

Roundtable

U.S. Environmental Law in Global Perspective: Five Do's and Five Don'ts from Our Experience

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Editor's Note:

Over the years, the United States has made significant progresses through environmental law in certain areas. These progresses have influenced and shaped developments of other legal systems in environmental field when the world has become increasingly like a global village. The Policy and Law Center for Environmental Sustainability College of Law (PLES), National Taiwan University, is honored to have invited Professor E. Donald Elliott from Yale Law School to discuss the U.S. environmental law in global perspective. The *Review* is particularly honored to have obtained Professor Elliott's permission to publish this roundtable. In his lecture, Professor Elliott describes the five best features of American environmental law and then mentions the five worst things that other legal systems should avoid. His insightful discussion is sure to shed a new light on our understanding of environmental law in the United States and its influences over other legal systems around the world.

INTRODUCTION

Solomon grew wise by listening to his queens, proclaims the Irish poet William Butler Yeats.¹ Wise professors also learn from their students. From no student have I learned more in my 30 years of teaching than from Professor Jiunn-rong Yeh. Yeh is truly a national treasure of Taiwan and a thought leader in several fields worldwide.

Here in Taiwan, crossroads of the old and new, one sees how small the world has become, truly a “global village.”² The reason, of course, is that now we share information instantly.³ As a result, culture develops on a transnational basis, in law as well as other areas, while hopefully still respecting some of the best of our own national histories and cultures. A few weeks ago, my wife and I attended a performance of the Cloud Gate Dance Theatre of Taiwan at the Kennedy Center in Washington, D.C.⁴ The Dean’s Distinguished Lecture this year at Yale Law School, my law school, was on “The Development of the Rule of Law in Taiwan (and its Implications for the Mainland)” by Professor Jerry Cohen from Harvard Law School.⁵ In that same spirit of sharing, I want to reflect on what we do well and not so well in environmental law in the United States.

I. “THE THIRD MOVER ADVANTAGE” IN LEGAL SYSTEMS

American culture is very critical, both of ourselves and of others. We sometimes overlook our successes in our effort to use law and regulation to better manage the relationship between human beings and the natural environment and focus exclusively on our continuing challenges, which are also many. But we have definitely made progress, while there is also still much left to be done. Acrid smoke from automobile pollution was sometimes so bad in our capital city of Washington, D.C. when I first lived there in 1965 that one could not see across the street to the buildings on the other side. That is not the case today; the air is bright and clear. We also

1. WILLIAMS BUTLER YEATS, *On Woman, in THE WILD SWANS AT COOLE* lines 9-12 (1919), available at <http://www.bartleby.com/148/17.html> (last visited Sept. 26, 2010) (“Though pedantry denies,/It’s plain the Bible means/That Solomon grew wise/While talking with his queens.” No one grows wise while “talking,” so it is plain that the poet means *listening* during conversation).

2. The term is usually attributed to Marshall McLuhan, see Wikipedia, *Global village (term)*, [http://en.wikipedia.org/wiki/Global_village_\(term\)](http://en.wikipedia.org/wiki/Global_village_(term)) (last visited Sept. 26, 2010) (“Global Village is a term closely associated with Marshall McLuhan”) (as of Sept. 05, 2010, 08:14 GMT).

3. MARSHALL MCLUHAN, *LETTERS OF MARSHALL MCLUHAN* 254 (1987).

4. Sarah Kaufman, *Dance Review: Cloud Gate Dance Theatre of Taiwan at the Kennedy Center; Ancient Wisdom and a New Dance Direction*, WASH. POST, Feb. 1, 2010, at C3, available at <http://www.washingtonpost.com/wp-dyn/content/article/2010/01/31/AR2010013101553.html> (last visited Sept. 10, 2010).

5. Jerome A. Cohen, Dean’s Distinguished Lecture Series—Jerome Cohen ‘55 Speaks on Law and Life in Asia, <http://www.law.yale.edu/news/11086.htm> (last visited Sept. 10, 2010).

experienced a famous event in which one of our rivers caught fire; the Cuyahoga River in Cleveland caught on fire from a chemical sheen on top of the water, an event immortalized by Randy Newman in a popular song.⁶ This event, among others, crystallized a shared recognition about 1970 that we had to clean up our environment and change the way that we relate to it forever.

In the last generation, we have made some progress through environmental law in the United States in some areas. I come humbly to share with you some of our experience, both what has worked well in the United States and what has not worked so well. I offer these lessons not in the spirit that we have all the answers, but rather in the spirit of my first international legal conference in 1986.⁷ Liability law professors from all of the German-speaking nations had gathered to discuss the then-recent concept developed by the California Supreme Court of market share liability.⁸ One of the German representatives said “Yes, Elliott, we want you to come talk with us about this new American concept of market share liability so that we Germans can correct your mistakes and do it right.” His Swiss colleague then responded, “Yes, we Swiss will wait until both you Americans and you Germans have done this first and then we will *really* do it right!”

Legal systems borrow and learn from one another, and “the race does not always go to the swift,”⁹ as we say in English. There is in a process in legal development that I will call “The Third Mover’s Advantage.” This is the opposite of the First-Mover Advantage in economic markets.¹⁰ In business, sometimes a company that develops an innovation first gets an advantage in capturing a loyal following and establishing a dominant place in the marketplace that is difficult for later entrants to overcome.¹¹ With legal systems, it is often just the opposite: later entrants have an enhanced opportunity to learn from the experience of those who went before. That is

6. Randy Newman, Lyrics of Burn On, available at <http://www.lyricsdepot.com/randy-newman/burn-on.html> (last visited Sept. 10, 2010) (“Burn on, big river, burn on.”).

7. E. Donald Elliott, *Torts with Multiple Causes Under U.S. Law*, in 138 ARBEITEN ZUR RECHTSVERGLEICHUNG [WORKS OF COMPARATIVE LAW] 9 (Fenyves & Weyers eds., 1987).

8. *Sindell v. Abbott Laboratories*, 26 Cal. 3d 588, 607 P.2d 924, 163 Cal. Rptr. 132, cert. denied, 449 U.S. 912 (1980).

9. Inspirational Quotes on Running and the greatest Game of All-Life, http://www.pleasval.k12.ia.us/highschool/teachers/hoffmanjoshua/running_quotes.htm (last visited Sept. 10, 2010).

10. Wikipedia, *First-mover advantage*, http://en.wikipedia.org/wiki/First-mover_advantage (last visited Sept. 26, 2010) (“First-mover advantage or FMA is the advantage gained by the initial occupant of a market segment.”) (as of June 09, 2010, 23:30 GMT).

11. This doesn’t always happen, of course. For example, the Taiwanese company Acer is winning increasing market share although they did not invent the personal computer. This is sometimes called “second mover advantage,” see *id.* As that term is already taken, I call my point about law “Third Mover Advantage,” following the comments from my Swiss colleague about the Swiss legal strategy quoted in the text above.

because many legal systems, including ours, find it relatively difficult to reconsider what has already been established. Or as I put it recently, we generally do not amend laws in the United States as long as they are working “tolerably badly.”¹² They do not have to work well; they just have to be functioning well enough they are not intolerable. A closely related phenomenon was well-known in the 19th century as “survivals,” the tendency of features of law to continue long after the conditions that gave them birth had changed.¹³ As a result, a legal system that does it right the first time based on the prior experience of others is often at an advantage over the pioneers who try something early but are stuck with the results and find it hard to make mid-course corrections in the light of experience.

I offer a few lessons from our experience in environmental law in the United States for whatever value they may have. I first describe five things that I think are among the best features of American environmental law and then the five worst. These are not necessarily the most important from other perspectives, but ones from which I think that other legal systems might benefit from our experience.

II. FIVE THINGS WE DO RELATIVELY WELL IN U.S. ENVIRONMENTAL LAW

1. Verifiable and Enforceable Facility-Based Standards. The first positive thing that we do right is that we have a regulatory system for developing *ex ante* specific, objective, auditable, and verifiable standards for environmental compliance at the facility level in advance of a dispute or enforcement proceeding. These typically include not only specific emission limits but also very specific protocols for how compliance is to be tested and verified.¹⁴ In my classes, I sometimes call this law at the retail rather than the wholesale level. I understand that you do the same thing.

Developing objective facility-specific requirements is the crucial feature that distinguishes those environment law systems that are effective, enforceable and can really work to change behavior from those which are merely window-dressing. In many systems around the world, environmental law consists merely of a high level declaration that one may not pollute, or may not pollute unreasonably. But in those systems, the command of the

12. E. Donald Elliott, *Portage Strategies for Adapting Environmental Law and Policy During a Logjam Era*, 17 NYU ENV'T L.J. 24, 37 (2008).

13. See, e.g., ROBERT WATSON GORDON, *THE LEGACY OF OLIVER WENDELL HOLMES, JR.* 27 (1992); E. Donald Elliott, *Holmes and Evolution: Legal Process as Artificial Intelligence*, 13 J. LEGAL STUD. 113 (1984). See also GUIDO CALABRESI, *A COMMON LAW FOR THE AGE OF STATUTES* (1982) (proposing techniques for courts to address the problem of “statutorification”).

14. U.S. Environmental Protection Agency, Technology Transfer Network Emission Measurement Center, CFR Promulgated Test Methods, <http://www.epa.gov/ttn/emc/promgate.html> (last visited Sept. 10, 2010).

sovereign to the governed (to paraphrase John Austin's definition of law)¹⁵ remains a generality or aspirational norm that is subject to interpretation in the eye of the beholder. It is not translated into facility-specific requirements until perhaps the government brings an enforcement lawsuit. Then, in the context of that particular case, one figures out after the fact (or *ex post*, as legal academics like to say) whether or not the behavior of that particular entity is or is not in compliance with the general commands of the law.

A great deal of the expense and complexity of U.S. environmental law systems, like the systems in Germany, Japan, and also (I believe) in Taiwan, goes into developing a series of permits that translate hollow generalities into objective, enforceable facility-specific requirements. This process of developing detailed permits for individual polluters serves, as our Supreme Court explained, "to transform generally applicable effluent limitations and other standards—including those based on water quality—into the obligations (including a timetable for compliance) of the individual discharger."¹⁶ This process of translating high level goals into facility-specific requirement requires a lot of time, effort and "bureaucracy," but I believe that the effort and expense to develop enforceable standards at the facility level is generally worth the cost in terms of increased effectiveness and enforceability.

A few academics, mostly on the right, have argued that this whole strategy of detailed environmental regulations and permits is a mistake. Instead, they say, we need "simple rules for a complex world."¹⁷ The essence of their argument is that human beings lack perfect foresight, and thus, we are more likely to get the result right in a particular case with the benefit of 20-20 hindsight, plus we do not need to spend the transaction costs in many instances that never become controversial.

