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Source: *Business Ethics Quarterly*, Vol. 5, No. 4, The Environment (Oct., 1995), pp. 779-794

Published by: [Philosophy Documentation Center](#)

Stable URL: <http://www.jstor.org/stable/3857414>

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A REFLEXIVE MODEL OF ENVIRONMENTAL REGULATION

Eric W. Orts *

ALTHOUGH contemporary methods of environmental regulation have registered some significant accomplishments, the current system of environmental law is not working well enough. First the good news: Since the first Earth Day in 1970, smog has decreased in the United States by thirty percent. The number of lakes and rivers safe for fishing and swimming has increased by one-third. Recycling has begun to reduce levels of municipal waste. Ocean dumping has been curtailed. Forests have begun to expand.¹ One success story is the virtual elimination of airborne lead in the United States. Another is the rapid phase-out of ozone-layer depleting chemicals worldwide.² Nevertheless, prominent commentators of diverse political persuasions agree in an assessment that conventional models of environmental law have "failed."³ Many environmental problems remain unsolved: species extinction, global desertification and deforestation, possible global climate change, and continuing severe air and water pollution in urban areas and poor countries.⁴ What is more, successful environmental protection has come only at enormous economic cost. By the year 2000, the Environmental Protection Agency (EPA) estimates that the United States will spend approximately *two percent* of its gross national product on environmental pollution control.⁵ Academic economists have pointed out the nonsensical inefficiency of many environmental regulations, but usually to no avail.⁶

A common response to continuing environmental problems is to seek political demons. Depending on one's point of view, the enemies are big business "polluters" or environmentalist "tree huggers" or both. This kind of adversarial environmental politics is counterproductive. Here, I suggest instead that the failures of contemporary environmental law owe more to outmoded regulatory methods than to substantive politics. The next generation of environmental protection requires supplementing conventional methods of regulation with a new model.

I recommend that we should begin to consider seriously a new model of *reflexive environmental law*.⁷ This regulatory strategy aims to provide more effective as well as more efficient environmental regulation. In some cases, it may even reduce the need for making tradeoffs between values of economic growth and environmental protection by encouraging new solutions that provide gains for both. This is not to discount the importance of making difficult tradeoffs between "economy" and "nature." Tradeoffs must be made sometimes.

Like many social problems, however, environmental issues are not usually black and white. Complex shades and colors better describe most important environmental issues. The legal problem is to choose the most effective method of addressing them.

By reflexive environmental law, I mean essentially a legal theory and a practical approach to regulation that seeks to encourage self-reflective and self-critical processes within social institutions concerning the effects they have on the natural environment. In other words, reflexive environmental law aims to establish internal evaluative procedures and patterns of decision making within institutions to lessen environmental harm and to increase environmental benefit. The idea is to employ law not directly in terms of giving specific orders or commands, but indirectly to establish incentives and procedures that encourage institutions to think critically, creatively, and continually about how their activities affect the environment and how they may improve their environmental performance.

In referring to "self-reflecting" and "thinking" social institutions, I do not mean to reify them. People, of course, must do the thinking, not abstract social entities. However, to the extent that people have roles within social institutions organized to pursue collective goals or purposes, they direct their thoughts and efforts toward collective ends. It therefore makes sense to consider the manner in which social institutions "think" as shorthand for the thoughts and activities of people following roles or jobs defined within collective groups. Conversely, institutions often direct and circumscribe the thoughts and activities of people acting within them.⁸

As a general approach in social theory, Anthony Giddens defines "reflexivity" as "the fact that social practices are constantly examined and reformed in the light of incoming information about those very practices."⁹ A theory of reflexive law operationalizes this insight in concrete terms of the governance of institutions. Reflexive law begins from a social theoretical perspective rather than a strictly legal one. Thinking about law only from a legal perspective inevitably truncates analysis, confining it to a narrow perspective of the legal system and its institutions. Reflexive law recognizes the complexity of social life and the diversity of the many institutions created to achieve various ends. It aims to guide rather than to suppress the social complexity of institutions. Reflexive law considers methods by which to embed the quality of reflexivity or self-reflection within institutions. It attempts to off-load some of the burdens of direct regulation to encourage self-regulation of social institutions. The institutions may include a number of voluntary associations, including groups that pursue educational, philanthropic, political, or religious ends.

In the environmental context, public interest and citizens' groups can play an enormously beneficial role. Law can help to structure their contribution. A reflexive model of environmental regulation also involves the economic institutions of business. It seeks to enlist the creative powers of business in finding environmental solutions rather than seeing business always as the "bad guy"

who must be stopped or controlled. In this sense, reflexive environmental law breaks free of "the tradition we have developed of labelling different categories of participants in environmental issues as good guys and bad guys — the cowboy hero environmental protection types wearing the white hats versus the sinister despoilers of nature wearing the black hats."¹⁰

Even with this explanation, I have probably not yet made clear exactly what I mean by reflexive environmental law. In order to flesh out the idea further, let me first provide some perspective by briefly describing the two prevailing models of environmental regulation employed at present. Then I return to describe reflexive environmental regulation in contrast to the two conventional models.

Conventional Models of Environmental Law

The two basic conventional models or styles of environmental regulation are command-and-control and market-based regulation.

