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Creating the Law of Environmentally Sustainable Economic Development

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PACE ENVIRONMENTAL LAW REVIEW

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ARTICLE**Creating the Law of
Environmentally Sustainable Economic
Development**

JOHN C. DERNBACH*

I. INTRODUCTION

Americans have many reasons to ignore the development part of sustainable development. Sustainable development and sustainability are used interchangeably so often that it is easy to assume that the term “development” has no significant meaning; sustainability is what matters. Development is also not a term that Americans frequently use. We think of ourselves as a developed country. Unlike many poorer countries, we do not organize our thinking around a national objective of development.

And when we use the term, we modify it with an adjective, especially “economic,” as in “economic development.” For many, in fact, the terms “development” and “economic development” are synonymous. The replacement of a favorite field or woodlot with housing or a shopping mall, for example, is called development. When people understand development in those terms, sustainable development sounds like an oxymoron. Thus, the term

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“development” is often also ignored because it seems confusing at best and inconsistent with sustainability at worst.

This view, while understandable, is also profoundly mistaken. We need to unpack the term “development,” finding a way to make the term meaningful for the United States, if we are to have any real chance to achieve a sustainable America. More particularly, we need to address the law that supports economic development and understand how to make that law a powerful force on behalf of sustainability. In fact, much of the limited legal progress made by the United States toward sustainable development has involved the law of economic development. The growing use of such terms as “green economy” and “green jobs” is indicative of the direction that both policy and law are evolving.¹ Municipalities across the United States, in particular, are consciously using renewable energy technology, green infrastructure, recycling, brownfield redevelopment, and other forms of more sustainable economic development not only to create jobs and improve their economies, but also make themselves more attractive places to live and work.²

Section II provides an overview of the history of sustainable development, emphasizing that the term is intended to integrate environmental protection with conventional development. Because integrated decision-making is the fundamental action principle in sustainable development, it is impossible to make sense of sustainable development without understanding development.

Section III suggests that the direct translation of development to the United States is problematic, especially from a legal perspective. The law of development, which is not well described at the international level, is hardly even used in United States law, much less well characterized. On the other hand, economic development law, while also not well characterized, has at least some parameters that are understood among economic

1. See, e.g., UNITED NATIONS ENV'T PROGRAMME, TOWARDS A GREEN ECONOMY: PATHWAYS TO SUSTAINABLE DEVELOPMENT AND POVERTY ERADICATION (2011), available at http://www.unep.org/GreenEconomy/Portals/93/documents/Full_GER_screen.pdf.

2. See generally JOAN FITZGERALD, EMERALD CITIES: URBAN SUSTAINABILITY AND ECONOMIC DEVELOPMENT (2010).

development practitioners in the public and private sector. Section III also describes at least seven different kinds of economic development laws that are making development more sustainable in the United States. It suggests that better understanding of these laws, as well as their common characteristics, will enable us to make a smoother and more rapid transition to sustainability. Of course, environmental and natural resources law, various private and semi-public certification systems and standards, and actions by nongovernmental organizations and private individuals all have a role to play in the journey to sustainability. My argument here is that the law of economic development also has an important role to play. The importance of this argument is underscored by the fact one of the themes of World Summit on Sustainable Development, to be held in Rio de Janeiro in June 2012, is “a green economy in the context of sustainable development and poverty eradication.”³

To be sure, focusing on economic development is fraught with risks. Most obviously, sustainable economic development is easily confused with sustainable growth—a goal of continued increases in gross domestic product that has nothing to do with environmental protection. To minimize the risk of being misunderstood, I am referring to *environmentally sustainable* economic development. Another risk is ignoring important dimensions of *social* development, particularly public health, job creation, and environmental justice. In this article, environmentally sustainable economic development is designed to also maintain and improve public health, create employment, and foster intergenerational and intragenerational equity. Finally, there are many objections to unsustainable forms of economic development, including its priority on short-term gains, frequently at the expense of long-term human needs. But this article is not a categorical defense of current forms of economic development; it is, rather, an effort to describe the direction in

3. G.A. Res. 64/236, ¶ 20(a), U.N. Doc. A/RES/64/236 (Mar. 31, 2010), available at <http://www.uncsd2012.org/files/OD/ARES64236E.pdf>. The other theme is “the institutional framework for sustainable development.” *Id.*

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which the law of economic development needs to move in order to be more environmentally sustainable.

These risks and objections also underscore my central point: economic development is the big elephant in the sustainability room, and we ignore it at our peril. Yet by recognizing and harnessing this elephant on behalf of sustainability, we greatly improve our chances of success.

II. UNDERSTANDING “DEVELOPMENT” IN SUSTAINABLE DEVELOPMENT

The core idea of sustainable development is the integration of environmental protection with development.⁴ Instead of development at the environment’s expense, or environmental protection instead of development, the idea is to achieve both development and environmental protection at the same time.⁵ Because sustainable modifies development, the meaning of development is central to the meaning of sustainable development.

A. Origins: Development

Development is a framework for improving the quality of life and standard of living of people living in the poorest countries of the world, which are also (not surprisingly) known as developing countries. While there “is no universally accepted legal definition of development,”⁶ its ordinary meaning can be inferred from a United Nations General Assembly resolution on the right to development, various U.N. Agendas for Development, the annual Human Development Reports of the United Nations Development Program and the indicators of development that are employed in

4. See John C. Dernbach, *Achieving Sustainable Development: The Centrality and Multiple Facets of Integrated Decisionmaking*, 10 IND. J. GLOBAL LEGAL STUD. 247, 248 (2003) [hereinafter *Achieving Sustainable Development*].

5. World Comm’n on Env’t and Dev., Report of the World Commission on Environment and Development: Our Common Future 37, U.N. Doc. A/42/427 (Aug. 4, 1987), available at <http://www.undemocracy.com/A-42-427.pdf> [hereinafter *Our Common Future*].

6. KOEN DE FEYTER, WORLD DEVELOPMENT LAW: SHARING RESPONSIBILITY FOR DEVELOPMENT 3 (2001).

those reports, and a considerable body of development experience.⁷

As an international project, development came into prominence at the end of World War II, when a series of international agreements and treaties created an architecture that supported and fostered it. A foundation for development is provided by peace and security, which is supported most prominently by the United Nations Charter. Economic development and social development or human rights are key pillars of development that depend on this foundation.⁸ Peace and security make social and economic development possible; it is difficult to operate a business or go to school with tanks in the street or incoming artillery shells. America's own experience with September 11th underscores the powerful effect that threats to peace and security can have on the national psyche as well as other national goals. Social development and economic development, in turn, are mutually dependent. Children who are not well educated or who are not healthy are unlikely to be productive or effective workers, and economic development enables higher levels of education and public health.⁹

The human goals of development are human quality of life, freedom, and opportunity. "For most practitioners and theorists . . . the overall objectives of alleviating poverty and human suffering and of improving the human condition more generally are the desired end product of the development process."¹⁰ In its landmark report on sustainable development, *Our Common Future*, the World Commission on Environment and Development stated: "The satisfaction of human needs and aspirations is the major objective of development."¹¹ Essentially, "development aims at enlarging the opportunities people have in their lives."¹²

7. *Id.* at 3-8.

