Unfortunately, our system of public environmental enforcement is more fragile and overwhelmed than most people realize. Annual enforcement accomplishment reports praise government’s effectiveness in enforcing the law. But, there is less than meets the eye to claims that the law is being effectively enforced. Despite the many enforcement success stories reported by the government, the number of violations overwhelm the enforcement capacity of both the federal and state governments.

―David R. Hodas*  
What’s it to you?  
―Antonin Scalia**

If regulation is to achieve its goals, it must induce compliance. Thus it is critical that the environmental laws include enforcement provisions that create incentives for compliance. While the environmental statutes provide broad enforcement authorities, compliance problems have been widespread. A survey of corporate counsel found that two-thirds admitted that their companies recently had violated the environmental laws. Lavelle, Environmental Vise: Law, Compliance, Nat’l L.J., Aug. 30, 1993, at S1. Most of the lawyers surveyed asserted that it was not possible to achieve full compliance with the environmental laws because of their cost, complexity, or the uncertainty that surrounds how they are interpreted. Yet virtually all believed that environmental regulation is becoming more stringent throughout the world, and nearly 70 percent agreed that greater attention to environmental concerns would enhance the long-term profitability of their companies.

Many factors contribute to environmental enforcement problems. The vast number and diversity of regulatory targets make compliance monitoring difficult. Often, regulations are poorly designed from an enforcement perspective. Some judges still view regulatory violations as technical matters if they do not clearly cause substantial harm. Enforcement resources are limited and the procedural protections afforded defendants increase with the stringency of potential penalties. When government agencies, which have included some of the most notorious polluters, break the environmental laws, they often do not face credible enforcement sanctions.

This chapter explores how environmental laws are enforced by governmental authorities and citizens. It begins by focusing on how compliance with

environmental regulations is monitored and the controversy over policies providing incentives to encourage voluntary self-audits. The chapter then explores criminal enforcement of the environmental laws and the debate over what *mens rea* is required before criminal sanctions can be imposed on violators. Standing and citizen access to the courts is discussed next, followed by a discussion of the role of citizen suits in enforcing the laws. The chapter concludes by focusing on problems that arise when enforcement actions are brought against government agencies.

A. MONITORING AND DETECTING VIOLATIONS

Serious enforcement difficulties can be avoided if regulatory programs are designed to facilitate compliance monitoring. Establishing objective means for measuring and monitoring compliance can be enormously difficult given the vast number, variety, and complexity of pollutants and dischargers subject to environmental regulation. The Clean Water Act regulates more than 350,000 point sources discharging hundreds of different pollutants. Yet the Act’s permit provisions have become a model for other enforcement programs, including the Clean Air Act’s new national permit program. Permits embody a written record of the controls applicable to each source that can be compared with the results of monitoring to determine if violations have occurred.

Determining whether or not a discharger is in compliance with permit limits is not as easy as one might think. Inspectors cannot simply walk into any plant, insert “some perfectly accurate meter into the waste-water or smoke stack emission stream,” and obtain “a constant rate-of-discharge result that could be expressed equally well in any time unit, from per second to per year.” C. Russell, W. Harrington & W. Vaughan, Enforcing Pollution Control Laws 10 (1986). Inspectors first have to gain access to a plant, which usually involves announcing inspections in advance, giving the plant operator an opportunity to conceal violations. Sampling is costly and time-consuming and may yield results with large margins of error.

Even when the source is trying to comply with the permit terms it will have fluctuating discharges. These fluctuations may have both periodic elements due to production patterns, boiler soot-blowing, or other routine causes as well as random components ultimately traceable to human or machine failure, fluctuations in ambient conditions such as temperature, or random startup and shutdown decisions. Thus, the stream being measured is not constant, and measurements at one time can be applied only to broader compliance questions through statistical inference with associated probabilities of errors of two types—that a violation will be found where none exists or that true violations will be missed. To further complicate matters, the measurement instruments have their own errors that must be accounted for in the inference procedure. The perfect instrument does not exist. [Id.]

Faced with these difficulties, environmental enforcement authorities rely heavily on self-monitoring and self-reporting requirements to detect violations. The pollution control statutes generally authorize EPA to impose monitoring, recordkeeping, and reporting requirements (e.g., CWA §308(a)(A), CAA §114) on dischargers. Under the Clean Water Act, dischargers of water pollutants are...
required to monitor their discharges on a regular basis and to file discharge monitoring reports (DMRs) that are available to the public. When self-reported violations are included in DMRs, it is relatively easy for regulatory authorities or citizen groups to bring successful enforcement actions. Recognizing the danger that sources will not report adverse monitoring data truthfully, regulatory authorities prosecute reporting violations with vigor. When false reporting or tampering with monitoring data has been discovered, criminal prosecutions often follow. To make it possible to uncover false reports, the environmental laws generally give enforcement officials the right to conduct inspections. However, EPA needs a warrant before it can inspect a business without the consent of the owner. Marshall v. Barlow’s, Inc., 436 U.S. 307 (1978).

Although it is not widely known, most of the major federal environmental statutes have provisions that protect employees who report violations by their employers. These provisions prohibit an employer from discharging or discriminating against any employee who reports environmental violations (e.g., CWA §§507, CAA §322, OSHA §660(c), RCRA §7001, CERCLA §110, SDWA §1450(i), TSCA §23). Regulations implementing these statutes appear at 29 C.F.R. §§24.1 et seq. Whistle-blowers may seek a hearing before an administrative law judge in the Department of Labor who may award them back pay, reinstatement, or other relief, subject to judicial review and civil judicial enforcement. These provisions have not been used extensively. Robert Devore of the Department of Labor reported that between 1983 and 1991, 490 whistle-blower complaints were heard by the Department; 92 employees won judgments, which totaled $822,900. Most cases involved the provisions of section 210 of the Energy Reorganization Act, which protects workers at nuclear power plants.

When it amended the Clean Air Act in 1990, Congress sought to help enforcement authorities acquire evidence of violations by adding a bounty provision in section 113(f) of the Act. This authorizes EPA to pay a reward of up to $10,000 to anyone who provides information that leads to a criminal conviction or civil penalty under the Act. Bounty provisions also are included in CERCLA section 109(d) and the Act to Prevent Pollution from Ships. The latter generated a $250,000 reward for tourists on a cruise ship who videotaped the ship’s illegal waste disposal at sea, resulting in a $500,000 fine against the Princess Cruise Line.

In the 1990 Clean Air Act Amendments, Congress also sought to make it procedurally much easier to enforce the requirements of the Act. The original Clean Air Act had made it very difficult to prove violations. Prosecutors had to show that an individual source had acted in a manner that violated the applicable state implementation plan (SIP), which was very difficult, particularly since it was hard even to identify what SIP requirements were applicable to a specific source. To correct this problem, the 1990 Amendments established a federal operating permit system in Title V of the Clean Air Act, modeled in part on the Clean Water Act’s NPDES permit program.

To make it easier to enforce the new Title V permits, Congress required major sources of air pollution to improve their emissions monitoring and reporting. To improve monitoring, utilities subject to Title IV of the Clean Air Act must install continuous emissions monitoring systems or their equivalent. CAA §412(a), 42 U.S.C. §7651k(a). Tampering with monitoring equipment may result in criminal prosecutions when detected. See, e.g., Schneider, Coal Company Admits Safety Test Fraud, N.Y. Times, Jan. 19, 1991, at A14 (since 1980, six mining companies have been convicted for tampering with devices that monitor
levels of coal dust in mines). Congress has directed EPA in section 412(d) of the Clean Air Act to issue regulations specifying the consequences of breakdowns in monitoring equipment. To provide an incentive for utilities to keep monitors operating properly (and to prevent them from turning off monitors to conceal high levels of emissions), EPA adopted a rule that assumes that emissions are at a higher level “the longer the gap in recorded data and/or the lower the annual monitor availability. . . .” 58 Fed. Reg. 3,590, 3,635 (1993). Maximum emissions levels are assumed for any outage from a continuous emissions monitor (CEM) that has not achieved at least 90 percent availability in the prior year, while average values are assumed for outages of less than 24 hours from CEMs that have been available more than 95 percent of the time.

Enforcement officials recognize that even effective emissions monitoring will not guarantee full compliance with all environmental regulations. Given the large number of entities subject to regulation, the diversity of the regulated community, and limited government enforcement resources, efforts to promote voluntary compliance are essential. Thus, enforcement officials are encouraging firms to perform voluntary self-audits to discover and correct environmental violations.

In response to concerns that self-audits could generate information that would make it easier to prosecute companies, several states have enacted laws making the results of such audits privileged information. In July 1993, Oregon became the first state to adopt a law creating a qualified “environmental self-audit privilege.” The law provides that environmental audits will be protected from disclosure in criminal prosecutions if violations discovered in the audit are promptly corrected, unless the privilege is asserted for a fraudulent purpose or the prosecution can establish a compelling need for the information. By April 1996, 18 states had enacted audit privilege statutes. Cushman, Many States Give Polluting Firms New Protections, N.Y. Times, Apr. 7, 1996, at A1. The state laws have followed two principal models: (1) the “privilege-only” model, adopted in Oregon and five other states, which bars environmental audits and related documents from being used as evidence in civil or criminal proceedings, and (2) the “privilege and immunity” model, adopted in Colorado and 11 other states, which provides immunity from any type of penalty in addition to making the audit privileged. Van Cleve & Holman, Promise and Reality in the Enforcement of the Amended Clean Air Act—Part II: Federal Enforceability and Environmental Auditing, 27 Envtl. L. Rep. 10,151, 10,161 (1997). There are some variations on the privilege and immunity model. In Colorado, the legislation creates a presumption of immunity from all penalties for violations found during “self-evaluations” which are voluntarily disclosed and addressed within a reasonable time. The presumption of immunity can be rebutted only if an enforcement agency proves that the disclosure was not voluntary. The Texas law requires companies that wish to qualify for immunity to provide public notice of their intent to conduct a self-audit. During the first year of experience with the law, 239 companies in Texas gave notice of their intent to audit. Id.

While opposing legislation to create audit privileges, EPA and the Justice Department have sought to encourage voluntary self-auditing. In 1991, the Justice Department issued guidelines providing that self-auditing and voluntary disclosure of environmental violations would be considered important mitigating factors when prosecutorial discretion is exercised and at sentencing. Spurred in part by the proliferation of state privilege legislation, EPA began in 1994 to explore whether additional incentives were needed to encourage
self-auditing. While developing its policy on self-auditing, EPA noted that a survey conducted by Price Waterhouse in 1995 found that half of corporate respondents would expand their environmental auditing efforts if penalties were reduced for violations voluntarily discovered and corrected. 60 Fed. Reg. 66,711 (1995).

After conducting several public meetings and receiving extensive public comment on an interim policy, EPA adopted a final policy statement in December 1995. The policy seeks to encourage firms voluntarily to discover, disclose, and correct environmental violations by reducing civil penalties for such violations and by agreeing not to pursue criminal prosecutions for them if certain conditions are met. In April 2000, EPA made minor revisions to its incentives for self-policing policy. An excerpt from EPA’s policy, as revised, is reproduced below.

**EPA, Final Policy Statement on Incentives for Self-Policing of Violations**

C. INCENTIVES FOR SELF-POLICING

1. No Gravity-Based Penalties

If a regulated entity establishes that it satisfies all of the conditions of Section D of this Policy, EPA will not seek gravity-based penalties for violations of Federal environmental requirements discovered and disclosed by the entity.

2. Reduction of Gravity-Based Penalties by 75%

If a regulated entity establishes that it satisfies all of the conditions of Section D of this Policy except for D(1)—systematic discovery—EPA will reduce by 75% gravity-based penalties for violations of Federal environmental requirements discovered and disclosed by the entity.

3. No Recommendation for Criminal Prosecution

(a) If a regulated entity establishes that it satisfies at least conditions D(2) through D(9) of this Policy, EPA will not recommend to the U.S. Department of Justice or other prosecuting authority that criminal charges be brought against the disclosing entity, as long as EPA determines that the violation is not part of a pattern or practice that demonstrates or involves:
   (i) A prevalent management philosophy or practice that conceals or condones environmental violations; or
   (ii) High-level corporate officials’ or managers’ conscious involvement in, or willfull blindness to, violations of Federal environmental law;
(b) Whether or not EPA recommends the regulated entity for criminal prosecution under this section, the Agency may recommend for prosecution the criminal acts of individual managers or employees under existing policies guiding the exercise of enforcement discretion.
4. **No Routine Request for Environmental Audit Reports**

EPA will neither request nor use an environmental audit report to initiate a civil or criminal investigation of an entity. For example, EPA will not request an environmental audit report in routine inspections. If the Agency has independent reason to believe that a violation has occurred, however, EPA may seek any information relevant to identifying violations or determining liability or extent of harm.

**D. Conditions**

1. **Systematic Discovery**

   The violation was discovered through:
   
   (a) An environmental audit; or
   
   (b) A compliance management system reflecting the regulated entity’s due diligence in preventing, detecting, and correcting violations. The regulated entity must provide accurate and complete documentation to the Agency as to how its compliance management system meets the criteria for due diligence outlined in Section B and how the regulated entity discovered the violation through its compliance management system. EPA may require the regulated entity to make publicly available a description of its compliance management system.

2. **Voluntary Discovery**

   The violation was discovered voluntarily and not through a legally mandated monitoring or sampling requirement prescribed by statute, regulation, permit, judicial or administrative order, or consent agreement. For example, the Policy does not apply to:
   
   (a) Emissions violations detected through a continuous emissions monitor (or alternative monitor established in a permit) where any such monitoring is required;
   
   (b) Violations of National Pollutant Discharge Elimination System (NPDES) discharge limits detected through required sampling or monitoring; or
   
   (c) Violations discovered through a compliance audit required to be performed by the terms of a consent order or settlement agreement, unless the audit is a component of agreement terms to implement a comprehensive environmental management system.

3. **Prompt Disclosure**

   The regulated entity fully discloses the specific violation in writing to EPA within 21 days (or within such shorter time as may be required by law) after the entity discovered that the violation has, or may have, occurred. The time at which the entity discovers that a violation has, or may have, occurred begins when any officer, director, employee or agent of the facility has an objectively reasonable basis for believing that a violation has, or may have, occurred.
4. Discovery and Disclosure Independent of Government or Third-Party Plaintiff

(a) The regulated entity discovers and discloses the potential violation to EPA prior to:

(i) The commencement of a Federal, State or local agency inspection or investigation, or the issuance by such agency of an information request to the regulated entity (where EPA determines that the facility did not know that it was under civil investigation, and EPA determines that the entity is otherwise acting in good faith, the Agency may exercise its discretion to reduce or waive civil penalties in accordance with this Policy);

(ii) Notice of a citizen suit;

(iii) The filing of a complaint by a third party;

(iv) The reporting of the violation to EPA (or other government agency) by a “whistleblower” employee, rather than by one authorized to speak on behalf of the regulated entity; or

(v) imminent discovery of the violation by a regulatory agency.

(b) For entities that own or operate multiple facilities, the fact that one facility is already the subject of an investigation, inspection, information request or third-party complaint does not preclude the Agency from exercising its discretion to make the Audit Policy available for violations self-discovered at other facilities owned or operated by the same regulated entity.

5. Correction and Remediation

The regulated entity corrects the violation within 60 calendar days from the date of discovery, certifies in writing that the violation has been corrected, and takes appropriate measures as determined by EPA to remedy any environmental or human harm due to the violation. EPA retains the authority to order an entity to correct a violation within a specific time period shorter than 60 days whenever correction in such shorter period of time is feasible and necessary to protect public health and the environment adequately. If more than 60 days will be needed to correct the violation, the regulated entity must so notify EPA in writing before the 60-day period has passed. Where appropriate, to satisfy conditions D(5) and D(6), EPA may require a regulated entity to enter into a publicly available written agreement, administrative consent order or judicial consent decree as a condition of obtaining relief under the Audit Policy, particularly where compliance or remedial measures are complex or a lengthy schedule for attaining and maintaining compliance or remediating harm is required.

6. Prevent Recurrence

The regulated entity agrees in writing to take steps to prevent a recurrence of the violation. Such steps may include improvements to its environmental auditing or compliance management system.
7. **No Repeat Violations**

The specific violation (or a closely related violation) has not occurred previously within the past three years at the same facility, and has not occurred within the past five years as part of a pattern at multiple facilities owned or operated by the same entity. For the purposes of this section, a violation is:

(a) Any violation of Federal, State or local environmental law identified in a judicial or administrative order, consent agreement or order, complaint, or notice of violation, conviction or plea agreement; or

(b) Any act or omission for which the regulated entity has previously received penalty mitigation from EPA or a State or local agency.

8. **Other Violations Excluded**

The violation is not one which (a) resulted in serious actual harm, or may have presented an imminent and substantial endangerment, to human health or the environment, or (b) violates the specific terms of any judicial or administrative order, or consent agreement.

9. **Cooperation**

The regulated entity cooperates as requested by EPA and provides such information as is necessary and requested by EPA to determine applicability of this Policy.

E. **Economic Benefit**

EPA retains its full discretion to recover any economic benefit gained as a result of noncompliance to preserve a “level playing field” in which violators do not gain a competitive advantage over regulated entities that do comply. EPA may forgive the entire penalty for violations that meet conditions D(1) through D(9) and, in the Agency’s opinion, do not merit any penalty due to the insignificant amount of any economic benefit.

F. **Effect on State Law, Regulation or Policy**

EPA will work closely with States to encourage their adoption and implementation of policies that reflect the incentives and conditions outlined in this Policy. EPA remains firmly opposed to statutory environmental audit privileges that shield evidence of environmental violations and undermine the public’s right to know, as well as to blanket immunities, particularly immunities for violations that reflect criminal conduct, present serious threats or actual harm to health and the environment, allow noncomplying companies to gain an economic advantage over their competitors, or reflect a repeated failure to comply with Federal law. EPA will work with States to address any provisions of State audit privilege or immunity laws that are inconsistent with this Policy and that may prevent a timely and appropriate response to significant environmental violations. The Agency reserves its rights to take necessary actions to protect public health or the environment by enforcing against any violations of Federal law.
NOTES AND QUESTIONS

1. Why does EPA’s policy distinguish between violations discovered through an environmental audit or compliance management system that reflects due diligence and all other violations? What are the consequences of this distinction with respect to EPA’s willingness to reduce penalties?

2. Several environmental laws require regulated entities to self-report information that may include data indicating that a firm violated the law. EPA’s initial interim self-audit policy statement did not allow disclosures of violations required to be reported by statute, regulation, or permit to qualify for penalty reductions. 60 Fed. Reg. 16,875, 16,877 (1995). However, after complaints that this would severely limit incentives for self-policing, EPA adopted a somewhat different approach. EPA concluded that the “final policy generally applies to any violation that is voluntarily discovered, regardless of whether the violation is required to be reported.” 60 Fed. Reg. 66,706, 66,708 (1995). But the final policy states that violations identified through legally required monitoring will not be considered to have been voluntarily discovered. Would Exxon’s notification to the Coast Guard that the Exxon Valdez was spilling enormous quantities of oil in Prince William Sound constitute “voluntary discovery” under EPA’s policy? Could it qualify Exxon for a reduction of gravity-based penalties for the oil spill?

3. By August 1999, a total of 430 companies had reported environmental violations at 1,788 facilities in order to qualify for reduced penalties under EPA’s self-audit policy. Relief had been granted to 164 companies at 540 facilities where violations were disclosed and corrected. EPA, Enforcement and Compliance Assurance FY1998 Accomplishments Report, 4 (1999). Most of the companies were not required to pay penalties. Herman, It Takes a Partnership, 14 Envtl. Forum 26, 31 (May/June 1997). EPA reported in January 2002 that during fiscal year 2001 a total of 364 companies agreed to conduct self-audits and to correct environmental violations at 1,754 facilities in exchange for a waiver or significant reduction in penalties from EPA. While many industry groups have been critical of EPA’s policy for not going far enough to create incentives for self-auditing, others have greeted it with cautious optimism. Banks, EPA’s New Enforcement Policy: At Last, a Reliable Roadmap to Civil Penalty Mitigation for Self-Disclosed Violations, 26 Envtl. L. Rep. 10227 (1996).

4. EPA’s policy offers to waive all or 75 percent of “gravity-based penalties,” which the agency defines as “that portion of a penalty over and above the economic benefit,” 60 Fed. Reg. 66,711 (1995). Why does EPA insist on retaining the discretion to recover a defendant’s economic gain from noncompliance? Will this insistence tend to encourage or discourage prompt discovery and correction of violations? When it revised its initial incentives for self-policing policy in April 2000, EPA also adopted a Final Policy on Compliance Incentives for Small Business. 65 Fed. Reg. 19,630. The most significant aspect of EPA’s policy for encouraging compliance by small businesses is that it provides that EPA will forgo all penalties—including recovery of the economic benefit of violations—for small businesses that make a “good faith” effort to comply with regulations either through conducting environmental audits or receiving on-site compliance assistance. Small businesses are defined as companies with 100 or fewer employees on a companywide basis. Why would EPA be willing to forgo recovery of the economic benefit of violations when small businesses are the violators?

5. During its 1996 session, a state legislature considered a bill that would grant immunity for environmental violations discovered during an environmental
audit if they are voluntarily disclosed and corrected. The bill defined voluntary disclosure to mean a written disclosure that occurs prior to: (1) discovery or knowledge of the violation by the state environmental agency, (2) the initiation of an enforcement action by the state or EPA, or (3) the regulated entity’s actual knowledge that the discovery of the violation by a regulatory agency or a third party is imminent. How is this legislation different from EPA’s policy? Which would do more to encourage prompt disclosure and correction of violations, EPA’s policy or the proposed state law?

6. EPA has expressed concern that some legislation undermines the ability of states to operate their delegated federal programs effectively. Citizen groups in several states have petitioned EPA to withdraw delegation of federal authority on the ground that the privilege and immunity laws prevent their states from enforcing federal requirements adequately. EPA has taken the position that state laws barring penalties for violations would not be applicable in federal enforcement actions. Fear of federal program withdrawal reportedly influenced at least one state to allow its privilege and immunity law to lapse. Some states have considered adopting audit laws that are expressly modeled on EPA’s self-audit policy to ensure compliance with federal requirements.

7. California uses a stick, rather than a carrot, to encourage corporate disclosure of safety hazards. California’s Corporate Criminal Liability Act, Cal. Penal Code §387, requires corporate managers to notify their employees and state authorities in writing when they become aware of “a serious concealed danger” in a workplace. Failure to disclose such hazards is a felony punishable by up to three years in prison and a fine of up to $1 million. What effect is this law likely to have on corporate enthusiasm for self-audits of workplace hazards?

8. When it adopted the 1990 Clean Air Act Amendments, Congress rejected a proposal to preclude prosecutions for violations discovered and corrected following environmental audits. Opponents feared that such immunity could be abused to insulate corporations from sanctions for serious violations. Proposals for even broader immunity now regularly surface in Congress. During the Clinton administration EPA and the Justice Department strongly opposed enactment of such immunity or the creation of a federal self-audit privilege. They argued that immunity would severely undermine compliance incentives and that an audit privilege would permit companies to use self-audits as dumping grounds for incriminating information to shield against its use in subsequent prosecutions. They also argued that audit privilege legislation will further complicate enforcement cases by creating endless litigation over questions of privilege. They maintained that there is no need for such legislation since there has been no federal or state case in which a criminal prosecution was premised on the results of a self-audit voluntarily disclosed to the government.

9. A study conducted by the National Conference of State Legislatures surveyed environmental compliance officials at 988 manufacturing facilities in more than 30 states. The study found that more than 75 percent of the facilities performed compliance audits, but that there was no statistically significant difference in auditing rates between facilities in states with laws or policies to encourage auditing and those in states without them. Most facilities did not disclose violations discovered during an audit and there was no significant difference in disclosure rates between states with audit laws or policies and states without them. Steven A. Herman, NCSL Study Finds That State Environmental Audit Laws Have No Impact on Company Self Auditing and Disclosure of Violations, 13 Nat’l Envtl. Enf. J. 18 (Dec. 1998/Jan. 1999).
10. In December 1998, EPA and the National Pork Producers Council (NPPC) announced an unusual agreement to create a Clean Water Act Compliance Assurance Program (CAP). 63 Fed. Reg. 69,627 (1998). The agreement establishes an independent environmental auditing program run by the NPPC, an industry trade association. Producers who register for the program are audited by an NPPC assessment team which submits its findings to the producer and then a final report to EPA. If the producer reports violations to EPA under the agreement, it is then allowed to enter into a pre-negotiated consent agreement with stipulated penalties (ranging from $250 to $1,000 for violations quickly corrected and from $2,500 to $10,000 for violations that take longer to correct). Violations already known to EPA or a state prior to the assessment are excluded from the program and EPA retains the right to sue for injunctive relief if a violation is causing harm to public health or the environment. See Schwartz, Quarles & Steen, Encouraging Self-Auditing within the Pork Industry: The Nationwide Clean Water Act Enforcement Agreement for Agriculture’s First Industry-Wide Environmental Auditing Program, 29 Env’tl. L. Rep. 10,395 (1999).

B. ENFORCEMENT AUTHORITIES AND POLICIES

Even when violations of environmental regulations are discovered, enforcement can be time-consuming and expensive and its outcome uncertain. Defendants enjoy procedural protections that can make it costly for authorities to discharge their burden of proving violations. To facilitate enforcement, the environmental laws provide a wide menu of enforcement options—criminal, civil, and administrative—whose procedural requirements vary in stringency with the severity of potential sanctions. They also authorize citizens to sue violators when government authorities have failed to take enforcement action.

After the initial generation of federal environmental laws were enacted, officials seeking to enforce the new laws frequently encountered courts who were reluctant to impose substantial sanctions on those who violated environmental regulations. Some judges viewed regulatory violations as technical matters that should not be considered serious offenses, particularly if they were not clearly linked to substantial environmental damage. Over time, as public understanding of the purposes of environmental regulation has improved and as Congress has increased the potential penalties for regulatory violations, this attitude has diminished somewhat. However, considerable controversy remains concerning which of two competing approaches to environmental enforcement should be emphasized by government officials.

Deterrence-based enforcement seeks to ensure compliance by emphasizing the consequences of noncompliance. It seeks to ensure that those who violate environmental regulations will incur penalties substantial enough to deter future violations. Although this approach was emphasized by federal officials during the Clinton administration, many state officials and the Bush administration favor a more conciliatory, cooperation-oriented approach to enforcement. This approach is premised in part on the notion that companies will voluntarily comply with regulations if government officials help them
understand what is necessary for compliance without threatening them with substantial penalties for violations. For a discussion of these two competing visions of environmental enforcement, see Clifford Rechtschaffen, Competing Visions: EPA and the States Battle for the Future of Environmental Enforcement, 30 Env't L. Rep. 10,803 (2000).

1. Enforcement Authorities

The enforcement provisions of the Clean Water Act, which are typical of those found in the major federal environmental laws, are outlined below. As these provisions illustrate, the statutes provide a broad range of penalties for violators. Criminal violations can result in imprisonment and heavy fines. Civil suits can result in injunctive relief and substantial monetary penalties. Lesser monetary penalties may be imposed administratively. In addition, violators may be barred from receiving federal contracts or loans.

**ENFORCEMENT PROVISIONS OF THE CLEAN WATER ACT**

§308 authorizes monitoring and reporting requirements and inspections by authorities.

§309(a) authorizes issuance of administrative compliance orders.

§309(b) authorizes civil enforcement actions for injunctive relief.

§309(c) provides criminal penalties for negligent violations (fines of $2,500 to $25,000 per day and up to 1 year in prison), knowing violations (fines of $5,000 to $50,000 per day of violation and up to 3 years in prison with doubled penalties for repeat violations), knowing endangerment of another (fines of up to $250,000 and 15 years in prison), and false statements (fines of up to $10,000 and 2 years in prison).

§309(d) provides civil penalties of up to $25,000 per day for each violation.

§309(e) & (f) require EPA to join states as defendants in suits against municipalities and authorizes suits against treatment works and dischargers for violations of pretreatment regulations.

§309(g) authorizes administrative penalties (up to $10,000 per violation with a $25,000 maximum for violations heard without an adjudicatory hearing—“Class I penalties”—and up to $10,000 per day with a $125,000 maximum for violations subject to adjudicatory hearings—“Class II penalties”) and gives citizens the right to comment on them.

§402(h) authorizes a ban on new sewer hookups to publicly owned treatment works violating their discharge permits.

§504 authorizes EPA to sue to restrain any source contributing to pollution “presenting an imminent or substantial endangerment” to public health or welfare.
§505 authorizes citizen suits for injunctive relief and civil penalties against any person violating an effluent standard or order and provides for awards of attorneys' fees to prevailing parties.

§508 gives EPA authority to blacklist violators, barring them from all federal contracts and loans.

Virtually every time it has reauthorized the major environmental statutes, Congress has expanded and strengthened their enforcement authorities. For example, when the Clean Water Act was amended in 1987, Congress substantially increased the maximum civil and criminal penalties for violations and it gave EPA administrative enforcement authority under the Act for the first time. In 1990 Congress added even stronger enforcement provisions to the Clean Air Act. See CAA §113.

Because judicial enforcement actions generally are more formal and more expensive, environmental authorities usually go to court only to prosecute the most egregious violations. A former assistant attorney general responsible for environmental enforcement has noted, "[t]he simple truth is that we cannot bring . . . even a significant number of these [enforcement] actions to court." Dinkins, Shall We Fight or Will We Finish: Environmental Dispute Resolution in a Litigious Society, 14 Envtl. L. Rep. 10,398 (1984). While defendants do not have a constitutional right to a jury trial in suits that seek exclusively equitable relief, the Supreme Court has held that the Seventh Amendment's right to a jury trial applies in suits for civil penalties under the environmental laws. Tull v. United States, 481 U.S. 412 (1987). Trials are expensive and time-consuming; thus, more than 95 percent of environmental enforcement cases are resolved through settlements. Settlements often include negotiated penalties incorporated into consent decrees approved by a court.

Resources devoted to criminal enforcement efforts increased substantially during the 1990s. After enactment of the Pollution Prosecution Act of 1990, EPA expanded its criminal enforcement program. Under the administration of President George W. Bush the number of criminal prosecutions for environmental violations has declined substantially, though certain industries, such as cruise ship lines, have been targeted for criminal enforcement actions. During fiscal year 2004, EPA conducted 425 criminal investigations and brought criminal charges against 293 defendants. A total of $47 million in criminal fines and restitution were imposed. Prison sentences totaling 77 years were imposed on persons convicted of environmental crimes. Most criminal prosecutions over the years have been for violations of the Clean Water Act and RCRA.

The vast majority of environmental enforcement actions never see the courthouse door. More than 95 percent are handled through administrative enforcement procedures, which are procedurally simpler but provide less stringent penalties. Administrative enforcement actions may involve the issuance of administrative orders and the assessment of civil penalties. Most environmental statutes authorize EPA to issue administrative orders (see, e.g., CAA §113(a), CWA §309(g), RCRA §3008(a)), which give officials flexibility to specify remedial action that must be taken by a certain date. If, after notice and an opportunity for a hearing, the action specified in the administrative order is not taken, environmental authorities can go to court to seek its enforcement. The
environmental laws also authorize EPA to assess administrative civil penalties, which may be contested in hearings before an administrative law judge whose decisions are subject to judicial review based on the administrative record. Nearly all administrative cases ultimately are settled; fewer than 5 percent proceed to hearings before an administrative law judge. To hear appeals of administrative enforcement decisions, EPA has created a permanent, three-person Environmental Appeals Board.

Minor violations also can be handled by sending a notice of violation, which requires the recipient to correct a technical violation without assessing a penalty. Notices of violation may be used by federal enforcement officials to give state authorities operating delegated programs an opportunity to take enforcement action prior to the initiation of federal enforcement proceedings. The 1990 Clean Air Act Amendments also authorize EPA to issue field citations, akin to traffic tickets but with penalties of up to $5,000 per day of violation. CAA §113(d)(3).

2. **Penalty Policies**

Environmental officials have used their enforcement authorities to encourage companies to incorporate compliance concerns into management structures. Enforcement settlements now often feature agreements by violators to conduct environmental audits to help prevent future violations. Defendants also are agreeing to implement pollution prevention programs or to undertake supplemental environmental projects. A total of $65 million was committed by companies to fund supplemental environmental projects during fiscal year 2003.