Command-and-control is the most common. As its name suggests, command-and-control achieves environmental protection by ordering regulated individuals and institutions to behave in a specified manner. There are two variations. Performance-based regulation sets limits to emissions of pollutants, usually through a system of government-issued permits. Technology-based regulation mandates the use of pollution-control devices, such as emission-control technology for automobiles.¹¹

Although it has had some success, command-and-control has been widely and incisively criticized by legal academics. The main criticism is economic. Command-and-control is not economically efficient in doing the job of protecting the environment.¹² Command-and-control sets broadly gauged standards for environmental performance and requires finely specified pollution-control technology. In doing so, command-and-control becomes inevitably a blunt instrument, even in the hands of experienced administrators. Environmental problems have proven notoriously complex. The problems themselves are often multi-faceted, the science involved is often rapidly changing, the economic and social context is often very finely textured, and the regulatory apparatus itself is increasingly complex. Setting one performance or technological standard to apply across the board does not take account of this complexity. Even when command-and-control works to achieve its environmental goals, the economic cost is often staggering because blunt standards over-deter some and under-deter others without regard to differences in specific circumstances. The inefficiency of command-and-control is not only bad for the economy, it is bad for the environment. Money saved by making regulation more efficient could go to more effective environmental protection, improved economic well-being, or both.

There are a number of other problems with command-and-control in addition to its economic inefficiency. For the sake of brevity, I will just list four of them.

1. *Command-and-control depends too much on administrative agencies, which are vulnerable to changing political winds, capture, and rent-seeking.* Administrative agencies, especially executive agencies, are subject to political

forces, such as the election of different Presidents. Recall the infamous influence of former Vice President Quayle's Council on Competitiveness which held up every new environmental regulation deemed to have a potentially adverse effect on economic growth.¹³ Another example is the Reagan Administration, which in its first two years cut a quarter of EPA's staff and slashed more than a quarter of its budget.¹⁴

More subtly, administrative agencies are prone to problems of "capture" by the very businesses they are supposed to regulate. Capture significantly undermines effectiveness. Agencies are also vulnerable to bureaucratic rent-seeking. Bureaucrats may be tempted to use an agency's administrative power to advance their own interests rather than the purposes for which the agency was established.¹⁵ These kinds of limitations lead one to question the long-term efficacy of relying solely on governmental agencies to police environmental protection.

2. *Command-and-control is too static.* Command-and-control establishes performance and technological standards at a given time when the legislation is passed or the regulation adopted. But society changes, the natural environment changes, technology changes, and knowledge changes. Command-and-control is ill-suited to regulating problems that involve fast-changing social and environmental conditions. It is static. Centrally administered through legislatures and agencies, command-and-control cannot easily "learn" from changing circumstances and changing scientific and social knowledge.¹⁶

3. *Command-and-control becomes too complex and unwieldy.* Environmental regulations stretch out for miles on library shelves. Environmental statutes proliferate. In the United States, there are now over one hundred separate federal environmental statutes and hundreds more state statutes.¹⁷ The texts of the most important federal statutes run to thousands of pages.¹⁸ A few commentators ironically describe the expansion of environmental law as "legal pollution."¹⁹ I refer somewhat less pejoratively to *environmental juridification*.²⁰ Whatever word is used the phenomenon is the same. The sheer amount environmental law threatens to clog the wheels of society as a whole. At some point in the escalating process of governments churning out statutes, agencies writing regulations, and courts deciding cases, nobody will be able to say anymore what the applicable legal rules really are or what they are accomplishing. When a body of law becomes so complex and arcane that it cannot even be known, let alone fully complied with or enforced, one cannot hope that its objectives will be realized.

4. *Command-and-control is too harsh and punitive.* As environmental law becomes more complex, its enforcement becomes more difficult. An increasingly detailed law is difficult to police. Legislatures, agencies, and courts gravitate toward imposing heavy penalties on those who are caught in order to preserve the credibility necessary for deterrence. Criminal environmental law is a growth industry.²¹ As exponentially increasing numbers of criminal investigators and prosecutors are hired by government, businesses must employ armies of lawyers and auditors to check if they are in compliance with the rules. Even so, one survey found that less than one-third of corporate general counsels

believe full compliance with the prolix detail of current environmental law is possible.²² A large company today cannot avoid the risk of environmental prosecution. Compliance with environmental law becomes more like shooting craps than a rational process.

Under command-and-control, environmental law has taken on a life of its own. It grows like a weed fed by the media, a self-serving bureaucracy, a new class of environmental lawyers, and the ever increasing difficulty and complexity of environmental problems themselves.

This overstates the issue somewhat. Command-and-control is needed in some situations. Intentionally poisoning a river, for example, requires criminal punishment. But critics of command-and-control have argued persuasively for experimenting with a different model, namely, market-based regulation. This second conventional model of environmental law comes in at least four varieties.

1. *Pollution charges and taxes.* The idea here is to require that "polluters pay." Rather than free licenses to pollute contemplated by traditional command-and-control permit systems, this approach allocates "rights" to pollute through a system requiring payment of a fee, a tax, or a charge. Water pollution charges, for example, have been employed in Germany, France, and the Netherlands, but with only mixed success.²³

There are at least two difficulties with pollution charges and taxes. First, it is not easy for the government to set charges or taxes to achieve the desired results. Government officials must guess how much to charge in order to produce an estimated level of pollution reduction. Calibrating the costs of charges that will achieve the desired overall pollution reduction is tricky. A second difficulty is that taxes, even for a good cause, are very unpopular politically. This is especially true in the United States, as illustrated by the quick death of President Clinton's proposal for an energy tax.²⁴

