Letting the Free Market Distribute Environmental Resources

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I. INTRODUCTION

Without question environmental protection has moved to the forefront of public discourse. Environmentalists complain that the government has failed to protect the environment from corporate polluters. Business interests, in turn, complain that environmental protection schemes bury corporate America under a sea of inefficient government regulation.

Of course, both sides are correct to some degree. During the industrial revolution the government actively subsidized the exploitation of natural resources and refused to recognize the legitimate rights of individual property owners faced with an encroaching corporate polluter. In the last two decades, however, the government has adopted several
sweeping laws to combat pollution and preserve natural resources.\(^4\)

This Article examines the practical effects of the current scheme of seeking environmental protection through government regulation. The author argues that problems presented in the current regulatory model are problems inherent in most of government's attempts to concoct a political solution to an economic problem. Instead of adopting stringent or absolutist environmental policies for their own sake, this Article asserts that the government should focus on forcing polluters to compensate pollution victims for the property or health damage which results from such pollution.

The first section of the Article describes the evolution of environmental legislation and the philosophy underlying the modern approach to environmental protection. The second section demonstrates that the government could pursue a more fair and equitable environmental policy by introducing free market principles into the current scheme. The next section offers a case study in how the government could modify a currently oppressive environmental law, the oil sheen test of the Federal Water Pollution Control Act.\(^5\)

II. THE EVOLUTION AND PHILOSOPHY OF ENVIRONMENTAL LEGISLATION

A. The Rise of Regulation

Prior to the enactment of today's environmental regulations, private landowners primarily relied on the common law tort of nuisance to protect their property from the encroachments of others.\(^6\) At common law a


\(6\). Robert J. Smith, Privatizing the Environment, 20 POLICY REVIEW 11, 13 (1982). Smith argues that the government moved from a free market economic system, which favored private property, to a system more akin to "state capitalism" or "corporate statism," which allowed certain businesses to invade and destroy the property rights of others. See generally, MORTON J. HORWITZ, THE TRANSFORMATION OF AMERICAN LAW: 1780-1860 (1977).
landowner brought an action for private nuisance if he suffered a specific harm from another individual. Eventually, the common law also recognized the landowner's right to sue for damages in cases of public nuisance when the landowner was affected directly.8

The common law protection of individual property rights served the interest of property owners so long as the courts were willing to recognize the value of those rights. At least a few courts chose to ignore the rights of private landowners during the industrial revolution because recognizing those rights might have impeded development efforts.9 Over the years, the courts generally have required that public polluters desist all noxious activity or compensate the victims if they continue operation.10

Beginning in the 1960s, the federal government began to replace common law schemes with an assortment of comprehensive environmental regulations. Responding to the pervasive sentiment that the rise in pollution posed serious risks to personal health and the overall quality of life, the government tackled such issues as air pollution, natural resource preservation,13 and endangered species protection.14 Economic realities certainly factored into the scope of the legislation, but the government clearly regarded pollution as a societal menace which needed reduction.15

B. Flawed Reasoning

The modern approach to pollution control is flawed because the underlying reasoning is weak. The modern environmental attitude relies
on several questionable assumptions. These include, but are not limited to, the following:

1. Pollution is inherently harmful.
2. Negative externalities do not allow for market control.
3. The inability of humans to ascertain adequately the future value of natural resources requires that we preserve existing resources.
4. Humans are unable to predict the future harmful effects of pollution.
5. Government regulation is necessary to avoid the "tragedy of the commons." 
6. Larger population leads to greater environmental depravation.
7. Capitalists would rather destroy the environment than preserve it.
8. Punitive regulations encourage businesses to replace environmentally harmful technologies with environmentally benign technologies.

A brief look at each of these assumptions reveals that the modern approach to pollution control is tragically flawed.

1. Pollution is inherently harmful.

Too often the quest for pollution control is couched in zero-sum terms. The implication is that every reduction in pollution serves to enhance our quality of life and to further our ultimate goal of restoring the earth to its pristine nature.

The fallacy in this reasoning lies in the notion that human manipulation and pollution of the environment are unnatural. Humans have every right to manipulate their environment to enhance their standard of living, whether the manipulation entails stripmining or felling old

17. Garrett Hardin, The Tragedy of the Commons, 162 SCIENCE 1243 (1968). Hardin argues that every member of society has an incentive to exploit commonly owned resources to the maximum extent possible. This might include grazing cattle on community property or dumping pollutants into community waterways. Each rational citizen realizes that any community resource which he neither consumes nor contaminates may meet a similar fate at the hands of his neighbor. For this reason no community member will seek to preserve the future viability of the resources.
18. See, e.g., DONELLA H. MEADOWS ET AL., BEYOND THE LIMITS (1992) (arguing that if human activity continues at the present pace it will exceed the carrying capacity of the biosphere and precipitate a collapse of the biosphere within the next few decades).
growth forests. Ultimately, these policies may prove economically inefficient, and thus impractical, but they are not morally bankrupt simply because they constitute an attempt to use the environment in an advantageous manner.