Enforcement officials also have acted to improve the deterrent effect of enforcement actions by publicizing enforcement actions more widely and by increasing penalties. EPA’s Policy on Civil Penalties is designed to ensure that penalties imposed on violators are sufficient to recoup the economic benefit of violations and to encourage future compliance. Under this policy, civil penalties are calculated based on the economic benefit of delayed compliance (as calculated by a computer program developed by EPA staff), the gravity of the offense (based on its actual and potential impact on public health and the environment, and its effect on EPA’s ability to perform its regulatory functions), the wilfulness of the offense, and the violator’s past compliance and cooperation with enforcement authorities. Debarment of violators from government contracts also can be used as a sanction.

An illustration of how courts have used EPA’s civil penalties policy to determine the size of a monetary penalty is provided by the following decision. This case involved a successful citizen suit against an oil company for discharging produced water (water generated during drilling operations that becomes contaminated with chemicals) into Galveston Bay without a permit. After finding that produced water was a “pollutant” whose discharge without a permit violated the Clean Water Act (CWA), the court considered how great a penalty to assess for the violation.

**Sierra Club v. Cedar Point Oil Co.**

*73 F.3d 546 (5th Cir. 1996)*

The CWA directs district courts to assess civil penalties for violations of the CWA. 33 U.S.C. §1319(d). Specifically, the statute states that violators “shall be
subject to a civil penalty not to exceed $25,000 per day for each violation.” Id. Aside from this maximum amount, the statute guides the court’s discretion in setting the penalty as follows:

In determining the amount of a civil penalty the court shall consider the seriousness of the violation or violations, the economic benefit (if any) resulting from the violation, any history of such violations, any good-faith efforts to comply with the applicable requirements, the economic impact of the penalty on the violator, and such other matters as justice may require.

Id. The Eleventh Circuit has taken these statutory directives and developed a procedural framework for calculating penalties under the CWA. [Atlantic States Legal Found., Inc. v.] Tyson Foods, [Inc.] 897 F.2d [1128], 1142 [(11th Cir. 1990)]. First, the court is to calculate the maximum penalty that could be assessed against the violator. Id. Using that maximum as a starting point, the court should then determine if the penalty should be reduced from the maximum by reference to the statutory factors. Id.

The district court followed the Tyson Foods framework in this case. The parties had stipulated that there were 797 days of unpermitted discharge of produced water prior to trial. The judgment was entered twelve days later, during which time the discharge presumably continued. Accordingly, the court multiplied the statutory figure of $25,000 per day by 809 days of unpermitted discharge to arrive [at] a maximum penalty of $20,225,000.

The district court then made findings of fact with respect to the statutory factors. First, the court found that the violation was moderately serious because of the effect of the discharge on benthic organisms and the lack of monitoring and reporting with respect to the discharge. Second, the court found that the economic benefit to Cedar Point from the violation was $186,070, which the court determined was the amount that Cedar Point saved by not disposing of its produced water in a reinjection well. Third, the court found that Cedar Point had been violating the CWA since it began operating state well 1876. Fourth, the court found that Cedar Point had not demonstrated good faith in attempting to comply with the CWA. In this regard, the court noted that, although Cedar Point had attempted to obtain a NPDES permit for its discharge, it had not explored other ways to comply with the CWA. Finally, the court reviewed Cedar Point’s financial position and expected future profits from the Cedar Point field and determined that Cedar Point could at least afford a penalty equal to the economic benefit attained from the violation.

In weighing these facts and calculating the penalty, the district court held that the maximum penalty of $20,225,000 was inappropriate. The court determined, however, that the penalty should at a minimum recapture the savings realized by Cedar Point because of the violation. Although the court’s findings with respect to the other statutory factors were also not favorable to Cedar Point, the court apparently chose not to accord these factors any weight because it did not increase the penalty beyond what it found to be the economic benefit to Cedar Point. Accordingly, the court assessed a penalty of $186,070. . . .

. . . [W]e do not think that the district court abused its discretion in assessing a penalty in an amount that reflected only the economic benefit to Cedar Point. The Supreme Court has described the process of weighing the statutory factors in calculating civil penalties under the CWA as “highly discretionary” with the trial court. Tull v. United States, 481 U.S. 412, 427 (1987). It is clear
from the district court’s Memorandum Opinion that it considered all of the statutory factors before settling on an amount based only on economic benefit. Considering that the court could have imposed a penalty as high as $20,225,000, this appears to be a fair and just result. As such we perceive no abuse of discretion. Therefore, we affirm the district court’s assessment of a penalty in the amount of $186,070 for Cedar Point’s violation of the CWA.

NOTES AND QUESTIONS

1. The civil penalty applied in this case was designed to recoup only the economic benefit of the violation. Should the district court have imposed a higher penalty in light of the other factors it considered? If civil penalties routinely were assessed in a manner that only recouped the economic gain enjoyed by the violator, what incentive would they provide for companies to comply on their own? If Cedar Point had discovered the violation, voluntarily disclosed it to EPA, and corrected it prior to receiving notice of the citizen’s suit, would their penalty have been as great under EPA’s self-audit policy?

2. Why should a violator’s economic circumstances be taken into account when determining the size of civil penalties? Does this imply that firms that are marginally profitable need not fear substantial civil penalties for violating the Clean Water Act?

3. After receiving the Sierra Club’s statutorily required notice of intent to file a citizen suit, Cedar Point filed suit against the Sierra Club and EPA, alleging that they were conspiring to deprive it of unspecified constitutional rights and seeking an injunction barring the citizen suit. Cedar Point’s lawsuit was dismissed. A month later, Cedar Point filed a counterclaim against the Sierra Club’s citizen suit alleging abuse of process and seeking compensatory damages for emotional distress allegedly suffered by its officers and directors and $10 million in punitive damages. This counterclaim also was dismissed.

4. As the court notes, section 309(d) of the Clean Water Act specifies five factors that courts should consider in determining the amount of a civil penalty, as well as “such other matters as justice may require.” What other matters can you identify that would be relevant considerations for courts to use in determining the amount of civil penalties under this broad directive?

5. Should the maximum penalty for violations be based on the number of violations, the number of days of noncompliance, or some combination of both? The Clean Water Act provides for a civil penalty “not to exceed $25,000 per day for each violation.” 33 U.S.C. §1319(d). The trial court in Cedar Point had computed the maximum penalty by multiplying the number of days on which violations occurred by the statutory figure of $25,000 per day. In Chesapeake Bay Foundation v. Gwaltney of Smithfield, Ltd., 791 F.2d 304 (4th Cir. 1986), reversed on other grounds, 484 U.S. 49 (1987), the Fourth Circuit stated that “where a violation is defined in terms of a time period longer than a day, the maximum penalty assessable for that violation should be defined in terms of the number of days in that time period.” Id. at 314. The court declined to reach the separate question of “whether multiple violations attributable to a single day may give rise to a maximum penalty in excess of [the penalty amount] for that day.” Id. at 308. The latter issue was addressed in United States v. Smithfield Foods, Inc., 191 F.3d S16 (4th Cir. 1999), where the court stated that “[I]f the
maximum penalty that could be levied against a violator on a single day was $25,000, no matter how many different Permit effluent limitations were violated, the permittee would have a strong disincentive to comply with the other permit limitations.” Id. at 527-528. Thus, the court treated each permit violation “as a separate and distinct infraction for purposes of penalty calculation.” Id. at 528. This approach also was followed in Borden Ranch Partnership v. U.S. Army Corps of Engineers, 261 F.3d 810 (9th Cir. 2001), aff’d by an equally divided Court, 537 U.S. 99 (2002), which upheld a penalty for violating section 404 of the Clean Water Act that had been calculated based on the number of unpermitted passes by a deep ripper through wetlands rather than the number of days on which the ripping occurred.

6. Should the amount of warning a company received prior to violating an environmental law be a factor taken into account in determining the size of a civil penalty? If a company mistakenly believes that it is in compliance, can it be fined when it later discovers that EPA interprets the regulations differently? In General Electric Co. v. EPA, 53 F.3d 1324 (D.C. Cir. 1995), the D.C. Circuit set aside a $25,000 fine against a company for violating TSCA regulations because EPA did not provide the company with fair warning of its interpretation of regulations that were unclear. The court upheld EPA’s interpretation of regulations that required the immediate incineration of solvents used in extracting PCBs. However, the court found that it would violate due process for the company to be fined without fair warning that EPA interpreted the regulations to prohibit distillation and recycling of a portion of the solvents prior to their ultimate incineration. “In the absence of notice—for example, where the regulation is not sufficiently clear to warn a party about what is expected of it—an agency may not deprive a party of property by imposing civil or criminal liability.” 53 F.3d at 1328-1329. The court noted that “in many cases the agency’s pre-enforcement efforts to bring about compliance will provide adequate notice,” such as when a regulated entity is informed that it needs to obtain a permit. “If, by reviewing the regulations and other public statements issued by the agency, a regulated party acting in good faith would be able to identify with ‘ascertainable certainty’ the standard with which the agency expects parties to conform, then the agency has fairly notified a petitioner of the agency’s interpretation.” Id. at 1329.

7. Federal law now requires EPA to update the maximum civil penalties it may levy in enforcement actions to keep up with inflation. In February 2004, EPA adopted a Civil Monetary Penalty Inflation Adjustment Rule, 69 Fed. Reg. 7,121 (Feb. 13, 2004). The rule, which was authorized by the Federal Civil Penalties Inflation Adjustment Act of 1990, as amended by the Debt Collection Improvement Act of 1996, increases the maximum amount of civil penalties that the Agency may collect from environmental violators to take inflation into account. For example, fines that formerly could be as great as $27,500 now can be as much as $32,500.

3. The Federal-State Enforcement Relationship

The environmental laws authorize EPA to delegate to states responsibility for administering and enforcing the federal clean water, clean air, and hazardous waste programs. To qualify for program delegation, states must satisfy EPA that they can operate the programs in a manner that meets all federal
requirements. EPA retains supervisory authority over the states’ operation of the programs. If states operating delegated federal programs fail to meet minimum federal standards, EPA has the authority to withdraw the delegation, but this authority is virtually never exercised because the Agency is loathe to take over operation of state programs without receiving additional resources. The EPA also has generally had the authority to take enforcement action on its own when it does not believe that states have adequately addressed certain violations. This “overfiling” authority was contested in the case below.

*Harmon Industries v. Browner*

191 F.3d 894 (8th Cir. 1999)

Hansen, Circuit Judge:

**I. FACTS AND PROCEDURAL BACKGROUND**

Harmon Industries operates a plant in Grain Valley, Missouri, which it utilizes to assemble circuit boards for railroad control and safety equipment. In November 1987, Harmon’s personnel manager discovered that maintenance workers at Harmon routinely discarded volatile solvent residue behind Harmon’s Grain Valley plant. This practice apparently began in 1973 and continued until November 1987. Harmon’s management was unaware of its employees’ practices until the personnel manager filed his report in November 1987. Following the report, Harmon ceased its disposal activities and voluntarily contacted the Missouri Department of Natural Resources (MDNR). The MDNR investigated and concluded that Harmon’s past disposal practices did not pose a threat to either human health or the environment. The MDNR and Harmon created a plan whereby Harmon would clean up the disposal area. Harmon implemented the cleanup plan. While Harmon was cooperating with the MDNR, the EPA initiated an administrative enforcement action against Harmon in which the federal agency sought $2,343,706 in penalties. Meanwhile, Harmon and the MDNR continued to establish a voluntary compliance plan. In harmonizing the details of the plan, Harmon asked the MDNR not to impose civil penalties. Harmon based its request in part on the fact that it voluntarily self-reported the environmental violations and cooperated fully with the MDNR.

On March 5, 1993, while the EPA’s administrative enforcement action was pending, a Missouri state court judge approved a consent decree entered into by the MDNR and Harmon. In the decree, MDNR acknowledged full accord and satisfaction and released Harmon from any claim for monetary penalties. MDNR based its decision to release Harmon on the fact that the company promptly self-reported its violation and cooperated in all aspects of the investigation. After the filing of the consent decree, Harmon litigated the EPA claim before an administrative law judge (ALJ). The ALJ found that a civil penalty against Harmon was appropriate in this case. The ALJ rejected the EPA’s request for a penalty in excess of $2 million but the ALJ did impose a civil fine of $586,716 against Harmon. A three-person Environmental Appeals Board panel affirmed the ALJ’s monetary penalty. Harmon filed a complaint challenging the EPA’s

II. DISCUSSION

A. The Permissibility of Overfiling

When reviewing a federal agency’s interpretation of a federal statute, a federal court must defer to the agency’s interpretation only if it finds that the agency’s interpretation is consistent with the plain language of the statute or represents a reasonable interpretation of an ambiguous statute. See Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc., 467 U.S. 837, 842-45 (1984). We review de novo a district court’s findings and conclusions regarding the correctness of an agency’s statutory interpretations. See Moore v. Custis, 736 F.2d 1260, 1262 (8th Cir. 1984).

The Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §6901-6992K (1994), permits states to apply to the EPA for authorization to administer and enforce a hazardous waste program. See 42 U.S.C. §6926(b). If authorization is granted, the state’s program then operates “in lieu of the federal government’s hazardous waste program.” Id. The EPA authorization also allows states to issue and enforce permits for the treatment, storage, and disposal of hazardous wastes. Id. “Any action taken by a State under a hazardous waste program authorized under [the RCRA] [has] the same force and effect as action taken by the [EPA] under this subchapter.” 42 U.S.C. §6926(d). Once authorization is granted by the EPA, it cannot be rescinded unless the EPA finds that (1) the state program is not equivalent to the federal program, (2) the state program is not consistent with federal or state programs in other states, or (3) the state program is failing to provide adequate enforcement of compliance in accordance with the requirements of federal law. See 42 U.S.C. §6926(b). Before withdrawing a state’s authorization to administer a hazardous waste program, the EPA must hold a public hearing and allow the state a reasonable period of time to correct the perceived deficiency. See 42 U.S.C. §6926(e).

Missouri, like many other states, is authorized to administer and enforce a hazardous waste program pursuant to the RCRA. Despite having authorized a state to act, the EPA frequently files its own enforcement actions against suspected environmental violators even after the commencement of a state-initiated enforcement action. See Bryan S. Miller, Harmonizing RCRA’s Enforcement Provisions: RCRA Overfiling in Light of Harmon Industries v. Browner, 5 Environmental Law. 585 (1999). The EPA’s process of duplicating enforcement actions is known as overfiling. See id. The permissibility of overfiling apparently is a question of first impression in the federal circuit courts. See Harmon, 19 F. Supp. 2d at 995. After examining this apparent issue of first impression, the district court concluded that the plain language of section 6926(b) dictates that the state program operate “in lieu” of the federal program and with the “same force and effect” as EPA action. Accordingly, the district court found that, in this case, the RCRA precludes the EPA from assessing its own penalty against Harmon. See id.
The EPA contends that the district court’s interpretation runs contrary to the plain language of the RCRA. Specifically, the EPA cites section 6928 of the RCRA, which states that:

(1) Except as provided in paragraph (2), whenever on the basis of any information the [EPA] determines that any person has violated or is in violation of any requirement of this subchapter, the [EPA] may issue an order assessing a civil penalty for any past or current violation, requiring compliance immediately or within a specified time period, or both, or the [EPA] may commence a civil action in the United States district court in the district in which the violation occurred for appropriate relief, including a temporary or permanent injunction.

(2) In the case of a violation of any requirement of [the RCRA] where such violation occurs in a State which is authorized to carry out a hazardous waste program under section 6926 of this title, the [EPA] shall give notice to the State in which such violation has occurred prior to issuing an order or commencing a civil action under this section.

42 U.S.C. §6928(a)(1) and (2).

The EPA argues that the plain language of section 6928 allows the federal agency to initiate an enforcement action against an environmental violator even in states that have received authorization pursuant to the RCRA. The EPA contends that Harmon and the district court misinterpreted the phrases “in lieu of” and “same force and effect” as contained in the RCRA. According to the EPA, the phrase “in lieu of” refers to which regulations are to be enforced in an authorized state rather than who is responsible for enforcing the regulations. The EPA argues that the phrase “same force and effect” refers only to the effect of state issued permits. The EPA contends that the RCRA, taken as a whole, authorizes either the state or the EPA to enforce the state’s regulations, which are in compliance with the regulations of the EPA. The only requirement, according to the EPA, is that the EPA notify the state in writing if it intends to initiate an enforcement action against an alleged violator.

Both parties argue that the plain language of the RCRA supports their interpretation of the statute. We also are ever mindful of the long-established plain language rule of statutory interpretation, see Walker v. Dilworth, 2 U.S. (2 Dall.) 257, 259 (1796), as we inquire into the scope of the EPA’s enforcement powers under the RCRA. Such an inquiry requires examining the text of the statute as a whole by considering its context, “object, and policy.” Pelofsky v. Wallace, 102 F.3d 350, 353 (8th Cir. 1996).

An examination of the statute as a whole supports the district court’s interpretation. The RCRA specifically allows states that have received authorization from the federal government to administer and enforce a program that operates “in lieu of” the EPA’s regulatory program. 42 U.S.C. §6926(b). While the EPA is correct that the “in lieu of” language refers to the program itself, the administration and enforcement of the program are inexorably intertwined.

The RCRA gives authority to the states to create and implement their own hazardous waste program. The plain “in lieu of” language contained in the RCRA reveals a congressional intent for an authorized state program to supplant the federal hazardous waste program in all respects including enforcement. Congressional intent is evinced within the authorization language of section 6926(b) of the RCRA. Specifically, the statute permits the EPA to repeal a state’s authorization if the state’s program “does not provide adequate enforcement of compliance with the requirements of” the RCRA. Id. This language indicates
that Congress intended to grant states the primary role of enforcing their own hazardous waste program. Such an indication is not undermined, as the EPA suggests, by the language of section 6928. Again, section 6928(a)(1) allows the EPA to initiate enforcement actions against suspected environmental violators, except as provided in section 6928(a)(2). Section 6928(a)(2) permits the EPA to enforce the hazardous waste laws contained in the RCRA if the agency gives written notice to the state. Section 6928(a)(1) and (2), however, must be interpreted within the context of the entire Act. Harmonizing the section 6928(a)(1) and (2) language that allows the EPA to bring an enforcement action in certain circumstances with section 6926(b)’s provision that the EPA has the right to withdraw state authorization if the state’s enforcement is inadequate manifests a congressional intent to give the EPA a secondary enforcement right in those cases where a state has been authorized to act that is triggered only after state authorization is rescinded or if the state fails to initiate an enforcement action. Rather than serving as an affirmative grant of federal enforcement power as the EPA suggests, we conclude that the notice requirement of section 6928(a)(2) reinforces the primacy of a state’s enforcement rights under RCRA. Taken in the context of the statute as a whole, the notice requirement operates as a means to allow a state the first chance opportunity to initiate the statutorily-permitted enforcement action. If the state fails to initiate any action, then the EPA may institute its own action. Thus, the notice requirement is an indicator of the fact that Congress intended to give states, that are authorized to act, the lead role in enforcement under RCRA.

The “same force and effect” language of section 6926(d) provides additional support for the primacy of states’ enforcement rights under the RCRA when the EPA has authorized a state to act in lieu of it. The EPA argues that the “same force and effect” language is limited to state permits because the words appear under a heading that reads: “Effect of State Permit.” The EPA contends that the “same force and effect” language indicates only that state-issued permits will have the same force and effect as permits issued by the federal government. The EPA claims that the district court was incorrect when it applied the “same force and effect” language to encompass the statute’s enforcement mechanism. We disagree.

Regardless of the title or heading, the plain language of section 6926(d) states that “[a]ny action taken by a State under a hazardous waste program authorized under this section shall have the same force and effect as action taken by the [EPA] under this subchapter.” 42 U.S.C. §6926(d). In this context, the meaning of the text is plain and obvious. “Any action” under this provision broadly applies to any action authorized by the subchapter, and this language is not limited to the issuance of permits. The state authorization provision substitutes state action (not excluding enforcement action) for federal action. It would be incongruous to conclude that the RCRA authorizes states to implement and administer a hazardous waste program “in lieu of” the federal program where only the issuance of permits is accorded the same force and effect as an action taken by the federal government. Contrary to the EPA’s assertions, the statute specifically provides that a “[s]tate is authorized to carry out [its hazardous waste program] in lieu of the Federal program . . . and to issue and enforce permits.” 42 U.S.C. §6926(b). Issuance and enforcement are two of the functions authorized as part of the state’s hazardous waste enforcement program under the RCRA. Nothing in the statute suggests that the “same force and effect” language is limited to the issuance of permits but
not their enforcement. We believe that if Congress had intended such a peculiar result, it would have stated its preference in a clear and unambiguous manner. Absent such an unambiguous directive, we will apply a common sense meaning to the text of the statute and interpret its provisions in a manner logically consistent with the Act as whole.

There is no support either in the text of the statute or the legislative history for the proposition that the EPA is allowed to duplicate a state’s enforcement authority with its own enforcement action. The EPA argues that the statute and legislative history support its contention that it may initiate an enforcement action if it deems the state’s enforcement action inadequate. The EPA’s argument misses the point. Without question, the EPA can initiate an enforcement action if it deems the state’s enforcement action inadequate. Before initiating such an action, however, the EPA must allow the state an opportunity to correct its deficiency and the EPA must withdraw its authorization. See 42 U.S.C. §6926(b) and (e). Consistent with the text of the statute and its legislative history, the EPA also may initiate an enforcement action after providing written notice to the state when the authorized state fails to initiate any enforcement action. See 42 U.S.C. §6928(a)(2); 1976 U.S.C.C.A.N. 6270. The EPA may not, however, simply fill the perceived gaps it sees in a state’s enforcement action by initiating a second enforcement action without allowing the state an opportunity to correct the deficiency and then withdrawing the state’s authorization.

A contrary interpretation would result in two separate enforcement actions. Such an interpretation, as explained above, would derogate the RCRA’s plain language and legislative history. Companies that reach an agreement through negotiations with a state authorized by the EPA to act in its place may find the agreement undermined by a later separate enforcement action by the EPA. While, generally speaking, two separate sovereigns can institute two separate enforcement actions, those actions can cause vastly different and potentially contradictory results. Such a potential schism runs afoul of the principles of comity and federalism so clearly embedded in the text and history of the RCRA. When enacting the RCRA, Congress intended to delegate the primary enforcement of EPA-approved hazardous waste programs to the states. See 1976 U.S.C.C.A.N. 6262, 6270. In fact, as we have noted above, the states’ enforcement action has the “same force and effect as an action taken by” the EPA. See 42 U.S.C. §6926(d). In EPA authorized states, the EPA’s action is an alternative method of enforcement that is permitted to operate only when certain conditions are satisfied. See 42 U.S.C. §6926(b) and (e); 42 U.S.C. §6928(b). The EPA’s interpretation simply is not consistent with the plain language of the statute, its legislative history, or its declared purpose. Hence, it is also an unreasonable interpretation to which we accord no deference. Therefore, we find that the EPA’s practice of overfiling, in those states where it has authorized the state to act, oversteps the federal agency’s authority under the RCRA.

NOTES AND QUOTATIONS

1. The Tenth Circuit has explicitly rejected Harmon and upheld EPA’s ability to overfile. In United States v. Power Engineering Co., 303 F.2d 1232 (10th Cir. 2002), the Tenth Circuit systematically rejected every aspect of Harmon’s reasoning in holding that EPA could bring an RCRA enforcement
action even when a state pursued its own action for the same violations. The EPA had filed suit against Power Engineering after the state of Colorado refused in its own enforcement action to demand that the company comply with financial assurance regulations to ensure coverage of the cost of remedying the violations. Although the state sought to impose penalties of $1.13 million for the violations, EPA won an order requiring the company to provide more than $2.11 million in financial assurances. The Tenth Circuit first rejected Harmon’s conclusion that “the administration and enforcement of the program are inexorably intertwined.” The court stated:

This interpretation fails to account for the placement of “enforcement” and “in lieu of” in separate clauses of section 6926(b), and it does not adequately consider the structure of the statute. Section 6926 addresses the administration and enforcement of state regulations by authorized states, while the federal enforcement of such regulations is addressed in a different part of the statute—section 6928. Given this statutory structure, the EPA’s conclusion that administration and enforcement of RCRA are not inexorably intertwined— and that authorization of a state program therefore does not deprive the EPA of its enforcement powers—is not unreasonable.

303 F.3d at 1238.

The Tenth Circuit noted that “the only explicit limitation” on EPA’s enforcement authority “is that the EPA must provide prior notice to authorized states.” Id. Noting that “[w]ithdrawal of authorization for a state program is an ‘extreme’ and ‘drastic’ step that requires the EPA to establish a federal program to replace the cancelled state program,” the court concluded that “[n]othing in the text of the statute suggests that such a step is a prerequisite to EPA enforcement or that it is the only remedy for inadequate enforcement.” Id. at 1238-1239. The court also rejected the notion that the “same force and effect” language in section 6926(d) indicated an intent to bar separate EPA enforcement. Noting that the provision is part of a section headed “Effect of a State permit,” the court said this “suggests that this subsection only intends for state permits to have the ‘same force and effect’ as federal permits.” Thus, “[i]t would be reasonable to conclude that Congress simply intended for section 6926(d) to clarify that recipients of state-issued permits need not obtain a permit from the EPA,” preventing “the EPA from denying the effect of a state permit,” but not preventing “the EPA from taking action when a violation occurs.” Id. at 1239.

2. In United States v. Elias, 269 F.3d 1003 (9th Cir. 2001), the Ninth Circuit rejected an effort to use Harmon to challenge one of the largest criminal penalties ever imposed for an environmental violation—a 17-year prison term for a businessman convicted for knowingly endangering an employee while violating RCRA. The businessman, Allan Elias, had ordered an employee to clean out a storage tank containing cyanide without using safety equipment. Overcome by cyanide fumes, the employee suffered brain damage and nearly died. The court rejected the argument that the federal criminal prosecution for violating RCRA was barred by the fact that Idaho had delegated authority from EPA to operate the RCRA program. The Ninth Circuit concluded that nothing in Harmon foreclosed EPA’s ability to bring criminal charges. The court explained that “under RCRA, the federal government retains both its criminal and its civil enforcement powers . . . even where a state law counterpart exists, for many of these ‘counterparts’ provide only misdemeanor punishments where federal law prescribes a
felony.” The court concluded that “RCRA only contemplates that the federal permitting scheme is supplanted by authorized state ones,” meaning that “[w]hat changes, and what is supplanted by state law, is . . . the sovereign from whom generators must obtain the necessary permit originally—in this case, Idaho.” 269 F.3d at 1012.

3. Harmon’s reasoning also has been found to be inapplicable in the context of the Clean Air Act. In United States v. LTV Steel Co., 118 F. Supp. 2d 827 (N.D. Ohio 2000), a steel company argued that a settlement it had reached with the city of Cleveland should bar EPA from overfiling and imposing penalties on it for violations involving fugitive dust emissions. Distinguishing Harmon, the court stated that: “Unlike RCRA, the Clean Air Act contains language in its enforcement section which seems to anticipate overfiling.” The court noted that the Clean Air Act expressly provides for considering “payment by the violator of penalties previously assessed for the same violation” in computing penalties under the Act. 118 F. Supp. 2d at 833. The court also rejected the company’s claim that res judicata barred the EPA action, noting that EPA and the city were not in privity and were enforcing separate bodies of law.

4. In Harmon, company employees had routinely dumped hazardous organic solvents on the ground behind the plant for a period of 14 years, a practice that violated RCRA for the last seven years that it continued. After the company disclosed the violations to state environmental officials, the state officials informed EPA, which requested the state to insist on a substantial monetary penalty. Harmon convinced the state not to impose a penalty in part by contending that it had cost the company more than $800,000 to change its processes to discontinue use of the solvents, while increasing annual operating costs by $125,000. When state authorities declined to seek a penalty, EPA filed its own administrative complaint against Harmon on September 30, 1991, before the state had concluded a consent decree with the company, which ultimately was not approved until March 5, 1993. Ridgway M. Hall, Jr., Harmon Limits RCRA Enforcers to One Bite, 29 Envtl. L. Rep. 10,781, 10,782 (1999). Should it make any difference to the question of EPA’s authority to overfile that EPA filed its action before the state had negotiated the consent decree? Should it matter that EPA first had requested the state to seek a penalty and filed only when the state refused to do so?

5. If Harmon had disclosed the violation to EPA and promptly corrected it, could the company qualify for a reduced civil penalty under EPA’s “Incentives for Self-Policing” Policy, discussed in section A above? What would be the minimum penalty that EPA would seek to recover under its penalty policies?

6. In light of the court’s decision, what remedies would EPA have if it believes that the state is not adequately enforcing a federal program? How credible is the threat that EPA would withdraw a state’s delegated authority to operate a program? A rare example of EPA withdrawing state program authorization occurred in December 2001 when EPA withdrew Maryland’s authority to operate the Clean Air Act’s Title V permit program. After repeated extensions of deadlines for correcting deficiencies in state permit programs, EPA was sued by the Earthjustice Legal Defense Fund in June 2000. In settlement of the lawsuit EPA agreed not to extend the deadline for any state to correct deficiencies in its Title V permit program beyond December 1, 2001. Maryland missed the deadline because it failed to change state law to grant standing to challenge permit decisions to all parties who would have standing under federal law as required by section 502(b)(6) of the Clean Air Act. Thus, Maryland’s Part 70 permit
program was replaced by an EPA Part 71 federal operating permit program effective December 1, 2001. However, this change did not make much practical difference because EPA immediately delegated to Maryland the authority to implement and enforce the Part 71 federal permit program.  66 Fed. Reg. 63,236 (Dec. 5, 2001). While this program is to be implemented and enforced by Maryland, EPA retains final decision-making authority on all permit issues including the issuance or denial of permits and permit terms.

7. In 1998, EPA’s inspector general issued a report finding widespread failures to enforce some of the basic requirements of the environmental laws. After auditing enforcement records in several states, the inspector general found that state officials frequently had failed to enforce the laws or to report violations to EPA and that EPA had been lax in supervising state enforcement. Cushman, EPA and State Found to Be Lax on Pollution Law, N.Y. Times, June 7, 1998, at A1. The report found that many major dischargers had expired NPDES permits that had not been reissued, often for periods as long as ten years, and that very few formal enforcement actions were taken against significant dischargers when they violated their permits.

8. Steven A. Herman, EPA’s Assistant Administrator for Enforcement and Compliance Assurance at the time Harmon was decided, argues that it is important for EPA to have overfiling authority to prevent states from competing for industry through lax enforcement policies. He cites the case of Smithfield Foods as one where “EPA had to step in despite strong opposition both from the company and the state of Virginia.” Herman, Environmental Enforcement at the Federal Level, Remarks to the Arizona Association of Industries Environmental Summit, Aug. 13, 1998.

Smithfield Foods failed to install adequate pollution control equipment or to properly treat its wastewater, resulting in more than 5,000 violations involving pollutants such as phosphorous, ammonia, cyanide, oil, grease, and fecal coliform. Company employees falsified documents and destroyed water quality records. Virginia only took perfunctory actions against the violations, which had major impacts on the Pagan River, the James River, and the Chesapeake Bay. Pursuant to EPA’s enforcement action, a federal district court fined Smithfield Foods a record $12.6 million penalty. [Id.]

How will the Harmon decision affect EPA’s ability to deal with situations like that which occurred at Smithfield Foods? A state legislative audit found “major deficiencies” in Virginia’s enforcement policies—in FY 1996 the state collected only $4,000 in civil penalties for Clean Water Act violations under a long-standing policy that the state not seek to recoup the economic benefit of violations. Joint Legislative Audit and Review Commission, Review of the DEQ, 119-120 (1996).

9. The Bush administration is reducing the resources devoted by EPA to enforcement while pledging to increase federal grants to states for enforcement. The administration moved to eliminate 270 enforcement positions in EPA’s Office of Enforcement and Compliance Assurance while shifting $25 million in federal grants to states for enforcement activities. A report issued by the General Accounting Office in July 2001 questioned whether this approach would impair the effectiveness of overall enforcement efforts. EPA’s Office of Inspector General has found that only a handful of states have aggressive environmental enforcement programs. Eric Pianin, GAO Issues Warning on EPA Enforcement, Wash. Post, Aug. 23, 2001, at A23.
C. CRIMINAL ENFORCEMENT

While criminal penalties for environmental violations are found in the Refuse Act of 1899, criminal prosecutions only recently have played a significant role in environmental enforcement. Criminal penalties were included in the major federal environmental statutes enacted in the 1970s. As these acts have been reauthorized, Congress has expanded the range of violations for which criminal penalties apply while increasing substantially the size of the penalties. Federal and state authorities also have devoted increased resources to criminal enforcement of the environmental laws. The Pollution Prosecution Act of 1990 quadrupled the number of federal agents investigating environmental crimes. In large cities today many U.S. attorneys’ and district attorneys’ offices have divisions that specialize in criminal enforcement of the environmental laws.