2. *Expanding property rights to include the natural environment.* Some so-called "free market environmentalists" see themselves as following in the footsteps of Ronald Coase.²⁵ They believe that most environmental problems can be solved if only the system of private property can be expanded to include the natural environment itself. An example is the private ownership of endangered species. If people own an endangered species, such as a rare species of parrots, the human owners will desire to protect them, and the species will survive. If ownership of the rare parrots is not allowed, no human interest will be strong enough to protect the birds from extinction. This strategy may have merit in some situations, such as preserving an endangered species that happens to have a high economic value, such as provided by the wild colors of a pet parrot. But the neo-Coasian approach does not travel very far. Consider air pollution. As Jim Krier notes, air "does not come in marketable packages."²⁶ Even if technological solutions to the problem of ownership of the air were invented, it would be a terrible world that reduced air to property, although deteriorating air quality in some places may be moving responses in this direction. Several years ago an entrepreneurial environmentalist proposed selling oxygen on the streets of Mexico City for \$1.75 per thirty-second shot.²⁷

In the end, the neo-Coasian vision of the environmental future reminds me of an old B-52's rock lyric:

Planet Claire has pink air.

All the trees are red.

Nothing ever grows there.

*No one has a head.*²⁸

Nobody really wants Earth to turn into a Planet Claire, not even the most radical free market environmentalist.

3. *Tradeable Pollution Rights.* This is currently a very popular kind of market-based regulation, although it is actually a variation on command-and-control. This market-based approach simply divides command-and-control permits into units or "rights" and makes them tradeable. The big experiment with this form of regulation is the acid rain permit trading program under the Clean Air Act Amendments of 1990.²⁹ The jury is still out on this experiment. The best analysis, however, suggests that tradeable pollution rights may work well in cases involving relatively few and relatively large sources of pollution. The acid rain problem seems to meet these conditions. However, the idea of expanding tradeable permits for millions of polluters, for example, millions of automobile drivers, raises significant difficulties in terms of the workability of the system. These difficulties are probably irresolvable in complex situations involving great numbers of polluters.³⁰

4. *Environmental marketing regulation.* A fourth type of market-based regulation brings us closer to a different model. Regulation of environmental marketing is of two basic types: (1) truth-in-environmental-advertising, regulated somewhat weakly at present in the United States by the Federal Trade Commission,³¹ and (2) government- or privately-sponsored environmental labels.

Examples of government-sponsored environmental labels include the European Union's "Eco-label," Japan's "Eco-mark," Germany's "Blue Angel," and Canada's "Environmental Choice" decal. Privately sponsored environmental labels in the United States include "Green Seal" and "environmental report cards" issued by Scientific Certification Systems. The idea is to establish a kind of Good Housekeeping seal for products that are environmentally beneficial or at least benign. Conversely, environmental labels are often used to warn of environmentally harmful products.³²

There are technical difficulties with eco-labels. Establishing proper and accurate standards for environmental labelling schemes is very difficult. Most are based on some form of life-cycle analysis, but this is a new science about which there is not yet much to agree.³³ In addition, government-sponsored award schemes may be subject to improper influence through lobbying. Eco-labels might even be used as a method to discriminate against international trade.

Although they have limitations, truth-in-environmental-advertising and environmental labels represent a model of reflexive environmental law. They attempt to provide positive incentives for businesses to improve environmental performance in order to appeal to the environmental preferences of consumers.

Product reengineering, creative approaches to manufacturing and production, and invention of new technology are encouraged.

The rub is that consumers must actually care enough about the natural environment to pay an environmental premium that will provide a sufficient incentive for businesses to invest in making environmentally correct products. Environmental marketing regulation acts reflexively, but only through a diffuse market of individual consumers. Its virtue lies in attempting to influence social processes to take account of environmental issues without forcing solutions through direct regulation. However, without widespread environmental education and other measures that would encourage consumers to favor "environmentally friendly" products on a large scale, the regulation of environmental marketing will provide only a limited contribution to environmental protection. Whether environmental marketing regulation will work effectively to improve the overall quality of the natural environment depends directly on the extent to which consumers internalize environmental ethics.

Reflexive Environmental Law

Elsewhere, I explore some other areas of law that hint at an emerging model of reflexive environmental law.³⁴ They include not only environmental marketing regulation, but also the following five examples.

1. *The National Environmental Policy Act (NEPA)*.³⁵ NEPA is one of the oldest federal environmental statutes, and it is also one of the most reflexive. The idea behind NEPA is to encourage governmental institutions to engage in self-reflective and self-critical processes when making decisions that will "significantly affect[] the quality of the natural environment."³⁶ However, because NEPA applies only to government agencies, its scope is relatively limited. In addition, some critics argue that NEPA does not assure that reflexive decision making actually occurs. They assert that bureaucrats often just go through the motions of complying with NEPA's formal requirements after having already made a substantive decision on other grounds.³⁷

2. *Environmental Auditing and Enforcement Policies*. Both the EPA and the Department of Justice have adopted enforcement policies designed to encourage businesses to conduct environmental auditing.³⁸ In response to criticism that these policies did not go far enough in protecting businesses from investigators and prosecutors seeking to uncover evidence of legal violations through discovery of internal environmental auditing records,³⁹ The EPA issued a revised *Voluntary Environmental Self-Policing and Self-Disclosure Interim Policy Statement* in April 1995.⁴⁰ As the title suggests, the EPA is explicitly attempting to encourage reflexive "self-policing" and "self-disclosure." Whether sufficient incentives and procedures have been put in place to achieve these ends remains debatable. But these enforcement policies are designed to reduce the exposure to command-and-control penalties for businesses that develop strong internal procedures to monitor environmental performance. The enforcement policies are therefore part of an emerging model of reflexive environmental law.