These arguments have some validity as far as they go, but by my lights, they under-value the importance of clear, specific rules stated in advance in promoting compliance and enforcement, at least in environmental law. In my view, Colin Diver had it exactly right in his 1983 article in the *Yale Law Journal* on the "Optimal Precision of Administrative Rules," when he argued that there is potentially a trade-off between getting the result right in a particular instance and enforceability.¹⁸ Perhaps in theory the ideal "first

15. JOHN AUSTIN, *THE PROVINCE OF JURISPRUDENCE DETERMINED* 21 (1832). In actuality, Austin's concept of law is more nuanced than is captured in this oft-quoted slogan. See, e.g., Gerald B. Wetlaufer, *Gunmen, Straw Men, and Indeterminacy: H. L. A. Hart, John Austin, and the Concept of Law*, 82 IOWA L. REV. 1487 (1997).

16. *EPA v. California ex rel. State Water Resources Control Board*, 426 U.S. 200, 204-205 (1976).

17. RICHARD A. EPSTEIN, *SIMPLE RULES FOR A COMPLEX WORLD* (1995). For a parallel argument that too much law in areas other than the environment is "choking" freedom and initiative in America, see generally PHILIP K. HOWARD, *LIFE WITHOUT LAWYERS: LIBERATING AMERICA FROM TOO MUCH LAW* (2009).

18. Colin S. Diver, *The Optimal Precision of Administrative Rules*, 93 YALE L.J. 65 (1983)

best solution” would be a system of property rights¹⁹ or Pigouvian taxes that would perfectly internalize the harms caused by pollution, but absent that, in a second-best world, it is better to have a system of enforceable administrative rules that actually move us in the right direction than a system that is perfect in theory but has little effect in practice. That is a major problem in many parts of the world where environmental laws are beautiful in theory but ignored in practice.

The parts of our environmental laws that have worked best to change behavior such as the Clean Water Act and portions of the Clean Air Act require the facility itself to self-monitor and make available the results of its testing publicly. When I first went up to Yale in 1981, I organized an environmental clinic and we started bringing lawsuits against local companies that were violating their water pollution permits. We would simply go into the state agency, get their public “discharge monitoring reports” in which they had reported that they had been polluting above the legal limits that had been set for their facility, and bring a lawsuit and move for summary judgment and attorneys fees. Years later when I helped to write the enforcement provisions of the Clean Air Act Amendments of 1990, we modeled them on the Clean Water Act, which at the time we felt was our most effective statute in terms of monitoring and enforcement.

In my judgment and experience, in order to change behavior, it is very important to put in place verifiable and enforceable facility-specific standards, and in most areas, we do that right.²⁰

2. Market-Based Cap and Trade Systems. A second positive point in our system is the idea of trading systems and market-based approaches. This is what Professor Yeh wrote his JSD dissertation for me about at Yale Law School in 1988. He did a comparative study of economic incentive systems to regulate environmental pollution worldwide.²¹ What I learned from him, as well as mentors such as Bruce Ackerman, Susan Rose-Ackerman and Richard Stewart, who were real pioneers in environmental trading systems,²²

(transparency (understandability), accessibility (ease of application), and congruency with policy purposes as factors in determining optimal precision).

19. For an argument that property rights can and should replace regulation to protect the environment, see Terry Anderson & David Leal, *Free Market Environmentalism: Hindsight and Foresight*, 8 CORNELL J.L. & PUB. POL'Y 111 (1998); GOVERNMENT VS. ENVIRONMENT (Donald R. Leal & Roger E. Meiners eds., 2002). For a less dogmatic version of the argument, see Carol Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 40 DUKE L.J. 1, 38 (1991).

20. *But see generally* Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey from Command to Self-Control*, 22 HARV. ENVTL. L. REV. 103 (1998).

21. Jiunn-rong Yeh, *The Second Generation of Environmental Regulation: The Economic Incentive Approach* (1988) (unpublished J.S.D. dissertation, Yale Law School).

22. BRUCE A. ACKERMAN, SUSAN ROSE-ACKERMAN, JAMES W. SAWYER, JR. & DALE W. HENDERSON, *THE UNCERTAIN SEARCH FOR ENVIRONMENTAL QUALITY* (1974); Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333 (1985).

came in very handy for me a year or two later as I was involved in helping to design and implement the first large-scale application of an environmental trading system to reduce pollution: the acid-rain trading program under Title IV of the Clean Air Act Amendments of 1990.²³ It has certainly been one of our most successful pollution control programs, and many think *the* single most successful. From 2000 to 2009, the acid rain trading program resulted in a 71% decrease in the rate of sulfur dioxide pollution and a total reduction of sulfur dioxide pollution by 5.7 million tons, with 100% compliance at a fraction of the cost for conventional “command and control” regulation.²⁴ I was privileged to serve as General Counsel of Environmental Protection Agency (hereinafter *EPA*) and participated in developing that legislation and in the first years of its implementation.²⁵ It been a very successful program, and has achieving its goals at far less cost than had been anticipated. Many scholars and government leaders think that it should be the model for climate change regulation worldwide.²⁶ I am not so sure about that, but the “cap and trade” system for acid rain in the United States clearly was a stunning success, which should be studied and emulated worldwide. But “cap and trade” cannot be used successfully everywhere, and so we also need to study and understand the conditions under which “cap and trade” works well and where it does not.²⁷

One element of the acid rain trading system that the United States did not do particularly well in implementing was the concept of “Opting In.” This was built into the original legislation, but was never implemented.²⁸ The acid rain trading program was limited in the first instance to “electric generating units” (EGUs), i.e. utility power plants to produce electricity.

23. Acid Deposition Control, Title IV of Clean Air Act, Pub. L. No. 101-549, 104 Stat. 2399 (1990) (codified at 42 U.S.C. §§ 7401-7671q); ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE AND POLICY 97 (6th ed. 2009) (“The Clean Air Amendments of 1990 provide the first large-scale experiment with emissions trading approaches long advocated by economists as a more efficient means for reducing pollution.”). For a general description of how the program works, see U.S. Environmental Protection Agency, Acid Rain Program SO₂ Allowances Fact Sheet, <http://www.epa.gov/airmarkets/trading/factsheet.html> (last visited Sept. 10, 2010).

24. U.S. Environmental Protection Agency, EPA Clean Air Markets, 2009 Emission, Compliance, and Market Analyses, http://www.epa.gov/airmarkets/progress/ARP09_2.html (last visited Sept. 10, 2010).

25. For some lessons learned, see E. Donald Elliott, *Lessons from Implementing the 1990 CAA Amendments*, 40 ENVTL. L. REP. 10592 (2010).

26. Jonathan B. Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 YALE L.J. 677 (1999).

27. E. Donald Elliott & Gail Charnley, *Toward Bigger Bubbles: Why Inter-pollutant and Inter-risk Trading Are Good Ideas and How We Get There from Here*, F. FOR APPLIED RES. & PUB. POL'Y, winter 1998, at 48.

28. For information of Acid Rain Program Opt-In Rules of U.S. Environmental Protection Agency (Sept. 16, 1993) which promised that rules for “process sources” would be forthcoming at a later date but were never promulgated, see U.S. Environmental Protection Agency, Federal Register Notices for Acid Deposition (Title IV)—Proposed and Final Preambles and Rules, <http://www.epa.gov/ttn/caaa/t4pfpr.html> (last visited Sept. 10, 2010).

However, I was well-aware from my prior experience in practice that there were some industrial sources, such as smelters, that could reduce their emissions of sulfur dioxide at a fraction of the cost to get equivalent reductions from EGUs. On the first day after my confirmation, I was over at the White House arguing that we ought to cover some industrial process sources as well, because we could get equivalent reductions at less expense. (I have long been a proponent of what I call “bigger bubbles,” making the trading system as broad as feasible.)²⁹ The outcome was to allow industrial and other exempted process sources to voluntarily “opt in” to the acid rain trading system by choosing to become a “covered source” subject to all of the requirements of the program.³⁰

In the same way that the absence of entry barriers creates “potential competition” that can discipline market prices in anti-trust law,³¹ so too it is not always necessary to subject a pollution source to mandatory regulation in order to affect its behavior. One can think of this as “virtual regulation,” in which the behavior of parties outside the mandatory regulatory system is nonetheless affected by the incentives emanating from inside the regulatory structure. The “opt in” program created a positive incentive (what we call a “carrot” as opposed to a “stick”) for industrial sources to install existing technology, and/or to develop new technology, to control their emissions in order to obtain acid rain “allowances” that they could sell on the open market.

What is really important about trading systems is not just the static perspective that they achieve compliance at a lower cost than command and control, but that they create dynamic incentives for the development of better technologies.³² And they do that particularly well if you allow parties that are not currently regulated to come into the system. We were so focused on meeting the statutory deadlines that we failed to implement the opt-in rules, which were important from a policy perspective but did not have deadlines, and by my lights, that was a mistake.³³

29. Elliott & Charnley, *supra* note 27.

30. Clean Air Act Amendments of 1990, Pub. L. No. 101-549, § 410(a), 104 Stat. 2399, 2621 (codified as amended at 42 U.S.C. § 7651i) (“The owner or operator of any unit that is not, nor will become, an affected unit under section 403(e), 404, or 405, or that is a process source under subsection (d), that emits sulfur dioxide, may elect to designate that unit or source to become an affected unit and to receive allowances under this title.”).

31. See, e.g., Robert E. Hall, *Potential Competition, Limit Pricing, and Price Elevation from Exclusionary Conduct*, in 1 ISSUES IN COMPETITION LAW AND POLICY 433 (ABA Section of Antitrust Law ed., 2008).

32. E. Donald Elliott, *Toward Ecological Law and Policy*, in THINKING ECOLOGICALLY: THE NEXT GENERATION OF ENVIRONMENTAL POLICY 170 (Marian R. Chertow & Daniel C. Esty eds., 1997); Elliott & Charnley, *supra* note 27, at 48-54.

33. Elliott, *supra* note 25, at 10596 (“Because there was no deadline on the [opt-in] rule, it was never actually implemented. We never got it done, and it died a quiet death in the Clinton Administration, which did not view it as important. But I think that it could have been a very

3. Citizens Suits to Force Government to Keep its Promises. The third good thing that I think about in reflecting on our environmental law system are so-called “citizen suits” to force government agencies to follow the law and also to enforce pollution standards against polluters.³⁴ I mentioned that previously in terms of my environmental clinic for law students at Yale that brought water pollution cases against local polluters. The ability of any affected member of a citizen’s group to go to court, to an independent judiciary, to make the government live up to its obligations under the law, or to make a polluter comply with its obligations under the law, is one of the very best features of the American system.