Virtually all the federal environmental laws now provide criminal penalties for “knowing” or “wilful” violations of environmental regulations. See, e.g., Clean Air Act §113(c); Clean Water Act §309(c); CERCLA §§103(b), (c), and (d) (2); RCRA §§3008(d) and (e); TSCA §§15 and 16; FIFRA §14(b). The Clean Air Act Amendments of 1990 make virtually all knowing violations of any requirement of the Act a felony, including violations of recordkeeping and reporting requirements. Both the Clean Water Act and Clean Air Act also impose criminal penalties for certain negligent acts that violate the statutes. CWA §309(c)(1), Apex Oil Co. v. United States, 530 F.2d 1291 (8th Cir.), cert. denied, 429 U.S. 827 (1976); United States v. Frezzo Brothers, Inc., 703 F.2d 62 (3d Cir.), cert. denied, 464 U.S. 829 (1983); CAA §113(c)(4).

Courts have long drawn a distinction between regulatory statutes to protect public health or safety and common law crimes in addressing what needs to be proved to establish a criminal violation. In United States v. Dotterweich, 320 U.S. 277 (1943) and United States v. Park, 421 U.S. 658 (1975), the Supreme Court indicated that responsible corporate officials can be held criminally liable for violating health or safety regulations without requiring proof of evil intent. As case law interpreting some of the criminal provisions of the environmental laws developed, courts have built on these decisions by allowing juries to infer that acts are “knowing” or “wilful” from evidence demonstrating that a defendant should have known that an act is a violation. See, e.g., United States v. Sellers, 926 F.2d 410 (5th Cir. 1991) (“knowingly” in RCRA does not require knowledge that materials were regulated as hazardous wastes, but rather only that the defendant knew that materials had potential to cause harm); United States v. McDonald & Watson Waste Oil Co., 933 F.2d 35 (1st Cir. 1991); United States v. Buckley, 934 F.2d 84 (6th Cir. 1991).

The environmental laws generally make both corporate officers and employees who make corporate decisions personally liable. United States v. Northeastern Pharmaceutical & Chemical Co., 810 F.2d 762, 745 (8th Cir. 1986). The Clean Water Act and Clean Air Act both expressly provide that “any responsible corporate officer” may be held liable for criminal acts. CWA §309(c) (6); CAA §113(c)(6). Employees can be held criminally liable if they knew or should have known that their employer failed to comply with applicable regulations. United States v. Hong, 242 F.3d 528 (4th Cir. 2001) (CWA); United States v. Johnson & Towers, 741 F.2d 662, 663 (3d Cir. 1984), cert. denied, 469 U.S. 1208 (1985) (RCRA). Even federal contractors have been found criminally liable. In United States v. Dee, 912 F.2d 741 (4th Cir. 1990), three civilian
managers at the U.S. Army’s Aberdeen Proving Ground were convicted of knowingly managing hazardous wastes without a permit in violation of RCRA.

Criminal penalties are particularly severe for knowing violations that endanger human life. The Clean Water Act provides penalties of up to 15 years in prison and fines of up to $250,000 for violations when a defendant knows “that he thereby places another person in imminent danger of death or serious bodily injury.” §309(c)(3). However, in United States v. Borowski, 977 F.2d 27 (1st Cir. 1992), the First Circuit interpreted this “knowing endangerment” provision as applying only to endangerment that occurs after a violation has been committed. The court reversed the felony convictions of the owner of a nickel-plating company who violated pretreatment standards by having his employees ladle high quantities of nickel and nitric acid into plating-room sinks from which they flowed untreated into a sewer. This caused the employees to suffer daily nose bleeds, rashes, blisters, and difficulty breathing. Even though the defendant had placed his employees in danger, the court held that a conviction “cannot be premised upon danger that occurs before the pollutant reaches a publicly-owned sewer or treatment works,” because the Act was not violated until then. 977 F.2d at 32.

In October 1994, a plant manager and an employee of Durex Industries were sentenced to 27 months in prison for illegal disposal of hazardous waste in violation of RCRA. They placed waste chemicals into a dumpster, where their fumes killed two nine-year-old boys who climbed inside the dumpster. The defendants were acquitted of the more serious offense of knowing endangerment.

Courts continue to wrestle with difficult issues that arise at the intersection between criminal law and environmental law. Conflicts over criminal enforcement of the environmental laws can be viewed in part as the latest battleground in a war between two fundamentally different views on environmental issues, which have been termed “moral outrage” and “cool analysis.” The “morally outraged” view environmental standards as establishing a moral obligation, while “cool analysts” view sanctions as simply part of the cost of doing business. The two approaches differ over both the aims to be served by environmental standards and their attitudes toward compliance, as described in Schroeder, Cool Analysis Versus Moral Outrage in the Development of Federal Environmental Criminal Law, 35 Wm. & Mary L. Rev. 251 (1993). Professor Richard Lazarus argues that the sharply divergent characteristics of environmental law and criminal law make assimilation and integration of them an enormous challenge. Lazarus, Meeting the Demands of Integration in the Evolution of Environmental Law: Reforming Environmental Criminal Law, 83 Geo. L.J. 2407 (1995). He notes that: (1) environmental law deals with reducing risks of harm, while criminal laws are concerned with actual harm; (2) proof of causation is far more difficult in environmental cases than for traditional crimes; (3) pollution is inevitable and pervasive; and (4) environmental law is aspirational, dynamic, and inherently complex.

Consider the interface between environmental and criminal laws as you read the case below. It involves prosecution of two managers of a sewage treatment plant for illegal discharges of pollutants in violation of an NPDES permit. The government argued that it was not necessary to prove that the managers knew the discharges exceeded levels allowed in the permit in order to obtain criminal convictions. The panel’s decision was so controversial that it generated five votes for a rehearing en banc accompanied by a vigorous dissent, also reproduced below, when that petition was denied.
Michael H. Weitzenhoff and Thomas W. Mariani, who managed the East Honolulu Community Services Sewage Treatment Plant, appeal their convictions for violations of the Clean Water Act ("CWA"), 33 U.S.C. §§1251 et seq., contending that the district court misconstrued the word "knowingly" under section 1319(c)(2) of the CWA.

**FACTS AND PROCEDURAL HISTORY**

In 1988 and 1989 Weitzenhoff was the manager and Mariani the assistant manager of the East Honolulu Community Services Sewage Treatment Plant ("the plant"), located not far from Sandy Beach, a popular swimming and surfing beach on Oahu. The plant is designed to treat some 4 million gallons of residential wastewater each day by removing the solids and other harmful pollutants from the sewage so that the resulting effluent can be safely discharged into the ocean. The plant operates under a permit issued pursuant to the National Pollution Discharge Elimination System ("NPDES"), which established the limits on the Total Suspended Solids ("TSS") and Biochemical Oxygen Demand ("BOD")—indicators of the solid and organic matter, respectively, in the effluent discharged at Sandy Beach. During the period in question, the permit limited the discharge of both the TSS and BOD to an average of 976 pounds per day over a 30-day period. It also imposed monitoring and sampling requirements on the plant’s management.

The sewage treatment process that was overseen by Weitzenhoff and Mariani . . . [generates a substance] known as waste activated sludge ("WAS"). From the holding tanks, the WAS could be returned to other phases of the treatment process or hauled away to a different sewage treatment facility.

From March 1987 through March 1988, the excess WAS generated by the plant was hauled away to another treatment plant, the Sand Island Facility. In March 1988, certain improvements were made to the East Honolulu plant and the hauling was discontinued. Within a few weeks, however, the plant began experiencing a buildup of excess WAS. Rather than have the excess WAS hauled away as before, however, Weitzenhoff and Mariani instructed two employees at the plant to dispose of it on a regular basis by pumping it from the storage tanks directly into the outfall, that is, directly into the ocean. The WAS thereby bypassed the plant’s effluent sampler so that the samples taken and reported to Hawaii’s Department of Health ("DOH") and the EPA did not reflect its discharge.

The evidence produced by the government at trial showed that WAS was discharged directly into the ocean from the plant on about 40 separate occasions from April 1988 to June 1989, resulting in some 436,000 pounds of pollutant solids being discharged into the ocean, and that the discharges violated the plant’s 30-day average effluent limit under the permit for most of the months during which they occurred. Most of the WAS discharges occurred during the night, and none was reported to the DOH or EPA. DOH inspectors contacted the plant on several occasions in 1988 in response to complaints by lifeguards at
Sandy Beach that sewage was being emitted from the outfall, but Weitzenhoff and Mariani repeatedly denied that there was any problem at the plant. In one letter responding to a DOH inquiry in October 1988, Mariani stated that “the debris that was reported could not have been from the East Honolulu Waste-water Treatment facility, as our records of effluent quality up to this time will substantiate.” One of the plant employees who participated in the dumping operation testified that Weitzenhoff instructed him not to say anything about the discharges, because if they all stuck together and did not reveal anything, “they [couldn’t] do anything to us.”

Following an FBI investigation, Weitzenhoff and Mariani were charged in a thirty-one-count indictment with conspiracy and substantive violations of the Clean Water Act (“CWA”), 33 U.S.C. §§1251 et seq. At trial, Weitzenhoff and Mariani admitted having authorized the discharges, but claimed that their actions were justified under their interpretation of the NPDES permit. The jury found them guilty of six of the thirty-one counts.1

Weitzenhoff was sentenced to twenty-one months and Mariani thirty-three months imprisonment. Each filed a timely notice of appeal.

DISCUSSION

A. Intent Requirement

Section 1311(a) of the CWA prohibits the discharge of pollutants into navigable waters without an NPDES permit. 33 U.S.C. §1311(a). Section 1319(c)(2) makes it a felony offense to “knowingly violate[ ] section 1311, 1312, 1316, 1317, 1318, 1321(b)(3), 1328, or 1345 . . . , or any permit condition or limitation implementing any of such sections in a permit issued under section 1342.”

Prior to trial, the district court construed “knowingly” in section 1319(c)(2) as requiring only that Weitzenhoff and Mariani were aware that they were discharging the pollutants in question, not that they knew they were violating the terms of the statute or permit. According to appellants, the district court erred in its interpretation of the CWA and in instructing the jury that “the government is not required to prove that the defendant knew that his act or omissions were unlawful,” as well as in rejecting their proposed

1. Weitzenhoff and Mariani were found guilty of count 1, conspiracy to discharge the WAS in violation of the NPDES permit and the Clean Water Act, a violation of 18 U.S.C. §371; count 9, knowingly discharging WAS in violation of the permit between March and October 1988, a violation of 33 U.S.C. §§1311(a) and 1319(c)(2) and 18 U.S.C. §2; count 10, knowingly rendering inaccurate the plant’s monitoring method by discharging WAS beyond the plant’s effluent sampler during a period in 1988, a violation of 33 U.S.C. §1319(c)(4) and 18 U.S.C. §2; count 22, knowingly making false representations in monthly discharge monitoring reports filed with government regulators by failing to report their discharges of WAS, a violation of 33 U.S.C. §1319(c)(4) and 18 U.S.C. §2; count 30, knowingly discharging WAS in violation of the permit between January and July 1989, a violation of 33 U.S.C. §§1311(a) and 1319(c)(2) and 18 U.S.C. §2; and count 31, knowingly rendering inaccurate the plant’s monitoring method by discharging WAS beyond the plant’s effluent sampler during a period in 1989, a violation of 33 U.S.C. §1319(c)(4) and 18 U.S.C. §2. On appeal, most of appellants’ energies are directed against the section 1319(c)(2) violations, which are premised on the language of the NPDES permit. Section 1319(c)(4) criminalizes the making of false statements in any document or rendering inaccurate of any monitoring device or method required to be maintained under the CWA.
instruction based on the defense that they mistakenly believed their conduct was
authorized by the permit. Apparently, no court of appeals has confronted the
issue raised by appellants.

We review a question of statutory construction de novo . . .

As with certain other criminal statutes that employ the term “knowingly,” it
is not apparent from the face of the statute whether “knowingly” means a
knowing violation of the law or simply knowing conduct that is violative of
the law. We turn, then, to the legislative history of the provision at issue to
ascertain what Congress intended.

In 1987, Congress substantially amended the CWA, elevating the penalties
(1986). Increased penalties were considered necessary to deter would-be pollu-
Congress substituted “knowingly” for the earlier intent requirement of “willfully”
that appeared in the predecessor to section 1319(c)(2).4 The Senate report
accompanying the legislation explains that the changes in the penalty provisions
were to ensure that “criminal liability shall . . . attach to any person who is not in
compliance with all applicable Federal, State and local requirements and per-

mits and causes a POTW [publicly owned treatment works] to violate any effluent
limitation or condition in any permit issued to the treatment works.” Id. (em-
phasis added). Similarly, the report accompanying the House version of the bill,
which contained parallel provisions for enhancement of penalties, states that
the proposed amendments were to “provide penalties for dischargers or indi-
viduals who knowingly or negligently violate or cause the violation of certain of the
(emphasis added). Because they speak in terms of “causing” a violation, the
congressional explanations of the new penalty provisions strongly suggest that
criminal sanctions are to be imposed on an individual who knowingly engages in
conduct that results in a permit violation, regardless of whether the polluter is
cognizant of the requirements or even the existence of the permit.

Our conclusion that “knowingly” does not refer to the legal violation is
fortified by decisions interpreting analogous public welfare statutes. The leading
case in this area is United States v. International Minerals & Chem. Corp., 402
U.S. 558 (1971). In International Minerals, the Supreme Court construed a statute
which made it a crime to “knowingly violate[ ] any . . . regulation” promulgated
by the [Interstate Commerce Commission] pursuant to 18 U.S.C. §834(a), a
provision authorizing the agency to formulate regulations for the safe transport
of corrosive liquids. Id. at 559. The Court held that the term “knowingly”
referred to the acts made criminal rather than a violation of the regulation,
and that “regulation” was a shorthand designation for the specific acts or omissions
contemplated by the act. Id. at 560-562. “Where . . . dangerous or deleteri-
ous devices or products or obnoxious waste materials are involved, the probability
of regulation is so great that anyone who is aware that he is in possession of them
or dealing with them must be presumed to be aware of the regulation.” Id. at 565.
This court followed *International Minerals* in *United States v. Hoflin*, 880 F.2d 1033 (9th Cir. 1989), cert. denied, 493 U.S. 1083 (1990), when it held that knowledge of the absence of a permit is not an element of the offense defined by 42 U.S.C. §6928(d) (2)(A), part of the Resource Conservation and Recovery Act ("RCRA"). Id. at 1039. "There can be little question that RCRA’s purposes, like those of the Food and Drug Act, ‘. . . touch phases of the lives and health of people which, in the circumstances of modern industrialism, are largely beyond self-protection.’" Id. at 1038 (quoting United States v. Dotterweich, 320 U.S. 277, 280 (1943) (construing Food, Drug and Cosmetic Act)); see also United States v. Sherbondy, 865 F.2d 996, 1001-03 (9th Cir. 1988) (use of word "knowingly" in 18 U.S.C. §§922(g) & 924(A) (1) (B), part of Firearms Owners’ Protection Act, does not require proof that defendant knew he was violating law).5 Other courts have also followed *International Minerals* by similarly construing the knowledge requirement in statutes that regulate deleterious devices or obnoxious waste materials. E.g., United States v. Laughlin, 10 F.3d 961, 965-66 (2d Cir. 1993) (§6928(d) (2) (A) of RCRA), cert. denied, 114 S. Ct. 1649 (1994); United States v. Buckley, 934 F.2d 84, 88 (6th Cir. 1991) (pre-1990 version of §7413(c)(1)(C) of the Clean Air Act); United States v. Dee, 912 F.2d 741, 745 (4th Cir. 1990), cert. denied, 499 U.S. 919 (1991) (§6928(d)(2) (A) of RCRA); United States v. Corbin Farm Servs., 444 F. Supp. 510, 519-20 (E.D. Cal.), aff’d, 578 F.2d 259 (9th Cir. 1978) (Federal Insecticide, Fungicide and Rodenticide Act).6

Appellants seek to rely on the Supreme Court’s decision in *Liparota v. United States*, 471 U.S. 419 (1985), to support their alternative reading of the intent requirement. *Liparota* concerned 7 U.S.C. §2024(b)(1), which provides that anyone who “knowingly uses, transfers, acquires, alters, or possesses [food stamp] coupons or authorization cards in any manner not authorized by [the statute] or regulations” is subject to a fine or imprisonment. Id. at 420. The Court, noting that the conduct at issue did not constitute a public welfare offense, distinguished the *International Minerals* line of cases and held that

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5. Weitzenhoff argues that this case is controlled by United States v. Speach, 968 F.2d 795, 796-97 (9th Cir. 1992), in which we held that 42 U.S.C. §6928(d)(1), which imposes criminal liability on parties who “knowingly transport[ ] . . . hazardous waste . . . to a facility which does not have a permit,” requires that the transporter know that he acted in violation of the statute. This argument is unavailing because *Speach* recognizes the general rule that public welfare offenses are not to be construed to require proof that the defendant knew he was violating the law in the absence of clear evidence of contrary congressional intent and finds only a narrow exception to this general rule. In *Speach*, we relied on the fact that the defendant was not the permittee but simply the individual who transported waste to the permittee, and, as contrasted to the permittee was not “the person in the best position to know the facility’s permit status.” Id. at 797. Although we considered it unreasonable to put the defendant at risk for failing to ascertain the permit status of the receiving facility, we recognized that such a risk is not unreasonable when the permittee is also the defendant. Id. in this case, as the permittees, appellants are clearly in the best position to know their own permit status, and are among those persons upon whom the *Speach* court would impose liability.

6. Like the court in *International Minerals*, we construe the language in §1319(c)(2)(A) prohibiting knowing violation of “any permit condition” as a “shorthand designation for specific acts” that violate the CWA. See *International Minerals*, 402 U.S. at 567. In both §1319(c)(2)(A) and the statute in question in *International Minerals*, the penalty provisions were drafted in a general fashion to encompass a wide variety of possible violations of the Acts and the word “knowingly” is used to reflect a requirement that the government prove general intent in order to establish a violation.
the government must prove the defendant knew that his acquisition or posses-
sion of food stamps was in a manner unauthorized by statute or regulations. Id.
at 432-33.

Subsequent to the filing of the original opinion in this case, the Supreme
Court decided two cases which Weitzenhoff contends call our analysis into
question. See Ratzlaf v. United States, 114 S. Ct. 655 (1994); Staples v.

The statute in Ratzlaf does not deal with a public welfare offense, but rather
with violations of the banking statutes. The Court construed the term “willfully”
in the anti-structuring provisions of the Bank Secrecy Act to require both that
the defendant knew he was structuring transactions to avoid reporting require-
ments and that he knew his acts were unlawful. The Court recognized that the
money structuring provisions are not directed at conduct which a reasonable
person necessarily should know is subject to strict public regulation and that the
structuring offense applied to all persons with more than $10,000, many of
whom could be engaged in structuring for innocent reasons. Ratzlaf, 114
S. Ct. at 660-62. In contrast, parties such as Weitzenhoff are closely regulated
and are discharging waste materials that affect public health. The International
Minerals rationale requires that we impute to these parties knowledge of their
operating permit. This was recognized by the Court in Staples.

The specific holding in Staples was that the government is required to prove
that a defendant charged with possession of a machine gun knew that the
weapon he possessed had the characteristics that brought it within the statutory
definition of a machine gun. But the Court took pains to contrast the gun laws to
other regulatory regimes, specifically those regulations that govern the handling
of “obnoxious waste materials.” See Staples, 114 S. Ct. at 1798. It noted that the
mere innocent ownership of guns is not a public welfare offense. Id. at 1804. The
Court focussed on the long tradition of widespread gun ownership in this
country and, recognizing that approximately 50% of American homes contain
a firearm, id. at 1801, acknowledged that mere ownership of a gun is not suffi-
cient to place people on notice that the act of owning an unregistered firearm is
not innocent under the law.

Staples thus explicitly contrasted the mere possession of guns to public
welfare offenses, which include statutes that regulate “dangerous or deleterious
devices or products or obnoxious waste materials,” id. at 1800, and confirmed
the continued vitality of statutes covering public welfare offenses, which “regu-
late potentially harmful or injurious items” and place a defendant on notice that
he is dealing with a device or a substance “that places him in ‘responsible rela-
tion to a public danger.’” Id. “In such cases Congress intended to place the
burden on the defendant to ascertain at his peril whether [his conduct] comes
within the inhibition of the statute.” Id. at 1798 (citations and internal quota-
tions omitted).

Unlike “guns [which] in general are not ‘deleterious devices or products
or obnoxious waste materials,’ International Minerals, supra, . . . that put their
owners on notice that they stand ‘in responsible relation to a public danger[,]’
Dotterweich, 320 U.S. at 281,” Staples, 114 S. Ct. at 1800, the dumping of
sewage and other pollutants into our nation’s waters is precisely the type of
activity that puts the discharger on notice that his acts may pose a public danger.
Like other public welfare offenses that regulate the discharge of pollutants into
the air, the disposal of hazardous wastes, the undocumented shipping of acids,
and the use of pesticides on our food, the improper and excessive discharge of
sewage causes cholera, hepatitis, and other serious illnesses, and can have serious repercussions for public health and welfare.\(^7\)

The criminal provisions of the CWA are clearly designed to protect the public at large from the potentially dire consequences of water pollution, see S. Rep. No. 99-50, 99th Cong., 1st Sess. 29 (1985), and as such fall within the category of public welfare legislation. *International Minerals* rather than *Liparota* controls the case at hand. The government did not need to prove that Weitzenhoff and Mariani knew that their acts violated the permit or the CWA. \ldots

**KLEINFELD, Circuit Judge, with whom Circuit Judges REINHARDT, KOZINSKI, TROTT, and T.G. NELSON join, dissenting from the order rejecting the suggestion for rehearing en banc.**

I respectfully dissent from our decision to reject the suggestion for rehearing en banc.

Most of us vote against most such petitions and suggestions even when we think the panel decision is mistaken. We do so because federal courts of appeals decide cases in three judge panels. En banc review is extraordinary, and is generally reserved for conflicting precedent within the circuit which makes application of the law by district courts unduly difficult, and egregious errors in important cases. In my view, this is a case of exceptional importance, for two reasons. First, it impairs a fundamental purpose of criminal justice, sorting out the innocent from the guilty before imposing punishment. Second, it does so in the context of the Clean Water Act. This statute has tremendous sweep. Most statutes permit anything except what is prohibited, but this one prohibits all regulated conduct involving waters and wetlands except what is permitted. 33 U.S.C. §1311(a); United States v. Riverside Bayview Homes, Inc., 474 U.S. 121 (1985). Much more ordinary, innocent, productive activity is regulated by this law than people not versed in environmental law might imagine.

The harm our mistaken decision may do is not necessarily limited to Clean Water Act cases. Dilution of the traditional requirement of a criminal state of mind, and application of the criminal law to innocent conduct, reduces the moral authority of our system of criminal law. If we use prison to achieve social goals regardless of the moral innocence of those we incarcerate, then imprisonment loses its moral opprobrium and our criminal law becomes morally arbitrary.

We have now made felons of a large number of innocent people doing socially valuable work. They are innocent, because the one thing which makes

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\(^7\) In *Staples*, the Court also noted that the penalty attached to a violation of a criminal statute in the past has been a relevant factor in determining whether the statute defines a public welfare offense. The Court recognized that public welfare offenses originally involved statutes that provided only light penalties such as fines or short jail sentences, see 114 S. Ct. at 1802, but that modern statutes now punish public welfare offenses with much more significant terms of imprisonment. E.g., *International Minerals*, 402 U.S. 558 (ten years imprisonment if death or bodily injury results from violation); United States v. Freed, 401 U.S. 601, 609-10 (1971) (five years imprisonment for possession of unregistered grenade); *Hoflin*, 880 F.2d 1033 (two years imprisonment for certain violations of RCRA). While the *Staples* opinion expresses concern with this evolution of enhanced punishments for public welfare offenses, it refrains from holding that public welfare offenses may not be punished as felonies. *Staples*, 114 S. Ct. at 1804 (stating that: the early cases suggest that public welfare offenses might not extend to felonies, but noting that “we need not adopt such a definitive rule of construction to decide this case”).
their conduct felonious is something they do not know. It is we, and not Congress, who have made them felons. The statute, read in an ordinary way, does not. If we are fortunate, sewer plant workers around the circuit will continue to perform their vitally important work despite our decision. If they knew they risk three years in prison, some might decide that their pay, though sufficient inducement for processing the public’s wastes, is not enough to risk prison for doing their jobs. We have decided that they should go to prison if, unbeknownst to them, their plant discharges exceed permit limits. Likewise for power plant operators who discharge warm water into rivers near their plants, and for all sorts of other dischargers in public and private life. If they know they are discharging into water, have a permit for the discharges, think they are conforming to their permits, but unknowingly violate their permit conditions, into prison they go with the violent criminals.

The statute does not say that. The statute at issue makes it a felony, subject to three years of imprisonment, to “knowingly violate[ ] . . . any permit condition or limitation.” 33 U.S.C. §1319(c)(2)(A). In this case, the defendants, sewage plant operators, had a permit to discharge sewage into the ocean, but exceeded the permit limitations. The legal issue for the panel was what knowledge would turn innocently or negligently violating a permit into “knowingly” violating a permit. Were the plant operators felons if they knew they were discharging sewage, but did not know that they were violating their permit? Or did they also have to know they were violating their permit? Ordinary English grammar, common sense, and precedent, all compel the latter construction.

As the panel opinion states the facts, these two defendants were literally “midnight dumpers.” They managed a sewer plant and told their employees to dump 436,000 pounds of sewage into the ocean, mostly at night, fouling a nearby beach. Their conduct, as set out in the panel opinion, suggests that they must have known they were violating their National Pollution Discharge Elimination System (NPDES) permit. United States v. Weitzenhoff, 1 F.3d 1523, 1527-28 (9th Cir. 1993). But we cannot decide the case on that basis, because the jury did not. The court instructed the jury that the government did not have to prove the defendants knew their conduct was unlawful, and refused to instruct the jury that a mistaken belief that the discharge was authorized by the permit would be a defense. Because of the way the jury was instructed, its verdict is consistent with the proposition that the defendants honestly and reasonably believed that their NPDES permit authorized the discharges.

This proposition could be true. NPDES permits are often difficult to understand and obey. The EPA had licensed the defendants’ plant to discharge 976 pounds of waste per day, or about 409,920 pounds over the fourteen months covered by the indictment, into the ocean. The wrongful conduct was not discharging waste into the ocean. That was socially desirable conduct by which the defendants protected the people of their city from sewage-borne disease and earned their pay. The wrongful conduct was violating the NPDES permit by discharging 26,000 more pounds of waste than the permit authorized during the fourteen months. Whether these defendants were innocent or not, in the sense of knowing that they were exceeding their permit limitation, the panel’s holding will make innocence irrelevant in other permit violation cases where the

defendants had no idea that they were exceeding permit limits. The only thing they have to know to be guilty is that they were dumping sewage into the ocean, yet that was a lawful activity expressly authorized by their federal permit.

The statute says “knowingly violates . . . any permit condition or limitation.” “Knowingly” is an adverb. It modifies the verb “violates.” The object of the verb is “any permit condition or limitation.” The word “knowingly” is placed before “violates” to “explain its meaning in the case at hand more clearly.” 1 George O. Curme, A Grammar of the English Language 72 (1935). Congress has distinguished those who knowingly violate permit conditions, and are thereby felons, from those who unknowingly violate permit conditions, so are not. The panel reads the statute as though it says “knowingly discharges pollutants.” It does not. If we read the statute on the assumption that Congress used the English language in an ordinary way, the state of mind required is knowledge that one is violating a permit condition.

This approach has the virtue of attributing common sense and a rational purpose to Congress. Cf. Longview Fibre Co. v. Rasmussen, 980 F.2d 1307, 1311 (9th Cir. 1992); United States v. Martinez-Cano, 6 F.3d 1400, 1405 (9th Cir. 1993) (dissent). It is one thing to defy a permit limitation, but quite another to violate it without realizing that one is violating it. Congress promulgated a parallel statute making it a misdemeanor “negligently” to violate a permit condition or limitation. 33 U.S.C. §1319(c)(1)(A). If negligent violation is a misdemeanor, why would Congress want to make it a felony to violate the permit without negligence and without even knowing that the discharge exceeded the permit limit? That does not make any sense. It would deter people from working in sewer plants, instead of deterring people from violating permits. All dischargers acting lawfully pursuant to a permit know that they are discharging pollutants. The presence or absence of that knowledge, which is the only mental element determining guilt under the panel’s decision, has no bearing on any conduct Congress could have meant to turn into a felony. The only knowledge which could have mattered to Congress, the only knowledge which distinguishes good conduct from bad, is knowledge that the discharge violates the permit. That is what the statute says, “knowingly violates,” not “knowingly discharges.” There is no sensible reason to doubt that Congress meant what it said and said what it meant.

The panel reaches its surprising result in surprising ways. First, it says that the statute is ambiguous. “As with certain other criminal statutes that employ the term ‘knowingly,’ it is not apparent from the face of the statute whether ‘knowingly’ means a knowing violation of the law or simply knowing conduct that is violative of the law.” Weitzenhoff, 1 F.3d at 1529. As explained above, a grammatical and sensible reading of the statute leaves no room for ambiguity. But for the sake of discussion, suppose that the statute is ambiguous, as the panel says. Then the rule of lenity requires that the construction allowing the defendant more liberty rather than less be applied by the courts. . . .

The panel . . . tries to bolster its construction by categorizing the offense as a “public welfare offense,” as though that justified more aggressive criminalization without a plain statutory command. This category is a modernized version of “malum prohibitum.” Traditionally the criminal law distinguishes between malum in se, conduct wrong upon principles of natural moral law, and malum prohibitum, conduct not inherently immoral but wrong because prohibited by law. Black’s Law Dictionary 1112 (4th ed. 1951). To put this in plain, modern terms, any normal person knows murder, rape, and robbery are
wrong, and they would be wrong even in a place with no sovereign and no law. Discharging 6% more pollutants than one’s permit allows is wrong only because the law says so. Substitution of the modern term “public welfare offense” for the traditional one, malum prohibitum, allows for confusion by rhetorical suggestion. The new term suggests that other offenses might merely be private in their impact, and therefore less serious. The older set of terms made it clear that murder was more vile than violating a federal regulation. The category of malum prohibitum, or public welfare offenses, makes the rule of lenity especially important, most particularly for felonies, because persons of good conscience may not recognize the wrongfulness of the conduct when they engage in it.

Staples v. United States, 114 S. Ct. 1793 (1994), reminds us that “offenses that require no mens rea generally are disfavored. . . .” 114 S. Ct. at 1797. Mens rea may be dispensed within public welfare offenses, but the penalty is a “significant consideration in determining whether the statute should be construed as dispensing with mens rea.” 114 S. Ct. at 1802. . . . If Congress makes a crime a felony, the felony categorization alone is a “factor tending to suggest that Congress did not intend to eliminate a mens rea requirement. In such a case, the usual presumption that a defendant must know the facts that make his conduct illegal should apply.” 114 S. Ct. at 1804. In the case at bar, “the facts that make his conduct illegal” are the permit violations, not the discharges of pollutants. Discharge of pollutants was licensed by the federal government in the NPDES permit. Under Staples, it would be presumed, even if the law did not plainly say so, that the defendant would have to know that he was violating the permit in order to be guilty of the felony. . . .

The panel cites United States v. International Minerals & Chem. Corp., 402 U.S. 558 (1971) . . . in support of its reading. International Minerals was a . . . misdemeanor case. Because of the syntactically similar statute at issue in that case, it is the strongest authority for the panel’s decision and raises the most serious question for my own analysis. It held that a shipper of sulfuric acid could be convicted of violating a statute applying to those who “knowingly violate[]” regulations governing shipments of corrosive liquids, regardless of whether he had knowledge of the regulations. International Minerals expressly limits its holding to “dangerous or deleterious devices or products or obnoxious waste materials.” 402 U.S. at 565. The Court distinguished materials not obviously subject to regulation:

Pencils, dental floss, paper clips may also be regulated. But they may be the type of products which might raise substantial due process questions if Congress did not require . . . “mens rea” as to each ingredient of the offense. But where, as here . . . , dangerous or deleterious devices or products or obnoxious waste materials are involved, the probability of regulation is so great that anyone who is aware that he is in possession of them or dealing with them must be presumed to be aware of the regulation.