2. Negative externalities preclude market control.

The traditional rationale for governmentally engineered environmental protection schemes is that polluters rarely bear the full cost of their pollution.\(^1\) This notion of negative externalities suggests that government should regulate the quantity of pollution produced in order to avoid the problem of under-compensation of parties adversely affected by pollution.\(^2\) Without question, this argument has some merit; historically, many companies have escaped financial liability for the environmental damage they have caused.\(^3\)

Negative externalities need not lead to expansive regulations, however. Were the government to define and protect private property rights more effectively, private property owners could seek compensation directly from polluters.\(^4\) As discussed below, such an initiative would

\(^{19}\) See, e.g., Michael C. Blumm, The Fallacies of Free Market Environmentalism, 15 HARV. J.L. & PUB. POL'Y 371, 375-376 (1992) ("The market does not ensure that resource developers bear the full costs of air pollution, old growth forest liquidation, or water diversions. Developers do not pay these 'external' costs, which means that the marketplace overvalues polluting activities and resource consumption, producing economic inefficiency.").

\(^{20}\) Addressing the issue of whether the free market allocation of resources promotes liberty, Blumm argues:

> The liberty of those who emit air pollutants, discharge water contaminants, or dispose of hazardous waste materials may well be increased. But those exposed to environmental degradation lose liberty. And those numbers of liberty-losers typically outnumber considerably the liberty-gainers. Whether aggregate liberty is gained from market transactions is difficult to ascertain, but it is clear that some of the liberty-losers pay enormous health costs.

\(^{21}\) See Pennsylvania Coal Co. v. Sanderson, 6 A. 453 (Pa. 1886).

\(^{22}\) See generally, TERRY L. ANDERSON & DONALD R. LEAL, FREE MARKET ENVIRONMENTALISM (1991). Describing their vision of a free market approach to controlling the discharge of pollutants into waterways, Anderson and Leal write:

> A truly free market approach to pollution control would require
allow property owners a greater opportunity to determine the actual value of the environmental resources which they control. Although government regulation protects potential victims of negative externalities to some extent, the same regulation creates externalities of its own. For example, environmental regulation often redistributes wealth so as to concentrate the benefits of environmental protection in certain interest groups, yet distributes the costs among the population at large.\textsuperscript{23}

3. \textit{Because humans are not able to ascertain adequately the future value of natural resources, we should preserve existing resources.}

Environmentalists assert that the environment offers untold possibilities for technological gains, most notably in the field of medicine.\textsuperscript{24} Destruction or contamination of these resources, so the polluters and recipients of the discharge to bargain over the level of pollution. Bargaining may take place in the form of an exchange of property rights, where the discharger pays the recipient for disposal before the fact or in the form of payments for damages paid after the fact. Either way, both parties have an incentive to consider the trade-offs associated with more or less pollution. Of course, an exchange of property rights or payments for damages both require well-defined and enforced property rights. While many policy analysts have concluded that [the logistical problems which large numbers of potential parties pose] render the potential for well-defined and enforced property rights impossible, we must remember that property rights evolve when economic pressures increase the value of polluted resources or decrease the costs of establishing property rights.

\textit{Id.} at 147-48.

23. \textit{See} Jonathan R. Macey, \textit{Promoting Public-Regarding Legislation Through Statutory Interpretation: An Interest Group Model}, 86 COLUM. L. REV. 223, 230-33 (1986). Professor Macey provides an excellent overview of the interest group theory of legislation. He explains, "The major implications of interest group theory are that legislation transfers wealth from society as a whole to those discrete, well-organized groups that enjoy superior access to the political process, and that government will enact laws that reduce societal wealth and economic efficiency in order to benefit these economic groups." \textit{Id.} at 230.


\begin{quote}
Apart from the value attached to life in general, natural ecosystems provide the materials of human sustenance. That is where crops originally came from. Forests contain untapped riches in the form of
\end{quote}
argument goes, effectuates a short-term gain at the expense of long-term progress.\textsuperscript{25}

This vision of "myopic consumption" fails to recognize that the preservation of currently valuable resources may impose significant costs on contemporary society.\textsuperscript{26} If groups within society wish to preserve certain resources, then they certainly should do so. The entire society, however, should not have to bear the costs for such endeavors. Preservation through regulation requires society, rather than the preservationists, to pay for resource conservation.\textsuperscript{27}

4. \textit{Humans are unable to predict the future harmful effects of pollution.}

Because the future effects of many environmental risks remain unknown,\textsuperscript{28} many environmentalists argue that the government should actively regulate the introduction of pollutants into the environment.\textsuperscript{29} Certainly, modern science is engaged in an ongoing process of ascertaining medicines. But more than that, scientists say, natural ecosystems are such an essential part of the biosphere that mass extinctions could undermine its functioning.

\textit{Id.}
\textsuperscript{25} \textit{Id.}
\textsuperscript{27} The Takings Clause of the Constitution prohibits the taking of private property for a public purpose without just compensation. U.S. Const. amend. V. The government may regulate the use of private property, however. Euclid v. Ambler Realty, 272 U.S. 365 (1926). Environmental regulations violate the takings clause if they deprive the property owner of all economic use of the property. Lucas v. South Carolina, 112 S.Ct. 2886 (1992). Regulations which do not create a "regulatory taking" are constitutional. Keystone Bituminous Coal Assn. v. DeBenedictis, 480 U.S. 470 (1987). Such regulations obviously benefit the parties who request them (e.g., the preservationists) at the expense of the property owners who would rather use the land for another purpose. The preservationists benefit, but the property owners bear the costs. \textit{See generally} RICHARD A. EPSTEIN, TAKINGS (1985).
\textsuperscript{28} \textit{See, e.g.}, Stevens, \textit{supra} note 24. Stevens discusses the debate surrounding global warming.
the actual risks posed by manufactured pollutants.\textsuperscript{30}