In the early 90s, I was on a U.S. delegation to meet with the recently independent countries in Eastern Europe at an environmental technology transfer center that the U.S. government had set up in Budapest.³⁵ All of the newly free and independent countries — Czechoslovakia, Hungary, then-Yugoslavia, Bulgaria—they all came to talk to us about environmental law. Environmental law was their second biggest concern after human rights. The one question that they all asked was how do we make the government enforce the law? We have these beautiful laws that require control of pollution, they said, but our problem is how to enforce them in practice. They say they wanted an independent way to force the big, powerful, formerly state-owned enterprises to abide by their environmental laws—but of course they did not want all those lawsuits like you have in America. We responded, “That’s really the only way that we know how to do it.” Subsequently, a number of those countries have decided to adopt the mechanism of citizen-state suits as a way of using the independence of the courts to make sure the government actually enforces the law.

We have two different kinds of citizen-suits in the United States and they are both very important. One is enforcement against a polluting facility. If a factory or other polluting facility is violating its pollution limits, any

important transformative rule. The problem was that we were so obsessed with meeting the statutory deadlines that we did not always prioritize in terms of what was most important from the standpoint of policy.”).

34. For an excellent summary, see generally JEFFREY G. MILLER, *CITIZEN SUITS: PRIVATE ENFORCEMENT OF FEDERAL POLLUTION CONTROL LAWS* (1987).

35. See U.S. Environmental Protection Agency, William K. Reilly: Oral History Interview, <http://www.epa.gov/history/publications/print/reilly.htm> (last visited Sept. 10, 2010) (“With the waning of the Cold War, the global political situation changed fundamentally while I was at EPA. In my view, it accelerated a process that was already underway of opening up a whole new world to the Agency—a world that desperately needed the experience of EPA, which is preeminent in its field internationally, a world that needed help in setting priorities, in gaining a sense of direction, that needed also, frankly, to learn from American mistakes, particularly since many of the societies most in need of help don’t have the resources that the United States has. We tried to respond to that by making the Agency available to Eastern European countries, and former Soviet countries. We set up the Budapest Center, which was an EPA proposal that I made to the Cabinet and the President before he went to Hungary—later known as the Bush Center.”).

citizen who claims to be affected in the vicinity can give notice to the EPA, the State and the polluter. Then there is typically a 30 to 60 day period within which EPA or the State has a chance to bring an enforcement action, or the polluter has to correct the violation.³⁶ If the EPA or the State does not bring an enforcement action against the facility, then the citizens can bring an enforcement action against the facility for a court injunction.³⁷ And if they prevail, they are entitled to receive attorney's fees. So that's one type of citizens suit, to enforce existing law against a polluter.

The other type, which is equally important, is a suit against the government—usually against the Environmental Protection Agency—to require that the Agency follow the law, and in particular to issue regulations that have been delayed past a statutory deadline. It is often very popular politically to pass a vague, general law declaring that there shall not be pollution. But then when the government actually gets around to implementing that type of vague, aspirational law against particular industries, powerful political interests can stand in the way.³⁸ We sometimes find in the United States that agencies might be reluctant to implement or enforce the law even though they have the power to do because of the fear of political backlash. In response, the Congress eventually developed something that my colleague Bruce Ackerman at Yale named the “Agency Forcing Statute.”³⁹ The basic idea is that Congress passes a law setting deadlines within which EPA is supposed to act and if EPA fails to promulgate rules in accordance with those deadlines, then any citizen could go to court and get a court order forcing the Agency to follow the law.⁴⁰ So, there are two different kinds of citizen-suits. One for enforcing existing pollution standards, and perhaps equally important, a second one to make sure the government follows the law and does what it is supposed to do.

36. An example is sec. 304(a)(1) of the Clean Air Act, 42 U.S.C. § 9604a-1 (“any person may commence a civil action on his own behalf— (1) against any person . . . who is alleged to have violated (if there is evidence that the alleged violation has been repeated) or to be in violation of (A) an emission standard or limitation under this Act or (B) an order issued by the Administrator or a State with respect to such a standard or limitation . . .”).

37. *See, e.g.*, *Friends of the Earth v. Laidlaw Environmental Services*, 528 U.S. 167 (2000); *Steel Co. v. Citizens for a Better Environment*, 523 U.S. 83 (1998).

38. Compare Richard J. Lazarus, *The Tragedy of Distrust in the Implementation of Federal Environmental Law*, *LAW & CONTEMP. PROBS*, Fall 1991, at 330 (“Congress has spoken with two different voices to EPA. . . . Legislators demanded immediate action requiring a massive agency undertaking. At the same time, however, they never provided a remotely commensurate level of agency funding.”).

39. BRUCE A. ACKERMAN & WILLIAM T. HASSLER, *CLEAN COAL/DIRTY AIR: OR HOW THE CLEAN AIR ACT BECAME A MULTIBILLION-DOLLAR BAIL-OUT FOR HIGH-SULFUR COAL PRODUCERS AND WHAT SHOULD BE DONE ABOUT IT* (1981).

40. *See, e.g.*, Clean Air Act § 304a-2, 42 U.S.C. § 9607a-2 (1990) (“any person may commence a civil action on his own behalf . . . (2) against the [EPA] Administrator where there is alleged a failure of the Administrator to perform any act or duty under this Act which is not discretionary with the Administrator”); *EDF v. Thomas*, 627 F. Supp. 566 (D.D.C. 1986).

4. General Deterrence, or Liability as a Regulatory System. The fourth thing that I think we do well is to use liability as a backstop to our regulatory system.

One of the central insights in American law was articulated by my teacher, and also Professor Yeh's teacher, Guido Calabresi, now a judge of the Second Circuit Court of Appeals in New York. In his book, *The Cost of Accidents*, in 1970,⁴¹ Calabresi argued that a pattern of liability suits would not only award compensation but would also constitute a regulatory system that creates a system of incentives for a particular level of safety. What we typically think of as private law remedies would also have a public law effect in creating a regulatory system.

The typical pattern of environmental regulation in the United States has two tiers: government regulation by administrative agencies, which preserves rather than pre-empts other older remedies, such as causes of action for nuisance, trespass and other forms of environmental liability.⁴² Both tiers of regulation create important incentives. My wife and frequent co-author Gail Charnley and I have done empirical studies of the types of "due diligence" that companies do before they put products on the market.⁴³ What we find is that the threat of liability is often a more potent determinant of corporate behavior than is the government regulatory system.⁴⁴ In some areas in which our regulatory system is inadequate or incomplete, the threat of private liability for damages serves as a kind of regulatory back-stop or safety net. Consider, for example, our Toxic Substances Control Act (hereinafter *TSCA*),⁴⁵ which has been widely-criticized as antiquated and for setting too high an evidentiary burden on the government as a pre-condition for regulating.⁴⁶ I myself have condemned the leading case setting a high

41. GUIDO CALABRESI, *THE COST OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* (1970).

42. *See, e.g.*, Clean Water Act § 510, 33 U.S.C. § 1370 (1988) (preserving state authority to regulate more stringently than federal law). This is typical of U.S. environmental law statutes and has generally been interpreted to preserve damage actions under state law. *See Middlesex City Sewerage Auth. v. Sea Clammers*, 453 U.S. 1, 18 n.27 (1981) (quoting Senate Report on the FWPCA Amendments of 1972: "It should be noted, however, that the section would specifically preserve any rights or remedies under any other law. Thus, if damages could be shown, other remedies would remain available. *Compliance with requirements under this Act would not be a defense to a common law action for pollution damages.*" S. Rep. No. 92-414, at 81 (1971) (emphasis supplied)).

43. E. Donald Elliott & Gail Charnley, *Private Product-Risk Assessment and the Role of Government*, 23 JOHN LINER REV. 73 (2009).

44. An important difference between my approach and Calabresi's is that I argue that defenses or safe harbors that permit a particular company to avoid liability imposed on its competitors is a more important determinant of behavior than the baseline of liability imposed on all competitors equally. *Id.* at 78; E. Donald Elliott, *Re-Inventing Defenses/Enforcing Standards: The Next Stage of the Tort Revolution?*, 23 RUTGERS L. REV. 1069 (1991).

45. Toxic Substances Control Act, 15 U.S.C. §§ 2601-2692 (2003).

46. Environmental Defense Fund, Chemicals Policy Reform, <http://www.edf.org/page.cfm?tagID=12814> (last visited Sept. 10, 2010) ("Our nation's main statute governing chemicals policy—the Toxic Substances Control Act (TSCA)—is seriously flawed and needs fundamental reform."); Richard A. Denison, *Ten Essential Elements in TSCA Reform*, 39 ENVTL. L. REP. 10020

burden of proof on the government before regulating a chemical⁴⁷ as “a public policy and public health disaster that should be overturned by the Congress.”⁴⁸

But despite the very real problems with our chemicals regulatory system under TSCA, we have not done a lot worse than the Europeans by allowing hundreds of dangerous chemicals onto the market. A German law professor, Ortwin Renn, from the University of Stuttgart, and I have written a joint piece comparing the regulation of chemicals in the United States and in Europe. It has already been published in Europe⁴⁹ and should be coming out shortly in the United States in a book called *The Reality of Precaution* to be published by Resources for the Future, comparing the actual degree of precaution in risk regulation in various fields in the United States and Europe, including chemicals.⁵⁰ The “Precautionary Principle”⁵¹ is a very good advertising slogan by the Europeans, but when one studies the actual degree of protection built into environmental regulations in the European Union and the United States, they are not that different.⁵² That is really the theme of the book. In the area of chemicals, the reason that we have done as well as we have in the United States, despite the problems that we have regulating effectively under TSCA, is because our regulatory system is backed up the threat of liability, or what Calabresi called “general deterrence” (threat of liability) as opposed to “specific deterrence” (administrative or legislative regulation).⁵³

Even if agencies are not able to regulate chemicals in the United States based on as low an evidentiary threshold as in Europe, there are very few chemicals that have come on to the market in the United States, but not in Europe, or are regulated in one but not the other. In practice, the degree of

(2009); U.S. Environmental Protection Agency, EPA Administrator Jackson Unveils New Administration Framework for Chemical Management Reform in the United States (Sept. 29, 2009), <http://yosemite.epa.gov/opa/admpress.nsf/d985312f6895893b852574ac005f1e40/d07993fdcf801c2285257640005d27a6!OpenDocument> (last visited Sept. 10, 2010).

47. *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991).