Id. at 564-565. International Minerals would have much persuasive force for Weitzenhoff, because of the grammatical similarity of the statute, if (1) the Clean Water Act limited pollutants to “dangerous or deleterious devices or products or obnoxious waste materials”; (2) the crime was only a misdemeanor; and (3) Staples had not come down this term. But all three of these conditions are contrary to fact. The pollutants to which the Clean Water Act felony statute applies include many in the “pencils, dental floss, paper clips” category. Hot water, rock, and sand are classified as “pollutants” by the Clean Water Act. See
33 U.S.C. §1362(6). Discharging silt from a stream back into the same stream may amount to discharge of a pollutant. For that matter, so may skipping a stone into a lake. So may a cafeteria worker’s pouring hot, stale coffee down the drain. Making these acts a misdemeanor is one thing, but a felony is quite another as *Staples* teaches. . . .

The panel, finally, asserts that as a matter of policy, the Clean Water Act crimes “are clearly designed to protect the public at large from the dire consequences of water pollution.” That is true, but the panel does not explain how the public is to be protected by making felons of sewer workers who unknowingly violate their plants’ permits. Provision for sanitary sewage disposal is among the most ancient laws of civilization. Deuteronomy 23:12-13. Sewage workers perform essential work of great social value. Probably nothing has prevented more infant mortality, or freed more people from cholera, hepatitis, typhoid fever, and other disease, than the development in the last two centuries of municipal sewer systems. See W.H. Corfield, The Treatment and Utilisation of Sewage 17-27 (1871). Sewage utility workers perform their difficult work in malodorous and dangerous environments. We have now imposed on these vitally important public servants a massive legal risk, unjustified by law or precedent, if they unknowingly violate their permit conditions.

Nor is the risk of prison limited to sewage plant workers. It applies to anyone who discharges pollutants pursuant to a permit, and unknowingly violates the permit. The panel suggests that criminalizing this innocent conduct will protect the public from water pollution. It is at least as likely that the increased criminal risk will raise the cost and reduce the availability of such lawful and essential public services as sewage disposal. We should not deprive individuals of justice, whether the judicial action would serve some desirable policy or not. It is by no means certain that the panel’s construction will advance the underlying policy it attributes to Congress. We should apply the words Congress and the President promulgated as law, leaving the difficult policy choices to them.

We undermine the foundation of criminal law when we so vitiate the requirement of a criminal state of knowledge and intention as to make felons of the morally innocent.

**NOTES AND QUESTIONS**

1. The defendants had argued at trial that their midnight dumping of toxic sludge actually was an effort to restore the treatment plant’s biological balance to prevent a complete shutdown of the plant that would have caused far more environmental harm. While the plant’s NPDES permit authorized bypasses for “essential maintenance to assure efficient operation” of the plant, the court found that the discharges were not permissible bypasses. 35 F.3d at 1288. The court found that the plant’s permit was not unconstitutionally vague, noting that “appellants had adequate notice of the illegality of their dumping” as was indicated by the considerable pains they took to conceal their activities. The discharges were effected mainly at night; plant personnel were not to discuss them; and Weitzenhoff and Mariani consistently repeatedly denied the illicit operation when questioned by health authorities. These are not the ways of conscientious managers seeking to safeguard the environment. [Id. at 1289.]
Would the defendants have been more likely to prevail on appeal if they had made no effort whatsoever to conceal their activities?

2. Even the judges dissenting from the denial of a rehearing en banc agreed that the defendants’ conduct “suggests that they must have known that they were violating their [NPDES] permit.” 35 F.3d at 1294. Why then did the dissenting judges suggest the convictions should be reversed?

3. What is the rationale for not requiring a showing of specific intent to violate regulations when “public welfare” offenses are involved? What type of offenses should be considered public welfare offenses? Do the judges who dissented from denial of a rehearing en banc agree that violating the terms of an NPDES permit should be considered to be a public welfare offense? Do they differ from the majority in their views concerning the seriousness of the violations?

4. In United States v. Ahmad, 101 F.3d 386 (5th Cir. 1996), the Fifth Circuit reversed a criminal conviction under the Clean Water Act of a defendant who claimed at trial that he thought he was discharging water and not gasoline. The court held that the mens rea of knowledge applied to each element of the offense, thus requiring the government to prove that the defendant knew that what he was discharging was a pollutant. The court distinguished Weitzenhoff as addressing only whether the language of the Clean Water Act creates a mistake-of-law defense, as opposed to the mistake-of-fact defense raised in Ahmad. In United States v. Wilson, 133 F.3d 251 (4th Cir. 1997), a panel of the Fourth Circuit followed the Ahmad interpretation of the mens rea required for a criminal conviction under the Clean Water Act. The Wilson court rejected the defendant’s argument that it should construe the word “knowingly” as requiring that the defendant appreciate the illegality of his acts, finding that such an interpretation would obliterate the distinction between “knowingly” and “willfully.” However, the court held that “Congress intended that the defendant have knowledge of each of the elements constituting the proscribed conduct even if he were unaware of their legal significance.” Thus it concluded that while a defendant’s ignorance of his conduct’s illegality does not provide a defense, a defendant can argue a mistake of fact as a defense. As a result, “to establish a felony violation of the Clean Water Act” the government must prove: (1) that the defendant knew that he was discharging a substance, eliminating a prosecution for accidental discharges; (2) that the defendant correctly identified the substance he was discharging, not mistaking it for a different, prohibited substance; (3) that the defendant knew the method or instrumentality used to discharge the pollutants; (4) that the defendant knew the physical characteristics of the property into which the pollutant was discharged that identify it as a wetland, such as the presence of water and water-loving vegetation; (5) that the defendant was aware of the facts establishing the required link between the wetland and waters of the United States; and (6) that the defendant knew he did not have a permit. This last requirement does not require the government to show that the defendant knew that permits were available or required. Rather, it, like the other requirements, preserves the availability of a mistake of fact defense if the defendant has something he mistakenly believed to be a permit to make the discharges for which he is being prosecuted. [133 F.3d at 264.]

5. Some have proposed enacting legislation that would bar the imposition of civil or criminal penalties on defendants who “reasonably in good faith determined” that they were in compliance with an environmental regulation. What effect would such legislation have on enforcement efforts? In General
Electric Company v. EPA, 53 F.3d 1324 (D.C. Cir. 1995), discussed on page 953, the D.C. Circuit barred the imposition of civil penalties on defendants who did not have “fair warning” of EPA’s interpretation of regulations. The court held that “[w]here, as here, the regulations and other policy statements are unclear, where the petitioner’s interpretation is reasonable, and where the agency itself struggles to provide a definitive reading of the regulatory requirements, a regulated party is not ‘on notice’ of the agency’s ultimate interpretation of the regulations, and may not be punished.” 53 F.3d at 1333-1334. Does the availability of this defense make the use of a general intent standard for proving environmental felonies less troublesome?

6. Professor Richard Lazarus argues the public welfare rationale for dispensing with specific intent requirements, as represented by the International Minerals decision, should not be applied reflexively to environmental felonies. Lazarus, Meeting the Demands of Integration in the Evolution of Environmental Law: Reforming Environmental Criminal Law, 83 Geo. L.J. 2407 (1995). He notes that International Minerals, which involved a misdemeanor, did not hold that persons dealing with hazardous materials must be presumed to be aware of the applicable regulations, but rather only that Congress could choose to assume such knowledge without violating due process. Lazarus observes that in many environmental law contexts it is not the case that regulations are readily discernible or that regulated entities are part of a specialized, highly regulated activity, factors that would make dispensing with specific intent requirements more palatable. Lazarus’ arguments were challenged by the Assistant and Deputy Assistant Attorneys General for the Environment and Natural Resources Division in Schiffer & Simon, The Reality of Prosecuting Environmental Criminals: A Response to Professor Lazarus, 83 Geo. L.J. 2531 (1995). They maintain that adopting a specific intent or “willfulness” requirement would make convictions impossible under the following circumstances:

(1) A trucker dumps hundreds of drums of flammable, explosive, and toxic wastes in fields and vacant lots in a rural area. He knows that they are dangerous, but he has no knowledge of the laws that regulate the handling of such wastes.

(2) A ship owner loads hazardous wastes as ballast and dumps those wastes at sea at a place unknown to authorities. He knows of the legal restrictions on dumping, but neither harm nor threat of harm can be determined reliably after the fact.

(3) A laboratory that was paid to analyze environmental samples instead simply disposes of the samples and provides clients with fictitious results that always show that the clients are in compliance with their permits. Given those assurances, the clients take no steps to remove contaminants from their wastestreams. No one can reconstruct what contaminants were actually released to the environment or what harm was caused. [Id.]

Do you agree that requiring proof that the defendant knew the regulations were being violated would make prosecution impossible in these situations? Would this imply that environmental law needs to criminalize even some conduct that is non-culpable in order to make it possible to convict certain truly culpable individuals?

7. The debate over the proper intent standard for environmental felonies reflects concerns about how much discretion prosecutors have and how well
they exercise that discretion. Assistant Attorney General Lois Schiffer argues that there already are sufficient legal protections to prevent abuses of prosecutorial discretion, citing the rule of lenity and the doctrine that “an honest mistake regarding facts that would otherwise make ... conduct criminal ... negates the intent required for a felony conviction under the environmental laws.” Id. at 2535. In addition, prosecutorial discretion is subject to policy guidance.

In January 1994, EPA issued a guidance document on criminal enforcement entitled The Exercise of Investigative Discretion. The publication directs agency investigators to focus on the “most significant and egregious violators” of the environmental laws based on the environmental consequences of the violations and the culpability of the conduct that generated them. Criteria for assessing the culpability of conduct include a history of repeat violations, evidence of deliberate misconduct, efforts to conceal violations, and operations conducted without permits or other regulatory documentation. For an argument that EPA has not done a good job of targeting only the most serious violations, see Gaynor & Bartman, Specific Intent Standard for Environmental Crimes: An Idea Whose Time Has Come, 25 Envtl. Rep. 2206 (1995). Citing potential abuses of prosecutorial discretion, Gaynor and Bartman maintain that the environmental laws should be amended to require that specific intent be proven before convictions can be obtained. EPA’s guidance on criminal case selection suggests that cases involving neither culpable conduct nor significant harm ordinarily should not be prosecuted as criminal cases.

8. Staples v. United States, 511 U.S. 600 (1994), involved a statute which made it a felony to possess an unregistered “firearm.” The statute defined “firearm” to include a fully automatic gun, which would fire more than one bullet on a single pull of the trigger, but not a semiautomatic. The defendant possessed a fully automatic gun, but testified that he did not know it would fire more than one bullet with a single trigger pull. The trial judge had instructed the jury that his ignorance did not matter, so long as the government proved he possessed “a dangerous device of a type as would alert one to the likelihood of regulation.” But the Supreme Court held this to be error, explaining that, unlike hand grenades, semiautomatics are innocently possessed by many people and that the mere knowledge that guns are dangerous and regulated is not enough to require their owners to ascertain regulatory compliance at the risk of a felony conviction.

Congress might see fit to criminalize the violation of certain regulations concerning automobiles, and thus might make it a crime to operate a vehicle without a properly functioning emission control system. But we probably would hesitate to conclude on the basis of silence that Congress intended a prison term to apply to a car owner whose vehicle’s emissions levels, wholly unknown to him, began to exceed legal limits between regular inspection dates. [511 U.S. at 614.]

9. Despite the impassioned dissent of five judges from the denial of a rehearing en banc, the Supreme Court refused to review Weitzenhoff. The Second Circuit reached a similar result in United States v. Hopkins, 53 F.3d 533 (2d Cir. 1995), which the Supreme Court also declined to review. In Hopkins, the court held that deliberate and conscious avoidance of knowledge could satisfy the mens rea requirement of section 309(c)(2) of the Clean Water Act. The court upheld the conviction of a corporate official who had his employees manipulate samples of wastewater discharges to keep them within permit limits, while insisting that he not be told of the results. Hopkins was found guilty of
tampering with a wastewater monitoring device and falsifying discharge monitoring reports in violation of the Clean Water Act. Testimony at trial showed that he routinely discarded monitoring samples that indicated permit violations and diluted others until they did not show violations. Citing Weitzenhoff, the Second Circuit held that the government was required to prove that the defendant “knew the nature of his acts and performed them intentionally, but was not required to prove that he knew that those acts violated the CWA, or any particular provision of that law, or the regulatory permit. . . .” 53 F.3d at 541.

D. STANDING AND CITIZEN ACCESS TO THE COURTS

The public also can play a significant role in enforcement. The environmental laws generally authorize citizen suits against government agencies that fail to implement the laws and against anyone who violates them. Before examining the citizen suit provisions, we consider what persons have a sufficient stake in a controversy to have standing to sue, which was addressed in the following classic case.

Sierra Club v. Morton
405 U.S. 727 (1972)

Mr. Justice Stewart delivered the opinion of the Court.

The Mineral King Valley is an area of great natural beauty nestled in the Sierra Nevada Mountains in Tulare County, California, adjacent to Sequoia National Park. It has been part of the Sequoia National Forest since 1926, and is designated as a national game refuge by special Act of Congress. Though once the site of extensive mining activity, Mineral King is now used almost exclusively for recreational purposes. Its relative inaccessibility and lack of development have limited the number of visitors each year, and at the same time have preserved the valley’s quality as a quasi-wilderness area largely uncluttered by the products of civilization.

The United States Forest Service, which is entrusted with the maintenance and administration of national forests, began in the late 1940s to give consideration to Mineral King as a potential site for recreational development. Prodded by a rapidly increasing demand for skiing facilities, the Forest Service published a prospectus in 1965, inviting bids from private developers for the construction and operation of a ski resort that would also serve as a summer recreation area. The proposal of Walt Disney Enterprises, Inc., was chosen from those of six bidders, and Disney received a three-year permit to conduct surveys and explorations in the valley in connection with its preparation of a complete master plan for the resort.

The final Disney plan, approved by the Forest Service in January 1969, outlines a $35 million complex of motels, restaurants, swimming pools, parking lots, and other structures designed to accommodate 14,000 visitors daily. This complex is to be constructed on 80 acres of the valley floor under a 30-year use permit from the Forest Service. Other facilities, including ski lifts, ski trails, a cog-assisted railway, and utility installations, are to be constructed on the
mountain slopes and in other parts of the valley under a revocable special-use permit. To provide access to the resort, the State of California proposes to construct a highway 20 miles in length. A section of this road would traverse Sequoia National Park, as would a proposed high-voltage power line needed to provide electricity for the resort. Both the highway and the power line require the approval of the Department of the Interior, which is entrusted with the preservation and maintenance of the national parks.

Representatives of the Sierra Club, who favor maintaining Mineral King largely in its present state, followed the progress of recreational planning for the valley with close attention and increasing dismay. They unsuccessfully sought a public hearing on the proposed development in 1965, and in subsequent correspondence with officials of the Forest Service and the Department of the Interior, they expressed the Club’s objections to Disney’s plan as a whole and to particular features included in it. In June 1969 the Club filed the present suit in the United States District Court for the Northern District of California, seeking a declaratory judgment that various aspects of the proposed development contravene federal laws and regulations governing the preservation of national parks, forests, and game refuges, and also seeking preliminary and permanent injunctions restraining the federal officials involved from granting their approval or issuing permits in connection with the Mineral King project. The petitioner Sierra Club sued as a membership corporation with “a special interest in the conservation and the sound maintenance of the national parks, game refuges and forests of the country,” and invoked the judicial-review provisions of the Administrative Procedure Act, 5 U.S.C. §701 et seq.

After two days of hearings, the District Court granted the requested preliminary injunction. It rejected the respondents’ challenge to the Sierra Club’s standing to sue, and determined that the hearing had raised questions “concerning possible excess of statutory authority, sufficiently substantial and serious to justify a preliminary injunction. . . .” The respondents appealed, and the Court of Appeals for the Ninth Circuit reversed. 433 F.2d 24. With respect to the petitioner’s standing, the court noted that there was “no allegation in the complaint that members of the Sierra Club would be affected by the actions of [the respondents] other than the fact that the actions are personally displeasing or distasteful to them,” id., at 33, and concluded:

We do not believe such club concern without a showing of more direct interest can constitute standing in the legal sense sufficient to challenge the exercise of responsibilities on behalf of all the citizens by two cabinet level officials of the government acting under Congressional and Constitutional authority. Id., at 30.

Alternatively, the Court of Appeals held that the Sierra Club had not made an adequate showing of irreparable injury and likelihood of success on the merits to justify issuance of a preliminary injunction. The court thus vacated the injunction. The Sierra Club filed a petition for a writ of certiorari which we granted, 401 U.S. 907, to review the questions of federal law presented.

The first question presented is whether the Sierra Club has alleged facts that entitle it to obtain judicial review of the challenged action. Whether a party has a sufficient stake in an otherwise justiciable controversy to obtain judicial resolution of that controversy is what has traditionally been referred to as the question of standing to sue. Where the party does not rely on any specific statute authorizing invocation of the judicial process, the question of standing depends
upon whether the party has alleged such a “personal stake in the outcome of the controversy,” Baker v. Carr, 369 U.S. 186, 204, as to ensure that “the dispute sought to be adjudicated will be presented in an adversary context and in a form historically viewed as capable of judicial resolution.” Flast v. Cohen, 392 U.S. 83, 101. Where, however, Congress has authorized public officials to perform certain functions according to law, and has provided by statute for judicial review of those actions under certain circumstances, the inquiry as to standing must begin with a determination of whether the statute in question authorizes review at the behest of the plaintiff.

The Sierra Club relies upon §10 of the Administrative Procedure Act (APA), 5 U.S.C. §702, which provides:

A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof.

Early decisions under this statute interpreted the language as adopting the various formulations of “legal interest” and “legal wrong” then prevailing as constitutional requirements of standing. But, in Data Processing Service v. Camp, 397 U.S. 150, and Barlow v. Collins, 397 U.S. 159, decided the same day, we held more broadly that persons had standing to obtain judicial review of federal agency action under §10 of the APA where they had alleged that the challenged action had caused them “injury in fact,” and where the alleged injury was to an interest “arguably within the zone of interests to be protected or regulated” by the statutes that the agencies were claimed to have violated.

In Data Processing, the injury claimed by the petitioners consisted of harm to their competitive position in the computer-servicing market through a ruling by the Comptroller of the Currency that national banks might perform data-processing services for their customers. In Barlow, the petitioners were tenant farmers who claimed that certain regulations of the Secretary of Agriculture adversely affected their economic position vis-à-vis their landlords. These palpable economic injuries have long been recognized as sufficient to lay the basis for standing, with or without a specific statutory provision for judicial review. Thus, neither Data Processing nor Barlow addressed itself to the question, which has arisen with increasing frequency in federal courts in recent years, as to what must be alleged by persons who claim injury of a noneconomic nature to interests that are widely shared. That question is presented in this case.

The injury alleged by the Sierra Club will be incurred entirely by reason of the change in the uses to which Mineral King will be put, and the attendant change in the aesthetics and ecology of the area. Thus, in referring to the road to be built through Sequoia National Park, the complaint alleged that the development “would destroy or otherwise adversely affect the scenery, natural and historic objects and wildlife of the park and would impair the enjoyment of the park for future generations.” We do not question that the type of harm may amount to an “injury in fact” sufficient to lay the basis for standing under §10 of the APA. Aesthetic and environmental well-being, like economic well-being, are important ingredients of the quality of life in our society, and the fact that particular environmental interests are shared by the many rather than the few does not make them less deserving of legal protection through the judicial process. But the “injury in fact” test requires more than an injury to a cognizable interest. It requires that the party seeking review be himself among the injured.
The impact of the proposed changes in the environment of Mineral King will not fall indiscriminately upon every citizen. The alleged injury will be felt directly only by those who use Mineral King and Sequoia National Park, and for whom the aesthetic and recreational values of the area will be lessened by the highway and ski resort. The Sierra Club failed to allege that it or its members would be affected in any of their activities or pastimes by the Disney development. Nowhere in the pleadings or affidavits did the Club state that its members use Mineral King for any purpose, much less that they use it in any way that would be significantly affected by the proposed actions of the respondents. . . .

The trend of cases arising under the APA and other statutes authorizing judicial review of federal agency action has been toward recognizing that injuries other than economic harm are sufficient to bring a person within the meaning of the statutory language, and toward discarding the notion that an injury that is widely shared is ipso facto not an injury sufficient to provide the basis for judicial review. We noted this development with approval in Data Processing, 397 U.S., at 154, in saying that the interest alleged to have been injured “may reflect ‘aesthetic, conservational, and recreational’ as well as economic values.” But broadening the categories of injury that may be alleged in support of standing is a different matter from abandoning the requirement that the party seeking review must himself have suffered an injury.

Some courts have indicated a willingness to take this latter step by conferring standing upon organizations that have demonstrated “an organizational interest in the problem” of environmental or consumer protection. Environmental Defense Fund v. Hardin, 428 F.2d 1093, 1097. It is clear that an organization whose members are injured may represent those members in a proceeding for judicial review. See, e.g., NAACP v. Button, 371 U.S. 415, 428. But a mere “interest in a problem,” no matter how longstanding the interest and no matter how qualified the organization is in evaluating the problem, is not sufficient by itself to render the organization “adversely affected” or “aggrieved” within the meaning of the APA. The Sierra Club is a large and long-established organization, with a historic commitment to the cause of protecting our Nation’s natural heritage from man’s depredations. But if a “special interest” in this subject were enough to entitle the Sierra Club to commence this litigation, there would appear to be no objective basis upon which to disallow a suit by any other bona fide “special interest” organization, however small or short-lived. And if any group with a bona fide “special interest” could initiate such litigation, it is difficult to perceive why any individual citizen with the same bona fide special interest would not also be entitled to do so.

The requirement that a party seeking review must allege facts showing that he is himself adversely affected does not insulate executive action from judicial review, nor does it prevent any public interests from being protected through the judicial process. It does serve as at least a rough attempt to put the decision as to whether review will be sought in the hands of those who have a direct stake in the outcome. That goal would be undermined were we to construe the APA to authorize judicial review at the behest of organizations or individuals who seek to do no more than vindicate their own value preferences through the judicial process. The principle that the Sierra Club would have us establish in this case would do just that.

As we conclude that the Court of Appeals was correct in its holding that the Sierra Club lacked standing to maintain this action, we do not reach any other
questions presented in the petition, and we intimate no view on the merits of the complaint. The judgment is affirmed.

Mr. Justice Powell and Mr. Justice Rehnquist took no part in the consideration or decision of this case.

Mr. Justice Douglas, dissenting.

I share the view of my Brother Blackmun and would reverse the judgment below.

The critical question of “standing” would be simplified and also put neatly in focus if we fashioned a federal rule that allowed environmental issues to be litigated before federal agencies or federal courts in the name of the inanimate object about to be despoiled, defaced, or invaded by roads and bulldozers and where injury is the subject of public outrage. Contemporary public concern for protecting nature’s ecological equilibrium should lead to the conferral of standing upon environmental objects to sue for their own preservation. See Stone, Should Trees Have Standing?—Toward Legal Rights for Natural Objects, 45 S. Cal. L. Rev. 450 (1972). This suit would therefore be more properly labeled as Mineral King v. Morton.

Inanimate objects are sometimes parties in litigation. A ship has a legal personality, a fiction found useful for maritime purposes. The corporation sole—a creature of ecclesiastical law—is an acceptable adversary and large fortunes ride on its cases. The ordinary corporation is a “person” for purposes of the adjudicatory processes, whether it represents proprietary, spiritual, aesthetic, or charitable causes.

So it should be as respects valleys, alpine meadows, rivers, lakes, estuaries, beaches, ridges, groves of trees, swampland, or even air that feels the destructive pressures of modern technology and modern life. The river, for example, is the living symbol of all the life it sustains or nourishes—fish, aquatic insects, water ouzels, otter, fisher, deer, elk, bear, and all other animals, including man, who are dependent on it or who enjoy it for its sight, its sound, or its life. The river as plaintiff speaks for the ecological unit of life that is part of it. Those people who have a meaningful relation to that body of water—whether it be a fisherman, a canoeist, a zoologist, or a logger—must be able to speak for the values which the river represents and which are threatened with destruction. . . .

The voice of the inanimate object, therefore, should not be stilled. That does not mean that the judiciary takes over the managerial functions from the federal agency. It merely means that before these priceless bits of Americana (such as a valley, an alpine meadow, a river, or a lake) are forever lost or are so transformed as to be reduced to the eventual rubble of our urban environment, the voice of the existing beneficiaries of these environmental wonders should be heard.

NOTES AND QUESTIONS

1. The Sierra Club’s complaint contained the following allegations concerning the Club’s interest in the dispute:

Plaintiff Sierra Club is a non-profit corporation organized and operating under the laws of the State of California, with its principal place of business in San Francisco, California since 1892. Membership of the club is approximately
78,000 nationally, with approximately 27,000 members residing in the San Francisco Bay Area. For many years the Sierra Club by its activities and conduct has exhibited a special interest in the conservation and the sound maintenance of the national parks, game refuges and forests of the country, regularly serving as a responsible representative of persons similarly situated. One of the principal purposes of the Sierra Club is to protect and conserve the national resources of the Sierra Nevada Mountains. Its interests would be vitally affected by the acts hereinafter described and would be aggrieved by those acts of the defendants as hereinafter more fully appears.

Why was this allegation insufficient to establish the Sierra Club’s standing? What would they have had to allege concerning their interests and activities in order to have had standing to bring their action?

2. The government argued before the Supreme Court that if the Sierra Club had standing on the basis of their allegation, then “anyone who asserts an interest in a controversy has standing.” Do you agree?

3. While Sierra Club v. Morton was before the Supreme Court, the Wilderness Society and other environmental groups filed an amicus brief that described in more detail the specific nature of the Sierra Club’s interest in Mineral King. It recited the Club’s long efforts to include the area in Sequoia National Park, that the Club regularly conducted camping trips in the area, and that its individual members used the area for recreational purposes and would be damaged by its development. In its reply brief, however, the Sierra Club expressly declined to rely on this as a basis for standing. Why, do you think, did they refuse to do so?

The papers of the late Justice Thurgood Marshall indicate that the Court was well aware that the Sierra Club’s use of Mineral King was more direct than reflected in the complaint’s allegations. Justice Brennan sought to have the Court dismiss the case as improvidently granted because the Club’s members did actually use the area. While he was unsuccessful in this effort, Justice Stewart did agree to modify the majority opinion one week before it was released to add a crucial footnote specifying that the Sierra Club was free to amend its complaint on remand. Percival, Environmental Law in the Supreme Court: Highlights from the Marshall Papers, 23 Envtl. L. Rep. 10,606, 10,620 (1993).

4. Although he did not join in Justice Douglas’ very personal dissent, Justice Blackmun also dissented. Noting that the case involved “significant aspects of a wide, growing, and disturbing problem, that is, the nation’s and the world’s deteriorating environment,” Justice Blackmun questioned whether the law must “be so rigid and our procedure so inflexible that we render ourselves helpless when the existing methods and the traditional concepts . . . do not prove to be entirely adequate for new issues.” Both Justice Douglas and Justice Blackmun felt so strongly about their dissents that they took the unusual step of reading them from the bench when the decision was announced.

5. A great deal of additional, and fascinating, background information about the history of Mineral King and Sierra Club v. Morton is provided in Turner, Who Speaks for the Future?, 1990 Sierra 30 (July-Aug. 1990), an article that includes extensive photographs of the Mineral King area. The article reports that the area is known as Mineral King because of a brief silver mining boom that in 1879 led 300 miners into the area. The boom went bust by 1882, but it left a sufficient residue of development to keep the area from being included in Sequoia National Park when the park was created in 1890. In 1908, John Muir and the Sierra Club launched a major campaign to expand
Sequoia National Park to include Mineral King. After a lengthy struggle, Mineral King was again left out of the park when the park was doubled in size in 1926, although Mineral King did become part of the Sequoia National Game Refuge.

Ironically, the Board of Directors of the Sierra Club had endorsed the development of a ski resort in the area in 1949 when the Forest Service first called for bids to develop a small hotel and two ski lifts. (The area has spectacular natural attractions for skiers—"high bowls that border the valley on three sides, deep powder snow, spectacular views.") No bids were forthcoming then because of the high cost of making the remote area accessible to skiers. After the Forest Service issued a new request for bids in 1965, the Disney plan was selected. The Disney plan was for a development ten times larger and more expensive than contemplated in the Forest Service’s request for bids. The Sierra Club decided to oppose the project only after a year of rancorous internal debate. When the Club asked for a public hearing, the Forest Service replied that no hearing was necessary because one had been held more than a decade earlier. Why did the government choose to challenge the Club’s standing rather than focusing its defense on the substance of the case? Was this a wise strategy?

6. The Supreme Court’s recognition that injury to aesthetic and environmental values may be sufficient to confer standing even if the injury is shared by many remains the case’s most significant legacy. While the Court ruled against the Sierra Club on the standing issue, it noted in a footnote that the decision did not bar the Sierra Club from seeking to amend its complaint when the case returned to the district court. On remand, the Sierra Club amended its complaint to allege that its members used the area and it added as coplaintiffs nine individuals who regularly visited Mineral King and a group that owns property nearby. The Club also added a new claim that the National Environmental Policy Act, which had been enacted after the original lawsuit had been filed, required the preparation of an environmental impact statement (EIS). The draft EIS was released in January 1975. By then Mineral King had become a national environmental cause celebre. When the final EIS was released in 1976, the Mineral King project had essentially died a natural death. The EIS found severe environmental impacts from the proposed development and recommended that the project be scaled down significantly. The ski resort was never built. The Sierra Club’s lawsuit eventually was dismissed without prejudice in 1977. Mineral King was made part of Sequoia National Park in October 1978. It remains spectacularly beautiful and largely off the beaten path today. The narrow, winding road into the secluded canyon has not been improved and trailers and RVs are prohibited from tackling its 639 curves, which are a challenge to motorists.

**Standing Doctrine in Environmental Cases After Sierra Club v. Morton**

*Sierra Club* confirmed a shift in standing logic. Previously, standing doctrine in effect conceived of the government as being just like a private party, and standing could be determined by the following test. Hypothetically substitute “Jones” for the government agency as defendant in the case. If the complaint stated a cause of action in tort, or for breach of contract, or for violation of a property right against Jones, the plaintiff had standing. This became known as the “legal wrong” test of standing. The government agency could then invoke its
alleged statutory authority for the action, and thus the issue of the validity of the
statute or the propriety of the action under the statute would be joined.

This legal wrong test, which has also been termed a “private law” model
of standing, was modified somewhat as the regulatory state expanded. The
Supreme Court began to acknowledge standing in situations where specific
statutory language suggested that Congress had intended to give additional
parties the right to sue. For instance, in FCC v. Sanders Brothers Radio Station,
309 U.S. 470 (1940), the Court permitted a competitor of an FCC licensee to sue
on the basis of the competitor’s alleged economic injury, even though the
common law did not protect against competitively caused economic loss, because
the Federal Communications Act allows anyone “aggrieved or whose interests are
adversely affected” to seek judicial review, 47 U.S.C. §402(b)(6), and the compet-
itor had suffered a traditionally recognized type of injury, economic damage.

When the Administrative Procedure Act was passed in 1946, it provided that
“a person suffering legal wrong because of agency action, or adversely affected or
aggrieved by agency action within the meaning of a relevant statute, is entitled to
judicial review thereof.” 5 U.S.C. §702. In his influential manual on the APA, the
attorney general stated that this language codified then-existing law.

In the 1960s, lower courts pushed standing doctrine to the limits of section
702, largely under the influence of citizen and environmental groups—the pre-
sumed beneficiaries of many of the statutes Congress had enacted—who were
dissatisfied with agency interpretations and actions. The details of these doc-
trinal developments are told in Stewart, The Reformation of American Admin-
istative Law, 88 Harv. L. Rev. 1669 (1975), and Sunstein, Standing and the

Sierra Club and contemporary cases seemed to recognize a general right of
citizens to challenge government action as long as they had suffered “injury in
fact” and raised claims “arguably” within the “zone of interests” that Congress
sought to protect. Sierra Club was followed in the Court’s next term by United
(1973) (SCRAP). Plaintiffs were law students challenging the ICC’s approval
of a freight rate they alleged would discourage the use of recycled materials.
As injury-in-fact, they alleged that the rate change would lead to increased litter,
as well as an increase in consumption of natural resources, in the forests, parks,
and mountain areas around Washington, D.C., which the students used for
hiking, fishing, and backpacking. Although the Court thought this an “attenu-
ated line of causation,” it held the plaintiffs’ allegations sufficient for standing.