3. *Environmental Sentencing Guidelines for Organizations.* The proposed Environmental Sentencing Guidelines now under review by the U.S. Sentencing Commission also provide an incentive to adopt reflexive environmental auditing and management systems.⁴¹ The proposed guidelines reduce fines for an organization convicted of an environmental crime if it has a qualifying "environmental compliance program." In the absence of a qualifying program, fines are increased. Unfortunately, the kind of compliance programs recognized under the proposed sentencing guidelines strongly emphasize legal compliance rather than a more proactive approach to environmental performance. There is a danger that environmental auditing programs will therefore become overly defensive.⁴² But the very fact of including self-evaluative compliance programs as a mitigating and aggravating factor in criminal sentencing represents another manifestation of an emergent reflexive environmental law.

4. *Voluntary Government-Sponsored Programs.* A fourth kind of emerging reflexive environmental law appears in various programs established by EPA under the auspices of the Pollution Prevention Act of 1990.⁴³ For example, the Industrial Toxics Project or "33/50" program succeeded in significant reductions of emissions of toxic chemicals.⁴⁴ The "Green Lights" program reduced electricity consumption through installation of efficient lighting.⁴⁵ WasteWiSe, a new voluntary program, promotes the reduction, reuse, and recycling of industrial waste.⁴⁶ These programs share the laudable goal of energizing businesses to attack environmental problems creatively. But they also suffer in their inevitably piecemeal effect. Unless systematically encouraged, voluntary programs to encourage environmental management are destined to achieve only very partial results.

5. *Environmental Management and Audit Systems.* The European Union's recently introduced Eco-management and Audit Scheme (EMAS) is systemic in its intended scope.⁴⁷ It represents an ambitious attempt to establish a reflexive environmental law. Opting in to the EMAS regulation is voluntary, and businesses may choose not to participate.⁴⁸ But unlike the piecemeal voluntary programs experimented with in the United States, the European EMAS has the advantage of involving government in setting up a third-party certification procedure for voluntary environmental auditing and management programs. This approach promises systemic change if enough businesses decide to participate.

The EMAS sets up procedures for businesses that wish to qualify, and there are two essential operative requirements. The first is *public disclosure*. Environmental performance measured through internal auditing must be disclosed in public environmental statements.⁴⁹ A second requirement is *third-party certification*. Compliance with the procedures of the EMAS regulation and the accuracy of the public environmental statements based on underlying internal auditing data must be certified by a professionally licensed environmental verifier.⁵⁰

In its emphasis on public disclosure, the EMAS system is analogous to the regulatory strategy of the federal securities laws of the United States. Louis Loss describes the "recurrent theme" in securities regulation as "disclosure,

again disclosure, and still more disclosure.”⁵¹ Almost from its inception, it was obvious to those who established a federal system of securities regulation that the sheer number of regulated businesses made direct regulation impossible. Even with respect to about 6000 brokers and traders, William O. Douglas declared direct regulation to be “impractical, unwise, and unworkable.”⁵² Direct regulation of all reporting companies was unthinkable. The alternative hit upon was a self-reporting and largely self-regulating system in which public disclosure figures largely.

Enforcement of disclosure under the securities laws is greatly enhanced by allowing private rights of action by citizens for violations.⁵³ Third-parties who are harmed by false or misleading statements in publicly disclosed financial documents may sue for damages. The European EMAS does not allow citizen suits for what might be called *environmental fraud*. But future reflexive environmental systems might establish a private right of action for qualified environmental public interest groups to help oversee businesses that participate in an EMAS program.⁵⁴

Third-party certification of the accuracy of public statements is essential to a viable regulatory system based on disclosure. Without a mechanism to assure that public statements about environmental performance are accurate, some companies may make misrepresentations or omissions for the benefit of public relations. Again, securities law provides a useful analogy. Verification of environmental statements is like the well-known requirement of financial auditing of annual reports. The new environmental verifiers are like accountants. Both verifiers and accountants are professional third-parties who audit for the purpose of helping to assure accuracy.

Adding a significant role for third-party verifiers and perhaps even third-party citizen suits helps to break regulatory gridlock by adding a third player to the bilateral regulatory game between government and business, agency and industry. Ian Ayres and John Braithwaite describe this kind of regulatory approach as “tripartism” or “enforced self-regulation.”⁵⁵ Adding third-parties to the equation helps to overcome the ever-present problems of administrative capture and bureaucratic rent-seeking. In a reflexive system, the government’s role changes. Rather than relying on escalating threats of enforcement penalties, a reflexive law relies primarily on disclosure. Enforcement is reserved for backing up the disclosure-based system.

Reflexive Law and Environmental Ethics

Reflexive environmental law aims to establish environmental ethics in institutions, particularly businesses. As a regulatory model, reflexive environmental law differs from the instrumental approaches of both command-and-control and market-based regulation.⁵⁶ Both conventional models use law to impose a fore-ordained environmental result on the world. In some cases, this is necessary or desirable. For example, criminal regulation must deter intentional endangerment of human life or serious direct harm to the natural environment. Likewise,

some otherwise intractable environmental problems, such as acid rain, may succumb most effectively to market-based regulation. Many environmental problems, however, are complex and subtly difficult enough to require a more flexible regulatory approach. For these increasingly common problems, a reflexive model may improve on conventional methods.

