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BY E. DONALD ELLIOTT AND GAIL CHARNLEY

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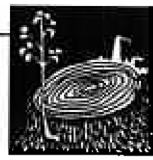

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Two major, integrally related trends define U.S. environmental law at the millennium. The first trend is to bring presently unregulated risks under the control of the regulatory system.[1] The second trend, which is the focus of this article, is toward bigger bubbles—toward broader and broader trading among pollutants and even among various types of risk reduction, such as allowing a company to fund a preventive health-care program in place of reducing its air pollution.

To illustrate a regulatory bubble, imagine a huge bell jar—a bubble—placed over an entire industrial facility, such as a refinery or chemical plant. Rather than setting regulatory pollution limits for each individual smokestack or other discharge point, the regulator sets a single plant-wide limit for the pollution occurring throughout the bell jar. This approach allows the regulated party to control emissions less stringently from some emission points within the bell jar, as long as it makes up the shortfall by controlling others more stringently. The total emissions from the plant must be no greater than they would have been if each of the smokestacks or discharge points had been regulated separately.

Bubbling gives the regulated community the flexibility to make tradeoffs among various sources of pollution under the figurative bubble. And the larger the bubble, the greater the flexibility.

The concept of the bubble finds its roots in the U.S. Environmental Protection Agency's 1981 definition of a "stationary source," which was upheld by the Supreme Court in *Chevron v. NRDC*.[2] EPA's definition—which expanded the concept of a source, as used in the Clean Air Act, to an entire plant rather than limiting it to a single smokestack—is the prototype, but the logic of bubbles can extend far beyond this initial example.

The logic of bubbling, in fact, is a useful central organizing concept to understand the policy behind many environmental law reforms that are currently proposed under different names, such as "cap and trade" systems, public health approaches, risk trading markets, and alternative compliance systems.[3]

Why Bubble?

There are two major advantages to bubbling from the standpoint of the regulated community. First, bubbling delegates power and increases flexibility for the regulated community. Second, bubbling may also increase the economic efficiency of regulation.[4]

The primary policy case for bubbles to date has been based on the claim that they will achieve equivalent environmental protection at a fraction of the cost of conventional "command-and-control" systems.[5] A National Academy of Public Administration committee found that many businesses choose to control pollution more stringently than required if they can use their own strategies to achieve pollution reduction targets.[6] These advantages of bubbles are relatively well-understood.[7]

It is not generally as well understood that bubbling—at least when it works properly—also radically decreases the administrative burdens of regulating. It is much more efficient for the government to set up a market and police its operation than to plan and administer each individual exchange. Thus, as the government gains experience with regulating in an area, it may make sense to rely on bubbles to economize on the government's own regulatory costs.[8]

Although U.S. environmental law is already arguably the most complex system of law the world has ever known,[9] it is also radically under inclusive—"an inch wide and a mile deep."[10] A great many possible environmental hazards are currently outside the regulatory system, in part because we lack sufficient information to regulate them,[11] but also in some cases, because they are not easily amenable to our current regulatory techniques. It is virtually unthinkable that the U.S. system of environmental law could continue to grow to cover all significant environmental risks by extending its costly, heavy-handed, and inefficient techniques of case-by-case, command-and-control regulation to more and more sectors of the economy as well as many life-style choices by consumers. Expanding the system to encompass the next generation of environmental problems clearly will require new regulatory techniques.[12]

When done properly, bubbling is advantageous for government as well as regulated parties and should be attractive to those who favor more regulation of risks that are presently outside the system. Bubbling frees up capacity in the regulatory system to bring more risks under regulatory control while at the same time maintaining the governmental regulatory apparatus at roughly its present size. In cases where proper monitoring and enforcement technology exist, bubbling is a more efficient way for the government to regulate while imposing lower costs on the government, as well as on regulated parties.

The final and perhaps the most significant advantage of bubbles is a matter of political economy. *The Federalist Papers* remind us that the central design principle of the framers of our federal government was to control government power by using "ambition to counteract ambition."[13] A similar approach to setting priorities is needed in the environmental area. The essence of environmental health risk management is balancing one set of potential investments in improving public health against another set of competing investments in alternative methods of achieving the same public health goals.[14] For example, our appetite for risk reduction and environmental cleanup is nearly infinite if someone else is paying for it—as was illustrated by the Superfund program, where communities often argued to spend vast private resources to clean up very small risks. Bubbles, on the other hand, balance one environmental goal with another, and trade them off against one another, using one ambition as the balance to limit our ambition in another direction.