SCRAP was a high-water mark for environmental standing. Although it has
never overruled S C R A P , the Court has issued decisions suggesting that it has
drawn back from it. This is especially so in one recurring pattern of cases in
which the plaintiff’s injury is not directly caused by the complained-of agency
action, but is mediated by the actions of third parties. In such cases, the Court
has expressed concern over whether a ruling in the plaintiff’s favor will actually
redress the plaintiff’s injury; otherwise, it has said, “exercise of its power . . .
would be gratuitous and thus inconsistent with the Art. III limitation” limiting
federal jurisdiction to “cases and controversies.” Simon v. Eastern Kentucky

In E K W R O , the Court denied the standing of a representative of indigent
patients to challenge an IRS rule allowing hospitals to retain charitable tax-
exempt status regardless of their treatment of indigent patients—allegedly in
violation of federal law. The decision to treat such patients was made by the
hospital board of directors; plaintiffs had not convincingly shown that the change in tax policy would lead to the directors’ decision to change hospital treatment policy.

In Allen v. Wright, 468 U.S. 737 (1984), plaintiffs, representatives of minority children, challenged tax-exempt treatment of discriminatory private schools, alleging that this treatment interfered with desegregation of public schools by siphoning white students away from the public school system. The Court denied standing, finding “[t]he links in the chain of causation between the challenged Government conduct and the asserted injury are far too weak for the chain as a whole to sustain respondents’ standing.”

In recent years, the Court has articulated the requirements of standing as consisting of four parts. To have standing to sue, a plaintiff must allege:

1. that the challenged action will cause plaintiff some actual or threatened injury-in-fact;
2. that the injury is fairly traceable to the challenged action;
3. that the injury is redressable by judicial action; and
4. that the injury is to an interest arguably within the zone of interests to be protected by the statute alleged to have been violated.

It has also stated that the first three requirements are constitutional, based on Art. III, while the fourth is “prudential,” and thus can be altered by Congress. (Congress could, for example, grant standing to everyone in the world who satisfied the first three requirements, thus eliminating the fourth part entirely.) See, e.g., Valley Forge Christian College v. Americans United for Separation of Church and State, 454 U.S. 464 (1982).

Organizations have standing to assert the interests of their members so long as (1) the members themselves would have standing to sue and (2) the interests the organization seeks to protect are “germane to the organization’s purposes.” Automobile Workers v. Brock, 477 U.S. 274 (1986).

In a 1983 law review article that was little noticed at the time, then-Circuit Judge Antonin Scalia argued that standing doctrine was a “critical and inseparable element” of separation of powers principles that should be more rigidly interpreted by the courts to reduce judicial intrusion into the operations of the other branches. Scalia, The Doctrine of Standing as an Essential Element of the Separation of Powers, 1983 Suffolk Univ. L. Rev. 881 (1983). What is remarkable about this article is not only how well it foreshadowed subsequent standing decisions Justice Scalia authored for the Supreme Court, but also its express hostility toward suits on behalf of environmental interests. Scalia argued that judges who enforce environmental laws are “likely (despite the best of intentions) to be enforcing the political prejudices of their own class.” He explains that “[t]heir greatest success in such an enterprise—ensuring strict enforcement of the environmental laws . . . met with approval in the classrooms of Cambridge and New Haven, but not in the factories of Detroit and the mines of West Virginia.” Id. at 896-897. Quoting the language of Judge J. Skelly Wright in the Culvert Cliffs decision (see Chapter 8 at 798), he asks:

“Does what I have said mean that, so long as no minority interests are affected, ‘important legislative purposes, heralded in the halls of Congress, [can be] lost or misdirected in the vast hallways of the federal bureaucracy?’ Of course it does—and a good thing, too. Where no peculiar harm to particular individuals
or minorities is in question, lots of once-heralded programs ought to get lost or misdirected, in vast hallways or elsewhere. . . . The ability to lose or misdirect laws can be said to be one of the prime engines of social change, and the prohibition against such carelessness is (believe it or not) profoundly conservative. Sunday blue laws, for example, were widely unenforced long before they were widely repealed—and had the first not been possible the second might never have occurred.” Id. at 897 (emphasis in original).

The first major standing decision authored by Justice Scalia addressed the question of how specific the allegations of a user of public lands have to be in order to establish standing. In Lujan v. National Wildlife Federation, 497 U.S. 871 (1990), the National Wildlife Federation (NWF) challenged decisions by the Bureau of Land Management (BLM) to lift protective restrictions on 180 million acres of public land. NWF alleged that BLM had violated both the Federal Land Policy and Management Act (FLPMA) and the National Environmental Policy Act (NEPA). After years of preliminary skirmishing that included entry of a preliminary injunction, the trial court ultimately dismissed the lawsuit on the ground that NWF lacked standing.

NWF had submitted affidavits from two of its members, one of whom stated that she used and enjoyed federal lands, “particularly those in the vicinity of South Pass-Green Mountain, Wyoming,” an area of some two million acres. Noting that only 4,500 acres of this land were affected by BLM’s decisions, the district court determined the affidavits insufficiently specific to allege “use and enjoyment.” After the D.C. Circuit reversed the trial court, the Supreme Court granted review.

In a majority opinion authored by Justice Scalia, the Court held that NWF had not made sufficient allegations to establish standing to challenge BLM’s actions. He concluded that “averments which state only that one of respondent’s members uses unspecified portions of an immense tract of territory, on some portions of which mining activity has occurred,” were insufficiently specific. Justice Scalia also concluded that NWF could not challenge BLM’s “land withdrawal review program” as a whole because it consisted of decisions about more than 1,200 discrete tracts of land that would not be ripe for judicial review until specific actions had been taken with respect to individual tracts.

The Supreme Court revisited environmental standing issues in the case below. The case involved a challenge to the Secretary of Interior’s decision that the Endangered Species Act does not require other federal agencies to consult with the department when their activities may destroy critical habitat for endangered species outside the United States. Defenders of Wildlife sued the Secretary of Interior. The group tried to establish standing by offering affidavits from two of its members, as discussed in the following decision.

Lujan v. Defenders of Wildlife
504 U.S. 555 (1992)

Justice Scalia delivered the opinion of the Court.

This case involves a challenge to a rule promulgated by the Secretary of the Interior interpreting §7 of the Endangered Species Act of 1973 (ESA), 87 Stat. 892, as amended, 16 U.S.C. §1536, in such fashion as to render it applicable only to actions within the United States or on the high seas. [Section 7 of the ESA
requires all federal agencies, in consultation with the Secretary of the Interior, to insure that their actions do not jeopardize the continued existence of any endangered species.] The preliminary issue, and the only one we reach, is whether the respondents here, plaintiffs below, have standing to seek judicial review of the rule.

III

. . . Respondents had not made the requisite demonstration of (at least) injury and redressability.

A

Respondents’ claim to injury is that the lack of consultation with respect to certain funded activities abroad “inreases[es] the rate of extinction of endangered and threatened species.” Complaint para. 5. Of course, the desire to use or observe an animal species, even for purely aesthetic purposes, is undeniably a cognizable interest for purpose of standing. See, e.g., Sierra Club v. Morton, 405 U.S., at 734. “But the ‘injury in fact’ test requires more than an injury to a cognizable interest. It requires that the party seeking review be himself among the injured.” Id. at 734-735. To survive the Secretary’s summary judgment motion, respondents had to submit affidavits or other evidence showing, through specific facts, not only that listed species were in fact being threatened by funded activities abroad, but also that one or more of respondents’ members would thereby be “directly” affected apart from their “special interest” in the subject.” Id. at 735, 739.

With respect to this aspect of the case, the Court of Appeals focused on the affidavits of two Defenders’ members—Joyce Kelly and Amy Skilbred. Ms. Kelly stated that she traveled to Egypt in 1986 and “observed the traditional habitat of the endangered Nile crocodile there and intend[s] to do so again, and hope[s] to observe the crocodile directly,” and that she “will suffer harm in fact as a result of [the] American . . . role . . . in overseeing the rehabilitation of the Aswan High Dam on the Nile . . . and [in] developing . . . Egypt’s . . . Master Water Plan.” Ms. Skilbred averred that she traveled to Sri Lanka in 1981 and “observed th[e] habitat” of “endangered species such as the Asian elephant and the leopard” at what is now the site of the Mahaweli Project funded by the Agency for International Development (AID), although she “was unable to see any of the endangered species”; “this development project,” she continued, “will seriously reduce endangered, threatened, and endemic species habitat including areas that I visited . . . [, which] may severely shorten the future of these species”; that threat, she concluded, harmed her because she “intend[s] to return to Sri Lanka in the future and hope[s] to be more fortunate in spotting at least the endangered elephant and leopard.” When Ms. Skilbred was asked at a subsequent deposition if and when she had any plans to return to Sri Lanka, she reiterated that “I intend to go back to Sri Lanka,” but confessed that she had no current plans: “I don’t know [when]. There is a civil war going on right now. I don’t know. Not next year, I will say. In the future.”

We shall assume for the sake of argument that these affidavits contain facts showing that certain agency-funded projects threaten listed species—though that
is questionable. They plainly contain no facts, however, showing how damage to the species will produce “imminent” injury to Mss. Kelly and Skilbred. That the women “had visited” the areas of the projects before the projects commenced proves nothing. As we have said in a related context, “[p]ast exposure to illegal conduct does not in itself show a present case or controversy regarding injunctive relief . . . if unaccompanied by any continuing, present adverse effects.” Lyons, 461 U.S., at 102 (quoting O’Shea v. Littleton, 414 U.S. 488, 495-496 (1974)). And the affiants’ profession of an “inten[t]” to return to the places they had visited before—where they will presumably, this time, be deprived of the opportunity to observe animals of the endangered species—is simply not enough. Such “some day” intentions—without any description of concrete plans, or indeed even any specification of when the some day will be—do not support a finding of the “actual or imminent” injury that our cases require.2

Besides relying upon the Kelly and Skilbred affidavits, respondents propose a series of novel standing theories. The first, inelegantly styled “ecosystem nexus,” proposes that any person who uses any part of a “contiguous ecosystem” adversely affected by a funded activity has standing even if the activity is located a great distance away. This approach, as the Court of Appeals correctly observed, is inconsistent with our opinion in [Lujan v.] National Wildlife Federation which held that a plaintiff claiming injury from environmental damage must use the area affected by the challenged activity and not an area roughly “in the vicinity” of it. 497 U.S., at 887-889; see also Sierra Club, 405 U.S., at 735. It makes no difference that the general-purpose section of the ESA states that the Act was intended in part “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved,” 16 U.S.C. §1531(b). To say that the Act protects ecosystems is not to say that the Act creates (if it were possible) rights of action in persons who have not been injured in fact, that is, persons who use portions of an ecosystem not perceptibly affected by the unlawful action in question.

Respondents’ other theories are called, alas, the “animal nexus” approach, whereby anyone who has an interest in studying or seeing the endangered animals anywhere on the globe has standing; and the “vocational nexus” approach, under which anyone with a professional interest in such animals can sue. Under these theories, anyone who goes to see Asian elephants in the Bronx Zoo, and anyone who is a keeper of Asian elephants in the Bronx Zoo, has standing to sue because the Director of AID did not consult with the Secretary regarding the AID-funded project in Sri Lanka. This is beyond all reason. Standing is not “an ingenious academic exercise in the conceivable,” United States v. Students Challenging Regulatory Agency Procedures (SCRAP), 412 U.S. 669, 688 (1973), but as we have said requires, at the summary judgment stage, a factual showing of perceptible harm. It is clear that the person who observes or works with a particular animal threatened by a federal decision is facing perceptible

2. . . . [T]here is certainly no reason in principle to demand evidence that third persons will take the action exposing the plaintiff to harm, while presuming that the plaintiff himself will do so. Our insistence upon these established requirements of standing does not mean that we would, as the dissent contends, “demand . . . detailed descriptions” of damages, such as a “nightly schedule of attempted activities” from plaintiffs alleging loss of consortium. That case and the others posited by the dissent all involve actual harm; the existence of standing is clear, though the precise extent of harm remains to be determined at trial. Where there is no actual harm, however, its imminence (though not its precise extent) must be established.
D. Standing and Citizen Access to the Courts

harm, since the very subject of his interest will no longer exist. It is even plausible—though it goes to the outermost limit of plausibility—to think that a person who observes or works with animals of a particular species in the very area of the world where that species is threatened by a federal decision is facing such harm, since some animals that might have been the subject of his interest will no longer exist, see Japan Whaling Assn. v. American Cetacean Soc., 478 U.S. 221, 231, n.4 (1986). It goes beyond the limit, however, and into pure speculation and fantasy, to say that anyone who observes or works with an endangered species, anywhere in the world, is appreciably harmed by a single project affecting some portion of that species with which he has no more specific connection.3

IV

The Court of Appeals found that respondents had standing for an additional reason: because they had suffered a “procedural injury.” The so-called “citizen-suit” provision of the ESA provides, in pertinent part, that “any person may commence a civil suit on his own behalf (A) to enjoin any person, including the United States and any other governmental instrumentality or agency . . . who is alleged to be in violation of any provision of this chapter.” 16 U.S.C. §1540(g). The court held that, because §7(a)(2) requires interagency consultation, the citizen-suit provision creates a “procedural right” to consultation in all “persons”—so that anyone can file suit in federal court to challenge the Secretary’s (or presumably any other official’s) failure to follow the assertedly correct consultative procedure, notwithstanding their inability to allege any discrete injury flowing from that failure. To understand the remarkable nature of this holding one must be clear about what it does not rest upon: This is not a case where plaintiffs are seeking to enforce a procedural requirement the disregard of which could impair a separate concrete interest of theirs (e.g., the procedural requirement for a hearing prior to denial of their license application, or the procedural requirement for an environmental impact statement before a federal facility is constructed next door to them).7 Nor is it simply a case where concrete injury has been suffered by many persons, as in mass fraud or

3. . . . It cannot be that a person with an interest in an animal automatically has standing to enjoin federal threats to that species of animal, anywhere in the world. Were that the case, the plaintiff in Sierra Club, for example, could have avoided the necessity of establishing anyone’s use of Mineral King by merely identifying one of its members interested in an endangered species of flora or fauna at that location. Justice Blackmun’s accusation that a special rule is being crafted for “environmental claims” is correct, but he is the craftsman. . . .

7. There is this much truth to the assertion that “procedural rights” are special: The person who has been accorded a procedural right to protect his concrete interests can assert that right without meeting all the normal standards for redressability and immediacy. Thus, under our case-law, one living adjacent to the site for proposed construction of a federally licensed dam has standing to challenge the licensing agency’s failure to prepare an Environmental Impact Statement, even though he cannot establish with any certainty that the Statement will cause the license to be withheld or altered, and even though the dam will not be completed for many years. (That is why we do not rely, in the present case, upon the Government’s argument that, even if the other agencies were obliged to consult with the Secretary, they might not have followed his advice.) What respondents’ “procedural rights” argument seeks, however, is quite different from this: standing for persons who have no concrete interests affected—persons who live (and propose to live) at the other end of the country from the dam.
mass tort situations. Nor, finally, is it the unusual case in which Congress has
created a concrete private interest in the outcome of a suit against a private party
for the government’s benefit, by providing a cash bounty for the victorious
plaintiff. Rather, the court held that the injury-in-fact requirement had been
satisfied by congressional conferral upon all persons of an abstract, self-
contained, noninstrumental “right” to have the Executive observe the proce-
dures required by law. We reject this view.8

We have consistently held that a plaintiff raising only a generally available
grievance about government—claiming only harm to his and every citizen’s
interest in proper application of the Constitution and laws, and seeking relief
that no more directly and tangibly benefits him than it does the public at large—
does not state an Article III case or controversy. . . .

JUSTICE KENNEDY, with whom JUSTICE SOUTER joins, concurring in part and concur-
ing in the judgment.

Although I agree with the essential parts of the Court’s analysis, I write
separately to make several observations.

I agree with the Court’s conclusion in Part III-A that, on the record before
us, respondents have failed to demonstrate that they themselves are “among the

While it may seem trivial to require that Mss. Kelly and Skilbred acquire
airline tickets to the project sites or announce a date certain upon which they
will return, this is not a case where it is reasonable to assume that the affiants will
be using the sites on a regular basis, see Sierra Club v. Morton, supra, at 735, n.8,
nor do the affiants claim to have visited the sites since the projects commenced.
With respect to the Court’s discussion of respondents’ “ecosystem nexus,”
“animal nexus,” and “vocational nexus” theories, I agree that on this record
respondents’ showing is insufficient to establish standing on any of these bases.
I am not willing to foreclose the possibility, however, that in different circum-
cstances a nexus theory similar to those proffered here might support a claim to
standing. See Japan Whaling Assn. v. American Cetacean Soc., 478 U.S. 221, 231,
n.4 (1986) (“respondents . . . undoubtedly have alleged a sufficient ‘injury in
fact’ in that the whale watching and studying of their members will be adversely
affected by continued whale harvesting”). . . .

I also join Part IV of the Court’s opinion with the following observations. As
government programs and policies become more complex and far-reaching, we
must be sensitive to the articulation of new rights of action that do not have clear
analogs in our common-law tradition. Modern litigation has progressed far from

8. . . . We do not hold that an individual cannot enforce procedural rights;
he assuredly can, so long as the procedures in question are designed to protect some
threatened concrete interest of his that is the ultimate basis of his standing. . . . The
dissent is unable to cite a single case in which we actually found standing solely on
the basis of “procedural right” unconnected to the plaintiff’s own concrete harm. Its
suggestion that we did so in Japan Whaling Association, supra, and Robertson v. Methow
Valley Citizens Council, 490 U.S. 332 (1989), is not supported by the facts. In the former
case, we found that the environmental organizations had standing because the “whale
watching and studying of their members would be adversely affected by continued whale
harvesting,” see 478 U.S., at 230-231, n.4; and in the latter we did not so much as mention
standing, for the very good reason that the plaintiff was a citizen’s council for the area in
which the challenged construction was to occur, so that its members would obviously be
concretely affected, see Methow Valley Citizens Council v. Regional Forester, 833 F.2d
810, 812-813 (9th Cir. 1987).
the paradigm of Marbury suing Madison to get his commission, Marbury v. Madison, 1 Cranch 137 (1803), or Ogden seeking an injunction to halt Gibbons’ steamboat operations. Gibbons v. Ogden, 9 Wheat. 1 (1824). In my view, Congress has the power to define injuries and articulate chains of causation that will give rise to a case or controversy where none existed before, and I do not read the Court’s opinion to suggest a contrary view. See Warth v. Seldin, 422 U.S. 490, 500 (1975). In exercising this power, however, Congress must at the very least identify the injury it seeks to vindicate and relate the injury to the class of persons entitled to bring suit. The citizen-suit provision of the Endangered Species Act does not meet these minimal requirements, because while the statute purports to confer a right on “any person . . . to enjoin . . . the United States and any other governmental instrumentality or agency . . . who is alleged to be in violation of any provision of this chapter,” it does not of its own force establish that there is an injury in “any person” by virtue of any “violation.” 16 U.S.C. §1540(g)(1)(A) . . .

JUSTICE STEVENS, concurring in the judgment.

Because I am not persuaded that Congress intended the consultation requirement in §7(a)(2) of the Endangered Species Act of 1973 (ESA), 16 U.S.C. §1536(a)(2), to apply to activities in foreign countries, I concur in the judgment of reversal. I do not, however, agree with the Court’s conclusion that respondents lack standing because the threatened injury to their interest in protecting the environment and studying endangered species is not “imminent” . . .

In my opinion a person who has visited the critical habitat of an endangered species, has a professional interest in preserving the species and its habitat, and intends to revisit them in the future has standing to challenge agency action that threatens their destruction. Congress has found that a wide variety of endangered species of fish, wildlife, and plants are of “aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people.” 16 U.S.C. §1531(a)(3). Given that finding, we have no license to demean the importance of the interest that particular individuals may have in observing any species or its habitat, whether those individuals are motivated by aesthetic enjoyment, an interest in professional research, or an economic interest in preservation of the species. Indeed, this Court has often held that injuries to such interests are sufficient to confer standing, and the Court reiterates that holding today.

The Court nevertheless concludes that respondents have not suffered “injury in fact” because they have not shown that the harm to the endangered species will produce “imminent” injury to them. I disagree. An injury to an individual’s interest in studying or enjoying a species and its natural habitat occurs when someone (whether it be the government or a private party) takes action that harms that species and habitat. In my judgment, therefore, the “imminence” of such an injury should be measured by the timing and likelihood of the threatened environmental harm, rather than—as the Court seems to suggest—by the time that might elapse between the present and the time when the individuals would visit the area if no such injury should occur. . . .

[W]e have denied standing to plaintiffs whose likelihood of suffering any concrete adverse effect from the challenged action was speculative. In this case, however, the likelihood that respondents will be injured by the destruction of the endangered species is not speculative. If respondents are genuinely interested in the preservation of the endangered species and intend to study or
observe these animals in the future, their injury will occur as soon as the animals are destroyed. Thus the only potential source of “speculation” in this case is whether respondents’ intent to study or observe the animals is genuine. In my view, Joyce Kelly and Amy Skilbred have introduced sufficient evidence to negate petitioner’s contention that their claims of injury are “speculative” or “conjunctural.” As Justice Blackmun explains, a reasonable finder of fact could conclude, from their past visits, their professional backgrounds, and their affidavits and deposition testimony, that Ms. Kelly and Ms. Skilbred will return to the project sites and, consequently, will be injured by the destruction of the endangered species and critical habitat.

JUSTICE BLACKMUN, with whom JUSTICE O’CONNOR joins, dissenting.

... I think a reasonable finder of fact could conclude from the information in the affidavits and deposition testimony that either Kelly or Skilbred will soon return to the project sites, thereby satisfying the “actual or imminent” injury standard. Contrary to the Court’s contention that Kelly’s and Skilbred’s past visits “prove[] nothing,” the fact of their past visits could demonstrate to a reasonable factfinder that Kelly and Skilbred have the requisite resources and personal interest in the preservation of the species endangered by the Aswan and Mahaweli projects to make good on their intention to return again. Similarly, Kelly’s and Skilbred’s professional backgrounds in wildlife preservation also make it likely—at least far more likely than for the average citizen—that they would choose to visit these areas of the world where species are vanishing.

By requiring a “description of concrete plans” or “specification of when the some day [for a return visit] will be,” the Court, in my view, demands what is likely an empty formality. No substantial barriers prevent Kelly or Skilbred from simply purchasing plane tickets to return to the Aswan and Mahaweli projects. This case differs from other cases in which the imminence of harm turned largely on the affirmative actions of third parties beyond a plaintiff’s control. To be sure, a plaintiff’s unilateral control over his or her exposure to harm does not necessarily render the harm non-speculative. Nevertheless, it suggests that a finder of fact would be far more likely to conclude the harm is actual or imminent, especially if given an opportunity to hear testimony and determine credibility.

I fear the Court’s demand for detailed descriptions of future conduct will do little to weed out those who are genuinely harmed from those who are not. More likely, it will resurrect a code-pleading formalism in federal court summary judgment practice, as federal courts, newly doubting their jurisdiction, will demand more and more particularized showings of future harm. Just to survive summary judgment, for example, a property owner claiming a decline in the value of his property from governmental action might have to specify the exact

2. ... [R]espondents would not be injured by the challenged projects if they had not visited the sites or studied the threatened species and habitat. But, as discussed above, respondents did visit the sites; moreover, they have expressed an intent to do so again. This intent to revisit the area is significant evidence tending to confirm the genuine character of respondents’ interest, but I am not at all sure that an intent to revisit would be indispensable in every case. The interest that confers standing in a case of this kind is comparable, though by no means equivalent, to the interest in a relationship among family members that can be immediately harmed by the death of an absent member, regardless of when, if ever, a family reunion is planned to occur. Thus, if the facts of this case had shown repeated and regular visits by the respondents, proof of an intent to revisit might well be superfluous.
date he intends to sell his property and show that there is a market for the property, lest it be surmised he might not sell again. A nurse turned down for a job on grounds of her race had better be prepared to show on what date she was prepared to start work, that she had arranged daycare for her child, and that she would not have accepted work at another hospital instead. And a Federal Torts Claims Act plaintiff alleging loss of consortium should make sure to furnish this Court with a “description of concrete plans” for her nightly schedule of attempted activities.

The Court also concludes that injury is lacking, because respondents’ allegations of “ecosystem nexus” failed to demonstrate sufficient proximity to the site of the environmental harm. To support that conclusion, the Court mischaracterizes our decision in Lujan v. National Wildlife Federation, 497 U.S. 871 (1990), as establishing a general rule that “a plaintiff claiming injury from environmental damage must use the area affected by the challenged activity.” In National Wildlife Federation, the Court required specific geographical proximity because of the particular type of harm alleged in that case: harm to the plaintiff’s visual enjoyment of nature from mining activities. One cannot suffer from the sight of a ruined landscape without being close enough to see the sites actually being mined. Many environmental injuries, however, cause harm distant from the area immediately affected by the challenged action. Environmental destruction may affect animals traveling over vast geographical ranges, see, e.g., Japan Whaling Assn. v. American Cetacean Soc., 478 U.S. 221 (1986) (harm to American whale watchers from Japanese whaling activities), or rivers running long geographical courses, see, e.g., Arkansas v. Oklahoma, 503 U.S. 91 (1992) (harm to Oklahoma residents from wastewater treatment plant 39 miles from border). It cannot seriously be contended that a litigant’s failure to use the precise or exact site where animals are slaughtered or where toxic waste is dumped into a river means he or she cannot show injury.

The Court also rejects respondents’ claim of vocational or professional injury. The Court says that it is “beyond all reason” that a zoo “keeper” of Asian elephants would have standing to contest his government’s participation in the eradication of all the Asian elephants in another part of the world. I am unable to see how the distant location of the destruction necessarily (for purposes of ruling at summary judgment) mitigates the harm to the elephant keeper. If there is no more access to a future supply of the animal that sustains a keeper’s livelihood, surely there is harm.

I have difficulty imagining this Court applying its rigid principles of geographic formalism anywhere outside the context of environmental claims. As I understand it, environmental plaintiffs are under no special constitutional standing disabilities. Like other plaintiffs, they need show only that the action they challenge has injured them, without necessarily showing they happened to be physically near the location of the alleged wrong. . . .

The Court concludes that any “procedural injury” suffered by respondents is insufficient to confer standing. It rejects the view that the “injury-in-fact requirement . . . [is] satisfied by congressional conferral upon all persons of an abstract, self-contained, noninstrumental ‘right’ to have the Executive observe the procedures required by law.” Whatever the Court might mean with that very broad language, it cannot be saying that “procedural injuries” as a class are necessarily insufficient for purposes of Article III standing.

Most governmental conduct can be classified as “procedural.” Many injuries caused by governmental conduct, therefore, are categorizable at some level
of generality as “procedural” injuries. Yet, these injuries are not categorically beyond the pale of redress by the federal courts. When the Government, for example, “procedurally” issues a pollution permit, those affected by the permittee’s pollutants are not without standing to sue. Only later cases will tell just what the Court means by its intimation that “procedural” injuries are not constitutionally cognizable injuries. In the meantime, I have the greatest of sympathy for the courts across the country that will struggle to understand the Court’s standardless exposition of this concept today.

The Court expresses concern that allowing judicial enforcement of “agencies’ observance of a particular, statutorily prescribed procedure” would “transfer from the President to the courts the Chief Executive’s most important constitutional duty, to ‘take Care that the Laws be faithfully executed,’ Art. II, sec. 3.” In fact, the principal effect of foreclosing judicial enforcement of such procedures is to transfer power into the hands of the Executive at the expense—not of the courts—but of Congress, from which that power originates and emanates. . . .

It is to be hoped that over time the Court will acknowledge that some classes of procedural duties are so enmeshed with the prevention of a substantive, concrete harm that an individual plaintiff may be able to demonstrate a sufficient likelihood of injury just through the breach of that procedural duty. For example, in the context of the NEPA requirement of environmental-impact statements, this Court has acknowledged “it is now well settled that NEPA itself does not mandate particular results [and] simply prescribes the necessary process,” but “these procedures are almost certain to affect the agency’s substantive decision.” Robertson v. Methow Valley Citizens Council, 490 U.S., 332, 350 (1989) (emphasis added). This acknowledgement of an inextricable link between procedural and substantive harm does not reflect improper appellate factfinding. It reflects nothing more than the proper deference owed to the judgment of a coordinate branch—Congress—that certain procedures are directly tied to protection against a substantive harm. . . .

NOTES AND QUESTIONS

1. Does Justice Scalia’s majority opinion change in any way the nature of the injury that may be asserted by environmentalists to qualify for standing? Is injury to aesthetic values, as recognized in Sierra Club v. Morton, still a cognizable interest for purposes of standing? How do Justice Scalia and Justice Blackmun differ in their views concerning what plaintiffs must demonstrate about the imminence of harm in order to establish standing?

2. In order for a plaintiff to qualify for standing, how close must the connection be in space and time between the action challenged in a lawsuit and the plaintiff’s asserted injury? Does the closeness of the geographic nexus required for standing vary with the type of harm alleged? How do Justice Scalia and Justice Blackmun differ in their interpretation of Lujan v. National Wildlife Federation? Why does the majority reject the ecosystem, animal, and vocational nexus theories offered by Defenders? Note that two members of the majority, Justices Kennedy and Souter, indicate in their concurrence that they are more sympathetic to these theories than the majority and that it may be possible to establish standing using similar nexus claims in different circumstances. Eight years later, Justices Kennedy and Souter joined five other justices in endorsing a
D. Standing and Citizen Access to the Courts

more liberal view of standing in citizen enforcement suits in Friends of the Earth v. Laidlaw Environmental Services, Inc., 528 U.S. 167 (2000), a case discussed below on page 1017.

3. Justice Kennedy states that “Congress has the power to define injuries and articulate chains of causation that will give rise to a case or controversy where none existed before. . . .” Does this mean that Congress can affect who has standing to sue by making legislative determinations of what constitutes injury and who is harmed by certain actions? Cass Sunstein argues that when Congress creates a right of action enabling people to sue over “destruction of environmental assets, it is really giving people a kind of property right in a certain state of affairs. Invasion of the property right is the relevant injury.” Sunstein, What’s Standing After Lujan? Of Citizen Suits, “Injuries,” and Article III, 91 Mich. L. Rev. 163, 191 (1992). Can Congress create procedural rights whose injury can give rise to standing? Could it give anyone bringing a citizen enforcement action a financial stake in the outcome of the suit sufficient to confer standing simply by authorizing monetary rewards for successful plaintiffs?

4. What types of “procedural injury” does Justice Scalia recognize could give rise to standing? How does he attempt to distinguish the kind of procedural injury plaintiffs allege from the kind that he believes could give rise to standing? Why must Justice Scalia concede (in footnote 7 of his opinion) that in certain circumstances some “procedural rights” can be asserted “without meeting the normal standards for redressability and immediacy”?

5. The papers of the late Justice Harry Blackmun reveal that Justice Scalia’s initial draft opinion sought to elevate the prudential bar on standing to redress generalized grievances to one of constitutional status. Scalia had argued that only particularized grievances were sufficiently concrete to meet the constitutional requirement of injury-in-fact. Justice Souter strenuously objected to this in a memo to Justice Scalia on May 28, 1992. “I doubt anyone would lack standing to sue on the basis of a concrete injury that everyone else has suffered; Congress might, for instance, grant everyone standing to challenge government action that would rip open the ozone layer and expose all Americans to unhealthy doses of radiation. Yet the repeated references to a particularity requirement, which might be taken as conceptually independent of a concreteness requirement, draw that conclusion into doubt.” After Justice Kennedy endorsed Justice Souter’s view, Justice Scalia removed the offending language from his draft opinion. Robert V. Percival, Environmental Law in the Supreme Court: Highlights from the Blackmun Papers, 35 Envtl. L. Rev. 10,637, 10,659 (2005).