Conventional models of environmental law resort to the instruments of the state and the market. Through the direct intervention of the state, command-and-control imposes specific rules on society to achieve environmental protection. However, environmental problems and issues are often too complex for this method to work effectively and efficiently. A place for command-and-control will doubtless remain, but new models are needed. The market-based model improves on command-and-control by providing flexibility in achieving regulatory ends through the use of the market, but it is also instrumental in its reliance purely on economic rationality. Environmental protection should not be limited to conventional instrumental models because solving difficult environmental problems also requires ethical commitment and responsibility.

Conventional models of environmental protection are not sufficient because they act primarily to constrain businesses by threats of lawsuits or economic sanctions. This method of regulation is *negative* in orientation. Conventional models cannot easily succeed in positively motivating businesses to pursue environmentally responsible programs and policies. The conventional regulatory models see businesses as targets on which to impose instrumental punishments. Reflexive environmental law attempts instead to encourage ethical environmental behavior by providing *positive* incentives. Voluntarism, public disclosure, third-party certification, participation by public interest groups, and procedures for institutional self-reflection and self-criticism are the key elements of the reflexive model.

The reflexive model operates at an intermediate level between the state and the market. It seeks to influence the decision making processes of institutions. In this respect, the reflexive model shares similarities with Philip Selznick's notion of "responsive law."⁵⁷ As Selznick writes, "there is no escaping the need for institutional self-awareness and self-criticism."⁵⁸

Reflexive environmental law looks to provide regulatory patterns and procedures to encourage the institutionalization of environmental responsibility, particular in business. Holmes Rolston argues persuasively that "*the bottom line ought not to be black unless it can also be green.*"⁵⁹ However, the structure of society must allow for businesses that respect this principle to survive. Otherwise, businesses with green bottom lines will go bankrupt, and the long-term purposes of environmental protection will not be served. A model of environmental regulation is needed that encourages businesses to adopt environmentally proactive policies and to allow them to prosper in doing so. At the same time, the model must discourage businesses that are environmentally irresponsible.

Rolston also points out correctly that "[m]orality often exceeds legality."⁶⁰ A fundamental purpose of law, however, is to institute ethical practices. Reflexive

environmental law seeks to establish regulatory processes that help to institute environmentally sound management practices. It is consistent with ethical theories that emphasize evolving, flexible group norms coming from the bottom up rather than imposing them from the top down.⁶¹

If new approaches are not adopted, institutions will inevitably follow the prevailing logic of the market, and economic concerns will drown out voices that call for environmental ethics. Creative and intelligent use of law is central to establishing environmental ethics. Reflexive environmental law aims to challenge and motivate businesses to take environmental performance seriously.

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Notes

*The original version of this paper was given as the Anne M. Ballantyne Lecture at the University of Texas at Austin, Graduate School of Business. For comments, I am especially grateful to Frank Cross, Tom Dunfee, Kinnan Goleman, and Howard Kunreuther. Thanks to David Brady for research assistance and Tamara English and Rae Goodman for secretarial assistance. Thanks also to Paula Murray, Steve Salbu, and Pat Werhane.

¹Gregg Easterbrook, *The Good Earth Looks Better* (New York Times, Apr. 21, 1995), at A31. See also Gregg Easterbrook, *A Moment on the Earth: The Coming Age of Environmental Optimism* (1995) (providing a sanguine view of the success of environmental regulation in developed countries).

²For airborne lead reduction, see, e.g., Sandra Blakeslee, *Concentrations of Lead in Blood Drop Steeply* (New York Times, July 27, 1994), at A18 (reporting on government study finding 78% decline in the amount of lead in the bloodstreams of Americans over phase-out period of leaded gasoline from 1976 to 1991); Thomas O. McGarity, *Radical Technology-Forcing in Environmental Regulation*, vol. 27, *Loyola of Los Angeles Law Review* (1994), pp. 943, 947-52 (calling the "lead phase down" an "environmental success story"). See also Council on Environmental Quality, *United Nations Conference on Environment and Development: United States of America National Report* (1992), p. 197; Barry Commoner, *Making Peace with the Planet* (4th ed. 1992), p. 22.

For the reduction in the production of ozone-depleting chemicals, see, e.g., William K. Stevens, *Ozone-Depleting Chemicals Building Up at Slower Pace* (New York Times, Aug. 26, 1993), at A1 (recounting that global slowdown of ozone-depleting chemicals in atmosphere can be "attributed to industry's unexpectedly rapid cut in the production of the chemicals even before international agreements to phase them out took full effect"); Philip Shabecoff, *Industry Acts to Save Ozone* (New York Times, Mar. 21, 1988), at A1 (describing industrial efforts to develop substitutes for ozone-depleting chemicals). See also Richard E. Benedict, *Ozone Diplomacy* (1991).

³See, e.g., Commoner, *supra* note 2, at pp. 19-40 (referring to "the environmental failure"); E. Donald Elliott, *Environmental TQM: Anatomy of a Pollution Control Program That Works!*, vol. 92, *Michigan Law Review* (1994), pp. 1840, 1844 (commenting on "the disappointing record of traditional strategies used in U.S. environmental law to achieve its stated goals"); Lakshman Guruswamy, *Integrated Environmental Control: The Expanding Matrix*, vol. 22, *Environmental Law* (1992), pp. 77, 83-87 (describing "failures of the existing system"); Cass R. Sunstein, *Paradoxes of the Regulatory State*, vol. 57, *University of Chicago Law Review* (1990), pp. 407, 411 (environmental regulation has "frequently failed").