8. John C. Dernbach, *Sustainable Development as a Framework for National Governance*, 49 CASE W. RES. L. REV. 1, 3 (1998) [hereinafter *Framework*].

9. *See id.* at 9-14.

10. RUMU SARKAR, INTERNATIONAL DEVELOPMENT LAW: RULE OF LAW, HUMAN RIGHTS, AND GLOBAL FINANCE xvi (2009).

11. *Our Common Future*, *supra* note 5, at 54.

12. DE FEYTER, *supra* note 6, at 32; *see also id.* at 33 ("There also is consensus on designating the (developing) State as the actor with the primary responsibility for realizing development.").

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Amartya Sen has described development as a process that enlarges individual freedom.¹³

The post-war development project has been very successful in many ways. People are living longer; the global economy has grown considerably; and people are healthier. Globalization has brought economic opportunity to hundreds of millions of people throughout the world. And, contrary to the fears of many who grew up in the wake of World War II, and for whom the Cold War meant the ever present possibility of nuclear annihilation, there has not been a third world war. So while this way of using the term “development” may be unfamiliar to many Americans, it goes to the core of what we say we care about—freedom, opportunity, and quality of life. Development also seeks improved peace and security, economic development, and social development—which we regard as fundamental. Yet development, and the treaties that supported and encouraged it, had nothing to say about environmental protection.

B. The Addition of “Sustainable”

As the effects of environmental pollution, exploitation of natural resources, population growth, and poverty have become clearer and more obvious, a second line of thinking gained prominence in the 1970s and 1980s—one focused on protection and restoration of the environment. The first international conference on the environment —held in Stockholm in 1972—recognized the importance of environmental protection but did not in any systematic way try to address the relationship between environment and development.¹⁴ Yet the impossibility of protecting the environment without directly addressing development was becoming more and more apparent.

In 1980, the International Union for the Conservation of Nature and Natural Resources (IUCN) published a conservation strategy for living resources that explicitly linked conservation and development in the term sustainable development.¹⁵ The

13. See AMARTYA SEN, *DEVELOPMENT AS FREEDOM* 3 (1999).

14. *Framework*, *supra* note 8, at 17-18.

15. INT'L UNION FOR THE CONSERVATION OF NATURE AND NATURAL RES., *WORLD CONSERVATION STRATEGY: LIVING RESOURCE CONSERVATION FOR SUSTAINABLE*

strategy, which used the term ‘conservation’ rather than ‘environment’ or ‘environmental protection,’ defined conservation as “the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations.”¹⁶ It then addressed the difficult problem of reconciling conservation and development:

Conservation and development have so seldom been combined that they often appear—and are sometimes represented as being—incompatible. Conservationists themselves have helped—quite unwittingly—to foster this misconception. Too often they have allowed themselves to be seen as resisting all development—although often they have been forced into that posture because they have not been invited to participate in the development process early enough. The result has been not to stop development, but to persuade many development practitioners, especially in developing countries, that conservation is not merely irrelevant, it is harmful and anti-social. Consequently, development has continued unimpeded by conservationists yet with the seeds of its eventual failure lying in the ecological damage that conservation could have helped prevent.¹⁷

The IUCN then added:

[T]here is a close relationship between failure to achieve the objectives of conservation and failure to achieve the social and economic objectives of development—or, having achieved them, to sustain that achievement. Hence the goal of the World Conservation Strategy is the integration of conservation and development to ensure that modifications to the planet do indeed secure the survival and wellbeing of all people.¹⁸

Seven years later, in *Our Common Future*, the World Commission on Environment and Development reached the same

DEVELOPMENT (1980), available at <http://data.iucn.org/dbtw-wpd/edocs/WCS-004.pdf>.

16. *Id.* at ch. 1 ¶ 4.

17. *Id.* at ch. 1, ¶ 9.

18. *Id.* at ch. 1, ¶ 12.

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conclusion: “Environment and development are not separate challenges; they are inexorably linked. Development cannot subsist upon a deteriorating environmental resource base; the environment cannot be protected when growth leaves out of account the costs of environmental destruction.”¹⁹ Thus: “The common theme throughout this strategy for sustainable development is the need to integrate economic and ecological considerations in decision making. They are, after all, integrated in the workings of the real world.”²⁰ The Commission was nonetheless clear-headed about the challenge of integration:

Economic and ecological concerns are not necessarily in opposition. For example, policies that conserve the quality of agricultural land and protect forests improve the long-term prospects for agricultural development. An increase in the efficiency of energy and material use serves ecological purposes but can also reduce costs. But the compatibility of environmental and economic objectives is often lost in the pursuit of individual or group gains, with little regard for the impacts on others, with a blind faith in science’s ability to find solutions, and in ignorance of the distant consequences of today’s decisions. Institutional rigidities add to this myopia.²¹

The Commission’s report also contains the iconic definition of sustainable development: “development . . . that . . . meets the needs of the present without compromising the ability of future generations to meet their own needs.”²² It is instructive that this definition focuses on development and does not mention the environment or conservation.

The Commission recommended that its report be translated into an international plan of action for sustainable development.²³ That is exactly what happened in 1992, at the United Nations Conference on Environment and Development (UNCED, or Earth Summit) in Rio de Janeiro. At the Earth Summit, nations of the world – including the United States –

19. Our Common Future, *supra* note 5, at 48.

20. *Id.* at 71.

21. *Id.*

22. *Id.* at 24.

23. *Id.* at 343-44.

endorsed an ambitious agenda for sustainable development (Agenda 21)²⁴ and a set of 27 principles to guide that effort (known as the Rio Declaration).²⁵ Essentially, sustainable development modifies the essential development requirements—peace and security, economic development, and social development or human rights—by adding another requirement—environmental protection and restoration. Yet it has exactly the same goals—freedom, opportunity, and quality of life—as development.²⁶ A major feature of both the plan for sustainability and the principles is integrated decision making. According to Agenda 21: “The overall objective [of sustainable development] is to improve or restructure the decision-making process so that consideration of socio-economic and environmental issues is fully integrated . . .”²⁷ A key principle in the Rio Declaration is integrated decision making: “In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.”²⁸ An analysis of the various principles of the Rio Declaration indicates that this is the key decision-making principle for sustainable development.²⁹

The historic meaning of sustainable development, in sum, is inextricably tied to the history and meaning of development, and cannot be separated from it. If we don’t understand development, we cannot understand or achieve sustainable development.