The government should not predicate pollution control on the speculation of harmful effects. To do so would cripple the search for valuable uses for our environmental resources. Technological innovation requires that manufacturers take risks based on incomplete information. Product manufacturers accept the risk that some of their new products will prove harmful, subjecting themselves to strict liability for the harm which they cause.\textsuperscript{31} To require that no product may be released into the stream of commerce until all of its dangerous propensities are known and understood would restrict commerce unreasonably. At some point, the cost of paying for the potential harm of a new product is less than the cost of additional prevention. At that point the product goes to the market.\textsuperscript{32} Restricting the activities of potential polluters because their pollution may pose a greater risk than is currently ascertainable imposes the same type of efficiency losses on those polluters, and inflates the cost of polluters' 

\begin{itemize}
\item \textsuperscript{30} See, e.g., Martin Brown, Science, Technology \& the Environment, OECD Observer, Feb. 1992, at 11 (discussing environmental research efforts in the member countries of the Organization for Economic Co-Operation and Development).
\item \textsuperscript{31} For an example of the strict liability standard which governs products liability cases see MacPherson v. Buick Motor Co., 111 N.E. 1050 (N.Y. 1916).
\item \textsuperscript{32} This is the point at which the marginal cost of an additional unit of prevention exceeds the marginal benefit of that unit. For example, assume that every unit of prevention (e.g., testing for defects) costs $100 and the benefits of prevention are subject to a diminishing returns condition. The first unit of prevention achieves gains far in excess of $100. The second unit of prevention also achieves gains in excess of $100, but not as great as the first. At point x, the gains from prevention are equal to $100. The cost of prevention also equals $100. The manufacturer will not purchase prevention beyond point x because the cost of an additional unit outweighs the benefit.
\end{itemize}

Under a strict liability system, the benefit of prevention is a smaller payout of compensatory damages. Since the manufacturer must compensate victims for all harm which its defective products cause, the benefit from each unit of prevention is the amount of decrease in the manufacturer's overall exposure. At point x, where the cost of an additional unit of prevention exceeds the additional benefit of that unit, the manufacturer will purchase no additional prevention and the product will go to market. See Guido Calabresi \& Jon T. Hirschhoff, Toward a Test for Strict Liability in Torts, 81 Yale L.J. L.J. 1055 (1972).

If the government decided that every victim of a defective product should receive double damages, the manufacturer would purchase considerably more prevention. The benefits from each unit of prevention would double because the cost of compensation would double. Of course, the manufacturer would be paying to prevent not only the harm but also the penalty.
products unnecessarily.\textsuperscript{33}

5. Government regulation is necessary to avoid the "tragedy of the commons."

Government regulation is undoubtedly one method of avoiding the tragedy of the commons,\textsuperscript{34} but it is not necessarily the best method.\textsuperscript{35} Regulation may skew economic incentives and redistribute wealth among groups within society.\textsuperscript{36} Environmental regulation geared toward maintaining the free market resource distribution provides a more efficient and equitable model to combat this "tragedy." The market requires parties to actually pay for the resources that they receive. The tragedy of the commons suggests that the best method to preserve community resources is to restrict access to those resources. A free market approach to the preservation of community resources requires that the government sell rights to the property. The party who places the highest value on community resources must compensate the other members of society for exclusive access.

6. Larger population leads to greater environmental depravation.

This assumption represents the least persuasive element of the environmentalist agenda. Modern environmental alarmists currently raise the specter of dire consequences such as "overpopulation."\textsuperscript{37} This

\textsuperscript{33} See supra note 32. The government might wish to protect environmental resources on the basis that the cost to society of a polluter’s activity may exceed the polluter’s benefit. The problem is essentially one of preserving the future value of those resources. There is no reason to believe, however, that the government maintains future value any better than the private sector. Quite the contrary, government control and regulation of environmental resources should raise grave public concern. See Richard L. Stroup & Sandra L. Goodman, Property Rights, Environmental Resources, and the Future, 15 Harv. J.L. & Pub. Pol’y 427 (1992) (arguing that the private sector protects future value much better than the government).

\textsuperscript{34} For example, the government may restrict access to community resources or require that polluters either refrain from their activity or compensate the community at large.


\textsuperscript{36} See Macey, supra note 23.

discredited theory dates back to Malthus. Essentially, the argument fails to account adequately for productivity increases and resource substitution. The environmentalists fail to recognize that people approach quality of life issues, including family size, from the same rational economic perspective that informs their economic decisions. People naturally link population size to environmental preference.

7. **Capitalists would rather destroy the environment than preserve it.**

   Capitalists would rather make money than not. In order to minimize the cost of producing her product, the capitalist will pass to other parties all costs, including pollution costs, which such other parties will accept. If capitalists are forced to bear the full cost of environmental depravation, then the pollution calculus changes. Capitalists have an economic incentive to reduce pollution when they must pay the actual cost

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39. Anderson and Leal describe the fallacy of the "Neo-Malthusians" as follows:

   The problem rests in the acceptance of Malthus's initial premise that demands on resources will be exponential while the supply is finite. All of these forecasts [predicting overpopulation] fail to take account of the ability of humans to react to problems of scarcity by reducing consumption, finding substitutes, and improving productivity.