⁴For an overview of the world's continuing environmental problems and an emerging framework for addressing some of them, see Agenda 21, the non-binding agreement drafted at the Earth Summit in Rio de Janeiro in 1992. Agenda 21 is reprinted in Stanley P. Johnson, ed., *The Earth Summit: The United Nations Conference on Environment and Development (UNCED)* (1993), pp. 125-508. See also Christopher D. Stone, *The Gnat is Older Than Man: Global Environment and Human Agenda* (1993), pp. 5-18 (diagnosing some of the continuing basic environmental problems).

⁵U.S. EPA, *The Cost of a Clean Environment* (1990), p. v.

⁶For an influential argument discussing the inefficiencies of conventional environmental regulation, see Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, vol. 37, *Stanford Law Review* (1985), pp. 1333, 1334-40. See also T.H. Tietenberg, *Economic Instruments for Environmental Regulation* in Dieter Helm, ed., *Economic Policy Towards the Environment* (1991), pp. 86, 95-97, tbl. 4.1 (summarizing empirical studies of the high cost of conventional environmental regulation as opposed to least-cost alternatives).

⁷My conception of reflexive environmental law is described more fully in Eric W. Orts, *Reflexive Environmental Law*, vol. 89, *Northwestern University Law Review* (1995), p. 1227. For an early development of the theory of reflexive law, see Gunther Teubner, *Substantive and Reflexive Elements in Modern Law*, vol. 17, *Law & Society Review* (1983), p. 239. For recent applications of the idea of reflexive law in the environmental context, see the essays collected in Gunther Teubner, et al. eds., *Environmental Law and Ecological Responsibility: The Concept and Practice of Ecological Self-Organization* (1994). See also Michael Herz, *Parallel Universes: NEPA Lessons for the New Property*, vol. 93, *Columbia Law Review* (1993), pp. 1668, 1689-93 (describing National Environmental Policy Act as an example of reflexive law); Eric Bregman & Arthur Jacobson, *Environmental Performance Review: Self-Regulation in Environmental Law*, vol. 16, *Cardozo Law Review* (1994), p. 465.

⁸See Mary Douglas, *How Institutions Think* (1986).

⁹Anthony Giddens, *The Consequences of Modernity* (1990), p. 38. Cf. Pierre Bourdieu & Loïc J.D. Wacquant, *An Invitation to Reflexive Sociology* (1992), pp. 36-46 (describing various approaches to "reflexive sociology").

¹⁰Kenneth A. Manaster, *Ten Paradoxes of Environmental Law*, vol. 27, *Loyola of Los Angeles Law Review* (1994), pp. 917, 931.

¹¹See Robert W. Hahn & Robert N. Stavins, *Incentive-Based Environmental Regulation: A New Era from an Old Idea?*, vol. 18, *Ecology Law Quarterly* (1991), pp. 1, 5-6.

¹²*Id.* at 6 ("Uniform emissions standards, the dominant policy mechanism chosen to attack a number of environmental problems, tend to lead to inefficient outcomes in which firms use unduly expensive means of controlling pollution. The reason is simple: the costs of controlling pollutant emissions vary greatly among and even within firms. Indeed, the cost of controlling a unit of a given pollutant may vary by a factor of 100 or more among sources, depending upon the age and location of plants and the available technologies."). See also Ackerman & Stewart, *supra* note 6, at 1334-40 (criticizing command-and-control "best available control technology" as wasteful, inefficient, and counterproductive). But see Howard Latin, *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and "Fine-Tuning" Regulatory Reforms*, vol. 37, *Stanford Law Review* (1985), p. 1267 (defending command-and-control regulation against market-based criticism).

¹³See, e.g., Michael Herz, *Imposing Unified Executive Branch Statutory Interpretation*, vol. 15, *Cardozo Law Review* (1993), pp. 219, 223-26 (providing a critical account of the Council on Competitiveness).

¹⁴Kirkpatrick Sale, *The Green Revolution: The American Environmental Movement 1962-1992*, pp. 50-51 (1993).

¹⁵The literature on administrative capture and bureaucratic rent-seeking is vast. For a brief overview of the two problems, see Cass R. Sunstein, *Constitutionalism After the New Deal*, vol. 101, *Harvard Law Review* (1987), pp. 421, 448-51.

¹⁶See Daniel A. Farber, *Environmental Protection as a Learning Experience*, vol. 27, *Loyola of Los Angeles Law Review* (1994), p. 791 (discussing the problem of "learning" in environmental regulation).

¹⁷Council on Environmental Quality, *supra* note 2, app. D (a "selected list" of federal environmental statutes).

¹⁸This total is reached just counting seven statutes: the Clean Air Act, the Clean Water Act, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Safe Drinking Water Act, the Toxic Substances Control Act (TSCA), the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA). Dallas Burtraw & Paul R. Portney, *Environmental Policy in the United States* in Dieter Helm ed., *Economic Policy Towards the Environment* (1991), pp. 289, 291-97. Not counted are several other important statutes, including the National Environmental Policy Act (NEPA) and the Endangered Species Act.

¹⁹Thomas Ehrlich, *Legal Pollution* (New York Times, Feb. 8, 1976 (Magazine), p. 17); Richard B. Stewart, *Reconstitutive Law*, vol. 46, *Maryland Law Review* (1986), pp. 86, 101.

²⁰Orts, *supra* note 7, pp. 1239-41.