Despite occasional rhetoric to the contrary, our government does not currently set rational environmental health risk management priorities by trading off one set of prospective investments against another.[15] On the contrary, government agency investments in environmental risk regulation generally come out of separate regulatory line-item budgets—called programs—with their own staffs and agendas. Despite some recent efforts to introduce more strategic planning, for example, EPA's air, water quality, and waste programs are still run largely as separate fiefdoms. Investments in one program are generally not interchangeable with other competing investments in alternative ways of achieving the same public health goals.[16] This fragmentation of policymaking into separate regulatory programs makes it virtually impossible for comparative risk priorities to be set on a rational basis that even approaches maximizing the social benefit from a given level of investment.[17]

One appeal of the periodic calls for a single, integrated environmental statute is to break down these artificial programmatic barriers and facilitate integrated planning and priority setting. Bigger bubbles are also a way to surmount these artificial boundaries among programs and to trade off one set of investments in risk reduction against other opportunities that compete for society's scarce resources.

Another way to make the same point is that bigger bubbles increase the opportunities for private parties to avoid inefficient governmental regulatory choices by allowing them to substitute equal or better environmental performance of their own choosing.

Making Bubbles Bigger

Bubbles can be made bigger in several different dimensions: geographic, intertemporal, interpollutant, and interrisk. The original bubble upheld by the Supreme Court in the *Chevron* case was a relatively small and primitive one from the standpoint of these possible dimensions. It applied to only a single pollutant at a single plant.

Subsequent applications of the bubble concept in the environmental area have relaxed these conditions, thereby expanding the scope of the bubble under which trading may take place. For example, under the Clean Air Act's Prevention of Significant Decay program, EPA policy allows the trading of "contemporaneous" emissions but defines "contemporaneous" as meaning within a 5-year period. This can be viewed as extending a temporal bubble over a 5-year period.

Similarly, EPA rules are increasingly permitting "banking" of emissions decreases, which means allowing current decreases to be used to satisfy future emission reduction requirements. This too can be understood as an application of the bubble concept in an intertemporal context.

Bubbling can also extend over broader geographic areas than a single plant site. The Acid Rain Trading Program established under the 1990 Clean Air Act Amendments[18] phases in a 10-million-ton annual cap on emissions of sulphur oxides from the utility industry and permits market trading of emission allowances among affected sources. The Acid Rain Trading Program can be understood as establishing a bubble over the emissions of a single pollutant from an entire industry over a 10-year period.

Similarly, there have been periodic proposals to establish schemes to allow trading of different pollution reductions against one another. EPA has been experimenting with trading one form of compliance for another in its "Project XL." [19] Perhaps the proposal that went the furthest was the policy statement to allow interpollutant trading for air toxics under the Voluntary Early Reductions Program under Title III of the Clean Air Act Amendments of 1990.[20]

A bubble between different types of risks—for example, increased screening for breast cancer might be traded for decreases in smelters' lead emissions, which don't cause breast cancer—is even a step beyond interpollutant trading. As risks become more diverse and less comparable, trading becomes much more difficult to imagine.

Extending the breadth of bubbles across time, space, and different risks is attractive for several reasons. First, the potential for economic savings from bubbling is a function of the differences in marginal control costs among the sources of pollution included under the bubble. Each trade is a voluntary exchange that presumably benefits both buyer and seller by more than the transaction costs of making the trade. Otherwise, they would not enter into an exchange voluntarily. Therefore, each exchange creates some net benefit in efficiency.

Viewed the other way around, trading under a bubble has no potential to save costs if all the sources under the bubble are identical and already controlled to the same degree. If there is no difference in costs of control among sources under a bubble, there will be no advantage to market trading.

For trading to occur, there must be enough benefit to overcome the costs of transactions and produce a net benefit from exchanges. Thus, the power of bubbles to improve efficiency and save costs is a function of how broadly they can be extended in time and space and across risks. Moreover, if promoting trading and economic savings were the only values to be maximized—which clearly they are not—bubbles should be as broad and all-encompassing as possible to include the broadest diversity of sources.