48. *Legislation to Implement the POPs, PIC, and LRTAP POPs Agreements: Hearing Before the Subcomm. on Environment and Hazardous Materials of the Comm. on Energy and Commerce*, 109th Cong. 120-21 (2006) (statement of E. Donald Elliott).

49. Ortwin Renn & E. Donald Elliott, *Precautionary Regulation of Chemicals in the US and EU*, in *PRECAUTIONARY RISK APPRAISAL AND MANAGEMENT: AN ORIENTATION FOR MEETING THE PRECAUTIONARY PRINCIPLE IN THE EUROPEAN UNION* 248 (Ortwin Renn et al. eds., 2009).

50. *THE REALITY OF PRECAUTION: COMPARING RISK REGULATION IN THE UNITED STATES AND EUROPE* (Jonathan B. Wiener et al. eds., forthcoming Oct. 2010).

51. *Communication from the Commission on the Precautionary Principle*, COM (2000) 1 final (Feb. 2, 2000), available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52000DC0001:EN:HTML> (last visited Sept. 10, 2010).

52. Jonathan B. Wiener & Michael D. Rogers, *Comparing Precaution in the United States and Europe*, 5 J. RISK RES. 317 (2002); Jonathan B. Wiener, *Whose Precaution After All? A Comment on the Comparison and Evolution of Risk Regulatory Systems*, 13 DUKE J. COMP. & INT'L L. 207 (2003).

53. CALABRESI, *supra* note 41, at 199-201.

precaution tends to be similar, despite the rhetoric that Europe regulates on a more precautionary basis than the United States. In my opinion, that similarity in outcome despite differences in regulatory approach is largely because of the potent threat of liability as a backstop to government regulation in the United States.

To their credit, in 2004, the Europeans finally promulgated an environmental liability directive requiring the creation of stronger environmental liability systems in each of the member states as a second tier of regulation.⁵⁴ Interestingly, the new European Environmental Liability Directive was not designed solely to compensate injuries; its declared purpose, which is part of its official title, is also the “prevention” of environmental damage: “On Environmental Liability with Regard to *the Prevention and Remedying of Environmental Damage*” (emphasis supplied).⁵⁵ The philosophy of using the threat of liability to prevent damage is also specifically endorsed in its text: “The fundamental principle of this Directive” is to hold operators liable “in order to induce operators to adopt measures and develop practices to minimise the risks of environmental damage so that their exposure to financial liabilities is reduced.”⁵⁶ Elsewhere I have written that “the most effective kind of power is power that does not have to be used to be effective.”⁵⁷ What a perfect example of that principle in action: a perceived and credible threat of liability for environmental damage can often be the most effective way of preventing environmental damage from occurring. This is the essence what of Judge/Professor Calabresi referred to as “general deterrence.”⁵⁸ Its great advantage is that the threat of liability is always there, and does not require specific regulatory action by government as a pre-condition to affecting behavior.⁵⁹ General liability signals are omnipresent and they are very important in our system as a general backstop to more specific regulatory actions. Europe is also moving in that direction but it is not as far along as the U.S. in using the tool of economic signals from the liability system to prevent environmental damage. In 2008 the European Commission went to court against nine member states for failing to implement the environmental

54. Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on Environmental Liability with Regard to the Prevention and Remedying of Environmental Damage, 2004 O.J. (L 143) 56-75, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0035:EN:HTML> (last visited Sept. 10, 2010).

55. *Id.* at 56.

56. *Id.*, Whereas Clause 2.

57. E. Donald Elliott, *Constitutional Conventions and the Deficit*, 1985 DUKE L.J. 1077, 1103 (1985).

58. CALABRESI, *supra* note 41, at 199.

59. For a general account of the massive amounts of information that must be processed before government may act to protect the environment in the U.S., see E. Donald Elliott, *Environmental Law at a Crossroad*, 20 N. KY. L. REV. 1 (1992).

liability directive in their domestic legal systems.⁶⁰

5. Quantitative Risk Assessment to Set Priorities. My final example of something that we do relatively well is the use of quantitative risk assessment⁶¹ to set priorities. This was not always the case. When I went to EPA in 1989, we did always set priorities systematically or target our scarce resources where they could produce the greatest benefit. The classic example is the banning of the pesticide Alar in 1989, which came in more or less direct reaction to a publicity campaign by the environmental group NRDC that featured the popular actress Meryl Streep and the television program *60 Minutes*.⁶² Activists on the right⁶³ and the left⁶⁴ still debate whether EPA made the right decision, but it was apparent to then-EPA Administrator William K. Reilly and most of his senior staff that determining the agency's regulatory priorities in moments of "episodic panic"⁶⁵ in reaction to press

60. Press Release, European Union, Environment: Commission takes nine member states to Court over environmental liability (June 26, 2008), *available at* <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/1025&format=HTML&aged=0&language=EN&guiLanguage=en> (last visited Sept. 10, 2010).

61. For a good introduction to basic risk assessment concepts, see Daniel Krewski, *Risk Assessment, Risk Management*, <http://www.enotes.com/public-health-encyclopedia/risk-assessment-risk-management> (last visited Sept. 10, 2010); a more extended explanation is provided by JOSEPH V. RODRICKS, *CALCULATED RISKS: THE TOXICITY AND HUMAN HEALTH RISKS OF CHEMICALS IN OUR ENVIRONMENT* (2d ed. 2007).

62. The basic facts, and the arguments pro and con, are well summarized in an article by Elliott Negin and a letter response by Elizabeth Whelan, both of which are available at The Alar "Scare" was for Real; and so is that "Veggie Hate-Crime" Movement, <http://www.pbs.org/tradesecrets/docs/alarscarenegin.html> (last visited Sept. 10, 2010) ("As conventional wisdom has it, the Natural Resources Defense Council, a nonprofit environmental group, manipulated CBS's 60 Minutes into hyping a story on the dangers of Alar, a chemical sprayed on apples to regulate their growth and enhance their color. The February 1989 broadcast, largely based on the NRDC report 'Intolerable Risk: Pesticides in Our Children's Food,' told an audience of some 40 million that Alar was a dangerous carcinogen. Then, the tale continues, NRDC's public relations firm, Fenton Communications, convinced other major news organizations to feature the story. Meryl Streep testified before Congress, and on TV talk shows, about Alar's dangers. The public panicked: school systems removed apples from their cafeterias, supermarkets took them off their shelves, and orchard owners lost millions. The maker of Alar, Uniroyal Chemical Co., was ultimately forced to take it off the market, even though, the story goes, it posed no real health risk."). Negin himself has been criticized for not disclosing an alleged affiliation with NRDC, see Leftist Takes Over Columbia Journalism Review, <http://www.aim.org/media-monitor/leftist-takes-over-columbia-journalism-review/> (last visited Sept. 10, 2010).

63. Kenneth Smith & Jack Raso, *An Unhappy Anniversary: The Alar "Scare" Ten Years Later*, http://www.acsh.org/publications/pubid.865/pub_detail.asp (last visited Sept. 10, 2010); Steven J. Milloy, *Background on the Alar Controversy*, <http://www.junkscience.com/news3/alar.html> (last visited Sept. 10, 2010).

64. Environmental Working Group, Myth of "Alar Scare" Persists: Ten Years Later, Myth of "Alar Scare" Persists, <http://www.ewg.org/node/8005> (last visited Sept. 10, 2010); Negin, *supra* note 62.

65. The phrase is Reilly's. "What we have had in the United States is environmental agenda-setting by episodic panic," says William K. Reilly, the former administrator of the U.S. Environmental Protection Agency and head of the World Wildlife Fund. Panic Doesn't Help The Environment, http://articles.courant.com/1993-04-05/news/0000103755_1_carbon-dioxide-panic-toxic (last visited Sept. 10, 2010).

reports was not the best way to set priorities on a systematic basis.

One of the great accomplishments of William Reilly's tenure at EPA was to win greater acceptance for the use of risk assessment to set priorities on a more systematic basis. The goal is to focus scarce resources where they could produce the greatest benefit. One cannot improve upon his telling of the story in his oral history of his tenure as EPA Administrator, so I will not try:

“[T]he concept of risk assessment and then risk management, that is, of trying to determine a level of practical achievable control, gradually gained currency as a consequence of two things. First of all, the Agency dealt with many more problems than it used to, as a consequence of a whole plethora of legislation that was added to its responsibilities in the 1970s and 1980s—the Toxic Substances Control Act, the Resource Conservation Recovery Act, the Superfund Law. The result of this was to cause even the most idealistic and protective of EPA staff to realize, we can't do it all. We have got . . . to make some allocation of our resources, given the fact that there's more for us to do than we can do. . . . Secondly, the technology of detection advanced very significantly. Within a space of a few years, we went to the possibility of detecting not just parts per million but parts per billion and even in some areas, parts per quadrillion, as detectable, though admittedly trace, amounts of particular chemicals. . . . To the degree that we understand that there are trace amounts of carcinogens on our food from pesticides, or even in natural products like coffee or peanut butter, we ourselves have to acknowledge that we are making these choices and tradeoffs

It certainly requires a more mature accommodation of reality. It also reminds us that some of these pollutants are facts of life. They are in the environment, many of them irrespective of human alteration and manipulation. . . . The ideal is to ensure through regulation that such inevitable risks are negligible, i.e., that they would not over a lifetime of anticipated exposure in a real world situation result in more than one excess cancer death in a million people. Zero risk is a chimera, a beckoning illusion. To try to achieve it would consume unjustifiable amounts of resources, and entail forgoing much progress. Tolerating a certain trace level of pollutant in certain circumstances, is more than offset by gains to health that you can get with the freed-up resources

[Y]ou realize that in some instances you would be better able to protect society against a larger problem in gross if you didn't

deploy a disproportionate amount of your resources on what is a much smaller problem, it causes you then to get into the realm of risk assessment and risk management.

Risk assessment, I think, has gained currency as a consequence of a very large set of responsibilities that forced prioritization.”⁶⁶

E. O. Wilson has argued that most of the progress in human affairs since the Enlightenment that has come from people counting things.⁶⁷ Sometimes there is great value in quantitative models and methods that can detect things that are hard to see with our ordinary senses. But quantitative models can also be abused if we try to carry them too far. In a recent comment in the *Pennsylvania Law Review*, I have argued that one cannot validly use cost benefit analysis and quantitative risk assessment to “fine tune” regulations—that is, to determine that the regulatory limit should be 0.8 parts per million rather than 0.7 parts per million—because current data and cost/benefit techniques are just too crude and imprecise.⁶⁸ They result in what has aptly been called “the tyranny of false precision,” in which they appear to provide more information than is really there, and thus can mislead decision-makers. But quantitative risk assessment can be extremely useful for comparing among various risk reduction opportunities and setting priorities.