III. MAKING DEVELOPMENT SUSTAINABLE IN THE UNITED STATES

A. Translating Development Law as Economic

24. United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Agenda 21*, U.N. Doc. A/CONF.151.26 (1992), available at <http://www.un.org/esa/dsd/agenda21/> [hereinafter *Agenda 21*].

25. United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26/Rev.1 (Aug. 12, 1992), reprinted in 31 I.L.M 874 (1992) [hereinafter *Rio Declaration*].

26. See *Framework*, *supra* note 8, at 21-25.

27. *Agenda 21*, *supra* note 24, ¶ 8.3.

28. *Rio Declaration*, *supra* note 25, at principle 4.

29. See *Achieving Sustainable Development*, *supra* note 4, at 247.

Development Law

The law of development is not well characterized at the international level, and is not understood in the United States as a field of practice or study. Economic development law is also not often understood as a distinct field of law, but there is a shared understanding among many economic development practitioners of some of its key elements. It is also understood by many as the core defining feature of development. It thus provides a way—albeit an imperfect way—of translating development law for the United States.

At the international level, the “subject of development law is not well understood or well defined.”³⁰ Much of development has historically involved a variety of financial, technical, and other assistance efforts by developed countries or multilateral organizations such as the World Bank. These efforts, of course, have been directed at improving the level of development in developing countries—and thus quality of life, freedom, and opportunity for the people living in those countries. Recurring issues include the rule of law,³¹ property rights and land reform,³² the question of whether there is a human right to

30. SARKAR, *supra* note 10, at xvi. Law and development lacks a “shared analytical framework” and commonly recognized “set of reference points.” Amanda Perry-Kessaris, *Introduction, in LAW IN THE PURSUIT OF DEVELOPMENT: PRINCIPLES INTO PRACTICE?* 1, 3 (Amanda Perry-Kessaris ed., 2010). Five aspects of law and development that need to be mapped are: (1) assessment of existing rights and duties[;] (2) capacity building for new infrastructure, rules and personnel[;] (3) contestation among existing and future rights based on different conceptions of development; (4) delegation to individuals and institutions of responsibilities and arrangements for implementation[;] and (5) evaluation and feedback. *Id.* at 5-7.

31. *See id.* at 155-97; *see also* Linn Hamnergren, *With Friends Like These: Can Multilateral Development Banks Promote Institutional Development to Strengthen the Rule of Law?*, in *LAW IN THE PURSUIT OF DEVELOPMENT: PRINCIPLES INTO PRACTICE?* 202 (Amanda Perry-Kessaris ed., 2010); Dzenan Sahovic, *Assessing the Sociocultural Viability of Rule-of-Law Policies in Post-Conflict Societies: Culture Clash*, in *LAW IN THE PURSUIT OF DEVELOPMENT: PRINCIPLES INTO PRACTICE?* 254 (Amanda Perry-Kessaris ed., 2010).

32. *See generally* HERNANDO DE SOTO, *THE MYSTERY OF CAPITAL: WHY CAPITALISM TRIUMPHS IN THE WEST AND FAILS EVERYWHERE ELSE* (2000); Patrick McAuslan, *Land and Power in Afghanistan: In Pursuit of Law and Justice?*, in *LAW IN THE PURSUIT OF DEVELOPMENT: PRINCIPLES INTO PRACTICE?* 269 (Amanda Perry-Kessaris ed., 2010). For an excellent collection of essays on De Soto’s

development,³³ empowerment of women,³⁴ novel approaches to economic development such as microfinance,³⁵ and international financial issues such as borrowing and privatization.³⁶

A threshold challenge is translating these concepts for the United States. The broad aims of sustainable development—economic development, environmental protection, and social development or human rights, all based on a foundation of peace and security—are important and essential to the United States no less than other countries. But the United States is not only a developed country; it is the most dominant of the developed countries. While our lagging economy reminds us that maintaining and improving this level of development is not something we should take for granted, much of what is urgent and necessary in developing countries has long ago been more or less achieved for the great majority of American citizens. And it has been achieved because of hundreds if not thousands of laws at the local, state, and federal level that affect the environment, economic and social development, and national security. It is thus not surprising that there is no compilation or treatise describing those laws for the United States, much less a category of practice or study for development analogous to that existing for environmental law or natural resources law. Moreover, many of these issues central to international development law have been resolved to a very great degree in the United States—especially adherence to rule of law and property rights, but also, to a lesser but still considerable extent, empowerment of women. Other issues, including those involving the receipt of development assistance, have little if any relevance.

To create a better and more useful way of understanding development—or at least part of it—it appears necessary to

work, *see generally* HERNANDO DE SOTO AND PROPERTY IN A MARKET ECONOMY (D. Benjamin Barros ed., 2010).

33. *See* SARKAR, *supra* note 10, at 199-254.

34. *See generally* Ann Stewart, *Engendering Responsibility in Global Markets, Valuing the Women of Kenya's Agricultural Sector*, in *LAW IN THE PURSUIT OF DEVELOPMENT: PRINCIPLES INTO PRACTICE?* 26 (Amanda Perry-Kessaris ed., 2010).

35. *See generally* MUHAMMAD YUNIS, *BANKER TO THE POOR: MICRO-LENDING AND THE BATTLE AGAINST WORLD POVERTY* (1999).

36. SARKAR, *supra* note 10, at 257-391.

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narrow the term to some degree. Perhaps the most attractive option is to narrow the term “development law” to specific kinds of development law. Economic development law is one type of development law, and perhaps the most prominent.³⁷

It is also not difficult to identify some of the key components of a U.S. law of economic development, even thematically. As the international literature indicates, adherence to the rule of law—including a supportive political culture, an effective judiciary, and a strong and well-educated bar—provides a foundation for development. Property, trade, business organization, and tax law, as well as government subsidies, also tend to be broadly supportive of development. A variety of laws explicitly support economic development, including a variety of forms of financial assistance to business and industry.³⁸ Economic development laws also authorize and fund economic development agencies whose function is to attract and retain businesses in particular jurisdictions.³⁹ Other laws, such as building and construction codes, authorize and guide the construction and maintenance of private infrastructure such as residential buildings, stores, and factories. And still other laws authorize the construction and maintenance of public infrastructure that support economic

37. Two other types are social development law and community development law.

38. For example, Texas publishes a detailed compendium of state economic development laws, explaining that “Texas law offers many options for local leaders seeking to generate economic development and opportunity.” ATTORNEY GEN. OF TEX., ECONOMIC DEVELOPMENT HANDBOOK 2008 (2008), available at https://www.oag.state.tx.us/ag_publications/pdfs/econdevhb2008.pdf (cover letter from Texas Attorney General Greg Abbott). See also N.C. ECON. DEVELOPERS ASS’N & UNC SCHOOL OF GOV’T, ECONOMIC DEVELOPMENT HANDBOOK (John Q. Morgan ed., 3d ed. 2009), available at <http://www.sog.unc.edu/pubs/electronicversions/pdfs/econdevhbk09.pdf>.