But of course in the case of environmental bubbles, strong countervailing considerations limit the optimal size of bubbles in time and space and across risks. In general, the more diverse the types of sources, the more difficult it will be to monitor and compare reductions to prevent cheating. The principle that ought to govern how big a bubble should be is easy to state in the abstract but hard to implement in practice: the optimal size of a bubble is the point at which losses to the system in terms of cheating and loss of public confidence outweigh the gains in terms of increased efficiency and autonomy for the regulated community from including a diversity of sources. Thus, the problem of how big bubbles should be at any given time is a function of the accuracy of the technology available for monitoring and comparing trades and enforcing compliance.[21]

It also follows that large gains in the efficiency of the regulatory system over time may result from structuring incentives to encourage improvements in the technology for measuring and comparing risks.[22]

Objections to Bubbles

The usual objection to bigger bubbling focuses on the difficulty—some would say, the impossibility—of measuring and comparing diverse environmental health risk reductions. This objection is particularly strong when one is considering interpollutant or interrisk trading. Former EPA Assistant Administrator for Air and Radiation Bill Rosenberg once expressed the point colorfully, stating "I'm not going to allow people to trade-off windshield wiper fluid for Iraqi nerve gas."

Although the argument that diverse health risk reductions are difficult to measure has substantial force if it is not taken too far, in its more virulent, extreme forms, the argument becomes one prohibiting comparisons among different environmental risks altogether because they cannot be measured exactly. This extreme form of the argument rests on two fallacies, which in formal logic are called the Fallacy of the Excluded Middle and the Cardinal Fallacy.

Anyone who asserts that "because we can't measure exactly, we can't measure at all" is guilty of committing the Fallacy of the Excluded Middle. There is a third or middle possibility between the extreme alternatives—the possibility that we can measure, albeit imprecisely and with errors and uncertainties—that is implicitly excluded from discussion.

The practical policy consequences of the fallacious argument that if one doesn't know everything, one knows nothing and therefore shouldn't regulate are familiar to environmental lawyers; industries about to be regulated often argue to EPA that the agency "can't regulate" because "good science" isn't yet available to be able to gauge the problem exactly. EPA typically responds that while the science isn't yet perfect and there are many uncertainties still remaining, the agency's knowledge is "good enough for government work;" and it proceeds to regulate despite imperfect knowledge.[23] The same response applies to the claim that one can't trade across risks because we can't measure them exactly: sometimes the available information is good enough for government work.

The Cardinal Fallacy is closely related and it depends on confusing cardinal comparisons and ordinal comparisons. A cardinal comparison relates two quantities to a common scale; an ordinal comparison relates them to one another. The lack of a good common metric for measuring does not necessarily imply that items cannot be compared to one another. For example, although we may not know how many square miles there are in the states of Vermont and California (cardinal comparison), nonetheless we can reliably judge that California is larger than Vermont (ordinal comparison).

Similarly, while we may not know exactly how many lives a particular pollution reduction may save, we still may be able to make serviceable comparisons among different risks with a high degree of confidence in many cases. While we may not be able to say whether avoiding three predicted birth defects is more or less valuable than avoiding four predicted cancer cases over the same time period with a similar degree of uncertainty, we still may be able to say reliably that one potential risk reduction is larger than another.

For example, a slight increase in large nonrespirable airborne particulate matter, which decreases visibility but does not affect human health, would probably strike most people as a very small price to pay for a large reduction in smaller respirable particulates, which may be quite harmful to human health.

Adopting a margin-of-protection or margin-of-exposure approach to assessing risks from carcinogens and noncarcinogens has often required the development of a common metric for diverse health effects.[24] While those methods have a number of advantages, they do not overcome such problems as comparing health effects with differing levels of severity—for example, nasal irritation versus reproductive toxicity—or of differing exposure duration and latency. Used judiciously, however, such approaches might be useful in the context of workplace or facility-wide bubbles, for example, or for making other risk management decisions requiring such comparisons as setting remediation priorities among contaminated sites.

Easy and Hard Cases

It is undeniably correct that we cannot make risk comparisons when we have many alternatives to compare; the uncertainties and debatable value judgments are simply too large in those cases. But we can nevertheless make valid comparisons among different environmental risk reductions in many cases.

An analogous point familiar to lawyers is the distinction between "easy cases" and "hard cases." Although the law is uncertain in some areas and many knowledgeable lawyers might reasonably disagree over the outcome in those areas, this does not imply that there is no law, or that lawyers would never be able to form a practical consensus on anything.