²¹See, e.g., Richard J. Lazarus, *Assimilating Environmental Protection into Legal Rules and the Problem with Environmental Crime*, vol. 27, *Loyola of Los Angeles Law Review* (1994), p. 867 (describing the enormous increases in administrative resources devoted to environmental prosecutions and the controversy surrounding greater reliance on environmental criminal enforcement); Judson W. Starr & Thomas J. Kelly, Jr., *Environmental Crimes and the Sentencing Guidelines: The Time Has Come . . . and It Is Hard Time*, vol. 20, *Environmental Law Reporter* (Environmental Law Institute, 1990) ¶ 10.096 (describing recent reclassification of many offenses under federal environmental statutes from misdemeanors to felonies). See also James M. Strock, *Environmental Criminal Enforcement Priorities for the 1990s*, vol. 59, *George Washington Law Review* (1991), p. 916.

²²Marianne Lavelle, *Environmental Vise: Law, Compliance* (National Law Journal, Aug. 30, 1993), at S1.

²³See, e.g., Eckard Reh binder, *Environmental Regulation Through Fiscal and Economic Incentives in a Federalist System*, vol. 20, *Ecology Law Quarterly* (1993), pp. 57, 72-74.

²⁴Michael Wines, *Tax's Demise Illustrates the First Rule of Lobbying: Work, Work, Work*, (New York Times, June 14, 1993), at A1 (recounting the failure of Clinton's proposal for an energy tax even after key concessions were made to various interest groups, including tax breaks for ethanol, diesel fuel, home heating oil, electricity, and even coal).

²⁵See, e.g., Terry L. Anderson & Donald R. Leal, *Free Market Environmentalism* (1991); Symposium, *Free Market Environmentalism*, vol. 15, *Harvard Journal of Law and Public Policy* (1992), p. 297. Coase's classic article is R.H. Coase, *The Problem of Social Cost*, vol. 3, *Journal of Law and Economics* (1960), p. 1.

²⁶James E. Krier, *The Pollution Problem and Legal Institutions: A Conceptual Overview*, vol. 18, *UCLA Law Review* (1971), pp. 429, 440.

²⁷*Oxygen to Go on Sale in Smog-Choked Mexico City* (Reuters, Feb. 7, 1991) (available on LEXIS). For an account of the terrible air pollution problems of Mexico City, see, e.g., Marjorie Miller, *A Day in the Life of Mother Earth: Mexico City's Smog* (Los Angeles Times, May 26, 1992), p. 9.

²⁸B-52's, *Planet Claire*, B-52's (Island Records 1979).

²⁹Clean Air Act Amendments of 1990, Pub. L. No. 101-549, § 401, 104 Stat. 2399 (1990). For an overview, see William H. Rodgers, Jr., vol. 1, *Environmental Law: Air and Water Pollution* (Supp. 1994), pp. 64-74. See also Jeanne M. Dennis, Comment, *Smoke for Sale: Paradoxes and Problems of the Emissions Trading Program of the Clean Air Act Amendments of 1990*, vol. 40, *UCLA Law Review* (1993), p. 1101.

³⁰For a conceptual analysis of this problem, see Dieter Helm & David Pearce, *Economic Policy Towards the Environment: An Overview*, in Dieter Helm, ed., *Economic Policy Toward the Environment* (1991), pp. 1, 15.

³¹High profile cases brought by the FTC include enforcement actions resulting in consent decrees concerning advertisements of "chlorine-free" coffee filters made of "recycled" paper, *In re Mr. Coffee, Inc.*, 1993 FTC LEXIS 62 (1993), and "biodegradable" trash bags, *In re North Am. Plastics Corp.*, 1993 FTC LEXIS 61 (1993); *In re Mobil Oil Corp.*, 1992 FTC LEXIS 187 (1992).

³²For further description and an illustration of these environmental labels, see Orts, *supra* note 7, pp. 1246-51, fig. 2.

³³See, e.g., Jamie A. Grodsky, *Certified Green: The Law and Future of Environmental Labelling*, vol. 10, *Yale Journal on Regulations*, vol. 147, (1993), pp. 218-26 (discussing some of the technical problems with life-cycle analysis); Committee on Antitrust and Trade Regulation, Association of the Bar of City of New York, *Private Certification of Manufacturer's Environmental Claims*, vol. 48, *Rec.* pp. 25, 29-30 (Jan.-Feb. 1993) (discussing controversy over life cycle analysis).

³⁴Orts, *supra* note 7, pp. 1268-1313.

³⁵42 U.S.C. §§ 4321-70 (1988).

³⁶42 U.S.C. § 4332(2)(c). Michael Herz recognizes and comments on the reflexive aspect of NEPA. Michael Herz, *Parallel Universes: NEPA Lessons for the New Property*, vol. 93, *Columbia Law Review* (1993), pp. 1668, 1689-93.

³⁷Herz, *supra* note 36, p. 1700, n.151 (noting "central concern" about whether complying with NEPA's requirements "precedes and informs the agency decision or follows and justifies it"). Compare *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (expressing Supreme Court's view that NEPA is "almost certain" to "affect the agency's substantive decision") with Joseph L. Sax, *The (Unhappy) Truth About NEPA*, vol. 26, *Oklahoma Law Review* (1973), p. 239, ("I think the emphasis on the redemptive quality of procedural reform [represented by NEPA] is about nine parts myth and one part coconut oil.") See also *Symposium on NEPA at Twenty*, vol. 20, *Environmental Law* (1990), p. 447.

³⁸I discuss details of these enforcement policies in Orts, *supra* note 7, pp. 1275-81.

