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*Enhancing Environmental
Protection While Fostering
Economic Growth*

by Kenneth W. Chilton

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This booklet is one in a series designed to enhance understanding of the private enterprise system and the key forces affecting it. The series provides a forum for considering vital current issues in public policy and for communicating these views to a wide audience in the business, government, and academic communities.

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Enhancing Environmental Protection While Fostering Economic Growth

by Kenneth W. Chilton

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Introduction

Nearly three decades after the creation of the Environmental Protection Agency, there is growing consensus that the current system of environmental protection is inappropriate for meeting the challenges ahead.¹ Improvements in environmental quality, although initially substantial, now are more modest and are coming at a high economic price.

In the 1970s and early 1980s, when pollution was a greater problem than it is today, environmental laws were more *likely* to provide improvements in environmental quality that exceeded their costs. “Likely,” because there has been little quantitative measurement of the benefits gained and economic costs incurred from federal environmental programs.

For some time, signs have been developing that suggest our system of environmental laws is broken. The array of legislation and regulation that has brought us this far is not capable of delivering further environmental improvements that are commensurate with their economic costs.

The problem stems, in part, from a regulatory framework which consists of many narrowly focused laws such as the Clean Air Act (CAA), the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), etc. The result is a complex, confusing, and, often, inconsistent system of environmental laws. Removing sulfur dioxide from air emissions at coal-fired electric utilities produces a liquid waste that must be solidified and disposed of. Narrowly focused “best available control technology” to remove air pollutants at oil refineries overlooks lower-cost methods that would produce the same results.²

Furthermore, environmental laws do not pursue protection to levels of risk that individuals would choose for themselves if they were knowingly paying for these risk reductions. Many statutes seek the illusive goal of virtually zero risk. Hamstrung by detailed and uncoordinated laws or consent decrees resulting from environmental organizations’ lawsuits, environmental officials fail to pursue the policies that experts say would achieve the greatest reductions in risk for a given cost.³

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Experts, including some within EPA, widely agree that the methods we use to achieve environmental goals need to change. Yet the public and politicians do not appear to recognize this need. Indeed, members of Congress who dare make reform proposals can expect to be targeted by environmentalists and accused of attempting to “gut” environmental protection.

Where do regulators, the regulated, and policy analysts agree on the need for change? A consensus is developing that cost-efficiency and priority-setting need to take a more prominent role in regulatory decision-making. There is less agreement about shifting the locus of decision making and the role for EPA vis-à-vis state and local governments and the private sector.

Where do regulators, the regulated, and policy analysts agree on the need for change? A consensus is developing that cost-efficiency and priority-setting need to take a more prominent role in regulatory decision-making.

One vision is to limit EPA’s role primarily to providing information on harmful levels of environmental pollution while reporting on actual levels and acting as a clearinghouse for information on effective methods of pollution control. Legislation to set standards and to design implementation strategies and enforcement methods would be, mainly, the province of state and local governments.

Change that is this fundamental may not be politically practical at present. But continuing to vest the EPA with supreme authority for administering and enforcing narrowly focused and detailed federal environmental statutes would exact high economic costs, hurting America’s competitiveness while delivering disappointing small incremental environmental benefits.

The following pages first review the progress made in environmental protection in the United States over the past three decades. Next, the shortcomings of the current system of environmental laws are discussed. Third, a variety of approaches to comprehensive environmental reform are analyzed. The paper concludes with a summary and set of recommendations.

The State of America's Environment

Significant progress toward environmental goals has been made in the last 25 to 30 years. On the 25th anniversary of the founding of the Environmental Protection Agency, Administrator Carol Browner wrote:

For the past 25 years, the nation has made steady progress on the environment. The EPA—working closely with state, local and tribal governments—established a system of public health and environmental protection second to none in the world. Our efforts produced impressive, measurable improvements in the environment that have enhanced the quality of life for every American.⁴

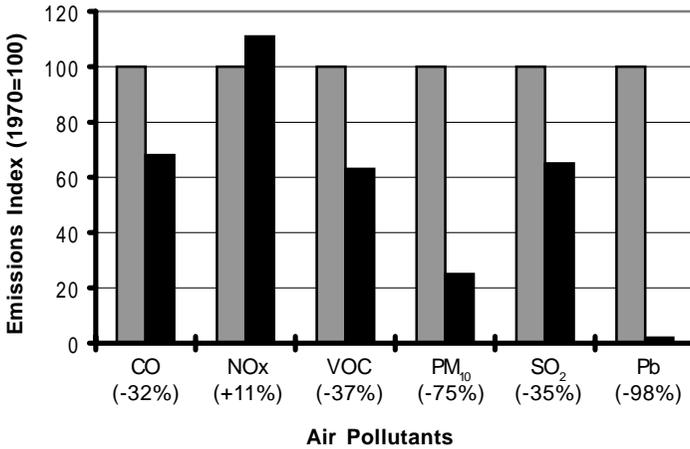
This general picture of accomplishment is supported by evidence of specific improvements in air pollution and somewhat less complete evidence of water improvements and cleanup of land-based pollution. In the areas of water and land pollution, we know that point sources (large industry and sewage treatment plants) have reduced pollution discharges into surface waters and the practice of landfilling hazardous wastes has declined. But we have little information on the baseline level of pollution, or even good measures of the current state of affairs.

Air

Since 1970, air quality has improved in many measurable ways. Emissions of every major air pollutant have decreased, with the exception of nitrogen oxides, which experienced an 11 percent increase from 1970 to 1997.⁵ These improvements include a 75 percent decrease in particulate matter (PM₁₀) emissions since 1970. Particulate matter concentrations have decreased by 12 percent since 1988.⁶ Since 1970, lead emissions have decreased by 98 percent.⁷ This drop in airborne lead is an important factor in achieving a nearly 75 percent reduction in children's average blood-lead levels from 1978 to 1995.⁸ Sulfur dioxide emissions have fallen 35 percent since 1970. Carbon monoxide has declined 32 percent, and emissions of volatile organic compounds (a key ingredient in smog) have dropped 37 percent as well.⁹

In major urban areas, the number of days in which air quality is considered unhealthy, as measured by EPA's Pollution Standard Index (PSI), has fallen significantly in the period 1988 to 1997. For urban areas excluding southern California, the number of "unhealthy" PSI days has declined 66 percent overall. Southern Cali-

Figure 1
Comparison of 1970 and 1997 Air Emissions



Source: Data from National Air Quality and Emissions Trend Report, 1997 (Washington, D.C.: EPA-454/R-97-013, January 1999), p. 9.

ifornia (Los Angeles, Riverside, Bakersfield, and San Diego) has experienced a 56 percent decline in the number of unhealthy air days.¹⁰

The number of cities not meeting national ambient air quality standards for ground-level ozone, commonly known as smog, decreased from 199 in 1990 to fewer than 70 by 1995. According to Administrator Browner, 50 million more Americans breathe air that is within health standards for ozone than did so in 1990.¹¹ (In July 1997, EPA revised and tightened ozone standards and established a new standard for fine particulates, PM_{2.5}, thus redefining “healthful” concentrations of these pollutants. These changes are not reflected in the comparison.)

Emissions of toxic air pollutants—hazardous compounds which have the potential to produce serious health problems—have declined by 39 percent from 1988 to 1993.¹² EPA projects that the toxic air pollutant program will reduce toxic emissions by 75 percent by 2005.¹³

Water

Water quality, likewise, has improved since the passage of the Clean Water Act in 1972. That year, 36 percent of the rivers assessed by the states were judged to be “fishable and swimmable.” By 1988, the percent so designated rose to 70 percent. Nearly three-

quarters of the lakes (in surface area) assessed were found to be “fully supporting” fishing and swimming.¹⁴ In 1994, according to the National Water Quality Inventory, 57 percent of rivers, 50 percent of lakes and 2 percent of estuaries assessed were deemed “good for overall use,” thus leaving ample room for improvement.¹⁵

Sewage sludge, industrial waste, plastic debris, and medical waste are no longer dumped into oceans, and unchecked industrial wastewater discharge into national waters has virtually ceased. Toxic discharges to public sewers have been reduced by an estimated 75 percent.¹⁶

EPA began focusing on drinking water in 1974, following the enactment that year of the Safe Drinking Water Act. In 1986, the act was amended to accelerate controls of toxic contaminants and to tighten restrictions on pollution of groundwater. According to EPA, drinking water standards have prevented 200,000 to 470,000 cases of gastrointestinal illnesses a year.¹⁷

Finally, sewage treatment has improved in thousands of communities, and 73 million people have better sewage treatment today than they had 25 years ago.¹⁸

Land

The 1976 Resource Conservation and Recovery Act (RCRA) established federal control over hazardous waste management. In 1984, the act was amended with the passage of the Hazardous and Solid Waste Amendments. As a result of these laws, land disposal of hazardous waste has declined, both in tons stored a year and in number of landfills. Table 1 shows more than a 50 percent decline in the amount of hazardous waste stored from 1985 to 1995—from 2.9 million tons to 1.3 million tons. The table also indicates that land storage of hazardous waste was not really the management method of choice, even in the “bad old days”—just 1.3 percent of the hazardous waste managed in 1985 went to landfills. The significant decline in the number of active storage facilities—from 249 in 1985 to 68 in 1995—is reflective of improvements in landfill technologies that favor higher-cost, more environmentally sound facilities.