39. The most obvious example at the federal level is the Economic Development Administration, which was created by the Public Works and Economic Development Act of 1965, 42 U.S.C. §§ 3121-33 (2006). For an overview of the agency’s work, see ECONOMIC DEVELOPMENT ADMINISTRATION, U.S. DEP’T OF COMMERCE, available at http://www.eda.gov/PDF/EDA%20Collateral%20Piece_With%202010%20Investment%20Policies.pdf. For a directory of state economic development agencies, including local economic development agencies in each state, see *Economic Development Directory, The Professional’s Directory*, <http://www.ecodevdirectory.com/> (last visited Apr. 9, 2011).

development, such as bridges, highways, and airports. Other laws influence or direct how we produce and what we consume. These include food health and safety laws as well as laws that regulate electric utilities. Still other laws have both social and economic development effects. The nation's system of public and private education supplies a workforce that will require greater and greater levels of knowledge and skill in the decades ahead. Workforce development laws provide training to unemployed persons to enable them to be useful to prospective employers.

A dominant theme in the history of the United States has been the use of law, in a variety of ways, to support and encourage economic development. Many of these laws, not surprisingly, encourage, support, and even reward unsustainable economic development and environmental degradation.⁴⁰ As Timothy Egan writes in *The Worst Hard Time*, federal homesteading laws caused or enhanced the Dust Bowl of the 1930s by encouraging wheat farmers to plow up enormous areas of sod in Oklahoma and Texas.⁴¹ Similarly, a variety of direct and indirect subsidies exist for the production of energy, particularly oil, natural gas, and coal.⁴²

This law of economic development is also quite different from environmental and natural resources law. Environmental and natural resources law is intended primarily to prevent or eliminate the most serious risks to human health and

40. See Jonathan H. Adler, *Free and Green: A New Approach to Environmental Protection*, 24 HARV. J. L. & PUB. POL'Y 653, 677-81 (2001). See generally RICHARD N.L. ANDREWS, *MANAGING THE ENVIRONMENT, MANAGING OURSELVES: A HISTORY OF AMERICAN ENVIRONMENTAL POLICY* (2d ed. 2006) (surveying U.S. history from the perspective of the many different kinds of laws that have encouraged economic development and the environmental impacts of those laws).

41. See generally TIMOTHY EGAN, *THE WORST HARD TIME: THE UNTOLD STORY OF THOSE WHO SURVIVED THE GREAT AMERICAN DUST BOWL* (2005).

42. See Roberta Mann, *Subsidies, Tax Policy and Technological Innovation*, in *GLOBAL CLIMATE CHANGE AND U.S. LAW* 565, 576-83 (Michael B. Gerrard ed., 2007); DAVID SANDALOW, *FREEDOM FROM OIL: HOW THE NEXT PRESIDENT CAN END THE UNITED STATES' OIL ADDICTION* 125 (2007) (describing "large literature on externalities related to oil use, as well as on government subsidies that promote oil use."). See generally Doug Koplow & John Dernbach, *Federal Fossil Fuel Subsidies and Greenhouse Gas Emissions: A Case Study of Increasing Transparency for Fiscal Policy*, 26 ANN. REV. ENERGY & ENV'T 361 (2001).

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environment, and leaves the various laws supporting economic development in place. Environmental and natural resources law also tends to be primarily regulatory because it involves a government agency setting limits on what specific private (and governmental) actors can do, and then enforcing those limits. Environmental and natural resources statutes and their supporting regulations are well known and easy to find; they are studied as such in law schools and are practiced as discrete fields of law. There is also significant public participation in the development and implementation of environmental and natural resources laws. The law of economic development, by contrast, has a different purpose, is not primarily regulatory, is not ordinarily practiced or studied as a distinct domestic field of law, and only sometimes involves public participation.

To be sure, environmental and natural resources laws have components that are relevant to sustainable development. The National Environmental Policy Act of 1969, for instance, declares that “it is the continuing policy of the Federal Government . . . 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.”⁴³ Moreover, environmental law has never been just about environmental protection; perhaps the most important purpose of environmental law is protection of human health.⁴⁴ In fact, environmental law also has other social, economic, and security purposes and effects.⁴⁵ Environmental law has also encouraged more sustainable behavior in other ways. Pollution control laws, with their focus on end-of-pipe limitations, have long encouraged many companies to engage in pollution prevention activities that change production and manufacturing methods to prevent or eliminate pollution in the first place.⁴⁶

43. National Environmental Policy Act, 42 U.S.C. § 4331(a) (2006).

44. See Celia Campbell-Mohn, *Objectives and Tools of Environmental Law*, in ENVIRONMENTAL LAW: FROM RESOURCES TO RECOVERY 111 (Celia Campbell-Mohn et al. eds., 1993).

45. See John C. Dernbach, *Citizen Suits and Sustainability*, 10 WIDENER L. REV. 503, 503 (2004).

46. See Stephen M. Johnson, *From Reaction to Proaction: The 1990 Pollution Prevention Act*, 17 COLUM. J. ENVTL. L. 153, 153-57 (1992).

The landowner liability provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (or Superfund), which once made contaminated lands virtually unmarketable, have now been modified to encourage “brownfield” redevelopment that creates jobs and economic opportunities in cities where these properties were once vacant.⁴⁷

Still, environmental and natural resources laws have not fundamentally changed the laws of development. It is true that the limitations and permitting requirements of environmental and natural resources laws have significantly reduced pollution from factories, power plants, and similar facilities. But they have not changed fundamental patterns of production and consumption that lead to both regulated and unregulated pollution. Most obviously, with less than 5 percent of the world’s population, the U.S. economy “accounts for more than 28 percent of the world’s production of goods and services.”⁴⁸ In addition, the United States “leads the world in use of natural resources, and, in most cases, in use of natural resources per capita, including fossil fuels and materials.”⁴⁹ In addition, environmental law has not thus far provided a comprehensive legal foundation for reducing greenhouse gas emissions or protecting biodiversity.

Nor is it clear that environmental and natural resources law, by itself, can drive sustainable development. Environmental and natural resources law are better at preventing the most risky and damaging acts; they are less effective at requiring or encouraging the most sustainable acts. In a market economy where an overwhelming number of development decisions are made by private actors, other laws are needed to encourage the highest and most effective levels of innovation and the greatest progress

47. See generally Joel B. Eisen, *Brownsfields Development: From Individual Sites to Smart Growth*, in *AGENDA FOR A SUSTAINABLE AMERICA* 57 (John C. Dernbach ed., 2009).

48. Jonathan Barry Forman, *Poverty: Greening the Tax and Transfer System to Create More Opportunities*, in *AGENDA FOR A SUSTAINABLE AMERICA* 187, 187 (John C. Dernbach ed., 2009).