6. In another portion of this opinion, Justice Scalia suggests that separation of powers principles limit the constitutional authority of Congress to open the courts to citizen enforcement suits. “To permit Congress to convert the undiffererentiated public interest in executive officers’ compliance with the law into an ‘individual right’ vindicable in the courts is to permit Congress to transfer from the President to the courts the Chief Executive’s most important constitutional duty, to ‘take Care that the Laws be faithfully executed.’” Does this call into question the constitutionality of the citizen suit provisions of the environmental laws? See Sunstein, supra, at 165-166, 221. Professor Sunstein asks, “[I]f a court could set aside executive action at the behest of plaintiffs with a plane ticket, why does the Take Care Clause forbid it from doing so at the behest of plaintiffs without a ticket?” Id. at 213.

7. Justices Kennedy and Souter suggest that plaintiffs in Defenders could have established standing with relatively little extra effort by making specific
travel plans. In his concurring opinion, Justice Kennedy concedes that “it may seem trivial to require that [the plaintiff’s members] acquire airline tickets to the project site or announce a date certain upon which they will return.” Because their votes were crucial to the majority in *Defenders*, does this statement suggest that the decision will have relatively little impact on environmental litigation, aside from encouraging environmentalists to get to know their travel agents better? What purpose is served by requiring plaintiffs to buy plane tickets? Is Justice Blackmun right that “the Court’s demand for detailed descriptions of future conduct . . . will do little to weed out those who are genuinely harmed from those who are not”?

8. In the aftermath of *Defenders*, courts continued to wrestle with issues of standing in cases challenging regulatory decisions by government agencies. Some courts explicitly rejected arguments that *National Wildlife Federation* and *Defenders* wrought significant changes in standing doctrine imposing stricter burdens on plaintiffs to demonstrate injury-in-fact. In Seattle Audubon Society v. Espy, 998 F.2d 669 (9th Cir. 1993), the Ninth Circuit held that an Audubon Society chapter had standing to challenge the Forest Service’s failure to prepare a management plan for critical habitat of the spotted owl. The court distinguished *Defenders* because the members of the local Audubon chapter lived near the affected forests and visited them regularly, 998 F.2d at 702-703, and it reaffirmed the validity of its pre-*Defenders* decision in *Idaho Conservation League v. Mumma*, 956 F.2d 1508 (9th Cir. 1992). In *Idaho Conservation League*, the court had upheld the standing of a conservation group to challenge a decision not to designate more than 100,000 acres of public land as wilderness. The court held that the group’s allegation that it uses specific roadless areas which might be developed was sufficient to establish standing, noting that the plaintiffs in *National Wildlife Federation* had only alleged that they visited lands “in the vicinity of” those subject to the challenged action. 956 F.2d at 1515. See also Resources Limited, Inc. v. Robertson, 35 F.3d 1300 (9th Cir. 1994).

9. Other decisions distinguished *Defenders* because environmental plaintiffs alleged that they actually live near, visit, or study the animals they seek to protect. In *Didrickson v. U.S. Dep’t of Interior*, 982 F.2d 1332 (9th Cir. 1992), a group called Friends of the Sea Otter (FSO) was found to have standing to challenge a regulation authorizing limited taking of sea otters because the group’s Alaska members “have declared that they have observed, enjoyed and studied sea otters in specific areas in Alaska.” Id. at 1340. In *Idaho Farm Bureau v. Babbitt*, 58 F.3d 1392 (9th Cir. 1995), two conservation groups were held to have standing to appeal a decision to delist the endangered Bruneau Hot Springs Snail because their members visit the area in which the snail is found and “maintain a factual and scientific understanding” of the snail and its habitat. Id. at 1399.


11. In a decision with echoes of the ripeness rationale invoked in *Lujan v. National Wildlife Federation*, the Supreme Court in 1998 held that a Sierra Club lawsuit challenging a land and resource management plan for Ohio’s Wayne National Forest was not ripe for judicial review. The Court held that the Sierra
Club had not suffered “practical harm” as a result of the Plan, which authorized logging on 126,000 acres of a national forest in Ohio, because site-specific environmental assessments still had to be performed before logging of any specific tracts could commence. However, the Court did note that “a person with standing who is impaired by a failure to comply with the NEPA procedure may complain of that failure at the time the failure takes place, for the claim can never get riper.” Ohio Forestry Ass’n v. Sierra Club, 523 U.S. 726 (1998). Does this decision indicate that environmental plaintiffs who seek to challenge logging in national forests must wait until specific tracts of land they use are about to be cut?

The Zone of Interests Test and Standing for Business Interests

In several cases, the courts have used the “zone of interests” prong of standing doctrine to reject efforts by industry groups to use the environmental statutes to their benefit. For example, efforts by a group of ranchers to pursue alleged procedural violations of NEPA and the National Forest Management Act in order to block reductions in grazing levels were rejected in Nevada Land Action Association v. U.S. Forest Service, 8 F.3d 713 (9th Cir. 1993). The court found that the ranchers lacked standing because “[t]he purpose of NEPA is to protect the environment, not the economic interests of those adversely affected by agency decisions.” 8 F.3d at 716. While the ranchers argued that their members “have an economic interest in maintaining the forest resources and therefore in protecting the environment,” the court noted that they did “not allege that the increased grazing levels [they] seek would benefit the natural environment, and there seems to be substantial evidence to the contrary.” In Portland Audubon Society v. Hodel, 866 F.2d 302 (9th Cir. 1989), a timber industry group was held not to have standing to intervene in an NEPA lawsuit because the group’s economic interests had no direct relation to the interests protected by the statute. In Competitive Enterprise Institute v. National Highway Safety Administration, 901 F.2d 107 (D.C. Cir. 1990), the D.C. Circuit held that a nonprofit group representing business interests fell within the zone of interests protected by the Energy Policy and Conservation Act by alleging that fuel-economy standards adversely affect the safety of vehicle occupants. However, the court held that the group did not fall within the zone of interests protected by NEPA.

In Bennett v. Plenert, 63 F.3d 915 (9th Cir. 1995), ranch operators and irrigation districts who used water for commercial and recreational purposes were found not to have standing to challenge a decision to maintain a minimum water level in two public reservoirs to protect species of fish on the endangered species list. The court held that “only plaintiffs who allege an interest in the preservation of endangered species fall within the zone of interests protected by the ESA.” 63 F.3d at 919 (emphasis in original). The Supreme Court reversed this decision in Bennett v. Spear, 520 U.S. 154 (1997). The Court held that because the ESA’s citizen suit provision used the expansive language “any person may commence a civil suit,” it expanded the zone of interests entitled to sue under the Act to embrace even business interests alleging “overenforcement” of environmental restrictions. The Court found that the irrigation districts could sue the director of the Fish and Wildlife Service and the Secretary of the Interior for failure to perform nondiscretionary duties under §4 of the ESA to use “the best scientific data available” and to consider “the economic impact”
when “specifying any particular area as critical habitat” for an endangered species. While finding that the districts’ claim of a §7 violation did not involve a nondiscretionary duty subject to citizen suit under the ESA, the Court held that it was actionable under the Administrative Procedure Act. The Court emphasized that the zone of interests test was to be determined “not by reference to the overall purpose of the Act in question (here, species preservation), but by reference to the particular provision of law upon which the plaintiff relies.” Thus, even though the irrigation districts obviously did not care about species preservation, the Court held them entitled to sue because it construed the “obvious purpose” of the “best data” requirement to be “to avoid needless economic dislocations produced by agency officials zealously but unintelligently pursuing their environmental objectives.” The government had argued that the mere preparation of a biological opinion did not constitute final agency action affecting the plaintiffs’ allocations of water. However, the Court rejected this argument and upheld the districts’ right to sue by finding that because the opinion specified what actions lawfully could incidentally take endangered species, it “has direct and appreciable legal consequences.”

E. CITIZEN SUITS

As noted above, the environmental laws do not leave enforcement entirely in the hands of government. Recognizing that federal agencies had a long history of unresponsiveness to environmental concerns, Congress sought to enlist citizens in the tasks of ensuring that the laws were implemented and enforced properly. It did so by authorizing citizen suits, a major innovation first incorporated in the Clean Air Act Amendments of 1970, 42 U.S.C. §7604, and included in virtually all the major environmental laws Congress subsequently adopted. See, e.g., CWA §505, ESA §11(g), RCRA §7002, TSCA §18, CERCLA §310.


The federal environmental laws generally authorize private parties to bring three types of lawsuits. The first allows citizens to act as “private attorney generals” to supplement government enforcement against those who violate environmental regulations. We refer to these as citizen enforcement actions. These provisions generally authorize “any person” to commence an action against “any person” alleged to be in violation of the laws. They require citizens to notify the alleged violator and federal and state authorities prior to filing suit. Sixty days’ notice usually is required, although the amount of notice can vary for certain violations (e.g., section 505(b) of the Clean Water Act authorizes suits alleging violations of NSPS requirements or toxic effluent standards to be brought immediately after notice, as does section 7002(b)(1)(A) of RCRA for violations of RCRA subtitle C). The citizen suit provisions usually specify that if federal or state authorities are diligently prosecuting an action to require compliance, filing of a citizen suit is barred, though citizens are authorized to intervene in federal enforcement actions as of right (e.g., CWA §505(b)(1)(B), CAA §304(b)(1)(B)).
While federal agencies and officials are among the “persons” who can be sued for violating environmental regulations, the statutes also generally authorize suits to force officials to perform their mandatory duties. For example, the Clean Water Act provides that the EPA administrator may be sued by citizens “where there is alleged a failure of the Administrator to perform any act or duty . . . which is not discretionary,” 33 U.S.C. §1365(a)(1)(2). (The citizen suit provisions in the other statutes contain virtually identical language.) Suits such as these typically challenge an agency’s failure to meet a statutory deadline to take some action. When they do, they generally are called “deadline suits.” This type of litigation has been an important action-forcing device to ensure that regulations implementing the environmental statutes are issued.

The federal environmental laws also generally include judicial review provisions that authorize citizen suits to review the legality of agency actions. These provisions supplement the judicial review provisions of the Administrative Procedure Act, 5 U.S.C. §§701-706, by specifying additional procedural requirements, such as those contained in section 307(b) of the Clean Air Act (requiring that petitions for review of nationally applicable regulations must be filed in the U.S. Court of Appeals for the D.C. Circuit within 60 days of promulgation).

If an agency has failed to issue regulations by a deadline imposed by statute, a citizen suit generally may be brought to force the agency to issue the regulations. Cases seeking to force agencies to take other actions often turn on whether the courts view the agency as having a non-discretionary duty to take such actions.

For example, in June 2004, the U.S. Supreme Court decided an important case challenging the failure of the Bureau of Land Management (BLM) to enforce laws governing management of public lands. The case arose when the Southern Utah Wilderness Alliance and other environmental groups sued the BLM in 1999, alleging that the agency had violated the Federal Land Policy Management Act (FLPMA) and the National Environmental Policy Act (NEPA) by failing to control off-road vehicle use on federal lands classified as wilderness study areas. The plaintiffs argued that BLM had failed to carry out its non-discretionary duty to prevent impairment of wilderness study areas for suitability as wilderness and to undertake certain actions identified in its own land management plans as necessary to protect those areas, such as inventorying existing trails, closing areas to off-road vehicle (ORV) use, and monitoring such use. After the district court held that the claims were not reviewable under Section 706(1) of the APA, the plaintiffs appealed to the Tenth Circuit, which reversed. The Tenth Circuit (Southern Utah Wilderness Alliance v. Norton, 301 F.3d 1217 (10th Cir. 2003)) held that the FLPMA imposed a mandatory, non-discretionary duty upon the Secretary of Interior and that breach of that duty was subject to review under Section 706(1) of the APA. The U.S. then sought and obtained review of the Tenth Circuit’s decision by the U.S. Supreme Court, which issued the decision below.

Norton v. Southern Utah Wilderness Alliance

Justice Scalia delivered the opinion of the Court.

In this case, we must decide whether the authority of a federal court under the Administrative Procedure Act (APA) to “compel agency action unlawfully

All three claims at issue here involve assertions that BLM failed to take action with respect to [off-road vehicle] or ORV use that it was required to take. Failures to act are sometimes remediable under the APA, but not always. We begin by considering what limits the APA places upon judicial review of agency inaction.

The APA authorizes suit by “[a] person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute.” 5 U.S.C. §702. Where no other statute provides a private right of action, the “agency action” complained of must be “final agency action.” §704 (emphasis added). “Agency action” is defined in §551(13) to include “the whole or a part of an agency rule, order, license, sanction, relief, or the equivalent or denial thereof, or failure to act.” (Emphasis added.) The APA provides relief for a failure to act in §706(1): “The reviewing court shall . . . compel agency action unlawfully withheld or unreasonably delayed.”

Sections 702, 704, and 706(1) all insist upon an “agency action,” either as the action complained of (in §§702 and 704) or as the action to be compelled (in §706(1)). The definition of that term begins with a list of five categories of decisions made or outcomes implemented by an agency—“agency rule, order, license, sanction [or] relief.” §551(13). All of those categories involve circumscribed, discrete agency actions, as their definitions make clear: “an agency statement of . . . future effect designed to implement, interpret, or prescribe law or policy” (rule); “a final disposition . . . in a matter other than rule making” (order); a “permit . . . or other form of permission” (license); a “prohibition . . . or taking [of] other compulsory or restrictive action” (sanction); or a “grant of money, assistance, license, authority,” etc., or “recognition of a claim, right, immunity,” etc., or “taking of other action on the application or petition of, and beneficial to, a person” (relief). §§551(4), (6), (8), (10), (11).

The terms following those five categories of agency action are not defined in the APA: “or the equivalent or denial thereof, or failure to act.” §551(13). But an “equivalent . . . thereof” must also be discrete (or it would not be equivalent), and a “denial thereof” must be the denial of a discrete listed action (and perhaps denial of a discrete equivalent).

The final term in the definition, “failure to act,” is in our view properly understood as a failure to take an agency action—that is, a failure to take one of the agency actions (including their equivalents) earlier defined in §551(13). Moreover, even without this equation of “act” with “agency action” the interpretive canon of ejusdem generis would attribute to the last item (“failure to act”) the same characteristic of discreteness shared by all the preceding items. See, e.g., Washington State Dept. of Social and Health Servs. v. Guardianship Estate of Keffeler, 537 U.S. 371, 384-385 (2003). A “failure to act” is not the same thing as a “denial.” The latter is the agency’s act of saying no to a request; the former is simply the omission of an action without formally rejecting a request—for example, the failure to promulgate a rule or take some decision by a statutory deadline. The important point is that a “failure to act” is properly understood to be limited, as are the other items in §551(13), to a discrete action.

A second point central to the analysis of the present case is that the only agency action that can be compelled under the APA is action legally required.
E. Citizen Suits

This limitation appears in §706(1)’s authorization for courts to “compel agency action unlawfully withheld.” In this regard the APA carried forward the traditional practice prior to its passage, when judicial review was achieved through use of the so-called prerogative writs—principally writs of mandamus under the All Writs Act, now codified at 28 U.S.C. §1651(a). The mandamus remedy was normally limited to enforcement of “a specific, unequivocal command,” ICC v. New York, N.H. & H.R. Co., 287 U.S. 178, 204 (1932), the ordering of a “precise, definite act . . . about which [an official] had no discretion whatever,” United States ex rel. Dunlap v. Black, 128 U.S. 40, 46 (1888) (quoting Kendall v. United States ex rel. Stokes, 12 Pet. 524, 613 (1838)). As described in the Attorney General’s Manual on the APA, a document whose reasoning we have often found persuasive, §706(1) empowers a court only to compel an agency “to perform a ministerial or non-discretionary act,” or “to take action upon a matter, without directing how it shall act.” Attorney General’s Manual on the Administrative Procedure Act 108 (1947) (emphasis added).

Thus, a claim under §706(1) can proceed only where a plaintiff asserts that an agency failed to take a discrete agency action that it is required to take. These limitations rule out several kinds of challenges. The limitation to discrete agency action precludes the kind of broad programmatic attack we rejected in Lujan v. National Wildlife Federation, 497 U.S. 871 (1990). There we considered a challenge to BLM’s land withdrawal review program, couched as unlawful agency “action” that the plaintiffs wished to have “set aside” under §706(2). Id., at 879. We concluded that the program was not an “agency action”:

“[R]espondent cannot seek wholesale improvement of this program by court decree, rather than in the offices of the Department or the halls of Congress, where programmatic improvements are normally made. Under the terms of the APA, respondent must direct its attack against some particular ‘agency action’ that causes it harm.” Id., at 891 (emphasis in original).

The plaintiffs in National Wildlife Federation would have fared no better if they had characterized the agency’s alleged “failure to revise land use plans in proper fashion” and “failure to consider multiple use,” ibid., in terms of “agency action unlawfully withheld” under §706(1), rather than agency action “not in accordance with law” under §706(2).

The limitation to required agency action rules out judicial direction of even discrete agency action that is not demanded by law (which includes, of course, agency regulations that have the force of law). Thus, when an agency is compelled by law to act within a certain time period, but the manner of its action is left to the agency’s discretion, a court can compel the agency to act, but has no power to specify what the action must be. For example, 47 U.S.C. §251(d)(1), which required the Federal Communications Commission “to establish regulations to implement” interconnection requirements “[w]ithin 6 months” of the date of enactment of the Telecommunications Act of 1996, would have supported a judicial decree under the APA requiring the prompt issuance of regulations, but not a judicial decree setting forth the content of those regulations.

1. Of course §706(1) also authorizes courts to “compel agency action . . . unreasonably delayed”—but a delay cannot be unreasonable with respect to action that is not required.
With these principles in mind, we turn to SUWA’s first claim, that by permitting ORV use in certain WSAs, BLM violated its mandate to “continue to manage [WSAs] . . . in a manner so as not to impair the suitability of such areas for preservation as wilderness,” 43 U.S.C. §1782(c). SUWA relies not only upon §1782(c) but also upon a provision of BLM’s Interim Management Policy for Lands Under Wilderness Review, which interprets the nonimpairment mandate to require BLM to manage WSAs so as to prevent them from being “degraded so far, compared with the area’s values for other purposes, as to significantly constrain the Congress’s prerogative to either designate [it] as wilderness or release it for other uses.” App. 65.

Section 1782(c) is mandatory as to the object to be achieved, but it leaves BLM a great deal of discretion in deciding how to achieve it. It assuredly does not mandate, with the clarity necessary to support judicial action under §706(1), the total exclusion of ORV use.

SUWA argues that §1782 does contain a categorical imperative, namely the command to comply with the nonimpairment mandate. It contends that a federal court could simply enter a general order compelling compliance with that mandate, without suggesting any particular manner of compliance. It relies upon the language from the Attorney General’s Manual quoted earlier, that a court can “take action upon a matter, without directing how [the agency] shall act,” and upon language in a case cited by the Manual noting that “mandamus will lie . . . even though the act required involves the exercise of judgment and discretion.” Safeway Stores v. Brown, 138 F. 2d 278, 280 (Emerg. Ct. App. 1943). The action referred to in these excerpts, however, is discrete agency action, as we have discussed above. General deficiencies in compliance, unlike the failure to issue a ruling that was discussed in Safeway Stores, lack the specificity requisite for agency action.

The principal purpose of the APA limitations we have discussed—and of the traditional limitations upon mandamus from which they were derived—is to protect agencies from undue judicial interference with their lawful discretion, and to avoid judicial entanglement in abstract policy disagreements which courts lack both expertise and information to resolve. If courts were empowered to enter general orders compelling compliance with broad statutory mandates, they would necessarily be empowered, as well, to determine whether compliance was achieved—which would mean that it would ultimately become the task of the supervising court, rather than the agency, to work out compliance with the broad statutory mandate, injecting the judge into day-to-day agency management. To take just a few examples from federal resources management, a plaintiff might allege that the Secretary had failed to “manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance,” or to “manage the [New Orleans Jazz National] [H]istorical [P]ark in such a manner as will preserve and perpetuate knowledge and understanding of the history of jazz,” or to “manage the [Steens Mountain] Cooperative Management and Protection Area for the benefit of present and future generations.” 16 U.S.C. §§1333(a), 410bbb-2(a)(1), 460mn-12(b). The prospect of pervasive oversight by federal courts over the manner and pace of agency compliance with such congressional directives is not contemplated by the APA.
SUWA's second claim is that BLM failed to comply with certain provisions in its land use plans, thus contravening the requirement that “[t]he Secretary shall manage the public lands . . . in accordance with the land use plans . . . when they are available.” 43 U.S.C. §1732(a); see also 43 CFR §1610.5-3(a) (2003) (“All future resource management authorizations and actions . . . and subsequent more detailed or specific planning, shall conform to the approved plan”). The relevant count in SUWA’s second amended complaint alleged that BLM had violated a variety of commitments in its land use plans, but over the course of the litigation these have been reduced to two, one relating to the 1991 resource management plan for the San Rafael area, and the other to various aspects of the 1990 ORV implementation plan for the Henry Mountains area.

The actions contemplated by the first of these alleged commitments (completion of a route designation plan in the San Rafael area), and by one aspect of the second (creation of “use supervision files” for designated areas in the Henry Mountains area) have already been completed, and these claims are therefore moot. There remains the claim, with respect to the Henry Mountains plan, that “in light of damage from ORVs in the Factory Butte area,” a sub-area of Henry Mountains open to ORV use, “the [plan] obligated BLM to conduct an intensive ORV monitoring program.” Brief for SUWA 7-8. This claim is based upon the plan’s statement that the Factory Butte area “will be monitored and closed if warranted.” App. 140. SUWA does not contest BLM’s assertion in the court below that informal monitoring has taken place for some years, see Brief for Appellee Secretary of Interior et al. in No. 01-4009 (CA10), p. 23, but it demands continuing implementation of a monitoring program. By this it apparently means to insist upon adherence to the plan’s general discussion of “Use Supervision and Monitoring” in designated areas, App. 148-149, which (in addition to calling for the use supervision files that have already been created) provides that “[r]esource damage will be documented and recommendations made for corrective action,” “[m]onitoring in open areas will focus on determining damage which may necessitate a change in designation,” and “emphasis on use supervision will be placed on [limited and closed areas].” Id., at 149. SUWA acknowledges that a monitoring program has recently been commenced. Brief for SUWA 12. In light, however, of the continuing action that existence of a “program” contemplates, and in light of BLM’s contention that the program cannot be compelled under §706(1), this claim cannot be considered moot.

The statutory directive that BLM manage “in accordance with” land use plans, and the regulatory requirement that authorizations and actions “conform to” those plans, prevent BLM from taking actions inconsistent with the provisions of a land use plan. Unless and until the plan is amended, such actions can be set aside as contrary to law pursuant to 5 U.S.C. §706(2). The claim presently under discussion, however, would have us go further, and conclude that a statement in a plan that BLM “will” take this, that, or the other action, is a binding commitment that can be compelled under §706(1). In our view it is not—at least absent clear indication of binding commitment in the terms of the plan.

FLPMA describes land use plans as tools by which “present and future use is projected.” 43 U.S.C. §1701(a)(2) (emphasis added). The implementing regulations make clear that land use plans are a preliminary step in the overall process of managing public lands—“designed to guide and control future management actions and the development of subsequent, more detailed and limited
scope plans for resources and uses.” 43 CFR §1601.0-2 (2003). The statute and regulations confirm that a land use plan is not ordinarily the medium for affirmative decisions that implement the agency’s “project[ions].” Title 43 U.S.C. §1712(e) provides that “[t]he Secretary may issue management decisions to implement land use plans”—the decisions, that is, are distinct from the plan itself. Picking up the same theme, the regulation defining a land use plan declares that a plan “is not a final implementation decision on actions which require further specific plans, process steps, or decisions under specific provisions of law and regulations.” 43 CFR §1601.0-5(k) (2003). The BLM’s Land Use Planning Handbook specifies that land use plans are normally not used to make site-specific implementation decisions. See Handbook II-2.

Plans also receive a different agency review process from implementation decisions. Appeal to the Department’s Board of Land Appeals is available for “a specific action being proposed to implement some portion of a resource management plan or amendment.” 43 CFR §1610.5-3(b). However, the Board, which reviews “decisions rendered by Departmental officials relating to . . . [t]he use and disposition of public lands and their resources,” §4.1(b)(3)(i), does not review the approval of a plan, since it regards a plan as a policy determination, not an implementation decision. See, e.g., Wilderness Society, 109 I.B.L.A. 175, 178 (1989); Wilderness Society, 90 I.B.L.A. 221, 224 (1986); see also Handbook II-2, IV-3. Plans are protested to the BLM director, not appealed.

The San Rafael plan provides an apt illustration of the immense scope of projected activity that a land use plan can embrace. Over 100 pages in length, it presents a comprehensive management framework for 1.5 million acres of BLM-administered land. Twenty categories of resource management are separately discussed, including mineral extraction, wilderness protection, livestock grazing, preservation of cultural resources, and recreation. The plan lays out an ambitious agenda for the preparation of additional, more detailed plans and specific next steps for implementation. Its introduction notes that “[a]n [ORV] implementation plan is scheduled to be prepared within 1 year following approval of the [San Rafael plan].” San Rafael Plan 9. Similarly “scheduled for preparation” are activity plans for certain environmentally sensitive areas, “along with allotment management plans, habitat management plans, a fire management plan, recreation management plans . . . , cultural resource management plans for selected sites, watershed activity plans, and the wild and scenic river management plan.” Ibid. The projected schedule set forth in the plan shows “[a]nticipated [i]mplementation” of some future plans within one year, others within three years, and still others, such as certain recreation and cultural resource management plans, at a pace of “one study per fiscal year.” Id., at 95-102.

Quite unlike a specific statutory command requiring an agency to promulgate regulations by a certain date, a land use plan is generally a statement of priorities; it guides and constrains actions, but does not (at least in the usual case) prescribe them. It would be unreasonable to think that either Congress or the agency intended otherwise, since land use plans nationwide would commit the agency to actions far in the future, for which funds have not yet been appropriated. Some plans make explicit that implementation of their programmatic content is subject to budgetary constraints. See Brief for Petitioners 42-43, and n. 18 (quoting from such plans). While the Henry Mountains plan does not contain such a specification, we think it must reasonably be implied. A statement by BLM about what it plans to do, at some point, provided it has the funds and there are not more pressing priorities, cannot be plucked out of context and made a basis for suit under §706(1).
Of course, an action called for in a plan may be compelled when the plan merely reiterates duties the agency is already obligated to perform, or perhaps when language in the plan itself creates a commitment binding on the agency. But allowing general enforcement of plan terms would lead to pervasive interference with BLM’s own ordering of priorities. For example, a judicial decree compelling immediate preparation of all of the detailed plans called for in the San Rafael plan would divert BLM’s energies from other projects throughout the country that are in fact more pressing. And while such a decree might please the environmental plaintiffs in the present case, it would ultimately operate to the detriment of sound environmental management. Its predictable consequence would be much vaguer plans from BLM in the future—making coordination with other agencies more difficult, and depriving the public of important information concerning the agency’s long-range intentions.

We therefore hold that the Henry Mountains plan’s statements to the effect that BLM will conduct “use supervision and monitoring” in designated areas—like other “will do” projections of agency action set forth in land use plans—are not a legally binding commitment enforceable under §706(1). That being so, we find it unnecessary to consider whether the action envisioned by the statements is sufficiently discrete to be amenable to compulsion under the APA.5

NOTES AND QUESTIONS

1. In light of the Court’s decision, what, if anything, can private parties do to force BLM to prevent impairment of wilderness study areas for suitability as wilderness?

2. When citizen suits are brought to force agencies to issue regulations by a statutory deadline that has expired, there usually is no question concerning whether the agency has failed to perform a non-discretionary duty because the deadline clearly establishes such a duty. However, the relief a court can provide usually is only a court order directing the regulations to be issued by some new deadline. Courts may not dictate the content of the regulations, though they subsequently may review whether the regulations are consistent with the agency’s statutory authority.

3. In addition to lawsuits against agencies that fail to perform mandatory duties, the citizen suit provisions of the environmental laws also generally authorize private parties to sue violators of the laws and the regulations issued pursuant to them. The next section considers efforts by defendants to defeat such citizen suits.

2. Citizen Enforcement Actions and the Gwaltney Problem

While action-forcing litigation against EPA played a major role in the development of environmental law during the 1970s, citizen enforcement

5. We express no view as to whether a court could, under §706(1), enforce a duty to monitor ORV use imposed by a BLM regulation, see 43 CFR §8342.3 (2003). That question is not before us.
actions against private parties who violated environmental regulations were rarely filed during this period. This changed in 1982 due to concern over a dramatic decline in governmental enforcement efforts during the early years of the Reagan administration. The Natural Resources Defense Council (NRDC) initiated a national project to use citizen suits to fill the enforcement void.

The citizen suit project focused on enforcement of the Clean Water Act because it was easy to prove violations. Dischargers are required to file discharge monitoring reports (DMRs), which are available to the public and can serve as prima facie evidence of NPDES permit violations. Joined by local environmental groups, NRDC systematically scrutinized DMRs and sent 60-day notice letters to dischargers who reported violations of permit limits. Notice letters were then followed by citizen suits. As a result of this project, the total number of citizen suits brought under the Clean Water Act increased from 6 in 1981 to 62 in 1983, surpassing the 56 Clean Water Act cases referred by EPA to the Justice Department for prosecution that year. Miller, Private Enforcement of Federal Pollution Control Laws, 14 Envtl. L. Rep. 10,407, 10,424 (1984).

Based on self-reported violations contained in the DMRs, citizen suits became relatively easy to win, particularly after several courts rejected efforts to create new defenses to such suits (including claims that discharge monitoring reports prepared by defendants were too unreliable to serve as the basis for violations or that they violated the Fifth Amendment privilege against self-incrimination). After complaints from dischargers (the general counsel of the Chemical Manufacturers Association complained that his members would have contested permit provisions more aggressively if they had known that their permits were going to be enforced), EPA commissioned a comprehensive study of citizen suits in 1984. The study found that citizen suits generally had been operating in a manner consistent with the goals of the environmental statutes by both stimulating and supplementing government enforcement. Environmental Law Institute, Citizen Suits: An Analysis of Citizen Enforcement Actions Under EPA-Administered Statutes (1984). The study found no evidence that citizen suits had interfered with government enforcement efforts or that they had focused on trivial violations. More recent studies of the impact of citizen suit provisions in the environmental laws were presented in April 2003 at a symposium at Widener University School of Law. The symposium on “Environmental Citizen Suits at Thirtysomething: A Celebration & Summit” featured leading figures in the citizen suit movement who discussed its history and current status. The symposium proceedings have been published in two parts beginning at 10 Widener L. Rev. 1 (2004).

After courts rejected repeated efforts by dischargers in the early 1980s to create new defenses to citizen suits, defendants finally stumbled on a more successful strategy when they focused on the language of section 505 of the Clean Water Act, which authorizes suits against any person “alleged to be in violation” of the Act. Defendants argued that because this phrase used the present tense, it must mean that to prevail a citizen plaintiff had to prove that dischargers were in violation of the Act at the moment the suit was filed rather than simply relying on past monitoring reports. This argument received a mixed reception in the U.S. Courts of Appeals, culminating in the following Supreme Court decision.
JUSTICE MARSHALL delivered the opinion of the Court.

In this case, we must decide whether §505(a) of the Clean Water Act, 33 U.S.C. §1365(a), confers federal jurisdiction over citizen suits for wholly past violations. . . .

The holder of a federal NPDES permit is subject to enforcement action by the Administrator for failure to comply with the conditions of the permit. The Administrator's enforcement arsenal includes administrative, civil, and criminal sanctions. §1319. The holder of a state NPDES permit is subject to both federal and state enforcement action for failure to comply. §§1319, 1342(b)(7). In the absence of federal or state enforcement, private citizens may commence civil actions against any person "alleged to be in violation of" the conditions of either a federal or state NPDES permit. §1365(a)(1). If the citizen prevails in such an action, the court may order injunctive relief and/or impose civil penalties payable to the United States Treasury. §1365(a).

The Commonwealth of Virginia established a federally approved state NPDES program administered by the Virginia State Water Control Board (Board). Va. Code §§62.1-44 et seq. (1950). In 1974, the Board issued a NPDES permit to ITT-Gwaltney authorizing the discharge of seven pollutants from the company's meat-packing plant on the Pagan River in Smithfield, Virginia. The permit, which was reissued in 1979 and modified in 1980, established effluent limitations, monitoring requirements, and other conditions of discharge. In 1981, petitioner Gwaltney of Smithfield acquired the assets of ITT-Gwaltney and assumed obligations under the permit.