³⁹Defense lawyers roundly criticized the enforcement policies concerning environmental auditing as unenforceable and even somewhat deceptive. See, e.g., Jed S. Rakoff, et al., *Corporate Sentencing Guidelines: Compliance and Mitigation* (1994), § 8.02[1] ("While ostensibly encouraging audits, [EPA's 1986] Policy Statement [on Environmental Auditing] provides no assurance that the results would not be used against the defendant, nor that the existence of the auditing would create any defense or limitation on liability, nor that the audits would be protected from disclosure at EPA's discretion for use in criminal prosecution."); Terrell E. Hunt & Timothy A. Wilkens, *Environmental Audits and Enforcement Policy*, vol. 16, *Harvard Environmental Law Review* (1992), pp. 365, 370 ("lawyers recommend extreme discretion and caution in the use of environmental audits"). See also Robert W. Darnell, Note, *Environmental Criminal Enforcement and Corporate Environmental Auditing*, vol. 31, *American Criminal Law Review* (1993), pp. 123, 124 ("Executives are now hesitant to authorize audits that the government could, under federal environmental auditing policy, use as a roadmap for establishing knowledge in a criminal prosecution.").

⁴⁰60 Fed. Reg. 16,875 (Apr. 3, 1995).

⁴¹U.S. Sentencing Commission Advisory Panel, *Final Draft Environmental Guidelines* (Nov. 1993). See also John C. Coffee, Jr., *Environmental Crime and Punishment* (New York Law Journal, Feb. 3, 1994), p. 5.

⁴²For development of this point, see Orts, *supra* note 7, pp. 1281-84.

⁴³42 U.S.C. (1994), §§ 13101-09; *Pollution Prevention Strategy*, vol. 56, Fed. Reg. 7849 (1991). See also Stephen M. Johnson, *From Reaction to Proaction: The 1990 Pollution Prevention Act*, vol. 17, *Columbia Journal of Environmental Law*, (1992), p. 153.

⁴⁴Participating companies in the 33/50 program voluntarily reduced emissions of seventeen toxic chemicals 33 percent by 1992 and 50 percent by 1995. See, e.g., Seema Arora & Timothy N. Carson, *A Voluntary Approach to Environmental Regulation: The 33/50 Program*, *Resources* (Summer 1994), p. 6.

⁴⁵See, e.g., Bert Black & David H. Hollander, Jr., *Forced Volunteerism: The New Regulatory Push to Prevent Pollution*, vol. 16, *Chemical Regulation Reporter* (BNA) (Jan. 22, 1993), p. 38.

⁴⁶*More than 280 Companies Join Effort to Reduce, Reuse, Recycle Waste*, *EPA Says*, vol. 25, *Environmental Law Reporter* (BNA) (July 22, 1994), p. 529.

⁴⁷Council Regulation 1836/93, Allowing for Voluntary Participation by Companies in the Industrial Sector in a Community Eco-management and Audit Scheme, 1993 O.J. (L 168) 1. This regulation went into effect in April 1995. I examine this regulation in detail in Orts, *supra* note 7, p. 1287-1313, and recommend adoption in a revised form of a version of the EMAS in the United States, *id.*, p. 1313-27.

⁴⁸Council Regulation 1836/93, art. 1, 1993 O.J. (L 168) 1, 2

⁴⁹*Id.* art. 1, at 4.

⁵⁰*Id.* arts. 6, 7, at 4-5.

⁵¹Louis Loss, *Fundamentals of Securities Regulation* (1988), p. 7.

⁵²Joel Seligman, *The Transformation of Wall Street* (1982), p. 185.

⁵³See, e.g., *J.I. Case v. Borak*, 377 U.S. 426 (1962); *Virginia Bankshares, Inc. v. Sandberg*, 501 U.S. 1083 (1991).

⁵⁴I advocate allowing citizens' suits in proposed an American EMAS, although it must be kept in mind that adding teeth to a voluntary EMAS system requires corresponding increases in the positive incentives for businesses to participate. See Orts, *supra* note 7, pp. 1324-27 (discussing enhanced incentives for an American EMAS system, such as strict evidentiary protection of internal environmental audits and perhaps even immunity from criminal prosecution for participating businesses).

⁵⁵Ian Ayres & John Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (1992), pp. 54-132.

⁵⁶*Cf.* Gunther Teubner, *After Legal Instrumentalism?*, in Gunther Teubner ed., *Dilemmas of Law in the Welfare State* (1986), p. 299.

⁵⁷See Philip Selznick, *The Moral Commonwealth: Social Theory and the Promise of Community* (1992); Philip Selznick, *Self-Regulation and the Theory of Institutions* in Gunther Teubner et al. eds., *Environmental Law and Ecological Responsibility: The Concept and Practice of Ecological Self-Organization* (1994), pp. 396-402. See also Phillippe Nonet & Philip Selznick, *Law and Society in Transition: Toward Responsive Law* (1978).

⁵⁸Selznick, *The Moral Commonwealth*, *supra* note 57, p. 236.

⁵⁹Holmes Rolston, III, *Environmental Ethics: Duties to and Values in the Natural World* (1988), p. 325 (emphasis in original).

⁶⁰*Id.* at 317 (emphasis in original).

⁶¹Assessing competing ethical theories in the context of reflexive environment law lies outside the scope of this article. However, it appears that utilitarian approaches inform both command-and-control and market-based approaches. Contractarian approaches appear highly compatible, at least in spirit, with a reflexive model of environmental regulation. See, e.g., Thomas Donaldson & Thomas W. Dunfee, *Integrative Social Contracts Theory: A Communitarian Conception of Economic Ethics*, vol. 11, *Economics and Philosophy* (1995), p. 85; Thomas W. Dunfee & Thomas Donaldson, *Contractarian Business Ethics: Current Status and Next Steps*, vol. 5, *Business Ethics Quarterly* (1995), p. 173.