   *Id.* at 2.
40. *See* GARY S. BECKER, THE ECONOMIC APPROACH TO HUMAN BEHAVIOR 171-94 (1976) (arguing that family size is a rational economic decision).
41. *Id.*
42. *See, e.g.*, Robert J. Smith, *supra* note 6. Smith places blame for pollution squarely on the shoulders of government not the free market. Writes Smith:

   The existence of pollution in a "free enterprise system," is not proof that the market system is characterized by externalities and a condemnation of the system; instead, it is proof that the system is not a private property, free market system. Rather than being an example of market failure, it is an example of governmental failure. It is the failure of the government and the courts to protect the system of private property rights upon which a private enterprise economy is founded.

   *Id.* at 17.
8. Punitive regulations encourage businesses to replace environmentally harmful technologies with environmentally benign technologies.

Although this statement is true, it fails to recognize that many regulations distort economic incentives to the detriment of consumers. Behavior-forcing regulations artificially raise the relative benefit of using expensive environmentally benign technologies. A truly free market, one in which producers compensate society for the actual cost of pollution.

43. Lax protection of property rights encourages polluters to invade private and community property. The polluter has no incentive to invest in non-polluting alternatives unless the law requires that she compensate society for the costs which her pollution imposes upon others. In effect, lax protection of property rights subsidizes polluters and penalizes property owners. When the government actively protects rights (i.e., removes the subsidy for polluters) non-pollution alternatives become more appealing.

44. See e.g., Robert A. Leone, Who Profits?, 55-57 (1986) (describing how water pollution regulation raises fixed costs of the paper industry). See also Becker, supra note 40, at 194-196 (discussing how producers might deal with the "creeping incrementalism" of EPA water pollution standards).

45. "Behavior-forcing" refers to regulations which mandate or preclude certain courses of conduct on the part of polluters. For example, a law which requires coal-burning utilities to install scrubbers, but does not allow the utility to attempt other methods of reducing sulfur oxide emissions, forces a particular course of conduct. For a detailed look at the scrubber issue, see Robert W. Crandall, Environmentalists, and the Coal Lobby (Roger G. Noll & Bruce M. Owen eds., 1983).

46. In the same way that incentive obscuring regulations cause product manufacturers to invest in excessive prevention, see supra note 30, environmental regulations obscure the pollution/non-pollution calculus. For example, suppose a company can spend $100 to avoid $150 worth of environmental damage. Assuming that it must pay the entire cost of the environmental damage, the company will purchase the prevention and save fifty dollars. Assuming that the diminishing returns condition applies, the cost of an additional unit of prevention will exceed the cost of the environmental harm at some point. At that point the company will prefer to pay for the damage rather than purchase more prevention. If the law imposes pollution fines in excess of the actual environmental damage, the company will purchase more prevention. For example, suppose the cost of prevention equals the savings derived from that prevention at point x. That is, any additional unit of prevention costs more than the cost of compensating the victims of pollution. Now suppose the government passes a law which requires that companies compensate victims of pollution at twice the cost of actual harm (e.g., $100 harm equals $200 total payout). After the enactment of this law the company will purchase additional prevention beyond point x. This is because, at point x, the cost of prevention is only half of the total cost of compensation (i.e., actual harm multiplied by two). The law effectively skews the company's cost-benefit analysis.
pollution, serves as the best mechanism for determining society's valuation of environmental protection.\textsuperscript{47}

III. THE FREE MARKET APPROACH

Interested parties can determine the actual value of environmental protection only if the environmental protection laws allow the free market valuation of all resources.\textsuperscript{48} Environmental legislation should encourage the preservation of environmental resources only if free market participants determine that the value of preservation or non-pollution exceeds the pollution value\textsuperscript{49} of those resources. In other words, government should allow market participants to determine the economically efficient level of pollution.

A. Applying the Coase Theorem\textsuperscript{50} to Environmental Protection

\textsuperscript{47} A return to the example in note 46 supra will illustrate that the penalizing legislation overvalues society's resources. If the compensation law required double indemnification, the company would purchase prevention beyond point x. Assuming that the property owner makes no distinction between the value of the property and compensation, he would accept compensation for the company's environmental damage so long as the compensation equaled his valuation of his property rights. That is, the company will offer to compensate rather than prevent beyond point x (because compensation is cheaper), and the property owner will accept the compensation as full payment for his property rights. Neither party is worse off, and one party, the company, is better off because it did not have to purchase more prevention. Economists refer to cases in which gainers could compensate losers such that no individual would be worse off and at least one person would be better off as Kaldor-Hicks efficiencies. \textit{See Jules L. Coleman, Economics and the Law}, 94 ETHICS 649, 649-652 (1984). \textit{But see} Richard Craswell, \textit{Efficiency and Rational Bargaining in Contractual Settings}, 15 HARV. J.L. & PUB. POL'Y 805, 813-814 (1992) (questioning the usefulness of Kaldor-Hicks analysis when examining society-wide regulations).

If the law requires double compensation, it skews the valuation of both the property rights and the prevention. Since the benefits from prevention increase, the company purchases more prevention and less compensation. The property owner's position remains essentially the same, the only difference being that he retains his rights instead of receiving compensation. The company is worse off because it must purchase more prevention after the enactment of the law.

\textsuperscript{48} \textit{See}, e.g., Anderson & Leal, supra note 35, at 303-309 (describing how the assignment of property rights and liability rules allow free market participants to negotiate values for environmental resources).

\textsuperscript{49} \textit{See supra} note 46. The pollution value is the cost of compensation.