Between 1981 and 1984, petitioner repeatedly violated the conditions of the permit by exceeding effluent limitations on five of the seven pollutants covered. These violations are chronicled in the Discharge Monitoring Reports (DMRs) that the permit required petitioner to maintain. The most substantial of the violations concerned the pollutants fecal coliform, chlorine, and total Kjeldahl nitrogen (TKN). Between October 27, 1981, and August 30, 1984, petitioner violated its TKN limitation 87 times, its chlorine limitation 34 times, and its fecal coliform limitation 31 times. Petitioner installed new equipment to improve its chlorination system in March 1982, and its last reported chlorine violation occurred in October 1982. The new chlorination system also helped to control the discharge of fecal coliform, and the last recorded fecal coliform violation occurred in February 1984. Petitioner installed an upgraded wastewater treatment system in October 1983, and its last reported TKN violation occurred on May 15, 1984.

Respondents Chesapeake Bay Foundation and Natural Resources Defense Council, two nonprofit corporations dedicated to the protection of natural resources, sent notice in February 1984, to Gwaltney, the Administrator of EPA, and the Virginia State Water Control Board, indicating respondents' intention to commence a citizen suit under the Act based on petitioner's violations of its permit conditions. Respondents proceeded to file this suit in June 1984, alleging that petitioner "has violated . . . [and] will continue to violate its NPDES permit." Respondents requested that the District Court provide declaratory and injunctive relief, impose civil penalties, and award attorney's fees and
costs. The District Court granted partial summary judgment for respondents in August 1984, declaring Gwaltney “to have violated and to be in violation” of the Act. The District Court then held a trial to determine the appropriate remedy.

Before the District Court reached a decision, Gwaltney moved in May 1985 for dismissal of the action for want of subject-matter jurisdiction under the Act. Gwaltney argued that the language of §505(a), which permits private citizens to bring suit against any person “alleged to be in violation” of the Act, requires that a defendant be violating the Act at the time of suit. Gwaltney urged the District Court to adopt the analysis of the Fifth Circuit in Hamker v. Diamond Shamrock Chemical Co., 756 F.2d 392 (1985), which held that “a complaint brought under [§505] must allege a violation occurring at the time the complaint is filed.” Id., at 395. Gwaltney contended that because its last recorded violation occurred several weeks before respondents filed their complaint, the District Court lacked subject-matter jurisdiction over respondents’ action.

The District Court rejected Gwaltney’s argument concluding that §505 authorizes citizens to bring enforcement actions on the basis of wholly past violations. . . .

The Court of Appeals affirmed, expressly rejecting the Fifth Circuit’s approach in Hamker and holding that §505 “can be read to comprehend unlawful conduct that occurred only prior to the filing of a lawsuit as well as unlawful conduct that continues into the present.” 791 F.2d 304, 309 (4th Cir. 1986). . . .

The Court of Appeals concluded that the “to be in violation” language of §505 is ambiguous, whereas petitioner asserts that it plainly precludes the construction adopted below. We must agree with the Court of Appeals that §505 is not a provision in which Congress’ limpid prose puts an end to all dispute. But to acknowledge ambiguity is not to conclude that all interpretations are equally plausible. The most natural reading of “to be in violation” is a requirement that citizen-plaintiffs allege a state of either continuous or intermittent violation—that is, a reasonable likelihood that a past polluter will continue to pollute in the future. Congress could have phrased its requirement in language that looked to the past (“to have violated”), but it did not choose this readily available option.

Respondents urge that the choice of the phrase “to be in violation,” rather than phrasing more clearly directed to the past, is a “careless accident,” the result of a “debatable lapse of syntactical precision.” But the prospective orientation of that phrase could not have escaped Congress’ attention. Congress used identical language in the citizen suit provisions of several other environmental statutes that authorize only prospective relief. See, e.g., Clean Air Act, 42 U.S.C. §7604; Resource Conservation and Recovery Act of 1976, 42 U.S.C. §6972 (1982 ed. and Supp. III); Toxic Substances Control Act, 15 U.S.C. §2619 (1982 ed. and Supp. IV). Moreover, Congress has demonstrated in yet other statutory provisions that it knows how to avoid this prospective implication by using language that explicitly targets wholly past violations. . . .

Our reading of the “to be in violation” language of §505(a) is bolstered by the language and structure of the rest of the citizen suit provisions in §505 of the Act. These provisions together make plain that the interest of the citizen-plaintiff is primarily forward-looking.

One of the most striking indicia of the prospective orientation of the citizen suit is the pervasive use of the present tense throughout §505. A citizen suit may be brought only for violation of a permit limitation “which is in effect” under the Act. 33 U.S.C. §1365(f). Citizen-plaintiffs must give notice to the alleged violator, the Administrator of EPA, and the State in which the alleged
violation “occurs.” §1365(b)(1)(A). A Governor of a State may sue as a citizen when the Administrator fails to enforce an effluent limitation “the violation of which is occurring in another State and is causing an adverse effect on the public health or welfare in his State.” §1365(h). The most telling use of the present tense is in the definition of “citizen” as “a person . . . having an interest which is or may be adversely affected” by the defendant’s violations of the Act. §1365(g). This definition makes plain what the undeviating use of the present tense strongly suggests: the harm sought to be addressed by the citizen suit lies in the present or the future, not in the past.

Any other conclusion would render incomprehensible §505’s notice provision, which requires citizens to give 60 days notice of their intent to sue to the alleged violator as well as to the Administrator and the State. §1365(b)(1)(A). If the Administrator or the State commences enforcement action within that 60 day period, the citizen suit is barred, presumably because governmental action has rendered it unnecessary. §1365(b)(1)(B). It follows logically that the purpose of notice to the alleged violator is to give it an opportunity to bring itself into complete compliance with the Act and thus likewise render unnecessary a citizen suit. If we assume, as respondents urge, that citizen suits may target wholly past violations, the requirement of notice to the alleged violator becomes gratuitous. Indeed, respondents, in propounding their interpretation of the Act, can think of no reason for Congress to require such notice other than that “it seemed right” to inform an alleged violator that it was about to be sued.

Adopting respondents’ interpretation of §505’s jurisdictional grant would create a second and even more disturbing anomaly. The bar on citizen suits when governmental enforcement action is under way suggests that the citizen suit is meant to supplement rather than to supplant governmental action. The legislative history of the Act reinforces this view of the role of the citizen suit. The Senate Report noted that “[t]he Committee intends the great volume of enforcement actions [to] be brought by the State,” and that citizen suits are proper only “if the Federal, State, and local agencies fail to exercise their enforcement responsibility.” S. Rep. No. 92-414, p. 64 (1971), reprinted in 2 A Legislative History of the Water Pollution Control Act Amendments of 1972, p. 1482 (1973) (hereinafter Leg. Hist.). Permitting citizen suits for wholly past violations of the Act could undermine the supplementary role envisioned for the citizen suit. This danger is best illustrated by an example. Suppose that the Administrator identified a violator of the Act and issued a compliance order under §309(a). Suppose further that the Administrator agreed not to assess or otherwise seek civil penalties on the condition that the violator take some extreme corrective action, such as to install particularly effective but expensive machinery, that it otherwise would not be obliged to take. If citizens could file suit, months or years later, in order to seek the civil penalties that the Administrator chose to forgo, then the Administrator’s discretion to enforce the Act in the public interest would be curtailed considerably. The same might be said of the discretion of state enforcement authorities. Respondents’ interpretation of the scope of the citizen suit would change the nature of the citizens’ role from interstitial to potentially intrusive. We cannot agree that Congress intended such a result. . . .

Our conclusion that §505 does not permit citizen suits for wholly past violations does not necessarily dispose of this lawsuit, as both lower courts recognized. The District Court found persuasive the fact that “[respondents’] allegation in the complaint, that Gwaltney was continuing to violate its NPDES
permit when plaintiffs filed suits, appears to have been made fully in good faith.” 611 F. Supp., at 1549, n.8. On this basis, the District Court explicitly held, albeit in a footnote, that “even if Gwaltney were correct that a district court has no jurisdiction over citizen suits based entirely on unlawful conduct that occurred entirely in the past, the Court would still have jurisdiction here.” Ibid. The Court of Appeals acknowledged, also in a footnote, that “[a] very sound argument can be made that [respondents’] allegations of continuing violations were made in good faith,” 791 F.2d, at 308, n.9, but expressly declined to rule on this alternative holding. Because we agree that §505 confers jurisdiction over citizen suits when the citizen-plaintiffs make a good-faith allegation of continuous or intermittent violation, we remand the case to the Court of Appeals for further consideration.

Petitioner argues that citizen-plaintiffs must prove their allegations of ongoing noncompliance before jurisdiction attaches under §505. We cannot agree. The statute does not require that a defendant “be in violation” of the Act at the commencement of suit; rather, the statute requires that a defendant be “alleged to be in violation.” Petitioner’s construction of the Act reads the word “alleged” out of §505. As petitioner itself is quick to note in other contexts, there is no reason to believe that Congress’ drafting of §505 was sloppy or haphazard. We agree with the Solicitor General that “Congress’s use of the phrase ‘alleged to be in violation’ reflects a conscious sensitivity to the practical difficulties of detecting and proving chronic episodic violations of environmental standards.”

Our acknowledgment that Congress intended a good-faith allegation to suffice for jurisdictional purposes, however, does not give litigants license to flood the courts with suits premised on baseless allegations. Rule 11 of the Federal Rules of Civil Procedure, which requires pleadings to be based on a good-faith belief, formed after reasonable inquiry, that they are “well grounded in fact,” adequately protects defendants from frivolous allegations.

Petitioner contends that failure to require proof of allegations under §505 would permit plaintiffs whose allegations of ongoing violation are reasonable but untrue to maintain suit in federal court even though they lack constitutional standing. Petitioner reasons that if a defendant is in complete compliance with the Act at the time of suit, plaintiffs have suffered no injury remediable by the citizen suit provisions of the Act. Petitioner, however, fails to recognize that our standing cases uniformly recognize that allegations of injury are sufficient to invoke the jurisdiction of the court. In Warth v. Seldin, 422 U.S. 490, 501 (1975), for example, we made clear that a suit will not be dismissed for lack of standing if there are sufficient “allegations of fact”—not proof—in the complaint or supporting affidavits. This is not to say, however, that such allegations may not be challenged. In United States v. SCRAP, 412 U.S. 669, 689 (1973), we noted that if the plaintiffs’ “allegations [of standing] were in fact untrue, then the [defendants] should have moved for summary judgment on the standing issue and demonstrated to the District Court that the allegations were sham and raised no genuine issue of fact.” If the defendant fails to make such a showing after the plaintiff offers evidence to support the allegation, the case proceeds to trial on the merits, where the plaintiff must prove the allegations in order to prevail. But the Constitution does not require that the plaintiff offer this proof as a threshold matter in order to invoke the District Court’s jurisdiction.

Petitioner also worries that our construction of §505 would permit citizen-plaintiffs, if their allegations of ongoing noncompliance become false at some later point in the litigation because the defendant begins to comply with the Act,
to continue nonetheless to press their suit to conclusion. According to petitioner, such a result would contravene both the prospective purpose of the citizen suit provisions and the “case or controversy” requirement of Article III. Longstanding principles of mootness, however, prevent the maintenance of suit when “there is no reasonable expectation that the wrong will be repeated.” United States v. W.T. Grant Co., 345 U.S. 629, 633 (1953) (quoting United States v. Aluminum Co. of America, 148 F.2d 416, 448 (2d Cir. 1945)). In seeking to have a case dismissed as moot, however, the defendant’s burden “is a heavy one.” 345 U.S., at 633. The defendant must demonstrate that it is “absolutely clear that the alleged wrongful behavior could not reasonably be expected to recur.” United States v. Phosphate Export Assn., Inc., 393 U.S. 199, 203 (1968) (emphasis added). Mootness doctrine thus protects defendants from the maintenance of suit under the Clean Water Act based solely on violations wholly unconnected to any present or future wrongdoing, while it also protects plaintiffs from defendants who seek to evade sanction by predictable “protestations of repentance and reform.” United States v. Oregon State Medical Society, 343 U.S. 326, 333 (1952).

Because the court below erroneously concluded that respondents could maintain an action based on wholly past violations of the Act, it declined to decide whether respondents’ complaint contained a good-faith allegation of ongoing violation by petitioner. We therefore remand the case for consideration of this question. The judgment of the Court of Appeals is vacated, and the case is remanded for further proceedings consistent with this opinion.

NOTES AND QUESTIONS

1. After Gwaltney, under what circumstances can a citizen suit be maintained in light of the “in violation” language of section 505? What must a plaintiff allege about the violation in order to be authorized to sue? Can a plaintiff be required to prove at trial that this allegation is true?

2. The Court’s decision is premised on the notion that citizen suits can only be used to address present or future harms. Is Justice Marshall correct that “any other conclusion would render incomprehensible” the 60-day notice requirement? Could a notice requirement be useful even if citizen suits could be brought against wholly past violations?

3. As noted above, the Clean Water Act had been the most popular vehicle for citizen suits because it was easy to prove that a violation had occurred using defendants’ own discharge monitoring reports (DMRs). After Gwaltney, citizens must be prepared to prove the likelihood of ongoing violations. What constitutes an “ongoing” or “continuing” violation? Can a citizen prove an ongoing violation solely by reference to the DMRs? The Court did not accept Gwaltney’s argument that the “in violation” language required plaintiffs to prove that the violation was occurring at the moment suit was filed. In a concurring opinion Justice Scalia noted that neither a “good or lucky day” nor “the dubious state in which a past effluent problem is not recurring at the moment but the cause of that problem has not been completely and clearly eradicated” was sufficient to place a discharger in a state of compliance. Can a one-shot discharge be considered an “ongoing” violation if its harmful effects still linger?

4. How did Justice Marshall answer the question of what happens if a good-faith allegation of a continuing violation proves to be untrue? In his concurrence Justice Scalia argued that if a violation had been corrected the plaintiff...
would not have standing because there would be “no remediable injury in fact that could support the suit”? Is this correct? After a defendant has voluntarily corrected a violation is it really no longer possible to provide judicial redress? Wouldn’t the possibility of a subsequent penalty provide some redress, by deterring future violations and reducing the likelihood that the past violation would ever be repeated? Has the Supreme Court construed the purpose of citizen suits too narrowly as abatement rather than deterrence, thus undermining efforts to use citizen suits to encourage pollution prevention?

5. Does Gwaltney make it possible for defendants to defeat any citizen suit for readily correctable violations? If so, will citizen suits only be able to deter violations that are the most difficult for defendants to avoid? The result in Gwaltney is a particularly ironic contrast to the Justice Department’s 1970 policy for suits under the Refuse Act, which encouraged suits “to punish or prevent significant discharges which are either accidental or infrequent, but which are not of a continuing nature resulting from the ordinary operations of a manufacturing plant.” United States Department of Justice, Guidelines for Litigation Under the Refuse Act §11 (1970). Can Gwaltney be reconciled with this policy?

6. The Court rejected the Chesapeake Bay Foundation’s explanation that the phrase “to be in violation” was a “careless accident” by observing that Congress used identical language in the citizen suit provisions contained in other environmental laws. Yet isn’t it reasonable to assume that Congress simply borrowed the same language whenever it wanted to include a citizen suit provision in subsequent legislation, thus buttressing CBF’s argument?

The Congressional Response to Gwaltney

Gwaltney’s impact was broad because the “to be in violation” language also appeared in the citizen suit provisions of other federal environmental statutes. However, Congress eventually was more careful in its choice of words. The citizen suit provision included in the Emergency Planning and Community Right-to-Know Act, EPCRA §326, 42 U.S.C. §11046, authorizes any person to sue an owner or operator of a facility “for failure to do” any of four enumerated requirements (e.g., submitting a toxic chemical release form required by section 313). When Congress amended the Clean Air Act in 1990 it replaced the language “alleged to be in violation” with the phrase “alleged to have violated (if there is evidence that the alleged violation has been repeated) or to be in violation.” CAA §304(2)(1), 42 U.S.C. §7604(a)(1) (1993). Similar amendments have been proposed as Congress considers reauthorization of other statutes. How should these provisions be interpreted? Do they authorize citizen suits for wholly past violations? See Atlantic States Legal Found. v. United Musical Instrument, Inc., 61 F.3d 473 (6th Cir. 1995) (EPCRA precludes citizen suits seeking civil penalties for violation cured after receipt of citizen-suit notice letter but before suit filed). Note that both section 326 of EPCRA and section 304 of the CAA retain the 60-day notice requirement that the Court found to be a striking sign of section 505’s “prospective orientation.” Do these amendments reflect a larger pattern of greater congressional specificity in response to narrow interpretations of public law by the Supreme Court? See Eskridge, Overriding Supreme Court Statutory Interpretation Decisions, 101 Yale L.J. 331 (1991).
The Gwaltney Remand

On remand, the Fourth Circuit interpreted the Gwaltney decision to authorize citizens to file suit based on “a good faith allegation of ongoing violation” but to require proof of such a violation at trial. Chesapeake Bay Foundation v. Gwaltney of Smithfield, Ltd., 844 F.2d 170 (4th Cir. 1988). The court noted that this could be accomplished either “(1) by proving violations that continue on or after the date the complaint is filed, or (2) by adducing evidence from which a reasonable trier of fact could find a continuing likelihood of a recurrence in intermittent or sporadic violations.” The district court then reinstated the entire judgment. The judge found that although the violations had not continued, when the suit was filed “there existed a very real danger and likelihood of further violation” because witnesses had expressed doubt that the upgraded wastewater treatment system would cure all nitrogen discharge violations. Chesapeake Bay Foundation v. Gwaltney of Smithfield, Ltd., 688 F. Supp. 1078, 1079 (E.D. Va. 1988). Gwaltney then appealed once again to the Fourth Circuit.

The Fourth Circuit affirmed the district court’s conclusion that a penalty could be imposed even though the violations did not recur and rejected Gwaltney’s claims of mootness and lack of standing. Chesapeake Bay Foundation v. Gwaltney of Smithfield, Ltd., 890 F.2d 690 (4th Cir. 1989). The court held that the plaintiffs did not lack standing because judicial redress could be provided to them through the deterrent effect of civil penalties. The court held that the case was not moot, regardless of subsequent events, because there was an ongoing violation when the suit was filed and “a suit seeking penalties is intrinsically incapable of being rendered moot by the polluter’s corrective actions.” 890 F.2d at 696. However, the court held that “for purposes both of determining ongoing violations and of assessing penalties” it must consider separately each permit parameter alleged to have been violated. 890 F.2d at 698. The court affirmed the $289,822 penalty for nitrogen (TKN) discharge violations by holding that even though the last violation occurred prior to filing of the lawsuit a “reasonable trier of fact could find a continuing likelihood of a recurrence in intermittent or sporadic violations” of the permit’s TKN limits. But the court reversed the $995,500 penalty for chlorine violations. Gwaltney’s subsequent compliance problems are discussed on page 961. See also U.S. v. Smithfield Foods, Inc., 23 Wm. & Mary Envtl. L. & Pol’y Rev. 381 (1999).

Citizen Suits in the Aftermath of Gwaltney

Questions raised by Gwaltney have been addressed by the lower federal courts in numerous subsequent cases as defendants have sought to block citizen suits. The post-Gwaltney cases generally indicate that: (1) determinations concerning whether or not a violation is ongoing are to be made as of the time the complaint is filed, Atlantic States Legal Found., Inc. v. Tyson Foods, Inc., 897 F.2d 1128 (11th Cir. 1990); (2) a violation is not ongoing if remedial measures ensure that there is no reasonable prospect for recurrence, Chesapeake Bay Found. v. Gwaltney of Smithfield, Ltd., 844 F.2d 170 (4th Cir. 1988) (Gwaltney II); (3) plaintiffs need only make a good-faith allegation of an ongoing violation in order to be able to file suit, Sierra Club v. Union Oil of California,
853 F.2d 667 (9th Cir. 1988), but they must be able to prove it to prevail at trial, *Gwaltney II*; Carr v. Alta Verde Indus., 924 F.2d 558 (5th Cir. 1991); and (4) courts are divided on whether a parameter-by-parameter assessment of violations must be made in determining whether a violation is ongoing, but ongoing violations can be established either by showing that violations continued on or after the filing of a complaint or by producing evidence from which a reasonable trier of fact could find a continuing likelihood that intermittent or sporadic violations would occur. Compare *Gwaltney II* with Natural Resources Defense Council v. Texaco, 2 F.3d 493 (3d Cir. 1993); see also Connecticut Coastal Fishermen’s Ass’n v. Remington Arms Co., 989 F.2d 1305 (2d Cir. 1993).

Another question that arose after *Gwaltney* is whether a violator may effectively escape liability by completing remedial action after the complaint is filed but before judgment is rendered. Discussions of mootness in *Gwaltney*, in the context of the jurisdictional issue, suggested to some courts that the main purpose of citizen suits was to abate existing violations and therefore subsequent compliance may “moot out” the pending action. For example, in Atlantic States Legal Found. v. Tyson Foods, Inc., 897 F.2d 1128 (11th Cir. 1990), a district court had stayed proceedings in a citizen suit to give a defendant time to come into compliance and then dismissed the suit as moot. Plaintiffs appealed and the Eleventh Circuit reversed, holding that claims for civil penalties were not mooted by post-complaint compliance. See also Atlantic States Legal Found. v. Stroh Die Casting Co., 116 F.3d 814 (7th Cir. 1997). In Steel Company v. Citizens for a Better Environment, 523 U.S. 83 (1998), the Supreme Court held that pre-complaint corrective action could defeat a citizen plaintiff’s standing in an EPCRA enforcement action, see page 1016. Relying on this decision, the Fourth Circuit held that post-complaint corrective action rendered a citizen suit moot. Friends of the Earth v. Laidlaw Environmental Services, 149 F.3d 303 (4th Cir. 1998). However, as discussed below (see pages 1017-1025), the Supreme Court reversed the Fourth Circuit and held that post-complaint corrective action does not defeat standing because civil penalties can benefit plaintiffs by deterring future violations. Friends of the Earth v. Laidlaw Environmental Services, 528 U.S. 167 (2000).

3. **Standing in Citizen Enforcement Actions**

Prior to the Supreme Court’s decision in *Friends of the Earth v. Laidlaw Environmental Services*, 528 U.S. 167 (2000), the lower courts were wrestling with questions raised by a string of Supreme Court decisions restricting citizen standing. Some of the most vexing questions arose in citizen enforcement actions against private parties who violated environmental regulations. Many environmental statutes also contain provisions requiring regulated parties to report their own discharges of pollutants. Indeed, it is the periodic self-reporting of discharges that has provided the basis for most of the citizen suits under the Clean Water Act, because it is a fairly straightforward task to compare the discharges allowable under a point source’s permit to the actual discharges reported on the source’s discharge monitoring reports (DMRs) to determine whether a violation has occurred. In the wake of the court’s standing decisions, what are the standing restrictions, if any, on the ability of a citizen to sue a point source for failure to report discharges, or failure to report them accurately? A second standing question concerns what standing restrictions, if any, are
imposed on citizens’ ability to sue for a violation of the permit itself. Is it sufficient to allege and prove that a source discharged pollutants unlawfully—that is, in excess of the amounts allowed under its permit—or is something more required?

As to the second question, several courts of appeals initially held that standing requires some showing of harm to the ecosystem, e.g., Friends of the Earth v. Gaston Copper Recycling Corp., 179 F.3d 107 (4th Cir. 1999), reversed, 204 F.3d 149 (4th Cir. 2000) (en banc); Public Interest Research Group of New Jersey v. Magnesium Elektron, Inc., 123 F.3d 111 (3rd Cir. 1997) (MEI). The plaintiffs in MEI had secured a judgment in the district court of $2.625 million in civil penalties plus attorney’s fees, after proving numerous discharges by MEI into the Wickecheoke Creek in excess of defendant’s NPDES permit. At the penalty phase of the trial, defendant’s limnologist had testified without rebuttal that MEI’s discharges had caused no harm to the Creek’s ecosystem.

On appeal, the Third Circuit held that the plaintiff lacked standing. Plaintiffs’ affidavits had stated that named individuals hiked, walked, studied nature, swam, and fished in the Delaware River and Raritan Canal, into which the Wickecheoke flows. They further stated that their enjoyment of these activities was lessened to the extent they knew of MEI’s unlawful discharges, and one swore that she avoided eating fish caught in the Delaware River out of concern for contamination. By a 2-1 vote, the court majority, which included future Supreme Court Justice Samuel Alito, held that these allegations were insufficient to support standing. The majority wrote that “knowledge that MEI exceeded the effluent limits set by its NPDES permit does not, by itself demonstrate injury or threat of injury.” 123 F.3d at 120. In the court’s view, plaintiffs constituted only “concerned bystanders,” indistinguishable from environmentalists in Colorado or California who felt strongly about MEI’s violations. Plaintiffs’ reducing their recreational and other uses of the waterway “cannot support the injury prong of standing when a court also concludes that a polluter’s violations of an effluent standard has not harmed the affected waterway and that it, in fact, poses no threat to that waterway.” Id. at 121.

In Gaston Copper, individuals also sued for NPDES violations, including the owner of a 67-acre lake in which he and his family fish and swim, located four miles downstream from defendant’s plant. The lake owner swore that he fishes less frequently and lets his grandchildren swim in the lake only once each summer, out of concern over defendant’s discharges. 179 F.3d at 110. The panel majority, over a vigorous dissent by Judge J. Harvie Wilkinson, held this insufficient for standing because plaintiff had introduced no evidence that defendant’s discharges had an “adverse effect” on the lake. Id. at 113. Judge Wilkinson would have recognized that the plaintiff was within the acknowledged discharge area of the plant. “Whether we characterize the harm as the actual pollution to the waterway, [plaintiff’s] reasonable fear or concern, or Gaston Copper’s threat to the waterway is ‘unimportant,’” he wrote. Id. at 117.

MEI also addressed when plaintiffs could sue directly on the basis of reporting or monitoring violations. In a footnote, the court said that a plaintiff who had not suffered injury in fact as the court had defined it might sometimes still be able to sue a defendant solely for its failure to monitor and report if the plaintiff or some other individual had previously suffered injuries from some prior discharges. That history could give rise to reasonable decisions to forego using the river when a defendant subsequently fails to report its discharges, which “might”
constitute the type of injury necessary to support standing. 125 F.3d at 124, n.9. Plaintiffs’ bare desire for accurate reporting information from defendant, however, even when accompanied by decreased use of the river, was insufficient in the case itself, because plaintiff had failed to show the discharges had had any effect on the river, and the uncontradicted evidence was that defendant’s discharges had not “caused the type of injury feared by [plaintiffs].” Id. at 124.

One federal statute, the Emergency Planning and Community Right-to-Know Act (EPCRA), is unique in that the only duties it imposes on regulated parties are duties to report toxic emissions. One issue that courts have faced in EPCRA litigation is whether citizens can sue under its citizen suit provision for failures to report that companies cure after they receive the required notice from the citizen plaintiffs of an intent to sue. In part this is a question of whether specific wording of the EPCRA citizen suit provision is materially distinguishable from the citizen suit provision in the Clean Water Act, under which the Supreme Court has ruled suit cannot be brought for wholly past violations. See the discussion of Gwaltney v. Chesapeake Bay Foundation, page 1007. After the Seventh Circuit ruled that citizens could sue under EPCRA based on such wholly past violations, this created a conflict with a prior decision by the Sixth Circuit, see page 1012, which the Supreme Court agreed to review.

In Steel Company v. Citizens for a Better Environment, 523 U.S. 83 (1998), the Court held that plaintiffs lacked standing to sue for reporting violations that the defendant had cured between its receipt of the plaintiffs’ notice of intention to sue and the date that the plaintiffs filed their case in federal court. The Court did not reach the statutory issue.

The Steel Company plaintiffs had alleged an interest in having accurate discharge information so that they could react appropriately to it in various ways, such as working on emergency preparedness plans or working to achieve further reductions in neighborhood discharges. The Court expressly did not reach the question of whether the defendant’s “failure to provide EPCRA information in a timely fashion and the lingering effects of that failure” gives rise to a concrete injury satisfying injury in fact, because it held in any event that the complaint failed the redressability prong of the standing requirement. 523 U.S. at 105.

The plaintiffs had requested a number of remedies, including “any further relief as the court deems appropriate,” but the Court concluded that none of them could redress the plaintiffs injury of failing to have access to timely EPCRA reports that had now been filed. Declaratory relief was “worthless to respondent [and] . . . to all the world,” in a case in which the defendant had conceded its wrongdoing. Civil penalties failed because they are payable to the United States Treasury, and consequently served to remediate not the plaintiffs’ particular injury, but rather the “undifferentiated public interest” in faithful execution of EPCRA. In response to Justice Stevens dissenting opinion stating “it is enough that respondent will be gratified by seeing petitioner punished for its infractions and that the punishment will deter the risk of future harm,” Justice Scalia wrote that “such a principle would make the redressability requirement vanish.” The request for costs of investigating and prosecuting the case was insufficient because the plaintiff could not “achieve standing to litigate a substantive issue by bringing suit for the cost of bringing suit.” Id. at 107.

The last specific remedies sought were authority to inspect defendant’s plant and records, and an order directing defendant to provide plaintiff copies of compliance reports filed with EPA in the future. Such forward-looking
relief, the Court wrote, “cannot conceivably remedy any past wrong but is aimed at deterring petitioner from violating EPCRA in the future. The latter objective can of course be ‘remedial’ for Article III purposes, when threatened injury is one of the gravamen of the complaint. If respondent had alleged a continuing violation or the imminence of a future violation, the injunctive relief requested would remedy that alleged harm. But there is no such allegation here—and on the facts of the case, there seems to be no basis for it.” Id. at 108.

Shortly after Steel Company, the Supreme Court decided Federal Election Commission v. Akins, 524 U.S. 11 (1998), in which it upheld the standing of a group of voters to sue a federal agency for failing to require a lobbying group to register and disclose certain information. The Court held that the plaintiffs’ inability to obtain information required to be disclosed by statute constituted sufficient injury-in-fact to give them standing. The Court distinguished this case from its traditional prudential ban on taxpayer standing by noting that a federal statute specifically gave the plaintiffs a right to receive the information they sought.

The next major standing controversy decided by the Court arose as a result of a decision by the U.S. Court of Appeals for the Fourth Circuit in Friends of the Earth v. Laidlaw Environmental Services, 149 F.3d 303 (4th Cir. 1998). Citing the doctrine that a plaintiff must satisfy all the elements of standing throughout the course of a litigation, the Fourth Circuit dismissed a suit against a company whose wastewater treatment plant in Roebuck, South Carolina had nearly 900 violations of its NPDES discharge permit. Occasional violations continued after the complaint was filed in 1992, but the last recorded violation occurred two years prior to the entry of the district court judgment in 1997. Interpreting Steel Company to say that a plaintiff lacks standing to challenge wholly past violations when the only available remedies fail that opinion’s redressability standard, the Fourth Circuit reversed an award by the district court of $405,880 in civil penalties plus attorneys’ fees. On writ of certiorari, the Supreme Court reversed in the following decision.

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

**Justice Ginsburg** delivered the opinion of the Court.

This case presents an important question concerning the operation of the citizen-suit provisions of the Clean Water Act. Congress authorized the federal district courts to entertain Clean Water Act suits initiated by “a person or persons having an interest which is or may be adversely affected.” To impel future compliance with the Act, a district court may prescribe injunctive relief in such a suit; additionally or alternatively, the court may impose civil penalties payable to the United States Treasury. In the Clean Water Act citizen suit now before us, the District Court determined that injunctive relief was inappropriate because the defendant, after the institution of the litigation, achieved substantial compliance with the terms of its discharge permit. The court did, however, assess a civil penalty of $405,800. The “total deterrent effect”
of the penalty would be adequate to forestall future violations, the court rea-
soned, taking into account that the defendant “will be required to reimburse
plaintiffs for a significant amount of legal fees and has, itself, incurred sig-
ificant legal expenses.”

The Court of Appeals vacated the District Court’s order. The case became
moot, the appellate court declared, once the defendant fully complied with the
terms of its permit and the plaintiff failed to appeal the denial of equitable
relief. . . .

We reverse the judgment of the Court of Appeals. The appellate court erred
in concluding that a citizen suitor’s claim for civil penalties must be dismissed as
moot when the defendant, albeit after commencement of the litigation, has
come into compliance. In directing dismissal of the suit on grounds of mootness,
the Court of Appeals incorrectly conflated our case law on initial standing to
bring suit, see, e.g., Steel Co. v. Citizens for Better Environment, with our case law
on post-commencement mootness, see, e.g., City of Mesquite v. Aladdin’s Castle,
conduct ordinarily does not suffice to moot a case. The Court of Appeals also
misperceived the remedial potential of civil penalties. Such penalties may serve,
as an alternative to an injunction, to deter future violations and thereby redress
the injuries that prompted a citizen suitor to commence litigation.