49. Contributing Authors, *Progress Toward Sustainability: A Report Card*, in *AGENDA FOR A SUSTAINABLE AMERICA* 15, 18 (John C. Dernbach ed., 2009).

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toward sustainability.⁵⁰ If we are to move our environmental goals from damage control toward restoration, and if we are to move our economic goals in environmental protection from reducing costs toward creating opportunities and jobs, then we need to rely more heavily on, and modify, the laws governing economic development. Fortunately, there is abundant evidence that we have already started to do that.

B. Toward a Law of Environmentally Sustainable Economic Development

In the last decade or more, much of the progress made in the United States toward sustainability has not been made through changes in environmental or natural resources law. Rather, it has been made by laws expressly encouraging or requiring specific kinds of economic development that tends to be more sustainable than conventional economic development. There are at least seven types of these laws.

This is not to say that environmental law has been entirely stagnant or unhelpful. The use of habitat conservation plans under the Endangered Species Act⁵¹ and the growing regulation of greenhouse gases from mobile and stationary sources under the Clean Air Act⁵² – as well as the change to the Superfund statute described above – are examples of progress toward sustainability in the U.S. implementation of its environmental laws. The point is that an entirely different set of activities in the economic development arena are supplementing environmental law and, in many ways, are having an even greater effect. What follows is a preliminary typology of some of the most prominent of these laws.

1. Laws Requiring an Increase in a More Sustainable

50. See generally Dennis D. Hirsch, *Green Business and the Importance of Reflexive Law: What Michael Porter Didn't Say*, 62 ADMIN. L. REV. 1063 (2010).

51. See, e.g., A. Dan Tarlock & Andrew Zabel, *Biodiversity Conservation: An Unrealized Aspiration*, in AGENDA FOR A SUSTAINABLE AMERICA 269, 273-74 (John C. Dernbach ed., 2009); A. Dan Tarlock, *Biodiversity and Endangered Species*, in STUMBLING TOWARD SUSTAINABILITY 311, 320-23 (John C. Dernbach ed., 2002).

52. See, e.g., *Climate Change - Regulatory Initiatives*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/climatechange/initiatives/index.html> (last visited Apr. 9, 2011).

Activity.

A variety of recent laws, mostly enacted in the last several decades at the state level, require increases in renewable energy, energy efficiency, recycling, or some other more sustainable activity. These laws require a particular kind of economic development that can be understood as more sustainable because, among other things, it saves energy and materials, reduces emissions of fossil fuel, creates more jobs than conventional economic development, and saves money.

At least thirty-six states have statutes requiring that the percentage or amount of electricity demand met by renewable or alternative sources must be increased to a specified level by a specific date.⁵³ Each state has a particular mix, or portfolio, of types of energy sources. Renewable or alternative energy portfolio standards set a target that is ordinarily greater than the current percentage of renewable or alternative energy. Thus, a state with two percent renewable energy in its existing portfolio in 2011 might set a standard of eight percent to be achieved by 2016. The standard is typically accompanied by a legal mechanism for achieving it. States typically require every electricity provider to have renewable or alternative energy credits equal to some percentage of its annual sales. Providers can have their own renewable or alternative energy sources, or they can purchase credits from other generators. The standard, in sum, comes with a trading system for meeting it.⁵⁴

Somewhat similarly, energy efficiency resource standards are also becoming more common. An energy efficiency resource standard requires electricity and natural gas utilities “to achieve a particular percentage of energy savings relative to their average

53. *Renewable & Alternative Energy Portfolio Standards*, PEW CTR. ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm (last visited Feb. 23, 2011).

54. The state certifies these credits, monitors for compliance, and imposes penalties when necessary. For a web-based toolkit that is intended to help citizens and policy makers understand design and implementation issues, see *Renewable Electricity Standards Toolkit*, UNION OF CONCERNED SCIENTISTS http://go.ucsusa.org/cgi-bin/RES/state_standards_search.pl?template=main (last visited Feb. 23, 2011).

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energy sales” in prior years.⁵⁵ These energy savings are achieved by helping residential, commercial, and industrial customers to reduce their energy use through a variety of measures. At least twenty states have such laws, which require varying percentages of energy savings over time.⁵⁶ The American Council for an Energy-Efficient Economy estimates that enactment of comparable federal legislation would “save American consumers and businesses almost \$170 billion, create over 220,000 jobs,” and eliminate “the need to build 390 power plants.”⁵⁷

State recycling laws, which were enacted a little earlier, require that a specified percentage of the municipal solid waste generated in the state be diverted for recycling. Since Pennsylvania adopted its recycling and waste reduction law in 1988,⁵⁸ the recycling rate, which was about two percent when the Act was passed,⁵⁹ has now increased to a point where several million tons of recyclable materials are diverted from disposal every year.⁶⁰ An estimated 3,200 recycling establishments in the Commonwealth employ over 52,000 individuals, generating an

55. John A. “Skip” Laitner et al., *The National Energy Efficiency Resource Standard as an Energy Productivity Tool*, 17 U.S. ASS’N ENERGY ECON. 16, 16 (2009).

56. *Energy Efficiency Standards and Targets*, PEW CTR. ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/what_s_being_done/in_the_states/efficiency_resource.cfm (last visited Feb. 23, 2011).

57. In addition, the legislation would reduce projected 2020 U.S. greenhouse gas emissions by four percent. These impacts would be in addition to those achieved by existing state laws. See *Energy Efficiency Resource Standards: Hearing on S. 548 Before S. Comm. on Energy and Natural Res.*, 111th Cong. 3 (2009) (statement by Steven Nadel, Executive Director, American Council for an Energy-Efficient Economy).

58. Municipal Waste Planning, Recycling and Reduction Act, tit. 53 PA. STAT. ANN. §§ 4000.101-4000.1904 (West 2011).

59. PA. DEP’T OF ENVTL. PROT., PENNSYLVANIA’S RECYCLING PROGRAM: 2000-2001 ACT 101 ANNUAL REPORT TO THE GENERAL ASSEMBLY OF PENNSYLVANIA 1 (2001), available at <http://www.elibrary.dep.state.pa.us/dsweb/Get/Version-45909/2520-BK-DEP2586%202000-2001.pdf> (statement of Governor Mark Schweiker).

60. John Dernbach & Widener Univ. Seminar on Climate Change, *Next Generation Recycling and Waste Reduction: Building on the Success of Pennsylvania’s 1988 Legislation*, WIDENER L. J. (forthcoming 2011).

estimated \$2.2 billion in annual payroll dollars,⁶¹ “over \$18 billion in sales . . . and \$30.5 million in taxes.”⁶² The legislation has also saved Pennsylvanians more than \$1 billion in disposal costs since it was first adopted.⁶³

2. Laws Creating a Legal Structure in Which a More Sustainable Activity can Flourish

These laws do not require a specified increase in a particular activity. Rather, they provide legal authorization for a particular activity, such as net metering or the production of organic food. In so doing, they enable that activity to compete in the market.