The Coase Theorem posits that when third party contract enforcement is guaranteed and when transaction costs are zero, the contracts of commercial transactors will assign efficient values to the resources in question.\textsuperscript{51} The transactors will sell and purchase rights and resources in an effort to reach a mutually beneficial outcome.\textsuperscript{52} In the bargaining process, one transactor offers a right which he owns, such as a property right, to the other party for some value greater than the first party could receive without the exchange. The second party will purchase that right only if the exchange also leaves her more wealthy, according to her definition of wealth.

In the environmental realm, transactors can exchange property rights for more valuable resources. For example, upon realizing that his land is more valuable to a train company than to himself, a farmer will transfer his property rights to the company rather than continue to farm. The Coase Theorem places no pre-set values on environmental resources. A different farmer may demand a price greater than its value to the train company. In that case, no exchange will occur.

Conceptually, the leap to private pollution control and natural resource conservation requires little additional effort. If the aforementioned train company desired the right to pollute the farmer’s property, but not to own the property itself, the farmer would still demand a price greater than the property’s current value as a farm. The two rational actors would decide among themselves whether polluting the farm was economically efficient.

The same logic applies to natural resource conservation. If market participants are required to compensate resource owners at the free market value of those resources, both parties become more wealthy. For example, if an environmental preservation group realizes that the public is willing to pay to visit a forest currently owned by a logging company, the group can purchase the forest, mortgage it, and pay the mortgage with revenue generated from charging admission to the forest. Following the Coase Theorem, if the preservation value is greater than the logging value, then the environmental group will purchase the property, or perhaps only the use rights to the property, from the logging company. All parties involved benefit. The logging company receives more money than it could have produced otherwise, and the environmental group preserves the forest.

\textsuperscript{51} Id. at 1-8.
\textsuperscript{52} Id.
B. The Transaction Cost "Problem"

The Coase Theorem assumes that transaction costs are zero, but, in reality, all exchanges involve such costs. The high cost of information accumulation serves as a potential pitfall in the Coase calculus. Specifically, the cost of ascertaining the value of a resource alters the valuation of that resource.

Traditionally, the government has sought to minimize environmental transaction costs through regulation. Most breaches of property rights result in rather insignificant environmental damage. In situations where numerous property owners suffer minimal property damage at the hands of an encroaching party, the government finds ample justification for comprehensive environmental regulations.

For example, the government protects riparian landowners by limiting the discharge of pollutants into navigable waterways. The high transaction costs of ascertaining the exact harm associated with the water pollution require that the government seek to limit the quantity of pollutants introduced. According to the transaction cost analysis, government regulation replaces a prohibitive cost - individual information accumulation and rights enforcement, with an inexpensive alternative - government-enforced quantity control.

Efficiency gains from regulatory schemes may be illusory, however. The regulatory model provides a prime opportunity for "rent-seeking" behavior on the part of interested groups. The lobbying process can

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53. Transaction costs are the costs associated with the exchange of rights. These may include information accumulation, third party contract enforcement, etc. For a discussion of the effect of transaction costs in the context of property rights and liability rules, see generally Guido Calabresi & Douglas Melamed, Property Rules, Liability Rules, and Inalienability, 85 Harv. L. Rev. 1089 (1972).

54. See Coase, supra note 50, at 15-19. Coase acknowledges that transaction costs are positive, but does not attempt to construct a formal theory which accounts for those costs.


56. See, e.g., id.


58. See Macey, supra note 23, at 229-33. Rent-seeking behavior occurs when groups use the political process to redistribute wealth in their favor.
involve tremendous transaction costs. Further, because there is no guarantee that the legislative outcome will express the preferences of the affected parties accurately, the regulations may distort the economic incentives. By and large, the legislative process spreads the costs associated with the regulatory model among the general populace. Generally, taxpayers pay the costs of formulating, enacting and enforcing environmental legislation; yet the benefits from the legislation accrue to distinct individual parties. For example, all taxpayers contribute to the financial cost of maintaining national parks, but only a fraction of those taxpayers visit the parks. In private bargains, the interested parties must pay the costs of regulation.

C. Defining and Defending Property Rights

Once government clearly defines private property rights, the transaction cost problem diminishes substantially. Once private actors know the nature and extent of their rights, they may easily assign value to those rights. Owners of environmental resources can easily recognize a property encroachment if they have a clear sense of what constitutes a valid claim. For example, if owners of wetland areas had no extraordinary restrictions on the disposition of their land, then free market participants could determine the relative value of preservation or conversion.

Assured that she has enforceable property rights, a property owner could bargain effectively with others. Other parties, also, could determine the extent of the property owner’s rights and structure their bargains accordingly. The government’s creation of "bright line" rights, such as the right of forest owners to all wild animals within that forest, greatly lowers the transaction costs associated with environmental resource exchanges.

In the case of community owned environmental resources the government should require that the polluters compensate the community for the actual damage to those resources. The state should defend vigorously the value of community resources, but take care not to overvalue those resources. Just as a private property owner will sell her property rights at some value higher than her personal valuation, the state

59. See Bruce Yandle, Escaping Environmental Feudalism, 15 HARV. J.L. & PUB. POL’Y 517, 520-25 (1992) (arguing that the transaction costs of legislation may exceed the transaction costs of private enforcement of property rights even in cases of numerous potential plaintiffs).