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also known as Superfund) focused on cleanup of the worst abandoned hazardous waste sites. In 1986, the Superfund Amendments and Reauthorization Act (SARA) addressed hazardous spills and called for additional reporting on toxic releases. As of September 30, 1996, of the 1,263 sites on the Superfund National Priorities List (NPL), 33 percent have completed

Table 1
Trends in Hazardous Waste Storage

Year	Number of Landfills	Hazardous Waste Stored in Landfills (millions of tons)	Total Hazardous Waste Managed (millions of tons)	Percent of Hazardous Waste Managed by Storage
1985	249	2.9	222	1.3
1987	136	3.0	233	1.3
1989	86	2.3	197	1.2
1991	52	1.7	294	0.6
1993	68	2.3	235	1.0
1995	68	1.3	208	0.6

Source: Data from *The National Biennial RCRA Hazardous Waste Report* (Washington, D.C.: EPA), reports released from 1987 to 1997.

cleanup and 39 percent have construction cleanup under way.¹⁹

But there are thousands of sites (as many as 19,000) that EPA preliminarily assessed to “appear serious” that need further investigation to see if they warrant NPL designation.²⁰ Moreover, the Department of Defense and the Department of Energy are facing tremendous challenges (and taxpayer costs) to clean up their many “mega” hazardous waste sites.²¹ Thus, one should not be overly complacent about the progress made in this area.

The Cost of Cleanup

The significant environmental improvements attained over the past three decades have come at considerable cost, of course. EPA estimated in 1990 that the total bill for environmental protection from 1971 to 2000 would amount to \$3.6 trillion (in 1997 dollars).²² Annualized costs for pollution control as a percent of gross national product have more than doubled, from 0.9 percent in 1972 to 2.4 percent in 1997.²³ EPA’s estimate of the cost of complying with environmental regulations in 1997 is \$200 billion.²⁴ On a more personal basis, the average family of four is paying \$3,000 a year for the current array of environmental programs.

Though these estimates purport to take into account the costs of full compliance, they significantly understate the costs because of major unforeseen tightening of standards. The Clean Air Act Amendments of 1990 and new national ambient air quality stan-

dards for ozone and fine particles, passed in 1997, add several tens of billions of dollars to this annual cost.²⁵ The cost estimates also do not take into account opportunity costs of foregone alternative investments.

The economic impact of complying with environmental regulations can also be measured in terms of projected reductions in productivity. Capital expenditures for environmental controls compete with productivity-enhancing investments. One National Bureau of Economic Research study estimates that in the manufacturing sector, each \$1 increase in environmental compliance costs reduces total factor productivity by \$3 to \$4.²⁶

Future Environmental Challenges

Any objective observer would have to conclude that significant environmental progress has been made during the past quarter century. Concern for the environment does not allow us to rest on our laurels, however. In the words of EPA Administrator Browner:

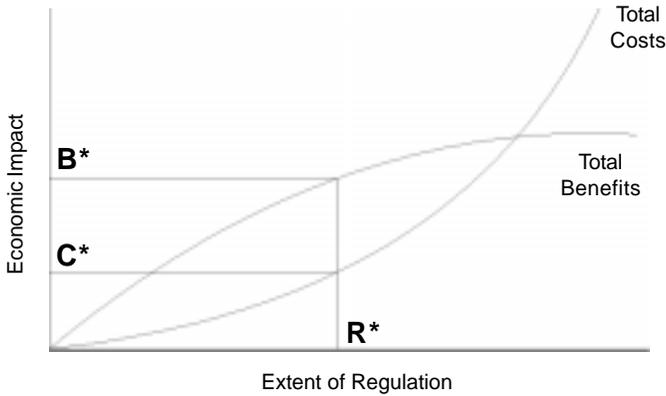
Many environmental challenges lie ahead. Some of the problems from 1970 have proven to be difficult to solve. Also, by learning more about the environment, we have discovered new problems that must be addressed in many new ways. As a nation, our work on the environment must continue.²⁷

One particularly challenging aspect of the continuing pursuit of environmental goals is the way in which benefits and costs relate to the level of stringency of regulation. Figure 2 shows this basic relationship. The desired extent of regulation should be R^* , where the difference between total benefits and total costs ($B^* - C^*$) is the greatest. This turns out to be the point where the next dollar of compliance costs yields one dollar of benefits (or, as economists would put it, where marginal costs equal marginal benefits).

The shape of these two curves is somewhat common sense, i.e. when a pollution problem is first addressed, low-cost, high-benefit solutions are more readily identified. This is analogous to “picking the low-hanging fruit.” But as efforts to remove further amounts of pollution continue, the costs begin to rise rapidly. The fruit higher in the tree requires more equipment and more time, i.e. more cost, to pick.

Figure 3 is an actual example of this pattern of rapidly rising costs that accompany efforts to reduce pollution further and further. The cost data used to construct this figure came from analyses prepared for the Environmental Protection Agency just prior to

Figure 2
The Shape of Total Benefit and Cost Curves for Regulation



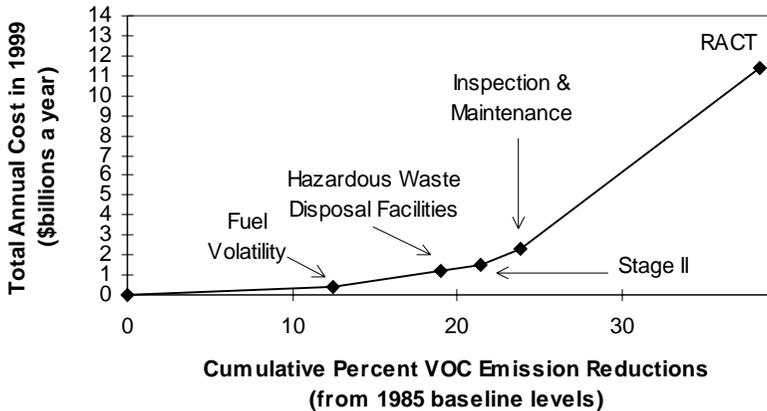
passage of the 1990 Clean Air Act Amendments. The plot of cumulative annual costs versus cumulative reductions in volatile organic compounds (VOCs)—a key ingredient in smog—shows a very steep rise after reductions of about 22 percent (from a 1985 emissions baseline).

After the most cost-effective methods of reducing VOCs are applied, such as reducing fuel volatility, further efforts to combat ozone (smog) formation require much more costly measures, such as applying “reasonably available control technologies.” Removing the first 12 percent or so costs \$400 million a year (\$350 a ton), but to go from a 24 percent reduction to 38 percent costs \$9 billion a year (\$5,700 a ton).

In some situations, the question that should be addressed—but which EPA, environmentalists, and Congress are reluctant to acknowledge—is, “How clean is clean enough?” As our economy grows and our population becomes larger, so too our consumption activities will place greater demands on the environment. Americans support environmental protection, but they also desire an increasing standard of living.

According to a September 1998 report from Wirthlin Worldwide, environmental support in the United States moves, more or less, in sync with the health of the U.S. economy. Their survey results showed that 63 percent of Americans agree with the statement, “Protecting the environment is so important that requirements and standards cannot be too high, and continuing

Figure 3
**Total Cost of Ozone Provisions of the
 1990 Clean Air Act Amendments
 by Cumulative Reductions in VOCs**



Source: Calculations from *Draft Regulatory Impact Analysis: Control of Gasoline Volatility and Evaporative Hydrocarbon Emissions from New Motor Vehicles* (Washington, D.C.: EPA, July 1987) and *Cost Assessment of Alternative National Ambient Air Quality Standards for Ozone*, Draft Report, October 1987, (Alliance Technologies Corporation, Prepared for EPA Office of Air Quality Planning and Standards).

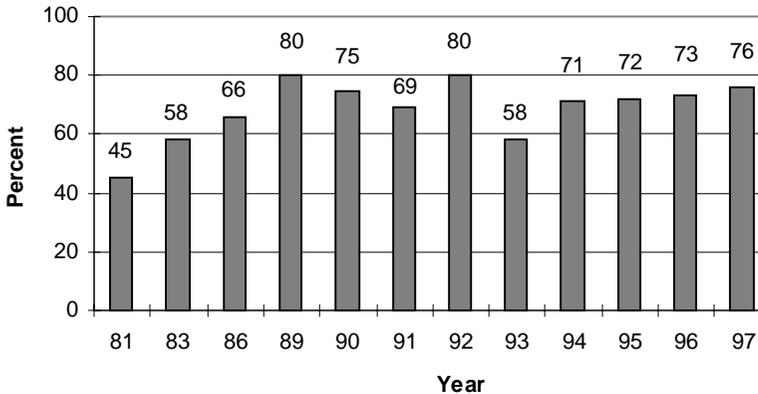
environmental improvements must be made regardless of cost.” This response compared to 76 percent who agreed with this statement a year earlier. The report’s authors conjectured that the decline in environmental support was the result of “August’s stock market plunge, together with financial woes in Asia, Russia, and other parts of the world.”²⁸

To be sure, this question leaves much to be desired as a measure of support for environmental protection. It gives the impression that someone else besides the respondent is paying the cost (which itself is undefined). Nonetheless, economic performance does influence the level of agreement.

The pattern of tandem movement of support for environmental protection and economic outlook is reinforced by taking a look at the responses to the same question over a longer period of time (see Figure 4). Affirmation of this statement about protecting the

Figure 4
Environmentalism Takes a Dip:

Percent of Respondents Agreeing with the Statement:
*“Environmental Standards Cannot Be Too High,
and Continuing Improvements Must Be Made
Regardless of Cost.”*



Source: Data from “Environmental Support Systems Amid Economic Uncertainty,” *The Wirthlin Report* 8, no. 9, September 1998, p. 1.

environment regardless of cost reached an all-time low in the last serious recession in 1981, when only 45 percent agreed.