The amount of electricity used in a customer’s residence or business is normally measured by a billing meter. A growing number of customers also generate electricity because, for example, they have solar photovoltaic panels on their roofs. Forty-two states and the District of Columbia now authorize persons with their own energy generation systems to sell electricity they do not use to their local electric utility.⁶⁴ Under these net metering laws, the billing meter must measure electricity going in and out. If the customer’s net use of electricity is greater than what it generated, the customer is billed for the difference.⁶⁵ If the utility receives more electricity than it provided, it generally pays the customer the difference. Net metering laws eliminate a barrier to market participation by

61. PA. DEP’T OF ENVTL. PROT., 2005 RECYCLING DATA AND ECONOMIC VALUE 1 (2006), *available at* <http://www.dep.state.pa.us/dep/deputate/airwaste/wm/recycle/Data/2005recyfigs.pdf>.

62. *Id.* at 2.

63. PA. DEP’T OF ENVTL. PROT., THE FUTURE OF RECYCLING IN PENNSYLVANIA: ACT 175 RECYCLING PROGRAM PLAN 10 (2004), *available at* http://www.portal.state.pa.us/portal/server.pt/community/recycling/14060/recycling_reports_and_studies/589560 (click on Act 175 Recycling Program Plan).

64. *See Net Metering Programs by State*, U.S. DEP’T OF ENERGY http://www.eere.energy.gov/greenpower/resources/maps/netmetering_map.shtml (last visited Feb. 23, 2011); *see also* Valerie J. Faden, *Net Metering of Renewable Energy: How Traditional Electricity Suppliers Fight to Keep You in the Dark*, 10 WIDENER J. PUB. L. 109, 119-120 (2000).

65. Valerie J. Faden, *Net Metering of Renewable Energy: How Traditional Electricity Suppliers Fight to Keep You in the Dark*, 10 WIDENER J. PUB. L. 109, 120 (2000).

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enabling customers to sell electricity. Net metering also provides an additional incentive to develop and use small-scale renewable technologies because excess electricity can be sold to the local utility.⁶⁶ In some states, where there are caps on the percentage of electricity that can come from net metering, the popularity of net metering has meant that state legislatures consider increasing these caps.⁶⁷

Organic food certification provides another example. The Organic Foods Production Act, adopted as part of the 1990 Farm Bill, authorized the U.S. Department of Agriculture to establish uniform national standards for the production and handling of foods labeled as “organic.”⁶⁸ Producers who meet these standards are allowed to label their products as “USDA Certified Organic.” Final regulations implementing this program were adopted in 2000.⁶⁹ As the Department of Agriculture explained: “This national program will facilitate domestic and international marketing of fresh and processed food that is organically produced and assure consumers that such products meet consistent, uniform standards.”⁷⁰ According to the Organic Trade Association, organic food sales in the United States in 2009 were \$24.8 billion, a nearly twenty-five-fold increase from \$1 billion in 1990.⁷¹ It is true that organic does not necessarily mean sustainable, particularly when organic products are shipped thousands of miles by tractor trailer and are sold in lieu of locally grown agricultural products. Still, the relative absence of artificial fertilizers and pesticides means that organic agriculture tends to be significantly more sustainable than conventional agriculture.

3. Laws that Remove Legal Impediments to

66. *See id.* at 123.

67. Jennifer Kho, *Net Metering to Shine on in New York, California*, GIGAOM (Feb. 24, 2010, 5:00 AM), <http://gigaom.com/cleantech/net-metering-to-shine-on-in-new-york-california/>.

68. *See* Organic Food Production Act of 1990, 7 U.S.C. §§ 6501-6522 (2006).

69. *See generally* National Organic Program, 65 Fed. Reg. 80,548 (Dec. 21, 2000) (codified at 7 C.F.R. pt. 205).

70. *Id.* at 80,548.

71. *Industry Statistics and Projected Growth*, ORGANIC TRADE ASS'N, <http://www.ota.com/organic/mt/business.html> (last visited Feb. 23, 2011).

Sustainability

In many cases, existing laws that create sustainability roadblocks must be modified or repealed. These laws, in effect, privilege less sustainable forms of economic development over other and often more sustainable economic development. These roadblock laws exist at all levels of government. When New York City began considering the use of hybrid cars in taxi fleets, for instance, officials discovered that hybrids were effectively prohibited because of regulations requiring that taxis be of a larger size.⁷²

This economic favoritism for less sustainable approaches exists in other contexts as well. As already noted, a variety of direct and indirect subsidies exist for the production of energy, particularly oil, natural gas, and coal.⁷³ Because these subsidies are greater than those for energy conservation and efficiency, they tend to give fossil fuels a competitive edge in the marketplace.⁷⁴ More broadly, fossil fuel production and use is subsidized by the failure of federal law to internalize all of the costs associated with these forms of energy, including but not limited to greenhouse gas emissions. The resulting lower price for fossil fuels makes energy and conservation measures less cost effective for energy users.⁷⁵

Somewhat similarly, public funding for highways (also authorized by law) creates a competitive barrier for rail freight.

72. THOMAS L. FRIEDMAN, *HOT, FLAT, AND CROWDED: WHY WE NEED A GREEN REVOLUTION—AND HOW IT CAN RENEW AMERICA* 384 (2008).

73. See ENVTL. LAW INST., *ESTIMATING U.S. GOVERNMENT SUBSIDIES TO ENERGY SOURCES: 2002-2008* (2009), available at http://www.elistore.org/Data/products/d19_07.pdf; Roberta Mann, *Subsidies, Tax Policy and Technological Innovation*, in *GLOBAL CLIMATE CHANGE AND U.S. LAW* 565, 576-83 (Michael B. Gerrard ed., 2007); DAVID SANDALOW, *FREEDOM FROM OIL: HOW THE NEXT PRESIDENT CAN END THE UNITED STATES' OIL ADDICTION* 125 (2007) (describing “large literature on externalities related to oil use, as well as on government subsidies that promote oil use”); Koplow & Dernbach, *supra* note 42, at 364-371.

74. Koplow & Dernbach, *supra* note 42, at 371.

75. These direct and indirect subsidies are offset, to some degree, by state and federal taxes on the sale of gasoline and diesel fuel. See John C. Dernbach, *Stabilizing and Then Reducing U.S. Energy Consumption: Legal and Policy Tools for Efficiency and Conservation*, 37 ENVTL. L. REP. 10,003, 10,023 (2007).