60. See ANDERSON & LEAL, supra note 22, at 22.

61. Id.
should sell community resources at their fair market value, which is whatever the highest bidder is willing to pay. Otherwise, the community has not maximized the value of its resources.62

D. Making Polluters Pay, But Not Too Much

Polluters should compensate individuals and property owners for violations of property rights. Government programs which allow polluters to damage individual health and diminish the value of property effectively force injured parties to subsidize the activities of polluters.63 In an efficient market, industrial polluters pass the subsidy on to consumers of their products. Because the prices of such goods fail to reflect the actual cost of production, consumers may have less incentive to replace those goods with more efficiently made goods than they would in an efficient market.

Although polluters should pay the true costs of pollution, government should not enact overly punitive environmental legislation. The standard for punitive measures should be whether the polluter intentionally attempted to conceal the pollution or its effects.64 If the government cannot prove that the polluter attempted to conceal the harm,

62. As in the case of overvalued private property (see supra note 47), overvalued community property harms society as a whole. For example, suppose a community would accept compensation at the rate of $100 per gallon for oil spills into a common waterway. Suppose also that a company normally discharges one gallon per month. Assume that for $150 per month the company could rent a machine which would guarantee no discharges. The efficient course of action for the company would be to forego renting the machine and compensate the community instead. The community is no worse off and the company avoids the extra fifty dollars per month cost.

Now, suppose the government enacts a law which penalizes polluters at a rate of $200 per gallon. With the law in effect, the company will purchase the machine for $150. The community’s wealth does not change after the enactment of the law. It has a clean waterway, but not the $100 per month. The company has an additional fifty dollars per month expenditure, but no increased product (except one more gallon of oil per month). The community’s wealth remains constant and the company’s productivity declines. The company’s sales also decline because its product prices rise to reflect the increased operating costs.

63. See supra note 43.

64. See, e.g., 33 U.S.C. § 1321(b)(5) (1988) (providing for heightened penalties for failure to comply with the reporting requirement of section 311 of the Federal Water Pollution Control Act).
then the polluter should have to provide compensation only to the injured party as well as transaction costs, such as administrative or court costs and legal fees. The injured party will be made whole and the polluter's product will reflect the actual cost of production.

When the government punishes a party for ordinary pollution, rather than requiring the party to indemnify victims, the polluter spends more on pollution prevention than necessary. Punitive measures artificially inflate the cost of pollution. This increase, in turn, unnaturally raises the cost of goods produced through pollution creating processes. The relative value of goods produced through non-pollution-creating processes artificially increases. Consumers suffer because the excessive pollution tax actually frustrates their free market preference.

E. Distributing the Benefits

The free market distributes benefits equitably among all market participants, but the regulatory model directs excess benefits to some parties and imposes costs on other parties. In a free market without transactions costs, no party will exchange a valuable resource for a good of lesser value. In order for a transaction to occur, both parties must perceive the other's good as more valuable than his own. For example, a train company will purchase a farmer's land only if the cost of the purchase is less than the best alternative. The farmer, in turn, will sell his land only if the train company's offer exceeds his own valuation of the same property. If both conditions are met, a transaction will occur and both parties will benefit.

The regulatory model encourages rent-seeking behavior and redistributes wealth among interest groups. Instead of paying the true value of the results which they desire, interested parties spend money influencing legislation which gives them a benefit in the marketplace. For example, an environmental group seeking the preservation of a forest

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65. See supra note 47.
66. Excessive prevention increases the factor costs of the manufacturer's product. Presumably, the retail price of the manufacturer's product reflects these increased costs. Consumers ultimately pay for the productivity loss. Because of the increase in price, consumers will consume less and substitute more. The price increase effectively frustrates their free market preference.
67. See Macey, supra note 23.
owned by a logging company can spend its limited resources on purchasing the forest or on lobbying the government to restrict logging of the forest. If the cost of successful lobbying is lower, the group will choose this course of action. Society as a whole suffers from such behavior, the lobbyist, in contrast, benefits in greater proportion than she would in a free market. Whereas economic actors respond to economic incentives, politicians respond to political incentives, such as goodwill among the general population. A lobbying interest with little money but a popular position may find a responsive legislature. The moral injustice of redistributionist laws and regulations apparently factors little into legislative decision-making.

F. Letting the Free Market Regulate

Under the common law, individual property owners bore the primary responsibility for protecting their property from foreign pollutants. Remedies included injunctive and compensatory relief. In the modern era, the government has attempted to regulate the introduction of pollutants into the environment. In many cases government regulation preempts common law remedies. As discussed above, the problem of transaction costs serves as a guiding principle for many environmental regulatory schemes. This view fails to recognize that the regulatory model also creates transaction costs and has few safeguards against the arbitrary redistribution of wealth from the politically weak to the politically strong.

If we require that polluters compensate resource owners and pay transaction costs, the free market provides a more equitable distribution of resources than the regulatory model. For example, if a cement factory wishes to discharge noxious fumes excessively, it should negotiate a compensation package with the local community. Depending on the community’s valuation of clean air, the community either refuse to sell its

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69. See Macey, supra note 23.
70. See Stroup & Goodman, supra note 33, at 433-35 (arguing that public officials exhibit bureaucratic "wealth maximizing" behavior).
71. See McRae, supra note 7, at 30-31.
72. Id.
73. See, e.g., International Paper Co. v. Ouellette, 479 U.S. 481, 494-97 (1987) (holding that the Clean Water Act (CWA) preempts the common law right of a Vermont resident to halt the pollution of a New York paper company so long as the CWA allows such pollution).
right to reasonably clean air at any cost or accept a level of compensation equal to or greater than its own valuation of clean air. If the law requires that the polluter bear all the transaction costs, then the community clearly will gain from a negotiated compensation package.