A more rigorous analysis of the survey data shown in Figure 4 and U.S. unemployment data shows a statistically significant (at the 90 percent level) *negative* relationship between the unemployment rate and the level of agreement—when unemployment rises, environmental support falls.²⁹ Analysis of similar survey data from other sources (primarily *New York Times*/CBS News surveys) shows less correspondence between unemployment and agreement with this statement, but a statistically significant *positive* relationship with the consumer confidence index—for each 10 percent rise in consumer confidence, the percent of those agreeing increases by 3 percent. Regardless of which polling data are used, the level of support for environmental protection does appear to be related to how well the U.S. economy is doing in terms that affect individuals.

Interestingly, Americans say they believe that economic growth and preserving environmental quality are not in competition. The

same Wirthlin survey asked, “Do you believe that economic growth should be sacrificed for environmental quality, should environmental quality be sacrificed for economic growth, or does it not necessarily have to be a choice between the two?” Three quarters responded that there is no need to choose between economic growth and environmental quality.³⁰

Of course, belief is not necessarily fact. Regulations whose costs exceed their benefits clearly reduce economic well-being. But even regulations that produce some net benefits may reduce economic growth because they may take the place of other, more beneficial investments—education, housing, transportation, etc. In a world of unlimited wants but limited resources to meet those wants, choices between competing “goods” are necessary; we cannot “have our cake and eat it, too.”

Deciding what goals to pursue and what resources to use to pursue them requires setting priorities. Unfortunately, the current paradigm of environmental law does not encourage this common-sense approach to environmental protection.

The Current System of Environmental Laws Is in Need of an Overhaul

Evidence is growing that we have reached a watershed with regard to protecting the environment. As will be discussed below, several of America’s key environmental statutes require an unattainable pursuit of perfection, and the costs of continuing this pursuit, in many instances, are vastly exceeding the small benefits being realized. These laws and programs are also narrowly focused on a single medium—air, water, land—or a single purpose, such as restoration of polluted aquifers, or reducing trace amounts of pesticide residues on produce or in processed foods. In addition, the current system hampers efforts to set priorities based either on cost-effective risk reduction or net benefits to be gained.

Pursuit of Perfection

A serious flaw of the current system of U.S. environmental law is its pursuit of perfection. Absolute safety is not possible, and trying to achieve it is unaffordable. Nonetheless, this standard is reflected in the language of some of our major environmental laws. These goals were put into the laws in the hope that they would drive continuous improvements in environmental quality.

Unfortunately, setting unattainable goals inevitably leads to

disappointing results. Although significant improvements in environmental quality have been achieved, deadlines for reaching even more pristine conditions are missed with regularity. This constant underachievement can lead to added public distrust of regulators and the regulated community. Citizen suit provisions in most environmental statutes lead to lawsuits from the environmental community. These lawsuits, then, are settled by striking an agreement with EPA that extends deadlines in exchange for more restrictive regulations. This drives environmental protection further along the path of incurring large costs to gain small benefits.

It should be obvious that a commitment to perfection is a commitment to wasting resources. As emission levels are decreased, it becomes more difficult and costly to clean up the next small increment of pollution. For example, the Clean Air Act calls for ambient air quality standards to be “based on such criteria and allowing an adequate margin of safety, [as] are requisite to protect the public health.”³¹ This is interpreted to mean a margin of safety against any adverse health effect, or in essence, zero risk.

A serious flaw of the current system of U.S. environmental law is its pursuit of perfection. Absolute safety is not possible, and trying to achieve it is unaffordable.

When the national ambient air quality standards for ozone were revised in 1997, EPA cited this mission statement as its justification to tighten the standard. Members of the Clean Air Scientific Advisory Committee warned EPA that “the paradigm of selecting a standard at the lowest-observable-effects level and then providing an ‘adequate margin of safety’ is no longer possible.”³²

EPA itself estimated benefits between \$0.1 billion and \$2.8 billion and costs between \$1 billion and \$10 billion a year to attain the new ozone standard nationwide.³³ The President’s Council of Economic Advisers (CEA) estimate was even less optimistic. CEA projected the benefits to be between \$0.2 billion and \$1 billion a year and the costs to be between \$12 billion and \$60 billion a year.³⁴ Clearly the pursuit of perfection with regard to ozone is wasting significant resources that could be spent more wisely on other worthy objectives.

The recently replaced Delaney Clause of the 1954 Food, Drug and Cosmetics Act was the classic example of a zero-risk statute. It prohibited *any* amount of a chemical in processed foods if the chemical was shown to cause cancer in laboratory animals. Because scientific progress made it possible to detect ever-tinier trace amounts of pesticide residues, EPA was about to ban 80 uses of pesticides before the clause was superseded.

The new law, the Food Quality Protection Act (FQPA) passed in July 1996, may be a case of “out of the frying pan and into the fire.” The FQPA sacrificed the risk-benefit balancing requirements of the Federal Insecticide Fungicide and Rodenticide Act for a new near-zero-risk standard of “reasonable certainty of no harm.” This standard applies to all pesticides, not just those found to be carcinogens in rodent studies. FQPA requires, in essence, that pesticide residues be below 1/1000 of this no-effects level. The act also requires consideration of possible cumulative effects of pesticide residues of a similar type in various foods in Americans’ diets. It could result in more pesticide bans than the Delaney Clause.³⁵ Some companies whose products appear to be threatened are conducting tests on human subjects because this seems to be the best way to demonstrate that trace amounts of these pesticides are safe.³⁶

What the FQPA does not take into account is the health *benefit* from the availability of low-cost, high-quality fruits and vegetables made possible by proper pesticide use. Indeed, prior to FQPA passage, when the Clinton Administration announced its 1993 plan to reduce pesticide use, David A. Kessler, then Food and Drug Administration Commissioner, said, “There’s no doubt that the benefits of fruits, vegetables and grains far outweigh the risks of residues of pesticides on these products.”³⁷

In 1996, the National Academy of Sciences published a study concluding that “based on existing exposure data, synthetic chemicals in the diet appear to be present at levels . . . so low that they are unlikely to pose an appreciable cancer risk.”³⁸ This means, simply, that we need not fear that modern U.S. farming methods, which make judicious use of pesticides to increase crop yields, significantly threaten our health. Although there is increased consumer concern about imported foods, especially raw fruits and vegetables from developing nations, cause for such concern comes more from isolated incidents than from any broad pattern of contaminated imports.

Yet another example of a zero-risk statute is the Clean Water Act. This law aims for zero discharge of pollutants in surface water and groundwater, clearly a practical impossibility. Potentially, at least, EPA could be sued for not pressing toward this goal. The cost

of such a quixotic quest surely would be astronomical.

In many cases, statutory language may not actually require EPA to pursue zero risk or preclude weighing costs and benefits when setting standards or promulgating regulations. Sometimes the agency has interpreted the law to exclude cost-benefit analysis in making these decisions and the courts have validated this interpretation.

For example, the Resource Conservation and Recovery Act (RCRA) is silent on whether to utilize cost-benefit analysis in rule-making but, in 1980, EPA decided that statutory silence implies statutory prohibition. Cost has been a “legally impermissible” factor in RCRA decision-making ever since. As yet, Congress has not seen fit to clarify its intent by amending these statutes or passing legislation that would require cost-benefit analysis as a decision-making aid.

Inefficiencies of a Command-and-Control Approach

In the past, EPA has set environmental protection goals and, in essence, told companies and governmental units how they must meet them. This command-and-control approach was used in the beginning because it was believed to be more easily enforced. Companies were viewed as “the enemy” because of their resistance to many of the new environmental initiatives. Prescriptive laws also reassured a concerned public (and environmentalists) that environmental quality would be brought under the control of the federal government, which, after all, had directed a space program that had landed men on the moon.

The problem with the command-and-control approach is that the most effective solutions for local and regional pollution problems are hard to discern from Washington, D.C. This approach also allows little flexibility for experimentation with alternative means of achieving the same ends.

In the past, issuing commands and enforcing them produced significant results because the environment was dirtier and pollution was relatively easy to clean up. Today the process, in many instances, has become low-benefit, high-cost. Former congressman and current chairman of the National Environmental Policy Institute, Don Ritter, agrees: “The command-and-control nature of environmental law is not the optimal system of the ‘90s, let alone the 21st century.”³⁹

Mandating the use of a specific solution to a problem reduces incentives for companies to search for more cost-effective options. Even if a better way to meet the desired goal could be found, regula-

tors won't allow it to be substituted for the prescribed method. In this way, a command-and-control approach to environmental regulation stifles the development of innovative approaches to achieve environmental goals.

A case in point is the now infamous Yorktown refinery study. A 1991 analysis by Amoco Oil Co. and EPA determined that Amoco would spend over \$40 million over four years to reduce hydrocarbon air emissions at its Yorktown, Virginia plant to meet federal regulations. Had Amoco been allowed to adopt alternative pollution control measures, the same reductions could have been achieved at a cost of \$10 million.⁴⁰

Another example of the negative consequences of command-and-control regulation is the reduction of emissions of volatile organic compounds (VOCs)—a key ingredient of ground-level ozone (smog). California's smog problems have been, and continue to be, difficult to overcome. A 1995 study by the Reason Foundation compared the cost-effectiveness of electric vehicle mandates in California to alternative methods of reducing emissions of VOCs from motor vehicles.⁴¹

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Market-based incentive programs, such as buying back old higher-polluting autos, a gasoline tax increase, or emissions-based vehicle registration fees would lower VOC emissions at an estimated cost of \$1,650 to \$6,000 a ton. On the other hand, sales of low emission vehicles and alternative fuel vehicles—a command-and-control policy favored by California policymakers and specified in the 1990 Clean Air Act Amendments—could possibly achieve the same reduction in VOC emissions at a cost ranging from \$2,200 to \$108,000 a ton.