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Railroads differ from trucking companies because they own and maintain their own tracks and rights-of-way. By contrast, trucks operate on public rights-of-way that are supported and maintained by taxes. Rail freight transportation is more energy efficient and less polluting than highway freight transportation, and does not contribute to highway congestion.⁷⁶

Other examples abound. Public funding for highways, as well as for state and municipal zoning laws favoring single-use zoning, contributes to overdependence on personal automobile travel and sprawl, and reduces quality of life in many communities. Tax laws also encourage unsustainable development. The federal mortgage interest tax deduction appears to create a major incentive for sprawl and, therefore, greater energy consumption.⁷⁷ Laws that establish local government boundaries and the powers and duties of those governments also have the effect of encouraging competition for ratables among municipalities, including cities and their suburbs. This competition, and the absence of revenue sharing among municipalities, also contributes to the development pattern we call sprawl.⁷⁸

For many of these impediments, the corrective path is straightforward even though it is not always politically easy. In New York City, the City Council first amended the law to authorize hybrids and then, in a separate action, required that all

76. See ASS'N OF AM. R.R., OVERVIEW OF AMERICA'S FREIGHT RAILROADS 7 (2008), available at <http://www.aar.org/PubCommon/Documents/AboutTheIndustry/Overview.pdf>.

77. See generally Roberta F. Mann, *The (Not So) Little House on the Prairie: The Hidden Costs of the Home Mortgage Interest Deduction*, 32 ARIZ. ST. L. J. 1347 (2000); see also Jonathan D. Weiss, *Local Governance*, in STUMBLING TOWARD SUSTAINABILITY 683, 689 (John C. Dernbach ed., 2002) (describing how the "federal mortgage deduction favors wealthier home buyers over those who are less wealthy, renters, multi-family property owners, and people who rehabilitate existing structures."). This is consistent with the observation that, "[b]ecause of increasing lot sizes, home sizes, and correspondingly larger mortgage financing packages, and because the deduction is indexed to income, the deduction is worth more to borrowers in the suburbs and newer areas than in central cities and older areas." John C. Dernbach & Scott Bernstein, *Pursuing Sustainable Communities: Looking Back, Looking Forward*, 35 URB. LAW. 495, 505 (2003).

78. Jonathan D. Weiss, *Local Governance*, in STUMBLING TOWARD SUSTAINABILITY 683, 696-97 (John C. Dernbach ed., 2002).

taxis be hybrids or high-mileage vehicles.⁷⁹ Partial steps in the right direction are also possible. A 1997 amendment to the Internal Revenue Code permits homeowners to purchase less expensive homes in cities without incurring capital gains tax for the sale of the more expensive home in the suburbs.⁸⁰ Although this was a step toward reduced energy use,⁸¹ the overall structure of federal tax incentives has not changed.

Congress has also redirected some federal funding to achieve a more even playing field. The last two reauthorizations of federal transportation laws – in 1991 and 2005 – have focused more on repair of existing roads than the building of new roads and have focused more on the development of alternatives to driving.⁸² Somewhat similarly, the playing field for energy could also be evened out more by reductions in fossil fuel subsidies, and increases in direct or indirect subsidies for renewable energy and energy efficiency, or both. Greater governmental assistance to rail freight, particularly assistance enabling the expansion of rail freight, could also help level the playing field.

Another approach is for interagency partnerships to coordinate and redirect the flow of federal money in a more sustainable direction. For example, the U.S. Environmental Protection Agency and the Departments of Transportation and Housing and Urban Development entered an interagency agreement on sustainable communities.⁸³ Among other things, the agreement is helping to redirect federal funding toward greater choice and lower costs in transportation:

Coordinating federal investments in infrastructure, facilities, and services meets multiple economic, environmental, and community objectives with each dollar spent. For example,

79. See FRIEDMAN, *supra* note 72, at 383-384.

80. See Tax Relief Act of 1997, Pub. L. 105-34, § 312, 111 Stat 788, 836 (1997) (codified as amended at 26 U.S.C. § 121 (2006)).

81. See *generally* ENVTL. LAW INST., LINKING TAX LAW AND SUSTAINABLE URBAN DEVELOPMENT: THE TAXPAYER RELIEF ACT OF 1997 (1998).

82. Trip Pollard, *Transportation: Challenges and Choices*, in AGENDA FOR A SUSTAINABLE AMERICA 365, 368 (John C. Dernbach ed., 2009).

83. HUD, DOT AND EPA PARTNERSHIP: SUSTAINABLE COMMUNITIES (2009), available at <http://www.epa.gov/smartgrowth/pdf/dot-hud-epa-partnership-agreement.pdf>.

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investing in public transit can lower transportation costs, reduce greenhouse gas emissions and other air pollution, decrease traffic congestion, encourage healthy walking and bicycling, and spur development of new homes and amenities around transit stations.⁸⁴

Finally, another option involves the “greening” of traditional development laws, including, but not limited to, laws used for land use purposes. Such actions would include greater use of mixed-use zoning, which would make it easier for people to walk to school, work, and stores, and which also appear to increase economic opportunities for low-income persons. Other such laws involve green and energy-efficient buildings, transit-oriented development, and green infrastructure.⁸⁵

4. Application of Traditional Economic Development Laws to More Sustainable Activities

As government economic development officials and most businesses well know, governments have a variety of tools with which to encourage business and industry to locate their facilities in a particular jurisdiction, and to also encourage them to retain and expand existing facilities. These tools include preferential tax treatment, siting assistance and incentives, workforce development assistance, and many others. There is a long history of governments using such tools to lure more polluting and less sustainable business and industry to specific states and municipalities. That history is now being changed to some degree, as state and local governments employ the very same economic development tools for the purpose of attracting clean energy production facilities.⁸⁶ In fact, Pennsylvania used a

84. ENVTL PROT. AGENCY, PARTNERSHIP FOR SUSTAINABLE COMMUNITIES, A YEAR OF PROGRESS FOR AMERICAN COMMUNITIES 3 (2010), available at http://www.epa.gov/dced/pdf/partnership_year1.pdf.

85. See generally JOHN R. NOLON & PATRICIA E. SALKIN, CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT LAW IN A NUTSHELL (2010).

86. See, e.g., Keith Schneider, *Midwest Emerges as Center for Clean Energy*, N.Y. TIMES, Dec. 1, 2010, at B8, available at http://www.nytimes.com/2010/12/01/business/energy-environment/01solarcell.html?pagewanted=1&_r=1 (describing a new solar shingle manufacturing facility that is being built with help from “federal manufacturing tax credits” and “various state aid programs”).

variety of these economic development tools – and some that had been modified specifically to attract clean energy projects – to persuade a major Spanish wind turbine manufacturer, Gamesa, to locate its North American headquarters, as well as a manufacturing plant, in the state.⁸⁷ Local governments are also using traditional economic development tools to lure more sustainable business and industry, together with the jobs they bring.⁸⁸

5. Laws and Policies That Overcome Market Barriers for More Sustainable Activities

In many cases, the actual market for a particular and more sustainable activity does not exist, or is operating at a less than optimal level of performance because of a variety of market barriers. To move economic development in a more sustainable direction, these barriers must be overcome.