We believe it is useful to begin making trade-offs as broadly as possible in the "easy cases." Making easy-case tradeoffs helps to build a body of experience that we can use as we develop better technologies of measurement and risk comparison in the future.

One example of a case that might be considered easy is already in place in California's South Coast Air Quality Management District, which allows companies that do not participate in vehicle emission reduction programs to make payments to an escrow fund that is then used to buy alternatively fueled vehicles for city services, such as trash trucks or school buses, or to make other vehicle emission reductions. Another example is the provision in the 1996 amendments to the Safe Drinking Water Act that allows water suppliers to avoid costly controls on radon in drinking water by investing instead in measures to mitigate exposures to airborne radon, often a greater source of exposure.

Another California example of a relatively easy case is an experiment in San Diego in which the potential for cumulative air pollution from multiple facilities to affect neighborhoods in a county was evaluated. The method generates a contour map of estimates of the maximum cancer risks associated with air emissions from industrial facilities throughout the county, using meteorological data and information on contaminants, emission rates, and risks from individual facilities. The results can be used to estimate the relative contribution of individual industrial facilities to the overall regional cancer risk associated with industrial facilities. The results can also be used to estimate the relative contribution industrial facilities make to background cancer risks, as well as to compare risks from industrial facilities to risks associated with other sources of air pollution, such as motor vehicles. Each of those characteristics could serve as the basis for a pollutant trading program.

This example would become more complicated if indirect sources of air pollutant exposure, such as soil and plant deposition, were included in risk estimates. Even more complex would be cases involving exposure to drinking water and soil pollutants in addition to direct and indirect sources of air pollutant exposure, or if health effects in addition to cancer were included. Clearly, cases become much more difficult as more pollutant sources, routes of exposure, and health effects are considered.

The easiest cases involve a single pollutant affecting the same receptors through the same exposure route. Comparable latency periods—the time before the adverse effect is observed—also make risk comparisons easier, while large differences in latencies make them more difficult.

At the other end of the spectrum, "hard cases" often involve differing or multiple health effects. But even this problem can often be overcome if the differences in the magnitude of effects are large enough. Uncertainties of various types also make risk comparisons more difficult, but uncertainty does not in and of itself make risk comparisons invalid. If the magnitude of the differences between two risk reductions is large enough, the comparison between them is relatively less sensitive to the effects of uncertainty.

Finally, it may be important to consider the identity of affected populations, because the effects of exposure are not necessarily the same for all populations; some may suffer from cumulative effects or may be particularly susceptible. For example, a proposed trade that would fund an infant nutrition program on a Native American reservation in exchange for relaxed air pollution standards in a nearby city would be a very hard case in which to justify trading—because the affected populations are different, and the risks are different.

Environmental Accounting

Recent critics of federal preemption of state and local authority point out with some force that there is no federal monopoly on creative solutions to environmental problems and that those with knowledge of the local situation may be better able to direct resources to where they will do the most good.[25] While we agree, at least in part, with this assessment, we nonetheless envision a necessary federal role in monitoring and policing risk bubbles to ensure that there is no tendency to "cut some slack" for local industries, either by outright cheating or by more subtle shading of the difficult and uncertain issues of what risk trades are acceptable.[26]

The role we conceive for the federal government, at least in those areas that are mature enough to be candidates for significant risk trading, is primarily one of oversight, monitoring, and enforcement, without taking over and imposing prescriptive solutions that preempt local knowledge and authority to devise creative solutions. In other words, we envision the Environmental Protection Agency becoming an Environmental Accounting Agency.

This vision of the future role of EPA—setting national minimum standards but leaving flexible implementation to the states to meet the national goals—has substantial roots in the structure established by the original framers of U.S. environmental law in the 1970s. For instance, portions of the Clean Air Act[27] and Clean Water Act reflect a similar concept of EPA's role. At the time, it was called "the theory of cooperative federalism," with the federal government setting national goals while leaving substantial discretion to the states to implement and set priorities.

In practice, EPA is sometimes accused of going beyond its proper "reviewing" role to prescribe the details of implementation to a degree that stifles local initiative and creativity. The past strategy of merely declaring on paper that EPA's role is limited to setting minimum national standards[28] has proved difficult to enforce in practice, at least in part because it is quite unclear where a "minimum national standard" leaves off and a "prescriptive solution to a local implementation detail" begins.