The Complexity of Environmental Law

Over the last quarter century, U.S. environmental law has evolved into a massive collection of uncoordinated programs characterized by an overwhelming number of regulations. These re-

quirements constitute a complex and confusing system with correspondent excessive compliance costs. In addition, the system's lack of internal consistency leads to multimedia problems (e.g., reducing air pollution may cause an increase in solid waste).

The current, piecemeal system is the result of a reactionary approach to environmental protection. For example, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund), was quickly pushed through in response to fears of toxic wastes leaking into homes built in an area known as Love Canal. This area had been a closed hazardous waste landfill used by Hooker Chemical. The inefficiencies resulting from the Act's retroactive application of joint and several strict liability are now legendary.

Former EPA Administrator William K. Reilly has referred to past reactionary responses leading to environmental laws as cases of "ready, fire, aim."⁴² By 1980, EPA was responsible for administering 12 major laws and its activities were being monitored by over 70 congressional committees and subcommittees.⁴³

Each revision to a major environmental law seems to be more detailed and cumbersome than its predecessor. Superfund legislation was 19 pages long when first enacted, but grew to 200 pages when reauthorized in 1986. The 1970 Clean Air Act was 50 pages long, but the 1990 amendments were 800 pages in length. The clean air amendments contain massive new regulatory initiatives—acid rain controls, an air toxins program, and expanded ozone and carbon monoxide requirements.⁴⁴

This complex regulatory system makes environmental compliance very costly for many businesses. Smaller companies are even more disadvantaged because they are less able to purchase high-cost pollution-abatement equipment or deal with the confusing paperwork requirements resulting from multiple, uncoordinated statutes.

Economist Thomas D. Hopkins found that the average cost per employee of environmental regulations decreases as the size of the firm increases.⁴⁵ For firms with fewer than 20 employees, compliance with environmental regulations costs an average of about \$1,340 per employee (in 1997 dollars). For firms with between 20 and 499 employees, the cost is approximately \$1,270 per employee. However, large firms with 500 or more employees only pay an average of \$720 per employee to comply with environmental regulations. Thus, small- and medium-sized firms pay almost twice as much per employee to comply with environmental laws as do large firms.

Furthermore, multimedia problems frequently result from the narrow focus of environmental laws. Such problems became apparent early on in the regulatory process. Scrubbers required to reduce stack emissions at coal-fired utilities produced lakes of sludge that presented a potential threat to groundwater and surface water. (Current methods to stabilize scrubber residues are less threatening to the environment but still produce hills, or plateaus, of solid material.) Treating wastewater to remove volatile materials also can produce air emissions. Likewise, hazardous waste incinerators may produce air emissions and ash residues that require special treatment. All of these problems have come to be recognized as “multimedia” problems, but legislation continues to be oriented toward a single medium—the *Clean Air Act*, *Clean Water Act*, *Safe Drinking Water Act*, and so on.

The current, piecemeal system is the result of a reactionary approach to environmental protection.

According to the National Academy of Public Administration (NAPA) report to Congress, the problem is rooted in how Congress has tied EPA’s hands. The NAPA report concludes that EPA is burdened with “overly prescriptive statutes that pull the agency in too many directions and permit too little discretion to make wise decisions” and that “Congress should stop micromanaging EPA.”⁴⁶

The solution isn’t total delegation of authority to EPA, of course. A happy middle ground would give the agency greater discretion in deciding priorities and strategies, leave goal-setting to Congress, and reduce the number of committees overseeing EPA’s activities. In other words, the alternative to micromanaging isn’t discretion but “macromanaging.”

Misallocation of Resources

The current system of environmental regulation also misallocates resources from a risk-reduction perspective. The level of protection provided by many environmental laws is not comparable to levels achievable if environmental risks were prioritized according to the cost-effectiveness of reducing them. Nor is the

level of protection consistent with levels of risk that people choose when making personal choices, such as what job to accept or what car to buy.

This misallocation of resources is due to two primary factors: (1) EPA's priorities reflect public (mis)perceptions about environmental risks, and (2) the public has the mistaken notion that the costs of reducing environmental risks are paid for by someone else. For example, the public fears abandoned hazardous-waste facilities but is relatively unconcerned about radon in homes, while risk assessment professionals believe that radon is the far greater health hazard. About 29 percent of EPA's budget is allocated to cleaning up abandoned hazardous waste sites, whereas less than 0.4 percent goes to radon abatement.⁴⁷

The need for recharting the policy course at EPA became evident in 1987 when a group of 75 career managers and experts at the agency evaluated the degree of risk posed by each of 31 major environmental problems.⁴⁸ Their report, *Unfinished Business: A Comparative Assessment of Environmental Problems*, found that agency expenditures were not consistent with the risk rankings that the EPA experts compiled.

Following up on *Unfinished Business*, the EPA administrator asked the Science Advisory Board (SAB) to reevaluate the staffers' assessments. The SAB report, *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*, likewise found that "at EPA there has been little correlation between the resources dedicated to different environmental problems and the relative risks posed by those problems."⁴⁹

A soon-to-be released update of this SAB report found that the most significant ecosystem risks are from sources that are not adequately being addressed by any level of government.⁵⁰ The Ecological Risks Subcommittee of the SAB's Integrated Risk Project found that the highest ecological risks included: harvesting marine resources, habitat conversion, and the introduction of exotic species. It found that many environmental problems being addressed have relatively low ecological risks on a national scale—oil spills, organic and inorganic chemicals, heavy metals, and air pollution from sulfur dioxide and nitrogen dioxide emissions.⁵¹

A 1995 Harvard Center for Risk Analysis study analyzing 587 lifesaving interventions (any behavioral or technological strategy, not just environmental rules) further supports the need for improved environmental priority-setting. The study revealed a large variation in the costs to increase life expectancy of exposed individuals by one year. The costs ranged from approximately zero to

install automobile windshields with adhesive bonding (versus rubber gaskets) to \$99 billion for each life-year prolonged for private well emission standards for chloroform at 48 pulp mills.⁵²

What is the right amount to pay—in taxpayer and consumer dollars—to prolong a statistical life? Looking at this question from a different angle, the Harvard Center for Risk Analysis research shows that 1,230,000 years of life could be prolonged each year in the United States if existing resources were *reallocated* to the more cost-effective interventions.⁵³ This is more than twice as many life-years as are purportedly saved by current efforts (592,000 life-years). Alternatively, we could prolong the same number of life-years and save about \$34 billion (in 1997 dollars) a year by applying the funds to the most cost-effective interventions.

So why are scarce resources being spent on high-cost strategies when low-cost interventions could save more lives, or save the same number of lives at less cost? Because priorities are set more as a result of narrow statutory requirements than with any consideration of cost-effective risk reduction.

This misallocation of resources is due to two primary factors: (1) EPA's priorities reflect public (mis)perceptions about environmental risks, and (2) the public has the mistaken notion that the costs of reducing environmental risks are paid for by someone else.

EPA regulations tend to be at the high end of the cost range of lifesaving interventions (see Table 2). While the average cost per life-year saved for Federal Aviation Administration regulations is just \$25,000 (in 1997 dollars), EPA interventions averaged \$8.3 million per life-year saved.

An Office of Management and Budget tabulation of the cost-effectiveness of selected EPA regulations issued in the 1979-1991 time frame highlights the wide variation in the cost of averting one premature death among EPA's activities—from \$200,000 for trihalomethane drinking water standards to \$6.8 trillion (1997 dollars) for listing wood preserving chemicals as hazardous waste (see Table 3). This tabulation also appears to show somewhat of a trend toward decreasing cost-effectiveness—regulations issued in the late

Table 2
Cost-Effectiveness of Federal Life-Saving Interventions

Regulator	Median Cost Per Life-Year Saved (in 1997 dollars)
Federal Aviation Administration	\$25,000
Consumer Product Safety Commission	\$74,000
National Highway Traffic Safety Administration	\$85,000
Occupational Safety and Health Administration	\$96,000
Environmental Protection Agency	\$8,300,000

Source: Data from Tammy O. Tengs, et al., “Five Hundred Life-Saving Interventions and Their Cost-Effectiveness,” *Risk Analysis* 15, no. 3, 1995, p. 371, adjusted to 1997 dollars.

1980s and early 1990s cost far more in proportion to the benefits they generate than do earlier regulations.⁵⁴

Whether fewer resources are spent to save the same number of lives, or the same resources are spent to save more lives, Americans would be better off if environmental policy relied more on information from risk-management professionals instead of responding to the public’s misinformed views. It is unhelpful, to say the least, that many environmentalists and policymakers exaggerate the importance of relatively low-risk health hazards, thus misshaping these public perceptions.

Public Concern for Fairness

An additional drawback of the current system is its frequent encroachment on private property rights. The Fifth Amendment to the U.S. Constitution protects private property from uncompensated government “taking” for public use. While the government can exercise its power of eminent domain to condemn land for an overriding public need, such as for a highway or a navy base, it cannot do so without compensating the landowner at fair market value.

