summary Conclusion

The foregoing ten tenets are key legal principles for protecting the ecological commons (local to global). Reflecting fragments of law and policy that come down to us from many sources, and imbued with varying degrees of vitality in contemporary law, politics, and governance, they constitute, at the very least, important guideposts for defining and developing a law of the ecological commons that protects the special value of nature's commons for both present and future generations.

Central to this mission are commons communities themselves. Ingenious commoners, inspired by their commons own motive force, its own diversity of means, and its own capacities to innovate borne of circumstance and human resourcefulness, are always developing new tools that enable the creation and protection of commons. Furthermore, the commons is a cultural "staging area" important for developing robust citizen activism against market abuse and government neglect. There is no reason why ecologically defined commons communities should not persist in these and other commons-protecting ways, and without interference from government unwarranted by the facts.

But when government has been legislatively mandated to serve as commons trustee and when the facts signal a commons of immense scope and/or complexity or inept commons self-management or the absence of a needed commons community altogether or, indeed, a mixture of these, then it is time for government, alone or in combination with other governments and intergovernmental institutions, to act. It must assume commons responsibility in trustee capacity and according to a mandate that obligates it to enlist and support the wisdom and energy of appropriately competent commoners able and willing to assist. Such a moment presents itself today relative to the prevention and mitigation of climate change harms already and prospectively threatening to be visited upon ourselves and our descendants. A government-commons partnership in this and like settings is the best guarantee for present and future generations of a flourishing ecology, generative democratic communities, and human dignity.

The ten legal principles briefly detailed above, providing for both commons and government activism, can protect the rights of present and future generations to the environmental necessities of life, community, and dignity. This is best understood, we believe, by viewing them together as an interdependent whole, again defining the commons to mean all the creations of nature and society that we inherit jointly and freely and hold in trust for future generations, a constituent ecological commons included.

1. A life-sustaining, community-nourishing, and dignity-enhancing ecological commons is a fundamental human right of present and future generations.
2. It is the duty of each generation to pass the commons on to future generations unimpaired by any degradation or depletion that compromises the ability of future generations to secure their rights and needs.
3. The services and infrastructure of the Earth necessary for humans and other living beings to be fully biological and communal creatures shall reside within the domain of the commons.
4. All commoners (the public or a defined community) have rights of access to, and use of, the ecological commons without discrimination unrelated to need. Such rights shall not be alienated or diminished except for the purpose of protecting the commons for future generations.

5. Publicly owned commons belong not to the state but to the commoners (the public or a defined community), both present and future, who are entitled to the benefits of their commons.
6. It is the responsibility of government to serve as trustee of commons assigned to it by law for present and future generations. In fulfillment of this responsibility, governments may create new institutions and mechanisms as well as authorize responsible parties to manage the commons or resources therein. All actions taken by government or its designees must be transparent and accountable to commoners.
7. The precautionary principle is a useful guide for protecting the commons for present and future generations.
8. Eminent domain (the "taking" of private property for a public use and subject to payment of just compensation) is the principal legal process for moving private property into the commons and protecting or enhancing the commons.
9. The market, commerce, and private property owners shall not externalize damage or costs onto the commons. If the commons are damaged, the polluter, not the commoners, pays.
10. Future generations shall not inherit a financial debt without a corresponding commons asset.