Bubbles approach the problem of coordinating federal and local roles in environmental implementation from an entirely different perspective, one that is much more akin to the vision of separation of powers, which guided the framers of our Constitution. As James Madison reminds us in *The Federalist Papers*, "Mere demarcation on parchment...is not a sufficient guard against...encroachments."[29] Instead, "Ambition must be made to counteract ambition."[30] Statutory assurances that would confine EPA's role to setting minimum standards are like the "mere demarcations on parchment" that Madison deprecates as unavailing.

Bubbles, on the other hand, adapt something like *The Federalist Papers* philosophy of balancing "ambition against ambition" to discipline EPA's role. By giving private parties the flexibility to find their own solutions for reducing risks, bubbles properly redirect attention away from complying with the details of rules and toward achieving equivalent or better performance of statutory pollution reduction goals.■

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NOTES

1. Examples include broadening federal air regulation under the 1990 Clean Air Act Amendments to include the design of products and the massive expansion of regulation of air toxics. The trend to regulate nonpoint sources under the Clean Water Act is another expansion.

2. *Chevron v. NRDC*, 467 U.S. 837 (1984).

3. For a review of these and other techniques suggested to improve environmental laws, see National Academy of Public Administration, *Setting Priorities, Getting Results: A New Direction for EPA* (Washington, DC: NAPA, 1995); E. Donald Elliott, "The Future of Environmental Laws" in M. Chertow and D. Esty, eds. *Thinking Ecologically: The Next Generation of Environmental Protection* (News Haven: Yale University Press, 1997).

4. Bubbles are not automatically more efficient than point-by-point regulation. If perfect information were costless, the government could theoretically set the optimally efficient regulatory limit for each individual emission point. See M. Breger et al., "Providing Economic Incentives in Environmental Regulation," *Yale Journal on Regulation* 8 (1991), p. 463. The advantage of bubbles is that they create a potential market among different pollution sources as a way of solving the government's information cost problems.

5. Under a command-and-control system, the regulator tells the regulated community what it must do to be in compliance. For a discussion of the economic advantages of bubbling, see Robert Hahn and Robert Stavins, "Incentive-based Environmental Regulation: A New Era from an Old Idea," *Ecology Law Quarterly* 18 (1991), p. 16.

6. See National Academy of Public Administration, *Setting Priorities, Getting Results: A New Direction for EPA* (Washington, DC: NAPA, 1995).

7. Hahn and Stavins, "Incentive-based Environmental Regulation"; Bruce Ackerman & Richard Stewart, "Reforming Environmental Law," *Stanford Law Review* 37 (1985), p. 1333.

8. See Johann Frederick Savigny, *On the Call to Our Generation for Legislation and Codification* (1814). Savigny argues that the codification of law through general legislation is appropriate only after a period of case-by-case experience.

9. See E. Donald Elliott, "The Last Great Clean Air Act *Book*?" *Environmental Lawer* 5 (1998), p. 323 (review of *Clean Air Act Handbook*, edited by Robert J. Martineau and David P. Novello).

10. E. Donald Elliott, "Environmental TQM: A Pollution Control Program that Works!" *Michigan Law Review* 92 (1994), p. 1840 (review of Quality Environmental Management Subcommittee President's Commission on Environmental Quality, *Total Quality Management: A Framework For Pollution Prevention*).

11. Alyson Flournoy, "Legislating Inaction: Asking the Wrong Questions in Protective Environmental Decisionmaking," *Harvard Environmental Law Review* 15 (1991), p. 330 (no toxicity information exists for over 80 percent of the 48,000 chemicals in general use).

12. See, generally, M. Chertow and D. Esty, eds., *Thinking Ecologically: The Next Generation of Environmental Protection* (New Haven, CT: Yale Univ. Press, 1997); Frank Blake, "The Economic Impacts of Environmental Regulation," *Natural Resources and Environment* 5 (1990) p. 23.

13. *The Federalist Papers*, No. 51.

14. While interesting philosophical arguments can be made to justify environmental protection on grounds other than protecting human health, the public health arguments for environmental protection have generally predominated in the political rhetoric. See M. Landy, M. Roberts, and S. Thomas, *The Environmental Protection Agency: Asking the Wrong Questions* (1990), p. 4.