The government can often achieve much greater risk reduction benefits by investing its efforts in one area as opposed to another area. Based on my experience at EPA, and also the literature,⁶⁹ there are often differences by four or five orders of magnitude—a factor of ten thousand or one hundred thousand—between the amount of safety that can be produced by investing in one area as opposed to investing in another. It is crucial not to look at government regulatory decisions about risk regulation one-by-one—as if they were criminal cases as to whether a particular chemical is guilty or

66. *Id.*

67. EDWARD O. WILSON, *CONSCIENCE: ON THE UNITY OF HUMAN KNOWLEDGE passim* (1998) (“Reductionism and analytic mathematical modeling were destined to become the most powerful intellectual instruments of modern science” (p. 29); “Western science took the lead largely because it cultivated reductionism and physical law to expand the understanding of space and time beyond that obtainable by the unaided senses. [...] They were conceived [...] during a search for quantifiable truths [...]” (p. 31); “The great merit of [mathematical] models [...] is that they force investigators to provide unambiguous definitions [...] as well as processes [...] When well-conceived, a model leaves no doubt about its assumptions.” (p. 198)).

68. E. Donald Elliott, Response, *Only a Poor Workman Blames His Tools: On Uses and Abuses of Benefit-Cost Analysis in Regulatory Decision Making About the Environment*, 157 U. PA. L. REV. PENNUMBRA 178, 179 (2009), available at <http://www.pennumbra.com/responses/03-2009/Elliott.pdf>.

69. The classic article is Tammy O. Tengs & John D. Graham, *The Opportunity Costs of Haphazard Social Investments in Life-Savings, in RISKS, COSTS, AND LIVES SAVED: GETTING BETTER RESULTS FROM REGULATION* 167 (R. W. Hahn ed., 1996).

innocent—implicitly analogizing to criminal cases.⁷⁰ A better metaphor is that the government is making decisions to invest in improving safety in one area as opposed to another. The government has limited resources from society. Quantitative techniques are very useful in terms of comparing various investment opportunities and selecting what are the most promising potential opportunities for getting the greatest benefit.

III. FIVE THINGS WE DO RELATIVELY POORLY IN U.S. ENVIRONMENTAL LAW

Now we get to the fun part: the five things that we do that I recommend that you avoid.

1. Higher Burden of Factual Proof on Government. The first, and perhaps the most important, is that we generally do place too high burden of proof of factual issues on the government as a pre-condition for regulation. That is a fundamental part of the American legal and political culture. The framers of our Constitution had lived under a king—under a totalitarian regime—and their primary fear in drafting our Constitution was to make sure that the government was incapable of over-regulating the people. Their concern was that the new federal government of the United States would become another totalitarian government like the king of England under whom they had lives, and so they went to great extent to build into our governmental structure a number of checks and balances against arbitrary exercises of governmental power. These principles at the constitutional level have carried on over into our legal culture so we set very high standards as a pre-condition for government regulation in many areas. One example is that a senior EPA official, Mike Shapiro, once said that 90% of the analysis is not necessary for the government to make a decision but to develop a record to support the decision on judicial review.

A classic example the *Corrosion Proof Fittings* decision,⁷¹ reversing an EPA rule banning all uses of asbestos. EPA had promulgated a rule banning the most common uses of asbestos in the United States.⁷² That rule was invalidated by the court, however, when we returned to court despite the fact that we have 100,000 page record and 10,000 studies about the health risks of asbestos. So, sometimes there is a very substantial burden of factual proof on the agency before it may regulate.

Many of the substantive standards of law in the United States are as precautionary as the standards in Europe. It is the procedural structure of judicial review within which these standards are embedded that makes it

70. For criticism of the criminal model when regulating chemicals, see Denison, *supra* note 46.

71. *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991).

72. *Asbestos: Manufacture, Importation, Processing, and Distribution in Commerce Prohibitions*, 54 Fed. Reg. 29, 460 (1989).

difficult to regulate on a precautionary basis in the United States.⁷³

2. Non-Expert Judicial Review of Scientific and Technical Decisions.

This is a complimentary problem that goes hand in hand with the previous one. It is a really strange feature of the American legal system that we create expert agencies and then we make their decisions subject to review by courts of general jurisdiction, as opposed to specialized administrative courts like the *Conseil d'Etat* in France or the National Academy of Sciences, or other specialized courts that we have in the United States. Most of our federal judges are former state court trial judges with no special training or experience with environmental issues.⁷⁴ Some courts, such as the D.C. Circuit, which reviews many rules of national consequence from EPA, do have judges who are experts in administrative law. But none of the current D.C. Circuit judges has a background in environmental law, or science.

There are many decisions by our Supreme Court attempting to restrain lower courts and attempting to impose principles of deference to agency expertise on them. A classic example is the 1983 *Baltimore Gas & Electric* case in the Supreme Court.⁷⁵ It enunciated the principle that “when examining agency determinations at the frontiers of science . . . a reviewing court must generally be at its most deferential.”⁷⁶ We have many principles in our law that review of decisions by administrative agency is supposed to be deferential. But deference is very difficult to enforce. Courts see an issue through the distorting prism of a single case (as opposed to a whole program, which is how the agency sees the issue).⁷⁷ It looks to the lay judge as if the agency has made a mistake, or even just that the judge can do something good for the environment. It is very difficult for a judge to resist the urge to use power to do what he or she thinks is right.⁷⁸

My mentor, Judge David Bazelon, who was on the D.C. Circuit for many years, a wise and caring man and probably one of the judges in American history who understood the relationship between law and science best, loved paraphrasing Socrates for the proposition that wisdom begins by knowing what one does not know.⁷⁹ It's very difficult to know what you do

73. Gail Charnley & E. Donald Elliott, *Risk Versus Precaution: Environmental Law and Public Health Protection*, 32 ENVTL. L. REP. 10363 (2002).

74. BUREAU OF INTERNATIONAL INFORMATION PROGRAMS, UNITED STATES DEPARTMENT OF STATE, OUTLINE OF THE U.S. LEGAL SYSTEM 140 (2008), available at <http://www.america.gov/st/usg-english/2008/May/20080522224217eafas0.5669672.html> (last visited Sept. 26, 2010); see also Russell Wheeler, *Changing Backgrounds of U.S. District Judges: Likely Causes and Possible Implications*, JUDICATURE, Jan.-Feb. 2010, at 140.

75. *Baltimore Gas & Electric Co. v. NRDC*, 462 U.S. 87 (1983).

76. *Id.* at 104.

77. R. S. MELNICK, REGULATION AND THE COURTS: THE CASE OF THE CLEAN AIR ACT (1983).

78. Cf. CHARLES BLACK, DECISION ACCORDING TO LAW: THE 1979 HOLMES LECTURES 17 (1981) (“many judges greatly like power, and eagerly use it.”).

79. Socrates, “I know nothing except the fact of my ignorance,” <http://www.quotationspage.com/quote/24175.html> (last visited Sept. 26, 2010).

not know. This is the great difficulties in counseling judges who are not scientifically literate, much less are not experts in the field, as to how they should evaluate whether the scientific evidence supports an agency decision. We have tried to address this problem in recent years with better training for judges, and a manual on scientific evidence for judges — both recommendations of the Carnegie Commission on Science, Technology and Government,⁸⁰ with which I worked as a consultant. But I feel we can still do better.

It is not easy to specify what the alternatives might be. A number of more expert instrumentalities for purposes of reviewing highly technical and scientific decision have been developed worldwide that we could study and emulate. I am not advocating that agency decisions should be unreviewable, but I think that they should be reviewed by people who are more knowledgeable about basic principles of scientific inference. Most judges and lawyers in the United States (including myself) have not even taken a basic college-level course in statistics, and yet they are deciding whether agencies have acted rationally when assessing complex scientific evidence. There are admittedly some advantages of courts of general jurisdiction. But I do favor more specialized courts for reviewing highly technical and scientific matters.

This is not only important to improve the quality of decisions, but also to re-define the culture of our regulatory agencies. Our regulatory process is too dominated by lawyers and not enough by scientists. As the late Georgetown University law professor Steven Goldberg aptly put it: “Regulatory agencies are regularly accused of being ‘captured’ by industry, consumer groups, members of Congress, or bureaucratic inertia. They are never accused, however, of being captured by scientists.”⁸¹ Bill Pedersen, another fine scholar and former EPA Deputy General Counsel, has made the point that the power of the reviewing courts feeds back into nature and culture of the agency; lawyers are powerful and even dominant inside our agencies at least in part because we use lawyers and lay courts to review agency decisions.⁸² By reducing the power and authority of lay judges to overturn agency decisions, we also reduce the relative power and influence of lawyers inside agencies.⁸³ At the margins, that would be a good thing. In my view, our agencies are too focused on politics and law, and not enough

80. CARNEGIE COMMISSION ON SCIENCE, TECHNOLOGY AND GOVERNMENT, RISK AND THE ENVIRONMENT: IMPROVING REGULATORY DECISION MAKING (1993).

81. Steven P. Goldberg, *The Reluctant Embrace: Law and Science in America*, 75 GEO. L.J. 1341, 1365 (1987).

82. William F. Pedersen, Jr., *Formal Records and Informal Rulemaking*, 85 YALE L.J. 38 (1975) (arguing that lawyers inside EPA derive power from the threat of reversal by the courts).

83. E. Donald Elliott, *Chevron Matters: How the Chevron Doctrine Re-defined the Roles of Congress, Courts and Agencies in Environmental Law*, 16 VILL. ENVTL. L.J. 1, 13 (2005).

on scientific expertise.

3. Substance-by-Substance Regulation. Another problem in U.S. environmental law is that we generally proceed chemical-by-chemical, substance-by-substance, medium-by-medium.⁸⁴ Ours is a very fragmented system with many separate laws relating to the environment; EPA lists 32 separate ones on its website,⁸⁵ and that does not consider the procedural ones, which are separate, or the many environmental laws administered by agencies other than EPA, such as the Department of Interior, and the Department of Energy, or the Forest Service (which is part of the Department of Agriculture).

To make matters worse, our courts have not allowed agencies to regulate based on categorical judgments by experts in a way that is very common throughout Europe and in many other countries. We have implicitly assimilated environmental regulations to the model of the criminal trial: is this chemical guilty or innocent, and has it had its fair day in court?⁸⁶ Because they think that a chemical (or its maker) is on trial and is entitled to due process, our courts have held that regulation must be based on individual chemical-by-chemical dossiers or “records.”