Nonetheless, environmental laws such as the Endangered Species Act and wetlands provisions in the Clean Water Act frequently restrict an owner’s use of his or her land in order to protect species or wetlands in the name of the public interest. This arguably “takes” the land because the owner loses much, if not all, of

Table 3
Cost-Effectiveness of Selected EPA Regulations

<i>Regulation^a</i>	<i>Year Issued</i>	<i>Cost per Premature Death Averted (millions of 1997 dollars)</i>
Trihalomethane Drinking Water Standards	1979	\$ 0.2
Cover/Move Uranium Mill Tailings (Inactive Sites)	1983	\$ 38.0
Cover/Move Uranium Mill Tailings (Active Sites)	1983	\$ 54.0
Standards for Radionuclides in Uranium Mines ^b	1984	\$ 4.1
Benzene NESHAP (Original: Fugitive Emissions)	1984	\$ 4.1
Arsenic Emission Standards for Glass Plants	1986	\$ 16.2
Arsenic/Copper NESHAP	1986	\$ 27.6
Benzene NESHAP (Revised: Coke By-Products) ^b	1988	\$ 7.3
Hazardous Waste Land Disposal Ban (1st 3rd)	1988	\$ 5,028.5
Municipal Solid Waste Landfill Standards (Proposed)	1988	\$ 22,928.4
Asbestos Ban	1989	\$ 132.8
Hazardous Waste Listing for Petroleum Refining Sludge	1990	\$ 33.1
Benzene NESHAP (Revised: Transfer Operations)	1990	\$ 39.5
Benzene NESHAP (Revised: Waste Operations)	1990	\$ 201.8
Hazardous Waste Listing for Wood Preserving Chemicals	1990	\$ 6,800,000.0
Ethylene Dibromide Drinking Water Standard	1991	\$ 6.8
1,2 - Dichloropropane Drinking Water Standard	1991	\$ 784.0
Atrazine/Alachlor Drinking Water Standard	1991	\$ 110,483.6

^a70-year lifetime exposure assumed unless otherwise specified.

^b45-year lifetime exposure.

Source: Data from Office of Management and Budget, *Budget for the United States Government, Fiscal Year 1992* (1991), adjusted to 1997 dollars.

the property's value without compensation.

In addition to abrogating rights guaranteed in the Constitution, such laws also create a disincentive for individuals to engage in productive economic activity. Land-use restrictions force individuals to supply benefits to the public, while suffering losses for which they do not receive compensation. This creates a disincentive for individuals to buy land and put it to productive use in the first place.

EPA is Handcuffed

The cumulative effect of a quarter century of congressional efforts to “do something” about environmental problems is an unwieldy set of narrowly focused laws and regulations, which EPA has the responsibility of managing. The fact that EPA's environmental plate is already too full of massive federal environmental laws has not stopped Congress from adding more responsibilities.

EPA suffers from legislative overload: the agency does not have the resources necessary to carry out all of its duties. According to former two-time EPA Administrator William Ruckelshaus, “Any senior EPA official will tell you that the agency has the resources to do not much more than 10 percent of the things Congress has charged it to do.”⁵⁵

In addition, Congress's “hands on” approach to managing EPA means that the agency is not empowered to use the resources it has in the most effective ways. Congressional handcuffs in the form of narrowly written environmental statutes with tight deadlines for reaching objectives impede effective environmental protection. Congress attacks each problem that surfaces in the public consciousness in a piecemeal fashion, outlawing risks rather than facilitating environmental protection in a larger environmental and economic context. In addition, federal legislators tighten these handcuffs through overly complex oversight by a host of committees and subcommittees.

Of course, this does not mean that EPA is looking to reduce its activities. Like any bureaucracy, the agency moves toward expansion and not contraction. The Browner EPA has extended its reach in right-to-know information-gathering, pesticide regulation, Internet posting of emergency response information, aggressive new ambient air quality standards for ozone and fine particles, etc.

A further impairment of the current system of environmental law is de facto policy-making in the courts. Many important environmental decisions have been made not by scientists or experts, but, rather, by judges in response to lawsuits brought by environ-

mental organizations and other interest groups. Congress has expanded the definition of “standing” in many environmental laws by authorizing any citizen to enforce environmental statutes against other private parties and to sue environmental agencies for failure to perform nondiscretionary statutory duties.⁵⁶ For example, the National Ambient Air Quality Standard for particulate matter was reevaluated, and ultimately expanded to include a separate standard for fine particles (PM_{2.5}) in 1997, as the result of a lawsuit by the American Lung Association.

Measurement of Environmental Performance

With the exception of the annual *National Air Quality and Emissions Trends Report*, reporting on the current state or trends in environmental quality is very disappointing. As will be discussed in the next section of this report, EPA and the states may be making some progress in this area in their joint effort to define “core performance” measures for the major environmental programs. But this effort may be too program-oriented, at present, to produce the types of measures of environmental quality that could be most meaningful.

As Dr. Debra Knopman, Director of the Progressive Foundation’s Center for Innovation and the Environment, points out, to move toward a performance-based “second generation” of environmental protection requires “a greater commitment to scientifically sound and consistent environmental monitoring and research, with the federal government taking the lead.” She charges that “the nation tolerates an embarrassingly poor base of environmental information” because “neither Congress nor the states have been willing to adequately fund data collection.”⁵⁷

Comprehensive Environmental Reform

Repairing the current system of environmental regulation certainly will not be an easy task. Previous Congresses have been unwilling to act, in part because environmental groups label congressmen who favor greater flexibility in the laws as being “anti-environment.”

Today, however, there is a growing consensus that the system needs to change. Despite its limited success, the 105th Congress showed a desire to undertake regulatory reform. Many state and local government officials, industry leaders and think tank policy analysts agree on the need for change in the methods of environmental regulation, including more cost-effectiveness, improved pri-

ority setting, and greater flexibility—focusing on ends rather than means.

Evolutionary Reform

Some reform-minded individuals and organizations are leery of recommending reform as fundamental as a new unified environmental statute. They favor a more pragmatic evolutionary approach, recognizing the great political difficulties facing fundamental reform.

One noteworthy effort in this vein was “The Enterprise for the Environment” (E4E). Led by former EPA Administrator William Ruckelshaus, E4E was based on the premise that the nation’s environmental protection system needs more than just administrative reform, it needs broad-reaching statutory reform, but that this reform must be accomplished in steps.

The steering committee for E4E was made up of a diverse group of 36 individuals from federal, state, and local governments; industry; state and federal environmental agencies; and national and local environmental groups. A similarly diverse group of 45 additional participants approved of the consensus report issued on January 15, 1998, nearly two years after the effort began.

Early on, the group decided that debating the value of the current system of environmental protection would be contentious and, thus, in an effort to reach consensus, E4E focused on outlining an “improved system.” The participants developed a “Vision for the Future,” consisting of 12 elements (see box).

The E4E Vision calls for effective and efficient prevention of threats to human health and the environment while maintaining basic standards of environmental protection. This statement is rather timid and far short of a call for fundamental redefinition of the basic objectives of environmental protection. Its call to “place authority and accountability at the appropriate level of government” is a cautious movement toward devolving authority to state and local officials. Environmental policy reform advocates, by and large, agree with E4E principles of relying on the “best-available scientific and economic information” to set goals, and offering “flexibility of means” while requiring “accountability for performance.”

E4E participants recommended a “stepping stone” approach to achieve their vision for an improved environmental protection system. In the report’s overview and summary, the analogy of crossing a river that is “too wide to leap in a single bound” is offered to describe their view of how to go from the current system to the improved vision. The report’s authors state that “participants do agree

The Enterprise for the Environment (E4E) Vision for the Future

The following 12 elements, taken together, outline E4E participants' consensus vision of an improved environmental protection system. E4E participants believe the environmental protection system should:

1. maintain basic standards of environmental protection, and effectively and efficiently prevent and control threats to human health and the environment;
2. ensure that all environmental laws and regulations are fairly and consistently enforced;
3. distribute costs and benefits fairly, accounting for impacts on both present and future generations, and address disproportionate impacts on any group in society, especially low-income individuals, people of color, or other disadvantaged groups;
4. set and pursue clear environmental goals and milestones for the nation, states, localities, and tribes, and use understandable indicators to measure progress;
5. adapt and adjust policies, strategies, and systems based on experience and new information;
6. generate, disseminate, and rely on the best-available scientific and economic information;
7. offer flexibility of means coupled with clarity of responsibility, accountability for performance, and transparency of results;
8. rely on a broad set of policy tools, including:
 - economic incentives that are aligned with environmental goals, reward superior environmental performance, and stimulate technological innovation,
 - incentives for changes in individual behavior, and
 - disclosure of consistent and accurate source-level performance information;
9. place authority, responsibility, and accountability at the appropriate level of government;
10. promote collaborative problem solving and integrated policymaking by all branches and levels of government;
11. promote high levels of environmental stewardship and continuous improvement in environmental performance; and
12. create decision processes that meaningfully involve affected stakeholders and engage all citizens in protecting the environment.

Source: The Environmental Protection System in Transition: Toward a More Desirable Future (Washington, D.C.: Center for Strategic & International Studies, January 1998), p. 4.

that the vision outlined . . . describes a much better environmental protection system, but they want their journey across the river to be steady and sure.”⁵⁸

While it is impossible to do the E4E report justice within the context of this paper, a few more highlights might be helpful in describing what this consensus approach has developed as “stepping stones” to improve the regulatory system. The document calls for “goals,” “milestones,” “understandable indicators to measure progress,” and “reassessment.” “In the E4E approach, ‘goals’ are the ultimate environmental outcomes that society seeks, ‘milestones’ represent the path and the pace toward those goals, and ‘reassessment’ allows for feedback for use in modifying the path, pace, and techniques used to achieve the goals,” write the authors.⁵⁹

These objectives may not seem controversial, but the report’s elaboration on goal-setting is a bit more problematic:⁶⁰

Goals should describe the state of public health and the quality of the environment the nation seeks in the future, reflecting collective values and the best science. . . . A goal should not incorporate cost analysis; rather, cost considerations should influence milestones and reassessment. . . . Goals should be about where the nation wants to go—not about how to get there.