A similar analysis should apply to groups wishing to preserve privately owned resources. If a conservation group wants to preserve the habitat of a particular species of animal, the group can simply pay the owner to preserve the area. In the case of publicly owned lands, the environmentalists can outbid the other interested parties, if the preservation value of that land is greater than the value of the alternatives.

Property owners can bring suit against polluters and demand both compensation for the damage and transaction costs (e.g., the costs of bringing the suit and determining the extent of the harm). Polluters then will continue to pollute only if the economic benefits exceed the costs. If the economic benefits outweigh the cost of compensation and the polluter, therefore, continues to pollute, society benefits more than it does when the government mandates an end to pollution. The polluter makes the injured party whole and still increases its own wealth.

In all of these examples the parties arrive naturally at the most efficient outcome. An actor who bears the full cost of her pollution will pollute only if the benefits outweigh the cost of compensation. An organization interested in the preservation of some privately owned resource, such as a wetland habitat, can purchase the preservation rights of that property only if it values that property more than the present owner does. The parties can determine among themselves who will bear the transaction costs. Only truly efficient transactions will occur, because the market participants will make rational economic decisions which accurately value the resources involved.

IV. A CASE STUDY: THE OIL SHEEN TEST OF THE WATER POLLUTION CONTROL ACT

This section provides a case study in inefficient, absolutist legislation, as well as some minor market-oriented suggestions for improvement.

A. The Oil Sheen Test

74. See supra note 46.
75. See supra note 47.
Section 311(b) of the Federal Water Pollution Control Act (FWPCA)\(^6\) prohibits discharges of oil into navigable waters "in quantities as may be harmful as determined by the President."\(^7\) Executive Order No. 11,548 delegated the defining of "harmful quantities" to the Secretary of the Interior.\(^8\) The resulting policy dictates that at all times and locations and under all circumstances and conditions, discharges of oil that cause "a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines" are harmful.\(^9\)

The law applies to all sources except a "properly functioning vessel engine."\(^{10}\) The law applies to discharges from private vessels,\(^{11}\) onshore facilities,\(^{12}\) and offshore facilities,\(^{13}\) but exempts public vessels.\(^{14}\) If the polluter discharges oil in a quantity substantial enough to create a visible sheen, the owner must inform the Coast Guard.\(^{15}\) The Coast Guard dispatches a crew to the site of the discharge, inspects and measures the sheen, and eventually levies a fine of up to $5,000 per discharge on the polluter.\(^{16}\)

Even in cases in which the spill is de minimis, the fine may reach $5,000.\(^{17}\) The Coast Guard need not prove that the discharge resulted in

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80. § 110.6.
82. § 1321(a)(10).
83. § 1321(a)(11).
86. § 1321(b)(6)(A).
The court in Orgulf reasoned:

Whether a spill resulted in actual harm to the environment is irrelevant to the determination of whether Section 311's prohibition of discharges of oil in quantities which may be harmful has been violated. The only pertinent inquiry is whether the spill was in a quantity which may be harmful as determined by the EPA. Because EPA has determined that a spill of oil which creates a sheen is a quantity which "may be harmful," such a spill is subject to the penalty provisions of 33 U.S.C.
any actual harm to the environment, but merely that the oil created a visible sheen.\textsuperscript{88} The polluter has a right to an administrative hearing to contest the fine,\textsuperscript{89} but the submission of evidence of even a nominal environmental harm results in denial of relief.\textsuperscript{90}

In the early years of the oil sheen test, some courts recognized a rebuttable presumption that the spill harmed the environment.\textsuperscript{91} If a polluter demonstrated that the spill created no harm, then the court waived the penalty.\textsuperscript{92} In recent years, however, courts have held that the law does not grant an exemption simply because the spill caused no harm.\textsuperscript{93} The Coast Guard need merely determine that the polluter discharged the oil.\textsuperscript{94} Regardless of the actual harm which the spill poses, the Coast Guard may impose a fine up to $5,000.\textsuperscript{95} In determining an appropriate fine, the Coast Guard must consider the following factors: (1) the size of the business of the owner or operator charged; (2) the effect on the polluter's ability to remain commercially viable; and (3) the gravity of the violation.\textsuperscript{96} The Coast Guard deposits the money with the Department of the Treasury.\textsuperscript{97}

In \textit{Chevron, U.S.A., Inc. v. Yost},\textsuperscript{98} the United States Court of Appeals for the Fifth Circuit addressed the issue of whether section 311 allows the Coast Guard to fine an oil company for accidental discharges of small quantities of oil which caused no actual damage to the environment. On twelve separate occasions Chevron discharged oil and

\begin{itemize}
\item \textit{Id.} and 40 C.F.R. Part 110.3.
\item Id.
\item Id.
\item \textit{Orgulf}, 711 F. Supp. at 347.
\item See, e.g., United States v. Boyd, 491 F.2d 1163, 1167 (9th Cir. 1973).
\item Id.
\item Id.
\item Id.
\item 33 U.S.C. 1321(b)(5)(A). The fact that the amount of the fine is related to the financial resources of the polluter apparently mandates disparate treatment of parties who pollute in identical amounts.
\item 919 F.2d 27 (5th Cir. 1990) (Chevron II).
\end{itemize}
notified the Coast Guard promptly thereafter.\textsuperscript{99} Chevron requested a hearing for each of the spills and at each hearing sought to prove at each hearing that the quantity of oil discharged posed a de minimis impact on the ecosystem, despite the visible sheen.\textsuperscript{100} Despite Chevron's evidence,\textsuperscript{101} the hearing officer assessed fines ranging from $250 to $1000 for each incident.\textsuperscript{102} The penalty from all twelve discharges totaled $8,800.\textsuperscript{103}