15. William K. Reilly, "The Future of Environmental Law," *Yale Journal on Regulation* 6 (1989), p. 351.

16. See David Durenberger, "A Dissenting

Voice," *EPA Journal* 49 (March/April, 1991). Durenberger opposes comparative risk assessment as a method of establishing priorities, in part, on grounds that investments in Superfund clean-ups cannot, as a practical matter, be transferred to other programs, such as infant nutrition, that might produce greater public health benefits.

17. See, generally, W. Kip Viscusi, *Fatal Tradeoffs: Public and Private Responsibilities for Risk* (New York: Oxford Univ. Press, 1992); Stephen Breyer, *Breaking the Vicious Cycle: Toward Effective Risk Regulation* (Boston: Harvard University Press, 1992); Robert W. Hahn, ed., *Risk, Costs and Lives Saved: Getting Better Results for Regulation* (New York: Oxford Univ. Press, 1996).

18. Title IV, Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (1990), codified at 42 U.S.C. §§ 7400 *et seq.*

19. Project XL is an EPA effort to develop cleaner, less expensive, more efficient approaches to environmental management. See Thomas Cabellers, "Project XL: Making It Legal, Making it Work," *Stanford Environmental Laws Journal* 17 (May 1998).

20. 42 U.S.C. §7412(I)(5) and implementing regulations at 40 Code of Federal Regulations §§ 63.70 *et seq.* (sources making 90 percent voluntary reductions can obtain 6-year extension in complying with maximum achievable control technology standards). See Robert J. Martineau, "The Development of Emissions Standards for Hazardous Air Pollutants," in Robert J. Martineau and David P. Novello, eds., *Clean Air Act Handbook* (Chicago: American Bar Association, 1998), pp. 196, 225.

21. See, generally, Harold Demsetz, "Toward a Theory of Property Rights," *American Economic Review* 57 (1967), p. 347.

22. See also Richard B. Stewart, "Economics, Environment, and the Limits of Legal Control," *Harvard Environmental Law Review* 9 (1985), p. 1. Stewart argues that a market trading system for diverse air toxics would be desirable only if good metrics for making comparisons among them could be developed.

23. For analysis of the factors bearing on whether EPA should regulate based on existing scientific knowledge, or stay its regulatory hand until better scientific knowledge is available, see E. Donald Elliott, "Global Climate Change and Regulatory Uncertainty," *Arizona Journal of International and Comparative Law* 9 (1992), p. 259.

24. See Commission on Risk Assessment and Risk Management, *Risk Assessment and Risk Management in Regulatory Decision-Making* (1997), p. 43.

25. See John H. Cushman, "Governors Demand a Larger Voice in Clean-Water Programs," *New York Times* (August 5, 1998), p. A-20. Cushman describes a resolution passed by the National Governors' Association demanding an enhanced role for states under the Clean Water Act and restricting EPA's role to "reject a state program only by finding there was 'not a reasonable likelihood' that it would clean up the water [to meet federal standards] within 15 years."

26. The role of the federal government in environmental policymaking has become surprisingly controversial in recent years. See Richard L. Revesz, "Rehabilitating Interstate Competition: Rethinking the 'Race to the Bottom' Rationale for Federal Environmental Regulation," *New York University Law Review* 67 (1992), p. 1210; Daniel C. Esty, "Revitalizing Environmental Federalism," *Michigan Law Review* 570 (1996), p. 95; Daniel A. Farber, "Environmental Federalism in a Global Economy," *Virginia Law Review* 83 (1997), p. 1283.

27. See, for example, §§ 108-110 of the Clean Air Act, 42 U.S.C. §§74108-74110, requiring EPA to set national ambient air quality standards that states implement through state implementation plans. For a general description of the respective roles of federal and state governments under this system, see *Train v. NRDC*, 421 U.S. 60 (1975).

28. In fairness, it should be noted that no major environmental statute currently limits EPA's role to prescribing national minimum targets. Most of the existing statutes do not reflect a consistent philosophy of the federal role, but rather are collections of tools that EPA can use to attack pollution problems. EPA's inability to develop a consistent philosophy of the proper federal role in environmental protection is due in no small measure to these statutory inconsistencies.

29. *The Federalist Papers*, No. 48.

30. *The Federalist Papers*, No. 51.