The problem is that, if costs cannot be considered when setting goals, then we will continue to pursue perfection rather than allowing information about the cost of such a pursuit to constrain such wishful thinking.

This is no hypothetical problem. This sequential approach of goal-setting followed by milestone-setting is already incorporated in the Clean Air Act where air quality standards are set without regard to cost. The goal of providing an adequate margin of safety against any adverse health effects, thus, resulted in the latest ozone standard being set at a level where \$60 must be expended to produce each \$1 of benefit. Goals are more than high-minded rhetoric; they have real consequences.

In a section labeled “Improving the Federal-State Partnership,” the E4E report recommends four specifics of a guideline to enhance that “partnership.” “Stakeholder participation” is emphasized in two of the guidelines:⁶¹

- Individual state agreements, jointly created by EPA and the states with ample and early input from *stakeholders*, should determine the environmental goals and priorities for the particular state in ensuing years . . .

- *Stakeholder* participation is essential in all aspects of the development and implementation of state performance measures, the review of individual state agreements, and ongoing progress reports. (Emphasis added.)

The problem comes in defining a “stakeholder.” It is difficult enough to define this term when the environmental concern is local. But when the “stakeholder” is participating in setting *state* goals and priorities and “all aspects of the development and implementation of state performance measures,” who is a legitimate stakeholder? State and local environmental officials and elected representatives, and the regulated parties—private and public—are logical candidates. But should national environmental groups or conservative think tank members be considered “stakeholders?”

The thinking behind this emphasis on stakeholder participation seems to be that it is necessary in order to obtain public support for the environmental protection process. This may be true for specific approaches taken on a local or regional basis—“place-based” solutions in the parlance of the E4E document. Citizens’ feelings of inclusiveness and fairness may be critical to obtain workable (politically palatable) solutions in these situations.

A third E4E guideline for improving the federal-state partnership asserts: “National environmental standards are needed to ensure a ‘level playing field’ among states and to avoid backsliding in levels of environmental protection.” This is a debatable assertion; recent research on environmental progress by cities and states *prior* to federalization of environmental protection shows a rate of cleanup that was often more impressive.⁶²

The Need for a Simple, Unified Statute

An improved system of environmental protection should address the many environmental problems in a unified way. This would require eliminating the current piecemeal collection of statutes, and replacing them with a single, inclusive statute. This statute ought to aim for a realistic goal such as to “protect the public health against unreasonable exposure to important risks and to enhance the natural environment.” It should also provide more flexibility in how these goals are to be met. Finally, effective reform would expand the roles of cost-benefit analysis, risk assessment, and risk management in the decision-making process. Such reform would substantially improve environmental protection at lower cost.

A decade ago, J. Clarence Davies, then with the Conservation Foundation, set out to create the fundamentals of such a statute.

He proposed to establish a Cabinet-level Department of Environmental Protection with the mission “to improve overall quality of the environment as effectively and efficiently as possible.”⁶³ A single standard—the prevention of “unreasonable risk”—would be required for all environmental regulations. Six key factors would be considered in determining unreasonable risk: (1) the risk to humans and the environment, (2) the economic costs to society and the distribution of these costs, (3) the effects on innovation, (4) availability of substitutes for polluting products or processes, (5) feasibility of implementing methods to mitigate risks, and (6) potential effects on other nations.⁶⁴ Although the draft statute did not receive much of a hearing in 1988 and nearly every element could produce a rousing debate yet today, it does place all environmental statutes on a common footing, allowing for consideration of costs and other factors when attempting to prevent “unreasonable risk.”

Finally, effective reform would expand the roles of cost-benefit analysis, risk assessment, and risk management in the decision-making process.

A recent proposal along these lines has been suggested by Lynn Scarlett, Vice President of Research at the Reason Foundation. She calls for a unified statute that would create procedures for decentralizing decision-making and measuring successes. Scarlett, in turn, cites key elements of a unified statute developed by the National Environmental Policy Institute:⁶⁵

- Devolve to the states authority, responsibility, and accountability for setting environmental goals where impacts are primarily local, implementing policy and monitoring success. Where air basins or watersheds cross state boundaries, the states involved would have primary authority for setting acceptable standards, and the national role would be one of mediation.
- Create sunset provisions to phase out existing legislation as revised environmental laws are introduced. . . [States] should not have their hands tied by cumbersome and outdated environmental statutes that dictate priorities, standards and technologies.

- Create a performance-based system that emphasizes ambient environmental standards, not the use of specific technologies. Establish mechanisms for developing ambient standards and issuing permits so that emission permits could be freely traded.

An Expanded Role for Risk Assessment and Cost-Benefit Analysis. A comprehensive statute must aim to establish standards that balance incremental benefits and costs in new regulations and allow for some level of “acceptable” risk (the flipside of Davies’ proposal to prevent “unreasonable” risk). Striving for cost-efficiency—getting more bang for the buck—in environmental protection is important because when resources are used for one purpose they are not available to use for others. Recall that research by Tammy Tengs et al. shows that the same number of lives could be prolonged at a savings of \$34 billion a year if lifesaving interventions were funded in order of their cost-effectiveness or, alternatively, the same level of spending could double the life-years saved by these interventions.

The use of risk assessment and risk management in policy-making allows those risks that pose the greatest threat to human health *and* that can be addressed cost-effectively to be targeted first. Once environmental regulation is based on significant, important risks (as determined by experts rather than on the public’s frequently misguided perceptions of risk), resources can be allocated so that the most lives are saved for a given level of spending. This will ensure that environmental laws more accurately reflect the levels of risk Americans are willing to accept and the amount they are willing to pay to achieve these levels.

More Responsibility to State and Local Governments. A valuable political maxim is that the level of government closest to the people is likely to be most responsive to their wishes. This principle is implicit in the Tenth Amendment to the Constitution—the amendment most often cited by state and local governments upset about federal unfunded mandates. “Devolution,” in current parlance, or “federalism” in the vernacular of the Reagan years, is based on this principle. This is a key theme in the reform proposals advocated by the National Environmental Policy Institute.

Comprehensive environmental reform should free the states and the EPA from congressional micromanagement. Many current environmental statutes include severe penalties if the states do not meet the deadlines prescribed in a particular act—withholding federal grants, particularly federal highway funds, for example. This “club in the closet” approach creates friction, not cooperation, among

the various levels of government seeking to protect public health and the environment.

EPA is undergoing two major shifts in operating procedures that may move environmental protection toward a performance-based approach and toward devolving greater responsibilities to the states. First, the 1993 Government Performance and Results Act (GPRA) requires federal agencies to adopt the principles of performance-based management: “a five-year strategic plan that includes a mission [statement], a set of goals, measurable objectives to achieve those goals, and performance measures to identify progress against the objectives.”⁶⁶ EPA has created the Office of the Chief Financial Officer to implement GPRA at the agency. In September 1997, the Office sent Congress its first five-year strategic plan.⁶⁷

Besides forcing the agency to think more in terms of goals, objectives, and performance measures, GPRA is leading to increased interaction with state environmental officials. In order to collect data on performance and to enhance that performance, EPA needs the cooperation of the states. Currently, state environmental officials are working with EPA to define “core performance measures” for various environmental areas—air, water, etc.

This cooperative process is not without its ups and downs, however. At the annual meeting of the Environmental Council of the States (ECOS) in October 1998, the state environmental heads passed a resolution warning EPA, “Since GPRA is a mandate that applies to federal agencies, it should not result in increased burdens being placed on state agencies.” ECOS members resolved that “the second EPA Strategic Plan should also be developed in a way that recognizes the role of the States as the primary managers of delegated environmental programs with EPA in an oversight role on these programs.”⁶⁸

The second major development affecting EPA and state relationships is the National Environmental Performance Partnership System (NEPPS), established in May 1995. Two years later, 40 states were participating in NEPPS and 24 state environmental agencies had signed performance partnership agreements (PPAs) with EPA. PPAs define state “environmental goals and priorities, spell out how those goals would meet national and regional priorities, establish indicators to measure progress, and describe what the state and EPA would do to reach those goals.”⁶⁹

Each state can also apply for a performance partnership grant to consolidate funds for several EPA programs. A state could combine its water and air grants and allocate the funds to whatever activities would best advance the goals of its air and water programs.

NEPPS shifts the emphasis of state reporting from information about staff activities (inputs) to environmental conditions (outputs). In practice, EPA and the states have had some difficulty in determining what information states need to report about environmental conditions and how much less data on activities.⁷⁰

Americans are less wed to the current environmental protection system that features federal primacy than one might expect. A December 1998 *polling company*TM national survey of 1,000 registered voters explored public attitudes about current and proposed environmental policies. When asked about their views on the effectiveness of various levels of government in protecting the environment, nearly two-thirds of the respondents said that state and local governments would be better protectors than the federal government.⁷¹

Comprehensive environmental reform should free the states and the EPA from congressional micromanagement.