A good example of one of the difficulties of the substance-by-substance approach is a case called *AFL-CIO v. OSHA*.⁸⁷ That is an interesting title: AFL-CIO is the largest federation of industrial labor unions in the United States and OSHA, the Occupational Safety and Health Administration, is the federal government agency that regulates the workplace. In many countries around the world, labor unions have been a strong proponent for tightening workplace standards. And that is also true for some unions in the United States, but others, sometimes see tough regulatory standards as decreasing wages, so they sometimes sue to overturn them in court.

But the 11th Circuit decision in *AFL-CIO v. OSHA* in 1992 is right up there with *Corrosion Proof Fittings*, the asbestos case that I mentioned

84. In recent years, there have been some attempts to break out of this mold, through techniques such as “cluster rules” that group together into one consolidated rulemaking various proposed regulations under different statutes that all affect a single industry. For example, in 1998, for the first time EPA promulgated a “cluster rule” for the pulp and paper industry that included both air and water regulations on a consolidated basis, see National Emission Standards for Hazardous Air Pollutants for the Pulp and Paper Industry, 63 Fed. Reg. 18504 (Apr. 15, 1998). Another recent trend in the same direction is “one stop shopping” permits, which are issued by some of our states in which permits under various environmental statutes are issued on a consolidated basis. This is already common in the United Kingdom but is just beginning in the United States.

85. U.S. Environmental Protection Agency, Laws that We Administer, <http://www.epa.gov/lawsregs/laws/> (last visited Sept. 26, 2010).

86. Denison, *supra* note 46.

87. *AFL-CIO v. OSHA*, 965 F.2d 962 (11th Cir. 1992) (invalidating permissible exposure limits for 428 toxic substances for lack of sufficient “individual substance discussions” despite OSHA’s argument that it had managed to set only 24 substance-specific standards in its history and that “using past approaches . . . it would take decades to review currently used chemicals”).

before, as one of my nominees for the worst judicial decision relating to the environment in recent American history. Under the first Bush Administration (which was supposedly a conservative, moderate, pro-business Administration) OSHA set exposure standards for 428 chemical substances in the workplace. Now that compares with a total of only 24 standards that OSHA had been previously established in its twenty year history. They did that by essentially incorporating by reference the expert consensus standards that exist around the world. This is approach of relying upon expert judgment and consensus is very common in the European Union; it is called “comitology.”⁸⁸ But the U.S. courts reversed that and said “(in essence) no, OSHA has to review the facts and literature on each chemical on a case-by-case basis.” That they had to go through one-by-one and develop a factual record for each individual chemical. The agency was not permitted to act based on expert consensus.

This case exemplifies a very strong part of our legal culture. Where I think that we went wrong is that we have wrongly assimilated issues of chemical safety or pollution standards to questions of fact rather than questions of policy and judgment. Supreme Court decisions have said that the support underlying a regulation is a factual issue that must so we have to have a record with a factual claim and supported by evidence rather than experts making judgments on a science policy basis.⁸⁹

There is some hope that new techniques for high throughput testing of chemical pathways in human cell lines may eventually help us solve these problems.⁹⁰

4. Separate Media Programs. Media is what we call air, water, land. At our agencies, we divide things up so that we will have separate pollution standards, for water and air pollution standards. These programs do not always coordinate, and do not always see eye-to-eye.⁹¹ It is a very

88. Wikipedia, *Comitology*, <http://en.wikipedia.org/wiki/Comitology> (last visited Sept. 26, 2010) (“Global Village is a term closely associated with Marshall McLuhan”) (as of Sept. 30, 2010, 13:40 GMT).

89. See also Adam Babich, *Too Much Science in Environmental Law*, 28 COLUM. J. ENVTL. L. 119 (2003).

90. COMMITTEE ON TOXICITY TESTING AND ASSESSMENT OF ENVIRONMENTAL AGENTS, NATIONAL RESEARCH COUNCIL, *TOXICITY TESTING IN THE TWENTY-FIRST CENTURY: A VISION AND A STRATEGY* (2007). For a brief accessible summary, see The National Academy of Sciences, Report in Brief: Toxicity Testing in the 21st Century: A Vision and Strategy, http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/Toxicity_Testing_final.pdf (last visited Sept. 10, 2010) (“The report envisions a new toxicity-testing system that relies mainly on understanding “toxicity pathways”—the cellular response pathways that can result in adverse health effects when sufficiently perturbed. Such a system would evaluate biologically significant alterations without relying on studies of whole animals.”); see also Bret C. Cohen et al., *Toxicity Testing in the 21st Century: Better Results, Less Use of Animals*, ENVIL. F., Mar.-Apr. 2008, at 46.

91. EPA’s “cluster regulations” serve as a limited attempt to overcome this problem, see Elliott, *supra* note 83.

inefficient way to regulate.

5. Defining Goals. We have not done a very good job of defining the goals of our environmental protection programs. That is in part because we developed them prior to the 1987 Brundtland Commission⁹² and the 1992 Rio Treaty⁹³ popularized the concept of “sustainable development.” I have written articles,⁹⁴ and even spoken by invitation to the EPA, about trying to coordinate the goals of environmental protection in the United States with the idea of sustainable development worldwide. But instead, we have high sounding but essentially meaningless phrases like “protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare and the productive capacity of its population.”⁹⁵

Some feel that statements of goals in our environmental statutes are essentially meaningless.⁹⁶ But I think they are a wasted opportunity. Many businesses and other organizations have found it useful to develop “mission statements,” as a way of defining what they are about and getting everyone coordinated and clear as to the shared objective. I found this to be a very useful technique when I was General Counsel of EPA, and we went through the process of dialogue to develop a mission statement for the office. That helped us to clarify what our role was vis-à-vis other offices. Similarly, for reasons that I have argued in detail elsewhere and will not repeat here, I think that it would be useful to make “sustainable development” the lodestar for our environmental statutes.

GENERAL DISCUSSIONS AND RESPONSE

Question (Robin J. Winkler, Attorney, Winkler Partners):

I am wondering if you could talk more about the accessibility to information by the public and people who get involved in a lawsuit; that is, the accessibility to verifiable reported facility standards. Thank you.

92. World Commission On Env't & Dev. [The Brundtland Commission], *Report of the World Commission on Environment and Development: Our Common Future*, U.N. Doc. A/42/427 (Apr. 20, 1987) (known as the “Brundtland Commission Report”).

93. Convention on Biological Diversity, *opened for signature* June 5, 1992, 1760 U.N.T.S. 79 (entered into force Dec. 29, 1993).

94. E. Donald Elliott & Mohamed Tarifi, *Integrating Sustainable Development into U.S. Law and Business*, 33 ENVTL. L. REP. 10170 (2003).

95. Clean Air Act, 42 U.S.C. § 7401b-1 (1990).

96. DONALD WORSTER, *THE WEALTH OF NATURE: ENVIRONMENTAL HISTORY AND THE ECOLOGICAL IMAGINATION* 142-55 (1993).

Professor E. Donald Elliott:

All of our environmental statutes provide that this type of information about releases of pollution have to be reported to regulatory agencies; they also provide that it cannot be claimed to be a secret, or unavailable. By law, it is made available to anyone who wants it.

We also have a very successful program called the Toxics Release Inventory that requires companies to report and make available information to the public regarding their releases of pollution to the environment.⁹⁷ This “TRI” program has been a success in encouraging companies to reduce their pollution. Some scholars attribute this success to reputational concerns or the “shaming” function.⁹⁸ EPA Assistant Administrator for Air and Radiation, Gina McCarthy, who has taken part in this program, said recently that EPA’s new Greenhouse Gas Reporting rule will do more than merely get information; after the information has been made available to the public, there will be pressure on the companies to reduce their Greenhouse Gas emissions, just as the Toxic Release Inventory has done for other pollutants. It is a demonstration of how information can be used as regulatory technique in environmental programs,⁹⁹ as has been done for many years in our Securities Laws.¹⁰⁰

As to the process for setting facility standards, it is generally done through the so-called *Cooperative Federalism System*.¹⁰¹ First, the federal government sets the standards at a general level; then each individual state is obliged to produce its own comprehensive plans to meet the federal targets. It is very similar in some way to the process in the European Union, which is called the *Concept of Subsidiarity*.¹⁰² The EU issues a directive to pose an obligation on member states to pass through their own legislations. The actual standards taken can vary on a state-by-state basis, but there also exists certain typical rule-setting processes; that is, the so-called informal

97. U.S. Environmental Protection Agency, Toxics Release Inventory Program, <http://www.epa.gov/tri/> (last visited Sept. 26, 2010).

98. Mary Graham, *Regulation by Shaming*, THE ATLANTIC MONTHLY, Apr. 2000, at 36, available at <http://www.theatlantic.com/past/docs/issues/2000/04/graham.htm> (last visited Sept. 26, 2010).

99. Bradley C. Karkkainen, *Information as Environmental Regulation: TRI and Performance Benchmarking, Precursor to a New Paradigm?*, 89 GEO. L.J. 257 (2001) (arguing that “TRI is a watershed, pioneering the systematic use of performance monitoring and benchmarking”).

100. See generally David A. Skeel, Jr., *Shaming in Corporate Law*, 149 U. PA. L. REV. 1811 (2001).

101. E.g. Sarah E. Leatherwood, *States Take the Wheel—Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie Gives States a Chance to Choose the Direction of Their Automobile Emissions Regulation*, 61 OKLA. L. REV. 669, 687 (2008) (providing a successful example of Automobile Air Pollution Regulation in the Cooperative Federalism System).

102. Paul D. Marquardt, *Subsidiarity and Sovereignty in the European Union*, 18 FORDHAM INT’L L.J. 616 (1994) (examining the application and compatibility of the principle of subsidiarity to the European Community).

rule-making processes. The localities are certainly free to regulate more stringently than what federal law requires, but not less, for the EPA would review again whether the state laws are of adequate compliance with the federal standard.

Robin J. Winkler (Attorney, Winkler Partners):

In my personal experience as a participant in the Environmental Impact Assessment Commission of the EPA in Taiwan for two years, and an environmental NGO, we have difficulties to obtain complete and accurate information from the Taiwan EPA concerning their permits; some are even basic data. I am curious that in the United States, if companies do not report relevant information on their proceedings, how the information could be made available to the public.

Professor E. Donald Elliott:

This is absolutely not a problem in the United States, as far as I know. The obligation to report is a separate legal obligation with legal effects such as fines and penalties, if anyone fails to comply. For example, when a person goes into a local environmental agency to ask to see the discharge monitoring reports from a certain company, and the agency cannot provide it, because the company has not yet made its report; then the person can sue the company that failed to report because they violated the law. The citizen is not dependent on the local agency, but can sue the violator directly.