Market barriers to greater energy efficiency – which discourage cost saving investments that also reduce pollution and greenhouse gas emissions – arise because of principal-agent problems (e.g., when the landlord has the ability to achieve greater energy efficiency but the tenant is paying the energy bills). In addition, consumers often give more weight to higher up-front costs and less weight to the much greater long-term savings. Some consumers are not even aware of the cost-saving opportunities that energy efficiency provides. For others, cost savings are only one of many factors influencing a consumer purchasing decision.⁸⁹

Thus, a basic purpose of energy efficiency laws is to overcome these market barriers. Energy efficiency laws for appliances, industrial equipment, and motor vehicles overcome these barriers

87. Jack Lyne, *Wind-Energy Giant Gamesa Bringing U.S. HQ, Up to 1,000 Jobs to Pennsylvania*, SITE SELECTION, Oct. 25, 2004, available at <http://www.siteselection.com/ssinsider/pwatch/pw041025.htm>.

88. See generally FITZGERALD, *supra* note 2.

89. NAT'L ACAD. OF SCI. ET AL., AMERICA'S ENERGY FUTURE: TECHNOLOGY AND TRANSFORMATION 136-37 (2009) (listing ten reasons why energy efficiency opportunities are not more attractive).

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by imposing minimum efficiency standards.⁹⁰ Another approach, implemented by 19 states, is based on public benefit funds for energy efficiency.⁹¹ These are typically funded through a public benefit charge imposed on the distribution service component of an electric bill, ranging from 0.03 to 3 mills per kWh. The charge is collected and administered by different entities in different states – state agencies, independent entities, and even utilities – and the money collected is then spent on a variety of energy efficiency projects and activities. These projects typically reduce the up-front cost of energy efficiency and, thus, minimize a key market barrier for the wider use of energy efficiency.

Another market barrier exists for energy efficiency upgrades and retrofits for existing residential and commercial buildings. Overall, these buildings are responsible for thirty-eight percent of carbon dioxide emissions in the U.S.⁹² In fact, sixty percent of residences are not well insulated, and seventy percent of commercial buildings lack either roof or wall insulation.⁹³ Energy efficiency retrofits in the nation's 130 million homes could reduce home energy use and energy bills by as much as 40% and \$21 billion, respectively, on an annual basis.⁹⁴ In spite of these opportunities, there is no large-scale effective market for retrofits and upgrades of such buildings.⁹⁵ The U.S. Department of Energy (DOE) has awarded \$508 million under the American Recovery and Reinvestment Act to 41 states, local governments, and other organizations for pilot programs to help create the

90. See John C. Dernbach & Marianne Tyrrell, *Federal Energy Efficiency and Conservation Laws*, in *THE LAW OF CLEAN ENERGY: EFFICIENCY AND RENEWABLES* (Michael Gerrard ed., forthcoming 2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1684201.

91. *Rules, Regulations, & Policies for Energy Efficiency*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (DSIRE), <http://www.dsireusa.org/summarytables/rrpee.cfm> (last visited Feb. 26, 2011).

92. U.S. DEP'T OF ENERGY, 2009 BUILDINGS ENERGY DATA BOOK 2-24, 3-18 (2009), available at <http://buildingsdatabook.eren.doe.gov/>.

93. MARILYN A. BROWN ET AL., TOWARDS A CLIMATE-FRIENDLY BUILT ENVIRONMENT 14 (2005), available at www.pewclimate.org/docUploads/Buildings_FINAL.pdf.

94. MIDDLE CLASS TASK FORCE, COUNCIL ON ENVTL. QUALITY, RECOVERY THROUGH RETROFIT 1 (2009), available at http://www.whitehouse.gov/assets/documents/Recovery_Through_Retrofit_Final_Report.pdf.

95. *Id.*

needed infrastructure.⁹⁶ DOE plans to make the lessons learned from these programs available to other communities as part of its effort to scale up retrofits across the country.⁹⁷

6. Economic Development Legislation that Also has Environmental and Job Creation Benefits

During the financial meltdown in 2008 and 2009, Congress adopted the Consumer Assistance to Recycle and Save (CARS) Act of 2009.⁹⁸ This law, also known as the “Cash for Clunkers” law, provided government-funded rebates of \$3,500 to \$4,500 for less fuel efficient vehicles that were traded in for more fuel efficient vehicles.⁹⁹ Although the primary beneficiaries of the law were the automobile industry and its suppliers, the law also improved fuel efficiency in the vehicle fleet, and helped reduce greenhouse gas emissions.¹⁰⁰

7. Laws that Support the Development of Green Infrastructure

Much energy is wasted because U.S. infrastructure – including the transportation system as well as the electric grid – is inefficient. The American Recovery and Reinvestment Act of 2009 provided \$8 billion for high-speed rail investments,¹⁰¹ \$1.5 billion for public transit improvements and infrastructure investments,¹⁰² and \$3.4 billion for modernization of the electric

96. See, e.g., *BetterBuildings*, U.S. DEP'T OF ENERGY, <http://www.eere.energy.gov/betterbuildings/> (last visited Feb. 26, 2011).

97. *Id.*

98. See generally Pub. L. 111–32, § 1302, 123 Stat. 1859, 1909 (2009).

99. *Id.*

100. See Marianne Tyrrell & John C. Dernbach, *The 'Cash for Clunkers' Program: A Sustainability Evaluation* (Widener Law Sch. Legal Studies Research Paper Series, Paper No. 11-08, 2011) (forthcoming 2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1766098 (abstract).

101. American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115, 208 (2009).

102. *Id.* § 203. Other allocations in the Act, which are reported to total \$8.4 billion, support related efficiency measures. See, e.g., *Where the Money Goes: Selected Programs from the \$789.2 Billion Bill*, WALL ST. J., http://s.wsj.net/public/resources/documents/WSJ_Stimulus_021209.pdf (last visited Mar. 7, 2011).

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grid.¹⁰³ Such funding is a small positive step toward a much more energy-efficient and, thereby, more sustainable infrastructure that is capable of supporting economic development at a lower cost and with less pollution.

IV. CONCLUSION

A key ingredient to sustainable development is making the law of economic development more environmentally sustainable. This can be done in a variety of ways, and much of the progress toward sustainability in the United States over the past two decades has been the result of such laws. While environmental law and natural resources law are also indispensable to sustainable development, there is already a considerable body of expertise and understanding of them. We have less expertise and understanding on how to make economic development law more environmentally sustainable. We need to remedy this problem – quickly – if we are to achieve sustainability as smoothly as we would like.

We may also find that this approach bridges the ideological chasm in the United States on environmental policy. Because environmental regulation is the traditional vehicle for environmental protection, the environmental policy debate tends to focus on more vs. less regulation. When we also employ economic development tools on behalf of environmental protection, we may find that the path to a sustainable society has broader public support.

103. American Recovery and Reinvestment Act of 2009 § 139.