On the specific topic of air pollution policy, 36 percent favored allowing “state and local governments to set their own air quality standards and pollution control policies, based on local needs, with the federal government playing only an advisory role.” Another 38 percent were willing to allow the federal government to set the standard, but wanted to allow state and local governments to determine which measures should be used to meet those standards.⁷²

A revised charter for EPA should reduce federal enforcement to a minimum and refocus the agency’s efforts toward providing guidelines and information. State and local governments should have the responsibility for creating and enforcing environmental legislation.⁷³ EPA’s emphasis should be on directing research on environmental hazards and acting as a clearinghouse for information.

In a report written for the Center for the Study of American Business at Washington University, New York Law School professor and former senior attorney for the Natural Resources Defense Council, David Schoenbrod, addresses concerns expressed about the varying ability of states to take on more authority for environmental protection. He cites the success of devolving control of wel-

fare to the states as evidence that state and local government are not in the business of taking advantage of their citizens.

Schoenbrod acknowledges that some states might be softer on pollution than others, but he concludes, “One of the virtues of allowing states to set their own environmental policies would be that electorates with different environmental values could set their own standards for local pollution. . . . The real difference is that the majority at the local level would get its way.”⁷⁴

Admittedly, some states might seem underprepared, at present, to take on full responsibility for their in-state environmental problems. But an accelerated redistribution of funds from the federal level to state governments would go a long way to enhance their capabilities. Most states are fully capable of taking on this expanded role.

States should be allowed to make their own decisions about tradeoffs between economic activity and environmental standards. This devolution of authority would promote both environmental and economic objectives because, while state and local officials are no less concerned than Congress or EPA about public health, they are more concerned than federal authorities about local economic growth.

*States should be allowed to make their own decisions
about tradeoffs between economic activity and
environmental standards.*

More flexibility for local and state governments will also allow them to adopt market-based solutions—emissions fees, emissions trading, provision of information (self-audits)—where appropriate. Such approaches are quite often more cost-effective ways of achieving environmental goals than are command-and-control methods.

Protecting Property Rights

Statutes like the Endangered Species Act and the wetlands provisions in the Clean Water Act have dramatic effects on individual property owners. Their application to specific land holders are often “unfair”—and even unconstitutional.

The public does not support government restrictions that destroy a significant portion of the economic value of private land holdings without just compensation. The *polling company*TM survey

mentioned previously found that only 15 percent of those responding favor the current policies of restricting private landowners from using their land without compensation in order to protect endangered species (10 percent favor the current wetlands policy). More than half do favor continued federal restrictions on private lands to protect endangered species but with the proviso that the landowner be compensated for the loss (45 percent chose this response with regard to wetlands protection). Twenty-nine percent of the respondents preferred to “do away with federal government regulation in this area [endangered species protection] and instead have the government offer incentives to landowners . . .” (Thirty-seven percent favored a similar approach for wetlands conservation.)⁷⁵

If public support for preserving wildlife habitat (or ecosystems) is to be maintained, then these laws must be changed to spread the costs to all Americans. These burdens should not be inflicted just on the unlucky owners of property deemed essential for preserving endangered or threatened species.

Summary and Conclusion

After three decades of a command-and-control approach to environmental protection, our environment is much cleaner. However, available evidence suggests that this approach is not an appropriate means to achieve current or future environmental goals because it results in much greater burdens and economic disruption than necessary to achieve desired environmental improvements.

The commitment to perfection built into many of our major environmental statutes leads regulators to pursue impossible goals, practically without regard to cost. Given the levels of protection that people desire, or the prices they are willing to pay for risk reduction, resources are not being allocated sensibly to reach these levels. Americans ultimately pay for this high-cost approach in the form of higher prices for goods and services—regulated businesses are just the middlemen in the process. Moreover, attainment of the environmental objectives often suffers as well.

The complexity of the current environmental regulatory framework makes environmental law confusing and makes compliance needlessly burdensome for companies, federal agencies, state and local governments, nonprofits, and individuals. Narrowly-focused statutes cause multimedia problems such as air pollution reductions that lead to large amounts of solid waste or wastewater treatment that contributes to air pollution.

The Environmental Protection Agency is overloaded with responsibility, “handcuffed” by overly prescriptive enabling statutes and widely dispersed congressional oversight, and further restrained by court orders resulting from environmental and other interest groups’ “citizen” lawsuits. As a result, the agency does not set and pursue the priorities that its own scientific advisors believe are most important.

What should be the elements of a comprehensive overhaul of U.S. environmental protection? Each of the current shortcomings needs to be addressed directly by Congress and in a holistic manner. We cannot rely on an evolutionary approach, such as outlined by *The Enterprise for the Environment*.

Each reform, and the whole system of reforms, should be openly debated so that the public understands that environmental protection is being improved, not “gutted.” Americans need to realize that economic growth and environmental protection go hand in hand. Moreover, as the economic literature demonstrates, economic growth *leads* to improved protection, not the other way around.

The following recommendations are meant to facilitate this important public debate:

- **Pursuit of realistic goals must replace the search for perfection.**

Congress should define a single objective for all U.S. environmental law: “To protect the public from unreasonable exposure to important environmental health risks and to protect natural amenities and ecosystems from serious degradation.”

Both cost-benefit analysis and risk assessment/risk management should be required as tools (not as mechanistic decision “rules”) to help define what constitutes “unreasonable exposure,” “important environmental health risks,” and “serious degradation.” Those who wish to maintain the status quo object that these types of terms are subjective. They are correct. But so, too, is the language of current objectives such as the Clean Air Act’s call to set air quality standards “based on such criteria and allowing an *adequate margin of safety*, [as] *are requisite to protect the public health*.” Environmental targets need to be established by using all the information available—medical, ecological, and economic.

- **Devolving intra-state issues to the states can best overcome inefficiencies of federal command-and-control regulations, conflicts arising from too much focus on single-medium or single-issue environmental harms, and difficulties in prioritizing environmental objectives.**

In order to solve place-based problems like hazardous waste landfills, household waste landfills, localized air and water pollution problems, etc. in an efficient and effective way, the affected parties need to be able to develop flexible solutions that fit their circumstances. The desire to protect public health and the environment while fostering the economic well-being of an area is greatest for the citizens, public officials and businesses most directly affected.

The U.S. Environmental Protection Agency's role should be redefined in several ways. First, rather than setting one-size-fits-all standards for the entire nation, EPA should set desirable targets for air and water quality, landfill cleanup objectives, and so on, while leaving the actual standard-setting to individual states. Arguments that states will then engage in a "race-to-the-bottom" in order to attract polluting industries are not borne out by the behaviors of the states and cities prior to the federalization of environmental protection.⁷⁶ Citizen demands for strong environmental protections have been firmly established as Americans have become wealthier, virtually assuring continued vigilance by public officials charged with this responsibility.

Secondly, EPA should act as a mediator for regional disputes. Surface and groundwater pollutants and air pollutants often are inter-state problems. To the extent possible, these problems should still be left to state and local authorities to work together to find cost-effective solutions. When voluntary approaches reach an impasse, EPA should have the authority to mediate the dispute and to develop a federal solution.

Congress should provide adequate transitional funding to the states, especially to those viewed as requiring significant upgrading to take on the added responsibilities. Some of these funds would, of course, come from reallocating EPA budgets to state agencies. Eventually, all states should be weaned away from federal subsidies.

Fair treatment for property owners would be advanced by transferring authority for environmental programs to the states. There would no longer be a direct conflict between the application of federal laws, such as the Endangered Species Act, and the "takings" clause in the Fifth Amendment to the Constitution. In contrast to federal agencies, state conservation departments and natural resource departments have traditionally found ways to work with property owners to fund win-win methods of protecting wildlife habitat.

Land-use planning at the state and local level often produces conflicts with private property owners, but this is nothing new. The "fairness" of these restrictions will continue to be debated and litigated apart from any devolution of authority to the states.

- **EPA should place great emphasis on generating and disseminating credible and useful data on environmental quality/performance.**

This is the third, and perhaps most important, role for the agency. Significant federal resources should be committed to define (and refine) meaningful measures of environmental quality and to collect data on state, city, and county trends in these measures. State environmental officials and EPA can build on their current efforts to define and report on core performance measures to accomplish this task as equal partners.

The agency should then widely disseminate information on these environmental trends. Reports to Congress, Internet postings, public addresses and any other effective means of informing the public of national, state, and local environmental quality would provide effective means of educating citizens as well as government officials. The information should aid state and local officials to appropriately balance environmental protection and economic growth.

The benefits of fundamentally redefining environmental responsibilities would be significant. Such a comprehensive approach would accelerate the accomplishment of vital environmental improvements by reducing the basis for the almost endless litigation and controversy which now use up large amounts of resources that the public believes are directed to environmental improvement. "Re-engineering" the U.S. environmental protection system would be a major advancement toward a more healthful environment and a stronger economy, both of which ultimately increase the quality of life for Americans.