In addition, the 1990 Amendments of Clean Air Act has made it a criminal offence for *a designated person* at a company, who fails to report or reports falsely.¹⁰³ In order to make the law enforceable we had to *personalize* it; that is, the designated person at a company, usually the plant manager, is responsible personally for reporting and is subject to criminal sanctions for his/her failure to conform with the law. This approach was adopted by analogy to our income tax form reporting laws. In the United States when a tax form is signed, whether it was properly understood or not, the signer has the obligation to assure its correctness.

In the occasional instances of dishonesty, where people falsify their reports, they are taken seriously by both political parties and brought as criminal cases and people are sent to jail.¹⁰⁴

103. Clean Air Act, 42 U.S.C. § 7413c (1990).

104. *See, e.g.*, Department of Justice, Former Oklahoma Official Sentenced for Concealing Violations of Safe Drinking Water Act, <http://www.justice.gov/opa/pr/2009/September/09-enrd-1032.html> (last visited Sept. 26, 2010).

Question: Could you talk more about the opt-in provisions?

Professor E. Donald Elliott:

Initially, our Acid Rain Trading Program only required “electric generating units” (powerplants) to reduce their emissions of sulfur dioxide (SO₂) pollution.¹⁰⁵ However, other sources, like smelters, also produce the same pollution, but could potentially control their emission much more cost-effectively. I wanted to include certain industrial resources under the system at first, but what was decided instead was to allow the owners of individual industrial facilities to “choose” to come under the program—the so-called opt-in system.¹⁰⁶ They would come into the system if they could reduce their pollution cheaply and sell allowances to others. Some of them could make money by reducing their pollution. When those industry owners, who manage to control pollution more cheaply, choose to enter the trading system, that reduces the cost overall of meeting the system-wide cap. Instead of regulating solely with force and threats, the government can also provide positive incentives in terms of financial rewards. If an industry creates a new, less expensive way to control pollution development and consents to opt into the system, it can use that technology to obtain allowances that it can sell to others to offset their pollution. A company with better method of controlling SO₂ pollution than other electric utilities can enter into a private contract, selling its allowances, or rights, to the other electric utilities. The whole community still achieve the same amount of pollution control overall.

To conclude, two benefits can be derived from such a program. First is lower cost for pollution reduction and second is a dynamic technology-improving incentive on a consensual basis.

Question (Robin J. Winkler, Attorney, Winkler Partners):

In the United States, when the scope of environmental law enforcements is so vast that a small number of people working in the EPA are hardly able to carry them out effectively, citizens’ participation helps hold up the system. If this understanding is correct, then, what is the general attitude of EPA towards citizen suits in the United States? How do they view environmental groups, for example Earth Justice and Earth Rights, which

105. The overall goal of the Acid Rain Program is to achieve significant environmental and public health benefits through reductions in emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x)—the primary causes of acid rain. The task of the program and its related information could be found at its website: Acid Rain Program, <http://www.epa.gov/airmarkt/progsregs/arp/index.html> (last visited Sept. 26, 2010).

106. Opting into the Acid Rain Program, 60 C.F.R. 17100 (Apr. 4, 1995).

bring suits against the leaders, or against the EPA in order to force them to take actions?

Professor E. Donald Elliott:

It is difficult to speak for the EPA as a whole, but I think in general they would welcome these groups as friends. This is also true of court decision forcing the agency to take action. A common problem in government is avoiding or deferring a controversial decision “for further study.”

Most people who work for EPA, and most environmentalists share common values and believe strongly in protecting the environment. EPA officials, however, as part of the government, can sometimes find their goal to protect the environment gets traded off or compromised with other goals and social values. Therefore, a suit or court decision imposing obligations on the government to obey the law, more often than not, is welcomed and considered positive by EPA. They are often happy, even though they “lost” the case, because it makes them do what they really wanted to do anyway.

Professor Jiunn-rong Yeh:

Following what professor Elliot said about “global context,” the adoption of environmental standing in citizen suits in Taiwan is another interesting example. The reason why Taiwan’s EPA was able to agree upon introducing that system involves some sort of institutional context behind the scene. In the area of environmental law enforcement, there has always been a conflict between the national government and local governments. In Taiwan, it is up to local governments to actually enforce environmental laws. However in some occasions, a local government drags their feet because of some political concerns, which seems unacceptable to the national EPA. Citizen groups preparing to sue the local government may come in handy in these situations, thus welcomed by the national EPA.

Professor E. Donald Elliott:

Typically, an environmental standard in the United States is enforceable in three ways: by the federal government, by state governments, and by citizen suits in courts. This reflects the characteristic American suspicion of government. We do not believe that governments can always be counted on to do the right things, so we need multiple mechanisms to make sure that laws are enforced. Very similar to the situation in Taiwan that some state agencies in the United States are perceived to be under political pressure from locally powerful political forces, so sometimes states prefer the federal

EPA to enforce the rules. In cases where neither the federal EPA nor the states are going to enforce the rules, then citizen suits by environmental groups can be counted on to enforce the law.

Question: In civil-law countries, before any citizen can bring a case against the government in a court, he has to go through an administrative appeal procedure; whereas in the United States, there must be exhaustion of administrative remedies. Does such an appeal system exist in the United States? Do you think such existence good or bad?

Professor E. Donald Elliott:

The principle of exhaustion of administrative remedies at the federal level came from judge-made law. There is no requirement for exhaustion of administrative remedies under the federal Administrative Procedure Act unless required by some other statute or rule,¹⁰⁷ but there is an explicit requirement for exhaustion of administrative remedies under the model state administrative procedure act.¹⁰⁸ However, in terms of citizen-suit, a very brief mechanism of *giving notice*, in lieu of exhaustion of administrative remedies, can be found in most environmental statutes.¹⁰⁹ In the enforcement type of citizen suits, before a person can bring a lawsuit, they must give advance notice to the interested party such as the polluter who is violating the law. This gives them one last chance to acknowledge and correct their mistakes and get into compliance. This procedure of giving notice that a lawsuit is soon to follow often makes it unnecessary to go through court proceedings. On receiving a notice letter, the polluter knows that a lawsuit is likely to follow within 30 or 60 days, so they often decide to correct their failures and get into compliance in order to make the lawsuit unnecessary.

Question: In Taiwan and the United States, citizen suit clauses are provided in separate different environmental laws. In Taiwan, when several citizens tried to save some historical buildings, they failed, because there is no

107. *Darby v. Cisneros*, 509 U.S. 137 (1993) (“Federal courts do not have the authority to require a plaintiff to exhaust available administrative remedies before seeking judicial review under the APA, where neither the relevant statute nor agency rules specifically mandate exhaustion as a prerequisite to judicial review.”); *see generally* Raoul Berger, *Exhaustion of Administrative Remedies*, 48 *YALE L.J.* 981 (1938).

108. Model State Administrative Procedure Act § 5-107 (1981) (“A person may file a petition for judicial review under this Act only after exhausting all administrative remedies available with the agency [...]”).

109. *See generally* Michael S. Greve, *The Private Enforcement of Environmental Law*, 65 *TUL. L. REV.* 339, 351-66 (1990).

citizen suit clause in our Cultural Heritage Preservation Act.¹¹⁰ My question is whether it is possible in the future that the citizen suit clause will also be adopted in other areas of law.

Professor E. Donald Elliott:

Section 553e of Administrative Procedure Act,¹¹¹ which was adopted in 1946, is a good reference here. This provision allows any interested person to petition to a government agency to *make a rule*. If the government agency turns it down or fails to act within a reasonable period of time, the petitioner can go to court and sue. Here, both “a government’s decision to act” and “not to act” are made subject to judicial review. And this general provision in administrative law extends beyond environmental issues.

Another more complicated provision concerning enforcement is called “*qui-tam*,” which was originally from old common law and later codified in a statute.¹¹² Any practice by a company, which results in short-changing, or not giving government the full benefit, can be subject to a third-party’s action to recover the government’s loss, and the third-party is able to get a portion of recovery from the suit.

Question (Robin J. Winkler, Attorney, Winkler Partners):

Could you talk more about the “standing” you mentioned earlier, as well as the concept of “interested parties”? Is it true that most of the environmental laws are not enforced, unless citizens have initiated a suit?

Professor E. Donald Elliott:

No. There are actually different kinds of enforcement, and we use the word “enforcement” in an ambiguous way in English. Enforcement can refer both to forcing companies to comply with pollution standards, as well as making the EPA promulgate a new rule upon a line that is required by the Congress. Both kinds can trigger citizen suits. There is an abundance of citizen suits about enforcement, but also a great deal of enforcement by both federal and state agencies as well.

With regard to the concept of standing and “interested parties,” which is very complicated, there are two dimensions: statutory and constitutional. When environmental laws were drafted in the 1970s, according to the statutes, Congress allowed virtually anyone to sue. However, in the 1980s,

110. Wenhua Tzuchan Paotsunfa [Cultural Heritage Preservation Act] (2005) (Taiwan).

111. Administrative Procedure Act, 5 U.S.C. § 553e (1946).

112. False Claims Act, 31 U.S.C. § 3730d (1994).

the Supreme Court said that constitutionally Congress could not give citizens rights to sue unless they met certain limited standards on a constitutional level. A recent case decided by the Supreme Court, *Friends of the Earth v. Laidlaw*,¹¹³ applies the constitutional standard in the context of environmental law. It is basically regarded as a liberal opinion written by Justice Ginsburg and it essentially provides that anybody claiming to use the resource only needs to prove his/her concern due to an environmental violation. It is distinguished from a case decided a few years earlier, where some people tried to sue about the Endangered Species Act in order to protect tigers in India.¹¹⁴ These people never lived in India, but they claimed that they might at some point in the future go to India and visit the tigers, but the court held the chain of causation was too long. That is usually not an issue for the enforcement of environmental standards. It is also important to know that the standing requirement only applies to the ability to go to court, but not to government agencies.

Question: Citizen suits rely very much on a strong civil society and it takes a lot of resources to bring a case before the court. If we do not have a strong civil society or nongovernment organizations (NGOs), do you think it is appropriate for the government to support a citizen suit system?

Professor E. Donald Elliott:

The strong civil society of environmental groups in the United States was created rather explicitly by Senator Edmund Muskie, who was the main author of most of our environmental laws. Muskie explicitly intended to create incentives and roles for environmental groups in the statutes, and their success is a good example that in designing statutes we should create a role that private actors can play under these statutes. By creating the roles of those groups under the statutes, we created something important for groups to do, and thereby they became more powerful and able to attract more members to do even more. Creating an institutional structure, in which there is something important for private groups to do, is a way to develop powerful environmental groups.