Chevron successfully appealed the hearing officer's ruling to federal district court.\textsuperscript{104} Relying on a previous Chevron case,\textsuperscript{105} the district court found that the sheen test constituted a rebuttable presumption of harm to the environment and accepted Chevron's evidence that the spills in question posed no environmental harm.\textsuperscript{106}

The Fifth Circuit reversed the district court, holding that the Environmental Protection Agency may levy a fine for the discharge of oil although the spill results in no actual harm.\textsuperscript{107} The court reasoned that "the agency may proscribe incipient injury and measure its presence by a test that avoids elaborated inquiry."\textsuperscript{108} Addressing the shortcomings of the law, the court surmised that "[w]hile it is apparent that such an approach sometimes overregulates, it is equally apparent that this imprecision is a trade-off for the administrative burden of case-by-case proceedings."\textsuperscript{109}

\textbf{B. Analysis of the Oil Sheen Test}

The court admits in \textit{Chevron II}, in effect, that the law may require Chevron to pay the fine although no actual damage occurred, because the luxury of case-by-case review mandates such an outcome.\textsuperscript{110} The costs associated with case-by-case review fall squarely within the category of transaction costs. The implication of the court’s reasoning is that because

\begin{itemize}
\item \textsuperscript{99} Id. at 28.
\item \textsuperscript{100} Id. at 29.
\item \textsuperscript{101} Id. Chevron's experts testified at each hearing.
\item \textsuperscript{102} Id.
\item \textsuperscript{103} Id.
\item \textsuperscript{104} Id.
\item \textsuperscript{105} United States v. Chevron Oil Co., 583 F.2d 1357 (5th Cir. 1978) (Chevron I).
\item \textsuperscript{106} Chevron II, 919 F.2d at 29.
\item \textsuperscript{107} Id. at 31.
\item \textsuperscript{108} Id. at 30.
\item \textsuperscript{109} Id.
\item \textsuperscript{110} Id.
\end{itemize}
the government must bear these transaction costs, overregulation (i.e., excessive penalization) becomes a necessary evil. The government minimizes the transaction costs if it requires only proof of a visible sheen; the procedure to check for a sheen requires merely a personal inspection rather than more costly methods of analysis.

Undoubtedly, this regulatory scheme allows the government to conserve revenue. Governmental efficiency, however, should not come at the expense of economic efficiency. The potential polluter will gauge his preventative measures in accordance with his estimated financial liability. If financial liability is based on an overly punitive system, the potential polluter will be inordinately careful. Every unit of overinsurance increases the price of the polluter’s product, a cost which the polluter ultimately passes on to consumers. Because the increased cost stems directly from the government’s efforts to minimize its transaction costs, the consumers suffer so that the government may benefit.

C. Rewriting the Oil Sheen Legislation

The reinstitution of the rebuttable presumption would benefit the polluter and, in turn, the consumer. The potential polluter would purchase the efficient level of prevention. If all transaction costs were shifted to the polluter, then the entire process would become truly efficient. The Coast Guard would assess a penalty based solely on its estimation of the gravity of the harm. The polluter could contest that finding during an administrative hearing. The polluter would pay not only for the actual environmental damage, but also for the cost of the initial inspection and the costs associated with the hearing. The polluter would contest the initial Coast Guard finding only if the potential benefits from the proceeding outweighed its cost. In other words, the polluter would contest the fine only if the initial levy exceeded the cost of the actual harm plus the government’s administrative costs. As a result, the polluter would pollute only when economic efficiency required. Society as a whole would benefit because the gains from pollution would outweigh the actual harm and transaction costs.

If the polluter causes actual harm to the waterway, the money

111. See supra note 47. The potential polluter will prevent spills to the point that the marginal cost of an additional unit of prevention costs more than the marginal benefit achieved from such prevention. The punitive regulation arbitrarily increases the marginal benefit of each unit of prevention, thus causing the potential polluter to overinsure against accidental discharge.
which he pays in compensation should go to the localities that the pollution effects. The localities can use the money either to clean up the spill or for some unrelated purpose. In any case, riparian landowners should receive compensation for any actual damage to their property.

V. CONCLUSION

This article has shown that the government should allow market participants greater freedom in determining economically efficient levels of pollution. Generally, Americans trust the free market to provide in an efficient manner the goods which we consume and desire. Americans should view the environment as they view other resources. They should be willing to accept some level of environmental deprivation in exchange for goods which they consume. The contentious issue is who should decide the appropriate levels of preservation and depravation. If those seeking to preserve privately owned resources are willing to pay the cost of preservation, then society as a whole benefits. If the preservation value exceeds the conversion value, then those who wish to see such resources preserved should pay the costs of conservation.

By the same token, those who wish to pollute private or community property should compensate the owners of those resources. Polluters should not have to pay excessive compensation, however. Penalizing polluters who have not attempted to conceal their harmful actions encourages over-insurance and inefficiency. Environmental laws should require that polluters pay for the actual harm which they cause as well as all related transaction costs. Such laws should not overregulate potential polluters or overvalue environmental resources. The cost of such laws is inefficiency and an artificial redistribution of wealth among competing interest groups.