Notes

1. See, for instance, *The Environmental Protection System in Transition: Toward a More Desirable Future, Final Report of the Enterprise for the Environment* (Washington, D.C.: Center for Strategic and International Studies, January 1998); *Resolving the Paradox of Environmental Protection: An Agenda for Congress, EPA, & the States* (Washington, D.C.: National Academy of Public Administration, September 1997); Bill Clinton and Al Gore, *Reinventing Environmental Regulation* (Washington, D.C.: National Performance Review, 16 March 1995) at <http://www.npr.gov/library/rsreport/251a.html>; J. Clarence Davies and Jan Mazurek, *Pollution Control in the United States: Evaluating the System* (Washington, D.C.: Resources for the Future, 1998); and Debra S. Knopman, *Second Generation — A New Strategy for Environmental Protection* (Washington, D.C.: Progressive Foundation, April 1996) at <http://www.dlcppi.org/texts/commerce/enviro.pdf>.
2. *Amoco-U.S. EPA Pollution Prevention Project: Yorktown, Virginia* (Washington, D.C.: EPA, December 1991).
3. See, for instance, *Integrated Environmental Decisionmaking in the 21st Century* (draft report) (Washington, D.C.: EPA, April 1998); Tammy O. Tengs, Miriam E. Adams, Joseph S. Plisken, Dana Gelb Sofran, Joanna E. Siegel, Milton C. Weinstein, and John D. Graham, "Five-Hundred Life-Saving Interventions and Their Cost-Effectiveness," *Risk Analysis* 15, no. 3, 1995, pp. 369-390.
4. Letter from EPA Administrator Carol Browner accompanying EPA's report, *Twenty-five Years of Environmental Progress* (<http://www.epa.gov/oppe/25year/forward.html>).
5. *National Air Quality and Emissions Trends Report, 1997* (Washington, D.C.: EPA 454/R-97-013, January 1999) p. 9.
6. *Ibid.*, p. 1. (PM₁₀ denotes particulate emissions less than 10 microns in diameter.)
7. *Ibid.*, p. 9.
8. Letter from EPA Administrator Carol Browner accompanying *Twenty-five Years of Environmental Progress*, p. 2.
9. *National Air Quality and Emissions Trends Report, 1997*, p. 9.
10. *Ibid.*, p. 2.
11. *Twenty-five Years of Environmental Progress*, EPA (<http://www.epa.gov/oppe/25year/>).
12. *Ibid.*
13. *1996 National Air Quality: Status and Trends* (<http://>

- www.epa.gov/oar/aqtrnd96/brochure/tap.html).
14. "Progress and Challenges: Looking at the EPA Today," *EPA Journal* 16, no. 5, September/October 1990, p. 20.
 15. Steve Hayward and Laura Jones, *Index of Leading Environmental Indicators* (San Francisco, Calif.: Pacific Research Institute, April 1998), p. 28.
 16. *Twenty-five Years of Environmental Progress*.
 17. *Ibid.*
 18. *Ibid.*
 19. *The 400th Cleanup: Construction Completion Statistics* (<http://www.epa.gov/superfund/accomp/400/stats.htm>).
 20. Richard Mahoney, *Revising the Superfund: This Time Let's Get it Right* (St. Louis: Center for the Study of American Business, Policy Brief 154, August 1995), p. 1.
 21. Murray Weidenbaum, "Baiting the Pollution Debate?" *The Washington Times*, 26 September 1998, p. C1.
 22. Alan Carlin, *Environmental Investments: The Cost of a Clean Environment, A Summary* (Washington, D.C.: EPA-230-12-90-084, December 1990), pp. 2-2, 2-3.
 23. *Ibid.*, p. 2-1.
 24. *Ibid.*, p. 2-3.
 25. The 1990 Clean Air Act Amendments were estimated to add roughly \$25 billion a year in compliance costs. EPA estimated that fully attaining its new (1997) air quality standard for ozone could cost \$1 billion to \$10 billion a year. Partially attaining the fine particle standard was estimated to cost \$6 billion a year. The President's Council of Economic Advisers projected ozone attainment costs of \$12 billion to \$60 billion a year. Economist Thomas Hopkins placed an upper bound estimate on the cost of fully attaining the fine particle standard at \$55 billion a year. See Stephen Huebner and Kenneth Chilton, *EPA's Case for New Ozone and Particulate Standards: Would Americans Get Their Money's Worth?* (St. Louis: Center for the Study of American Business, Policy Study 139, June 1997).
 26. Wayne B. Gray and Ronald J. Shadbegian, *Environmental Regulation and Manufacturing Productivity Growth* (Cambridge, Mass.: National Bureau of Economic Research, 1993).
 27. Letter from EPA Administrator Carol Browner, *Twenty-five Years of Environmental Progress*.
 28. "Environmental Support Systems Amid Economic Uncertainty," *The Wirthlin Report* 8, no. 9 (McLean, Va.: Wirthlin Worldwide, September 1998), p. 1.

29. Both the current year's unemployment rate and the previous year's rate are related to the percent agreeing that "Protecting the environment is so important that requirements and standards cannot be too high, and continuing environmental improvements must be made regardless of cost." The previous year's unemployment rate is a somewhat better measure with the coefficient being -4.0, or 4 percent less agreement with each 1 percent increase in the previous year's unemployment rate.
30. "Environmental Support Systems Amid Economic Uncertainty," *The Wirthlin Report* 8, no. 9, Research Supplement (McLean, Va.: Wirthlin Worldwide, September 1998), p. 1.
31. 42 USC 7409, Title 42, Chapter 85, Subchapter I, Part A, Section 7409, subsection (b).
32. Clean Air Scientific Advisory Committee closure letter to EPA Administrator Carol Browner on the primary standard portion of the EPA Office of Air Quality Planning and Standards Staff Paper for Ozone (31 November 1995), p. 2.
33. EPA, *Regulatory Impact Analysis for Proposed Ozone National Ambient Air Quality Standard* (Research Triangle Park, N.C.: EPA Innovative Strategies and Economics Group, Office of Air Quality Planning and Standards, December 1996).
34. Memorandum from Alicia Munnell, Council of Economic Advisers, to Art Frass, Office of Management and Budget, 13 December 1996.
35. Jonathan Tolman, "The Real Pests Aren't in the Food," *The Wall Street Journal*, 18 September 1996, p. A18.
36. Steve Stecklow, "New Food Quality Act Has Pesticide Makers Doing Human Testing," *Wall Street Journal*, 28 September 1998, p. A1.
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38. Tolman, "The Real Pests Aren't in the Food."
39. Margaret Kriz, "A New Shade of Green," *National Journal*, 18 March 1995, p. 663.
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41. Peter Gordon and Harry W. Richardson, *The Case Against Electric-Vehicle Mandates in California* (Los Angeles: Reason Foun-

- dation, Policy Study 189, May 1995).
42. "Public Opinion and Science Set Separate Agendas for EPA," *Chemecology* 19, no. 9, November 1990, pp. 2, 3.
 43. William D. Ruckelshaus, "Toxic Environment: How Did the EPA Become the Agency Everyone Loves to Hate," *The New Democrat*, March/April 1996.
 44. Murray Weidenbaum, *The New Wave of Environmental Regulation: The Impacts on Business and Consumers* (St. Louis: Center for the Study of American Business, Occasional Paper 93, August 1991, p. 3).
 45. Thomas D. Hopkins, *Regulatory Costs in Profile* (St. Louis: Center for the Study of American Business, Policy Study 132, August 1996), p. 14.
 46. National Academy of Public Administration, *Setting Priorities, Getting Results: A New Direction for the Environmental Protection Agency* (Washington, D.C.: NAPA, May 1995), p. 1.
 47. See Davies and Mazurek, *Pollution Control in the United States*, pp. 108, 114-120.
 48. *Environment* 30, no. 6, July/August 1988, p. 34.
 49. *Reducing Risk: Setting Priorities and Strategies for Environmental Protection* (Washington, D.C.: EPA Science Advisory Board, September 1990), p. 3.
 50. *Integrated Environmental Decisionmaking in the 21st Century* (Draft report), as cited in *BNA Environment Reporter* 28, no. 50, 24 April 1998, p. 2743.
 51. *Ibid.*, p. 2744.
 52. Tengs et al., "Five-Hundred Life-Saving Interventions," pp. 369-390.
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 57. Debra S. Knopman, "Second Generation — A New Strategy for Environmental Protection," pp. 13, 14.

58. *The Environmental Protection System in Transition: Toward a More Desirable Future* (Washington, D.C.: Center for Strategic & International Studies, January 1998), p. 5.
59. *Ibid.*, p. 12.
60. *Ibid.*, p. 13.
61. *Ibid.*, p. 43.
62. See Indur M. Goklany, *Do We Need the Federal Government to Protect Air Quality?* (St. Louis: Center for the Study of American Business, Policy Study 150, December 1998); and R. W. Crandall, *Controlling Industrial Pollution: The Economics of Clean Air* (Washington, D.C.: Brookings Institution, 1983).
63. *Environmental Protection: Meeting Public Expectations With Limited Resources* (Washington, D.C.: U.S. General Accounting Office, June 1991), p. 21.
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66. National Academy of Public Administration, *Resolving the Paradox of Environmental Protection*, p. 40.
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68. "ECOS Resolution Regarding GPRA and ECOS Involvement in Formulation of the Next EPA Strategic Plan," Draft 21 October 1998, Environmental Council of the States.
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70. *Ibid.*
71. "National Environmental Survey" (Washington, D.C.: Competitive Enterprise Institute, January 1999), p. 9.
72. *Ibid.*, p. 12.
73. See David Schoenbrod, *Time for the Federal Environmental Aristocracy to Give Up Power* (St. Louis: Center for the Study of American Business, Policy Study 144, February 1998), and *Is Environmental Protection Too Important to Trust to the States?* (St. Louis: Center for the Study of American Business, CSAB Forum 1, August 1998).
74. Schoenbrod, *Time for the Federal Aristocracy to Give Up Power*, p. 21.
75. "National Environmental Survey," p. 15.
76. Goklany, *Do We Need the Federal Government to Protect Air Quality?*; Crandall, *Controlling Industrial Pollution: The Economics of Clean*

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