Question (Cheng-Yi Huang, Assistant Research Professor, Academia Sinica):

Here let me cast some doubts on the best side of quantitative risk

113. *Friends of the Earth v. Laidlaw Environmental Services*, 528 U.S. 167 (2000).

114. *Lujan v. Defender of Wildlife*, 504 U.S. 555 (1992).

assessment. Among all of the existing attacks on cost-benefit analysis, one of them is from your colleague at Yale Law School, Dan M. Kahan, who proposed a cultural cognitive approach to risk assessment.¹¹⁵ But what he proposed also brings up a very difficult problem particularly on economic cost-and-benefit analysis. I wonder if you could comment on those tests built on cost-benefit analysis and what alternatives we could have.

Professor E. Donald Elliott:

It is a great question. In the United States, we have both liability and regulatory systems. The notion is that when we are observing a problem, it is better to see it from two different directions than only from one. There is a huge literature telling us how intuitive human decisions do not work out very well sometimes. Risk assessment can be regarded as a compensation for that, especially for the kinds of fears that Cass Sunstein has also discussed.¹¹⁶

Many civil jury cases are decided based upon Kahan's intuitive sense of decision-making and might be considered to be wrong in terms of cost-benefit analysis, or quantitative risk assessment.

I do not favor one to the exclusion of the other. Instead, I favor maintaining both, because they complement one another. Our system has quantitative risk assessment and instrumental rationality through government regulatory and administrative decision making. It is enhanced by also having more intuitive jury-based or community-based approach of decision-making.

Question: According to a very interesting article published on The New Republic, the author reviewed the number of non-expert administrators nominated into George W. Bush administration. When a risk assessment, which relies on scientific findings or statistic analysis, was brought in a case before a court, we always worry about the judges as non-experts to review the experts' decisions. However, when the regulators or the administrators are also non-experts, does it help a judge to review the case, or decide a policy?

Professor E. Donald Elliott:

I do not agree with the idea that courts should automatically defer to political appointees on grounds of scientific expertise.¹¹⁷ The most

115. Dan M. Kahan et al., Book Review, *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 HARV. L. REV. 1071 (2006).

116. See generally CASS R. SUNSTEIN, LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE (2005).

117. E. Donald Elliott, *Strengthening Science's Voice at EPA*, 66 LAW & CONTEMP. PROBS. 45,

important thing is obviously to get *good people* into the government. It is virtually impossible to design a system, which is able to function well, without good, highly motivated, intelligent people. But I agree with you that courts should not be deferring to non-experts on grounds of scientific expertise. To fix this problem, I have proposed that the opinions by the scientist advisors inside agencies should become part of the record for judicial review.¹¹⁸ Thus when the administration does not want to follow the recommendations by the scientists, it has to explain why not.

Question: Speaking of science reports being subject to judicial review, I think in Taiwan's environmental law practice, we would face at least two problems of that. One is a technical one, resulting from the court's lack of scientific knowledge and support; the other is whether any legal basis exists for the court to do so.

Professor E. Donald Elliott:

The core problem underlying this issue came when the Supreme Court decided the Benzene case in 1980 and assimilated questions of scientific support for regulations to questions of fact rather than judgments about policy.¹¹⁹ We need a more realistic appraisal of how far science can really answer these questions. Science is helpful to frame the issues, but it rarely fully answers the questions that a regulator faces, so some element of a policy judgment is also necessary.¹²⁰

Question (Hsin-Tien Chen, College of Law, National Taiwan University):

According to a few articles I have read, some scholars mentioned that there are some climate change litigations emerging and many of them were at state courts while a few were in federal circuit courts. In the United States, especially on climate change issue, does state government have the chance to take precedence to regulate or to form strategies to control the situations? Or do they take the initiative and make certain influence on the federal government's decision to act?

51 (2003) ("It seems bizarre that courts must defer to an EPA decision based on the Agency's alleged scientific 'expertise' if all the scientists at the Agency opposed the decision on the science but were overruled by the politicians.").

118. *Id.*

119. *Indus. Union Dept. v. Amer. Petrol. Inst.*, 448 U.S. 607 (1980).

120. *Charnley & Elliott*, *supra* note 73, at 10363-10364 ("By overemphasizing the factual component of risk assessment, U.S. appellate courts misunderstand the nature of risk assessment and undervalue expert judgment and policy considerations.").

Professor E. Donald Elliott:

This is a very good point. About half of our states have already taken action on climate change, usually through trading systems. Many of the federal bills pending in Congress would “preempt” or replace state actions. In an article, which Bruce Ackerman, John Millian and I wrote in 1985,¹²¹ we argued that there are many industries that sell products in many different states that need federal legislation to set uniform standards; they actually prefer to federal legislation to clarify the standards.¹²² Jody Freeman, who was then a climate advisor at the White House and is now back to her professorship at Harvard Law School, once said that something similar is happening with climate change: the process of state regulation and regulation through court decisions will eventually cause industries to prefer a trading system at the federal level. But I think it is going to take longer than many people think because of the current economic conditions in the United States, which is unfavorable to major new environmental initiatives.

Question: Climate change is not only a scientific, but also a political and economical issue. Since Taiwan did not have the opportunity to sign the Kyoto Protocol and play a role on the global stage, to avoid being excluded from this global participation, do you have any suggestions for Taiwan to come up to face or participate in this climate change framework?

Professor E. Donald Elliott:

Despite the formal status of Taiwan in the international community, which is a very difficult topic, I think Taiwan plays a very important regional role in Asia. Taiwan is able to exercise moral leadership in the same way that Europeans do. Taiwan could join the Copenhagen Accord on its own initiative and simply announce its intent to comply with the Accord.¹²³ We should not confuse the formal question on the status of Taiwan with the question of Taiwan participating in developing an international environmental consensus.

121. E. Donald Elliott, Bruce A. Ackerman & John C. Millian, *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, 1 J.L. ECON. & ORG. 313 (1985).

122. *Id.* at 330.

123. See Taiwan Initiates Nationally Appropriate Mitigation Actions, http://unfccc.epa.gov.tw/unfccc/english/_uploads/20100901/B5-NAMAs_en.pdf (last visited Sept. 26, 2010) (“An official letter to the UNFCCC Secretariat signed by Dr. Stephen Shu-Hung Shen, Minister of Taiwan EPA explicitly indicated Taiwan’s support of the Copenhagen Accord with a voluntary commitment to the target of at least 30% reduction based on business-as-usual (BAU) of the total GHG emission volume by 2020.”). More than 100 countries have joined the Copenhagen Accord, see John M. Broder, *China and India Join Climate Accord*, N.Y. TIMES, Mar. 10, 2010, <http://www.nytimes.com/2010/03/10/world/10/climate.html> (last visited Sept. 26, 2010).

Question (Chun-Yuen Lin, College of Law, National Taiwan University):

My question is about the interaction between international law and American environmental law, especially on the occasion of climate change. Since international treaties are also making regulations on those issues, do you think this global development is actually affecting the formation of the type of American environmental law with regard to climate change? Or, is it the other way around that American environmental law may make contributions to the international environmental law?

Professor E. Donald Elliott:

What is taking place now is that we are really forming a truly global environmental law for the first time. One of the difficulties we are facing is the various legal cultures in different countries. For example, it is commonly held in the United States that China is doing nothing about climate change, but I came to realize that is a misunderstanding after I became involved with environmental policies in China and learned that China is actually doing quite a lot.¹²⁴ They are simply doing it in a different way because they have a different legal system, which is not fully recognized or understood by some people other countries. If China has a major five-year plan to increase energy efficiency and reduce the CO₂ impact each year, which is not a typical American cap-and-trade or a regulatory system, so people in the United States do not necessarily recognize it. It is similar that when we are reducing CO₂ emission by means other than federal or state legislation, people say we are “doing nothing.”

Right now we are in an interesting stage, where every country does fairly well in terms of what it has defined as “the environment” in terms of its values and culture. For example, we might think of India as a terribly polluted country, but one time one of my colleagues, who came from India, told me that India had the best environmental practice than any other country in the world, since they had the lowest energy consumption and lowest green house gas production per unit of production of any other country in the world.¹²⁵ By that measure, India had done better than anyone else. Different countries have different cultural backgrounds behind the ways they deal with environmental issues, and they also define the essence of environment in different ways. I think we are now at a stage, where we are only beginning to

124. Dongsheng Zang, *From Environment to Energy: China's Reconceptualization of Climate Change*, 27 WIS. INT'L L.J. 543 (2009).

125. Keren Priyadarshini & Omprakash K. Gupta, *Compliance to Environmental Regulations: The Indian Context*, 2 INT'L J. BUS. & ECON. 9 (2003) (discussing how the companies in India comply with the environmental regulations).

be able to talk past these cultural barriers.

Professor Jiunn-rong Yeh:

Thank you very much for your interesting speech, Professor Elliott, and thank you too for all those stimulating remarks. Those who had the privilege to join all three lectures that Professor Elliot was able to deliver, as I did, must have realized that the reason for Professor Elliott's great influence in this field as an environmental law professor and expert, was his ability to master not only environmental law doctrines, but the knowledge in administrative law, regulatory policy theories, science, and even the most basic understanding of legal culture and jurisprudence. From these three lectures, we see a holistic and a broad view about law, instead of a very narrow construction of legal dogmatic understandings. This is a very important role model to Taiwan, both in terms of legal education and legal practice. We have too many lawyers devoted themselves in the field of traditional property or liability suits, but we are actually in greater need of environmental lawyers with the same as what Professor Elliott has shown us today, or even more, strong basis of knowledge to lead greater influence. Take the case of Taitung Beautiful Bay for example.¹²⁶ After years of silence, some of our friends and lawyers finally made a breakthrough by bringing the case to the court and they made the best use of citizen suit clause. Their victory is enough to be ranked the most exciting development in Taiwan about environmental law in recent years. And their influence is also spreading to other issues. In all of these areas of environmental law, it is a challenge as well as an opportunity for us to come forward with better than ever legal inventions.

126. Gaoshiung Gaodeng Shingjeng Fayuan [Gaoshiung Admin. High Ct.], 96 Su No. 647 (2008) (Taiwan); Jiunn-rong Yeh, Tsung Kungmin Susung tao Huanching Fayuen: Huanching Kungmin Susung yu Taiwan te Shihchien yu Chientao [From Citizen Suits to Environmental Court: The Practice and Reflections on the Environmental Citizen Suits in Taiwan] 25 (Dec. 6, 2008) (unpublished article, on file with College of Law, National Taiwan University).

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