I

B

[Between 1987 and 1995, Laidlaw violated its NPDES permit nearly 500
times by discharging greater than permitted quantities of mercury into the
North Tyger River. After FOE filed suit in June 12, 1992, more exceedances
occurred, the last reported one taking place on January, 1995, “long after the
complaint was filed but about two years before judgment was rendered.”]

On January 22, 1997, the District Court issued its judgment. It found that
Laidlaw had gained a total economic benefit of $1,092,581 as a result of its
extended period of noncompliance with the mercury discharge limit in its
permit. The court concluded, however, that a civil penalty of $405,800 was
adequate in light of the guiding factors listed in 33 U.S.C. §1319(d). In
particular, the District Court stated that the lesser penalty was appropriate
taking into account the judgment’s “total deterrent effect.” In reaching this
determination, the court “considered that Laidlaw will be required to reimburse
plaintiffs for a significant amount of legal fees.” The court declined to grant
FOE’s request for injunctive relief, stating that an injunction was inappropriate
because “Laidlaw has been in substantial compliance with all parameters in its
NPDES permit since at least August 1992.”

FOE appealed the District Court’s civil penalty judgment, arguing that the
penalty was inadequate, but did not appeal the denial of declaratory or injunc-
tive relief. Laidlaw cross-appealed, arguing, among other things, that FOE
lacked standing to bring the suit. . . . The United States . . . participate[d] as
amicus curiae in support of FOE.

[The Court of Appeals reversed.]

We granted certiorari, 525 U.S. 1176 (1999), to resolve the inconsistency
between the Fourth Circuit’s decision in this case and the decisions of several
other Courts of Appeals, which have held that a defendant’s compliance with its permit after the commencement of litigation does not moot claims for civil penalties under the Act.

II

A

... Laidlaw contends first that FOE lacked standing from the outset even to seek injunctive relief, because the plaintiff organizations failed to show that any of their members had sustained or faced the threat of any “injury in fact” from Laidlaw’s activities. In support of this contention Laidlaw points to the District Court’s finding, made in the course of setting the penalty amount, that there had been “no demonstrated proof of harm to the environment” from Laidlaw’s mercury discharge violations. 956 F. Supp., at 602; see ibid. (“[T]he NPDES permit violations at issue in this citizen suit did not result in any health risk or environmental harm.”).

The relevant showing for purposes of Article III standing, however, is not injury to the environment but injury to the plaintiff. To insist upon the former rather than the latter as part of the standing inquiry . . . is to raise the standing hurdle higher than the necessary showing for success on the merits in an action alleging noncompliance with an NPDES permit. Focusing properly on injury to the plaintiff, the District Court found that FOE had demonstrated sufficient injury to establish standing. For example, FOE member Kenneth Lee Curtis averred in affidavits that he lived a half-mile from Laidlaw’s facility; that he occasionally drove over the North Tyger River, and that it looked and smelled polluted; and that he would like to fish, camp, swim, and picnic in and near the river between 3 and 15 miles downstream from the facility, as he did when he was a teenager, but would not do so because he was concerned that the water was polluted by Laidlaw’s discharges. Curtis reaffirmed these statements in extensive deposition testimony. For example, he testified that he would like to fish in the river at a specific spot he used as a boy, but that he would not do so now because of his concerns about Laidlaw’s discharges.

Other members presented evidence to similar effect. . . .

These sworn statements, as the District Court determined, adequately documented injury in fact. We have held that environmental plaintiffs adequately allege injury in fact when they aver that they use the affected area and are persons “for whom the aesthetic and recreational values of the area will be lessened” by the challenged activity. Sierra Club v. Morton. See also Defenders of Wildlife (“Of course, the desire to use or observe an animal species, even for purely aesthetic purposes, is undeniably a cognizable interest for purposes of standing.”). . . .

In contrast [to Lujan v. National Wildlife Federation] the affidavits and testimony presented by FOE in this case assert that Laidlaw’s discharges, and the affiant members’ reasonable concerns about the effects of those discharges, directly affected those affiants’ recreational, aesthetic, and economic interests. These submissions present dispositively more than the mere “general averments” and “conclusory allegations” found inadequate in National Wildlife Federation. Nor can the affiants’ conditional statements—that they would use the nearby North Tyger River for recreation if Laidlaw were not discharging pollutants into it—be equated with the speculative “‘some day’ intentions” to visit
endangered species halfway around the world that we held insufficient to show
injury in fact in *Defenders of Wildlife*.

*Los Angeles v. Lyons* . . . does not weigh against standing in this case. In
*Lyons*, we held that a plaintiff lacked standing to seek an injunction against
the enforcement of a police chokehold policy because he could not credibly
allege that he faced a realistic threat from the policy. In the footnote from *Lyons*
cited by the dissent, we noted that “[t]he reasonableness of Lyons’ fear is
dependent upon the likelihood of a recurrence of the allegedly unlawful con-
duct,” and that his “subjective apprehensions” that such a recurrence would
even take place were not enough to support standing. Here, in contrast, it is
 undisputed that Laidlaw’s unlawful conduct—discharging pollutants in excess
of permit limits—was occurring at the time the complaint was filed. Under
*Lyons*, then, the only “subjective” issue here is “[t]he reasonableness of [the] fear”
that led the affiants to respond to the concededly ongoing conduct by
refraining from use of the North Tyger River and surrounding areas. Unlike the
dissent, we see nothing “improbable” about the proposition that a company’s
continuous and pervasive illegal discharges of pollutants into a river would cause
nearby residents to curtail their recreational use of that waterway and would
subject them to other economic and aesthetic harms. The proposition is entirely
reasonable, the District Court found it was true in this case, and that is enough
for injury in fact.

Laidlaw argues next that even if FOE has standing to seek injunctive relief,
it lacked standing to seek civil penalties. Here the asserted defect is not injury
but redressability. Civil penalties offer no redress to private plaintiffs, Laidlaw
argues, because they are paid to the government, and therefore a citizen plaintiff
can never have standing to seek them. . . .

[I]t is wrong to maintain that citizen plaintiffs facing ongoing violations
never have standing to seek civil penalties.

We have recognized on numerous occasions that “all civil penalties have
some deterrent effect.” More specifically, Congress has found that civil penalties
in Clean Water Act cases do more than promote immediate compliance by
limiting the defendant’s economic incentive to delay its attainment of permit
limits; they also deter future violations. This congressional determination war-
rants judicial attention and respect. “The legislative history of the Act reveals
that Congress wanted the district court to consider the need for retribution and
deterrence, in addition to restitution, when it imposed civil penalties. . . . [The
district court may] seek to deter future violations by basing the penalty on its

It can scarcely be doubted that, for a plaintiff who is injured or faces the
threat of future injury due to illegal conduct ongoing at the time of the suit, a
sanction that effectively abates that conduct and prevents its recurrence pro-
vides a form of redress. Civil penalties can fit that description. To the extent that
they encourage defendants to discontinue current violations and deter them
from committing future ones, they afford redress to citizen plaintiffs who are
injured or threatened with injury as a consequence of ongoing unlawful
conduct. . . .

We recognize that there may be a point at which the deterrent effect of a
claim for civil penalties becomes so insubstantial or so remote that it cannot
support citizen standing. . . .

In this case we need not explore the outer limits of the principle that civil
penalties provide sufficient deterrence to support redressability. Here, the civil
penalties sought by FOE carried with them a deterrent effect that made it likely, as opposed to merely speculative, that the penalties would redress FOE’s injuries by abating current violations and preventing future ones—as the District Court reasonably found when it assessed a penalty of $405,800.

Laidlaw contends that the reasoning of our decision in *Steel Co.* directs the conclusion that citizen plaintiffs have no standing to seek civil penalties under the Act. We disagree. *Steel Co.* established that citizen suitors lack standing to seek civil penalties for violations that have been abated by the time of the suit. We specifically noted in that case that there was no allegation in the complaint of any continuing or imminent violation, and that no basis for such an allegation appeared to exist. [S]ee also *Gwaltney* (“the harm sought to be addressed by the citizen suit lies in the present or the future, not in the past”). In short, *Steel Co.* held that private plaintiffs, unlike the Federal Government, may not sue to assess penalties for wholly past violations, but our decision in that case did not reach the issue of standing to seek penalties for violations that are ongoing at the time of the complaint and that could continue into the future if undeterred.

B

Satisfied that FOE had standing under Article III to bring this action, we turn to the question of mootness.

The only conceivable basis for a finding of mootness in this case is Laidlaw’s voluntary conduct—either its achievement by August 1992 of substantial compliance with its NPDES permit or its more recent shutdown of the Roebuck facility. It is well settled that “a defendant’s voluntary cessation of a challenged practice does not deprive a federal court of its power to determine the legality of the practice.” City of Mesquite, 455 U.S., at 289. “[I]f it did, the courts would be compelled to leave [t]he defendant . . . free to return to his old ways.” In accordance with this principle, the standard we have announced for determining whether a case has been mooted by the defendant’s voluntary conduct is stringent: “A case might become moot if subsequent events made it absolutely clear that the allegedly wrongful behavior could not reasonably be expected to recur.” The “heavy burden of persuading” the court that the challenged conduct cannot reasonably be expected to start up again lies with the party asserting mootness.

The Court of Appeals justified its mootness disposition by reference to *Steel Co.*, which held that citizen plaintiffs lack standing to seek civil penalties for wholly past violations. In relying on *Steel Co.*, the Court of Appeals confused mootness with standing. The confusion is understandable, given this Court’s repeated statements that the doctrine of mootness can be described as “the doctrine of standing set in a time frame: The requisite personal interest that must exist at the commencement of the litigation (standing) must continue throughout its existence (mootness).” Arizonans for Official English, 520 U.S., at 68.

Careful reflection on the long-recognized exceptions to mootness, however, reveals that the description of mootness as “standing set in a time frame” is not comprehensive. As just noted, a defendant claiming that its voluntary compliance moots a case bears the formidable burden of showing that it is absolutely clear the allegedly wrongful behavior could not reasonably be expected to recur. By contrast, in a lawsuit brought to force compliance, it is the plaintiff’s burden to establish standing by demonstrating that, if unchecked by the litigation, the defendant’s allegedly wrongful behavior will likely occur or
continue, and that the “threatened injury [is] certainly impending.” Thus, in 
Lyons, as already noted, we held that a plaintiff lacked initial standing to seek an 
injunction against the enforcement of a police chokehold policy because he 
could not credibly allege that he faced a realistic threat arising from the policy. 
Elsewhere in the opinion, however, we noted that a citywide moratorium on 
police chokeholds—an action that surely diminished the already slim likelihood 
that any particular individual would be choked by police—would not have 
mooted an otherwise valid claim for injunctive relief, because the moratorium 
by its terms was not permanent. The plain lesson of these cases is that there are 
circumstances in which the prospect that a defendant will engage in (or resume) 
harmful conduct may be too speculative to support standing, but not too spec-
ulative to overcome mootness.

Standing doctrine functions to ensure, among other things, that the scarce 
resources of the federal courts are devoted to those disputes in which the parties 
have a concrete stake. In contrast, by the time mootness is an issue, the case has 
been brought and litigated, often (as here) for years. To abandon the case at an 
advanced stage may prove more wasteful than frugal. This argument from sunk 
costs does not license courts to retain jurisdiction over cases in which one or 
both parties have settled or a plaintiff pursuing a nonsurviving claim has 
died. But the argument surely highlights an important difference between 
the two doctrines.

For the reasons stated, the judgment of the United States Court of Appeals 
for the Fourth Circuit is reversed, and the case is remanded for further proceed-
ings consistent with this opinion.

NOTES AND QUESTIONS

1. Laidlaw closed its facility after the Fourth Circuit rendered its decisions, 
and argued that this fact had rendered the case moot in any event. In another 
portion of the opinion, the Court noted that either this fact or “Laidlaw’s earlier 
achievement of substantial compliance with its permit requirements, might 
moot the case, but—we once more reiterate—only if one or the other of 
these events made it absolutely clear that Laidlaw’s permit violations could 
not reasonably be expected to recur.” Because the effects of these events 
were disputed facts, the case was remanded for further consideration of 
them. In a concurring opinion Justice Stevens argued that post-judgment con-
duct could never invalidate an award of civil penalties.

2. Suppose Laidlaw had brought itself into substantial compliance prior to 
the filing of the suit. Would Steel Company then apply, with the result that FOE 
would have lacked standing?

3. What effect will the Steel Company and Laidlaw decisions have on incentives 
to comply? Will Steel Company give companies greater incentives not to 
comply until they receive 60-day notice letters? Will Laidlaw make the delivery 
of the 60-day notice letters a more powerful tool for stimulating compliance 
since putative defendants now know they can defeat citizen suits only by coming 
into compliance before lawsuits are filed? On the other hand, does the result in 
Laidlaw reduce the incentives for defendant to cure discharge situations once 
the suit has been filed, because they know that doing so will not provide them 
with a basis for having the case dismissed?
4. Would amendments to environmental statutes such as EPCRA and CWA that allowed citizens to keep some portion of any monetary award levied, as a bounty for their vindicating the public interest, obviate the obstacle to standing created by *Steel Company*?

5. Justice Scalia, joined by Justice Thomas, decried the Court’s decision as having “grave implications for democratic governance.” Justice Kennedy concurred separately to note that the question whether a delegation of executive power to private parties to exact public fines is consistent with Article II had not been raised. In another standing case, the Supreme Court ruled that private plaintiffs had standing to seek *qui tann* recoveries on behalf of the federal government under the False Claims Act from defendants alleged to have defrauded the government. Vermont Agency of Natural Resources v. United States ex rel. Stevens, 529 U.S. 765 (2000). Writing for the Court, Justice Scalia concluded that injury in fact to the United States conferred standing on private relators to bring *qui tann* actions under the False Claims Act because relators stood in the shoes of the federal government. However, the Court also held that Congress had not intended to subject states to liability under the False Claims Act because states did not clearly fit within the definition of “person” for purposes of the Act. In a footnote, Justice Scalia sought to keep alive the question whether citizen suits violated principles of separation of powers by noting that the Court expressed “no view on the question whether *qui tann* suits violate Article II” on the ground that it had not been raised by the petitioner.

6. As a result of *Laidlaw*, the Fourth Circuit sitting en banc unanimously reversed the *Gaston Copper* panel decision, discussed on page 1015, that had dismissed a citizen suit for lack of standing. Friends of the Earth, Inc. v. Gaston Copper Recycling Corp., 204 F.3d 149 (4th Cir. 2000) (en banc). *Laidlaw* has made it easier for citizen groups to establish standing in environmental enforcement suits, although it has not guaranteed that their standing will be upheld. See, e.g., Central and South West Services v. EPA, 220 F.3d 683 (5th Cir. 2000) (dismissing Sierra Club’s challenge to EPA regulations allowing disposal of PCB bulk product waste for failure of individual members who filed affidavits to demonstrate through objective evidence that PCBs from local landfill could leach into their town’s water supply as they feared); Friends for Ferrell Parkway, LLC v. Stasko, 282 F.3d 315 (4th Cir. 2002); Puerto Rico Campers’ Ass’n v. Puerto Rico Aqueduct & Sewer Authority, 219 F. Supp. 2d 201 (D.P.R. 2002) (association had standing to sue sewer authority for violations by one wastewater treatment plant, but not another because the affidavits by members reflect concern over the possible effects of contamination of beaches but not of the river into which the latter plant discharges, thus failing to meet the “mild burden” to establish standing under *Laidlaw*).

7. Additional background information on the *Laidlaw* litigation can be found in William W. Buzbee, The Story of *Laidlaw*: Standing and Citizen Enforcement, in Environmental Law Stories 201 (Lazarus & Houck eds., 2005). Professor Buzbee notes that despite the lengthy litigation and the Court’s decision in their favor, the plaintiffs’ law firm did not receive an attorneys’ fee award due to the bankruptcy of the defendant.

8. As a tribute to the Court’s *Laidlaw* decision, Professor Craig N. Johnston of Lewis & Clark has composed lyrics for a song to be sung to the tune of Eric Clapton’s “Layla,” the passionate anthem Clapton wrote about the woman who later became his wife (the song first appeared on the album “Layla and Other
Assorted Love Songs” released December 1970 by Clapton’s group Derek and the Dominos). As you read the lyrics below, reprinted by permission of Professor Johnston, recall that Laidlaw was decided by a 7 to 2 vote with only Justices Antonin Scalia and Clarence Thomas (C.T. in the lyrics) dissenting.

**Laidlaw**

What do we do when we get sued now  
If the Court’s not on our side?  
If we can’t rely on standing constraints  
Do they expect us to comply?  

Laidlaw!  
What are these non-use injuries?  
Laidlaw!  
Based on subjectivity  
Laidlaw!  
Antonin, please ease our worried minds.  

Defenders gave us consolation  
And Steel Co. made us paint the town.  
But like fools, we put our faith in you.  
You and C.T. got voted down.  

Laidlaw!  
What about these penalties?  
Laidlaw!  
Where’s the redressability?  
Laidlaw!  
Antonin, please ease our worried minds.  

Let’s make the best of the situation.  
Article II’s our last resort.  
Please don’t say we’ll never find a way  
To keep these plaintiffs out of court.  

Laidlaw!  
What was it Sandra didn’t see?  
Laidlaw!  
Where were the Chief and Kennedy?  
Laidlaw!  
Antonin, please ease our worried minds.  

Laidlaw!  
We miss the old majority.  
Laidlaw!  
How can we pay these penalties?  
Laidlaw!  
Antonin, please ease our worried minds.

Lyrics by Professor Craig N. Johnston.

4. *Government Preclusion of Citizen Suits*

As noted above, citizen suits may be precluded if federal or state authorities have commenced and are “diligently prosecuting” their own civil or criminal
enforcement action against the alleged violator. CWA §505(b)(1)(B), CAA §304(b)(1)(B). These provisions seek to prevent citizen suits from infringing on the exercise of enforcement discretion by federal and state authorities.

Courts have wrestled with the question whether a properly commenced citizen suit may continue after the defendant reaches a settlement agreement with government officials. In Atlantic States Legal Foundation v. Eastman Kodak Co., 933 F.2d 124 (2d Cir. 1991), the Second Circuit held that as long as the settlement reasonably assures that the violations alleged in the citizen suit have ceased and will not recur, then the citizen suit cannot proceed even though the state did not initiate enforcement proceedings during the 60-day statutory notice period. However, the court held that plaintiffs could seek an attorneys’ fees recovery because they had motivated the settlement agreement. In EPA v. City of Green Forest, 921 F.2d 1394 (8th Cir. 1990), the Eighth Circuit reached a similar decision, holding that a consent decree filed by EPA after a properly commenced citizen suit could bar the citizen action. Even though the plaintiffs had been precluded from participating in the consent decree negotiations, the court noted that their role as private attorneys general was fully served by the EPA. While noting that “there may be some cases in which it would be appropriate to let a citizens’ action go forward in the wake of a subsequently filed government enforcement action,” the court emphasized that EPA must be afforded a preeminent role in enforcing CWA violations. 921 F.2d at 1404. Other courts have stressed that the government enforcement cannot bar a previously filed citizen suit unless it addresses the claims made in the citizen suit. See Hudson River Fishermen’s Ass’n v. County of Westchester, 686 F. Supp. 1044 (S.D.N.Y. 1988).

Prior to the 1987 Amendments, the language of the Clean Water Act’s citizen suit provision provided that the only government enforcement action that barred a citizen suit was “a civil or criminal action in a court of the United States,” §505(b)(1)(B). Administrative enforcement actions were not held to bar citizen suits because they were limited to small penalties assessed in proceedings in which citizens could not intervene. Friends of the Earth v. Consolidated Rail Corp., 768 F.2d 57 (2d Cir. 1985). When it gave EPA administrative enforcement authority in the 1987 Amendments, Congress added a provision precluding citizens from obtaining civil penalties in citizen suits if EPA had filed an administrative enforcement action or if “a State has commenced and is diligently prosecuting an action under a State law comparable to [§309(g)].” §309(g)(6)(A). However, Congress required that citizens be given an opportunity to comment on proposed administrative penalties, §309(g)(4)(A), and to seek a hearing, §309(g)(4)(B), and judicial review to contest penalty assessments, §309(g)(8). In light of these provisions, courts have wrestled with how to determine the comparability of state administrative enforcement proceedings.

In North & South Rivers Watershed Association v. Town of Scituate, 949 F.2d 552 (1st Cir. 1992), the First Circuit held that a state administrative order which did not impose civil penalties barred a citizen suit even though the state did not have delegated authority to operate the NPDES program and even though state law provided no notice to citizens of agency orders or penalty proceedings. See also Arkansas Wildlife Fed’n v. ICI Americas, Inc., 29 F.3d 376 (8th Cir. 1994) (“[T]he comparability requirement may be satisfied so long as the state law contains comparable penalty provisions which the state is authorized to enforce, has the same overall enforcement goals as the federal
CWA, provides interested citizens a meaningful opportunity to participate at significant stages of the decision-making process, and adequately safeguards their interests.”). The *Scituate* decision is criticized in Hodas, *Enforcement of Environmental Law in a Triangular Federal System: Can Three Not Be a Crowd When Enforcement Authority Is Shared by the United States, the States, and Their Citizens?,* 54 Md. L. Rev. 1552, 1633-1645 (1995). Professor Hodas maintains that this decision reflects “a compliance theory of enforcement” founded on the notion that “bringing an individual defendant into compliance is more important than sanctioning that violator with civil penalties sufficiently large to deter others.” Id. at 1633. Other courts have held that citizen suits seeking civil penalties are not barred by administrative compliance orders that do not seek penalties. Washington Public Interest Research Group v. Pendleton Woolen Mills, 11 F.3d 883 (9th Cir. 1993).

Section 304(b)(1)(B) of the Clean Air Act bars citizen suits when EPA or a state is “diligently prosecuting a civil action in a court of the United States or a state.” The Fifth Circuit has held that in light of this provision’s clear reference to courts, state administrative enforcement actions do not bar citizen enforcement actions under the Clean Air Act. *Texans United for a Safe Economy Education Fund v. Crown Central Petroleum Corp.*, 207 F.3d 789 (5th Cir. 2000).

While EPA’s policy has been not to initiate preemptive enforcement actions in response to citizen-suit notice letters, several states have been aggressively preempting citizen suits at the behest of defendants. See Hodas, 54 Md. L. Rev. at 1648-1651. For example, in *Laidlaw* the defendant asked the state of South Carolina to file suit against it in order to bar the citizen suit by Friends of the Earth (FOE). The company drafted the complaint against itself and even paid the filing fee for the state. On the day before FOE’s 60-day notice period was to expire, the company announced a settlement with the state in which it agreed to pay a $100,000 civil penalty and to make “every effort” to comply with its permit obligations. However, the district court found that the settlement did not bar FOE’s citizen suit because it did not constitute the kind of “diligent prosecution” required by §505(b)(1)(B). *Friends of the Earth, Inc. v. Laidlaw Environmental Services*, 528 U.S. 167, 176-177 (2000).

5. Permit Shields

An important issue that emerged in CWA enforcement actions was the question whether NPDES permits insulate dischargers from liability for discharges of pollutants not specifically regulated by their permits. In the case below, a public interest group filed a citizen suit after discovering that a company’s TRI report included surface water discharges of pollutants not covered by the company’s NPDES permit. The trial court agreed with the defendant that the CWA does not prohibit discharges of pollutants by a permittee that do not violate specific limits established in the permit. The court stated that although §301(a) of the Act generally prohibits unpermitted discharges, “the statutory and regulatory scheme of the Act takes enforcement actions against permit holders *outside* that general prohibition.” *Atlantic States Legal Found. v. Eastman Kodak Co.*, 809 F. Supp. 1040, 1047 (W.D.N.Y. 1992). The decision was appealed to the Second Circuit, which reached the following decision.
Atlantic States Legal Foundation, Inc. v. Eastman Kodak Co.
12 F.3d 353 (2d Cir. 1994)

Before: WINTER, MC LAUGHLIN, and JACOBS, Circuit Judges. WINTER, Circuit Judge:

This appeal raises the issue of whether private groups may bring a citizen suit pursuant to Section 505 of the Federal Water Pollution Control Act (commonly known as the Clean Water Act), 33 U.S.C. §1365, to stop the discharge of pollutants not listed in a valid permit issued pursuant to the Clean Water Act (“CWA” or “the Act”), 33 U.S.C. §1342 (1988). . . .

BACKGROUND

Appellee Eastman Kodak Company (“Kodak”) operates an industrial facility in Rochester, New York, that discharges wastewater into the Genesee River and Paddy Hill Creek under a State Pollutant Discharge Elimination System (“SPDES”) permit issued pursuant to 33 U.S.C. §1342. Appellant Atlantic States Legal Foundation, Inc. (“Atlantic States”) is a not-for-profit environmental group based in Syracuse, New York.

Kodak operates a wastewater treatment plant at its Rochester facility to purify waste produced in the manufacture of photographic supplies and other laboratory chemicals. The purification plant employs a variety of technical processes to filter harmful pollutants before discharge into the Genesee River at the King’s Landing discharge point (designated Outfall 001) pursuant to its SPDES permit.

Kodak first received a federal permit in 1975. At that time, the pertinent regulatory scheme was the National Pollutant Discharge Elimination System (“NPDES”) that was administered directly by the federal Environmental Protection Agency (“EPA”). Subsequently, 33 U.S.C. §1342(b), (c) delegated authority to the states to establish their own programs in place of the EPA’s. As a result, Kodak applied in July 1979 to renew its permit to the New York State Department of Environmental Conservation (“DEC”). The DEC declined to act on Kodak’s renewal application, and Kodak’s NPDES permit remained in effect. As part of the pending application for an SPDES permit, in April 1982 Kodak provided the DEC with a Form 2C describing estimated discharges of 164 substances from each of its outfalls. Kodak also submitted an Industrial Chemical Survey (“ICS”) disclosing the amounts of certain chemicals used in Kodak’s facility and whether they might appear in the plant’s wastewater. Although the ICS originally requested information on 144 substances, including some broad classes such as “unspecified metals,” the DEC restricted the inquiry to chemicals used in excess of specified minimum levels.

On the basis of these disclosures, DEC issued Kodak an SPDES permit, number 000-1643, effective November 1, 1984, establishing specific effluent limitations for approximately 25 pollutants. The permit also included “action levels”2 for five other pollutants as well as for three of the pollutants for which it had established effluent limits. DEC further required Kodak to conduct a semi-annual

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2. If the action level is exceeded, the permittee must undertake a “short-term, high-intensity monitoring program.” If levels higher than the action levels are confirmed, the permit is reopened for consideration of revised action levels or effluent limits.
scan of “EPA Volatile, Acid and Base/Neutral Fractions and PCB’s priority pollutants on a 24-hr, composite sample.” In May 1989, Kodak applied to renew the SPDES permit submitting a new Form 2C and ICS, but the 1984 permit will continue to remain in effect until DEC issues a final determination.

On November 14, 1991, Atlantic States filed the complaint in the instant matter. The complaint alleged that Kodak had violated Sections 301 and 402 of the Clean Water Act, 33 U.S.C. §§1311, 1342, by discharging large quantities of pollutants not listed in its SPDES permit. 4

After discovery, Atlantic States moved for partial summary judgment as to Kodak’s liability in relation to the post-April 1, 1990 discharge of one or more of 16 of the 27 pollutants listed in the complaint. The 16 pollutants are all listed as toxic chemicals under Section 313(c) of the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. §11023(c). Atlantic States argued that General Provision 1(b) of the SPDES permit and Section 301 of the CWA, 33 U.S.C. §1311, prohibit absolutely the discharge of any pollutant not specifically authorized under Kodak’s SPDES permit.


A. “Standards and Limitations” of the Clean Water Act

Atlantic States argues first that the plain language of Section 301 of the CWA, 33 U.S.C. §1311, prohibits the discharge of any pollutants not expressly permitted. With regard to this claim, therefore, Atlantic States’ standing to bring this action turns on the merits of the action itself.

Section 301(a) reads: “Except as in compliance with this section and sections 1312, 1316, 1317, 1328, 1342, and 1344 of this title, the discharge of any pollutant by any person shall be unlawful.” This prohibition is tempered, however, by a self-referential host of exceptions that allow the discharge of many pollutants once a polluter has complied with the regulatory program of the CWA. The exception relevant to the instant matter is contained in Section 402, which outlines the NPDES, 33 U.S.C. §1342(a), and specifies the requirements for suspending the national system with the submission of an approved state program, 33 U.S.C. §1342(b), (c). Section 402(k) contains the so-called “shield provision,” 33 U.S.C. §1342(k), which defines compliance with an NPDES or SPDES permit as compliance with Section 301 for the purposes of the CWA’s enforcement provisions. The Supreme Court has noted that “The purpose of [Section 402 (k)] seems to be . . . to relieve [permit holders] of having to litigate in an enforcement action the question whether their permits are sufficiently strict.” E.I. du Pont de Nemours & Co. v. Train, 430 U.S. 112 (1977).

4. Specifically, the complaint alleged that Kodak had discharged “282,744 pounds of unpermitted pollutants in 1987, 308,537 pounds in 1988, 321,456 pounds in 1989[,] and 290,121 pounds in 1990.” and that Atlantic States believed that Kodak continued to discharge such pollutants.
Atlantic States’ view of the regulatory framework stands that scheme on its head. Atlantic States treats permits as establishing limited permission for the discharge of identified pollutants and a prohibition on the discharge of unidentified pollutants. Viewing the regulatory scheme as a whole, however, it is clear that the permit is intended to identify and limit the most harmful pollutants while leaving the control of the vast number of other pollutants to disclosure requirements. Once within the NPDES or SPDES scheme, therefore, polluters may discharge pollutants not specifically listed in their permits so long as they comply with the appropriate reporting requirements and abide by any new limitations when imposed on such pollutants.8

The EPA lists tens of thousands of different chemical substances in the Toxic Substances Control Act Chemical Substance Inventory pursuant to 15 U.S.C. §2607(b) (1988). However, the EPA does not demand even information regarding each of the many thousand chemical substances potentially present in a manufacturer’s wastewater because “it is impossible to identify and rationally limit every chemical or compound present in a discharge of pollutants.” Memorandum from EPA Deputy Assistant Administrator for Water Enforcement Jeffrey G. Miller to Regional Enforcement Director, Region V, at 2 (Apr. 28, 1976). “Compliance with such a permit would be impossible and anybody seeking to harass a permittee need only analyze that permittee’s discharge until determining the presence of a substance not identified in the permit.” Id. Indeed, Atlantic States conceded at oral argument that even plain water might be considered a “pollutant” under its view of the Act.

The EPA has never acted in any way to suggest that Atlantic States’ absolutist and wholly impractical view of the legal effect of a permit is valid. In fact, the EPA’s actions and policy statements have frequently contemplated discharges of pollutants not listed under an NPDES or SPDES permit. It has addressed such discharges by amending the permit to list and limit a pollutant when necessary to safeguard the environment without considering pre-amendment discharges to be violations calling for enforcement under the CWA. 33 U.S.C. §§1319, 1365. The EPA thus stated in its comments on proposed 40 C.F.R. §122.68(a), which applied the “application-based” limits approach to implementation of the CWA reporting scheme,

There is still some possibility . . . that a [NPDES or SPDES] permittee may discharge a large amount of a pollutant not limited in its permit, and EPA will not be able to take enforcement action against the permittee as long as the permittee complies with the notification requirements [pursuant to the CWA].

45 Fed. Reg. 33,516, 33,523 (1980). The EPA’s statement went on to note that this possibility constituted a “regulatory gap,” and that, “the final regulations control discharges only of the pollutants listed in the [NPDES or SPDES] permit

8. The cases Atlantic States cites are therefore inapposite because each involves either a failure to correctly disclose accurately the discharge of pollutants and thus comply with regulation or a failure to secure the requisite NPDES or SPDES permit. Atlantic States Legal Found., Inc. v. Reynolds Metals Co., 31 Env’t Rep. Cas. (BNA) 1156, 1158 (N.D.N.Y. 1990) (failing to “apply proper detection”); United States v. Tom-Kat Development, Inc., 614 F. Supp. 613 (D. Alaska 1985) (failing to obtain permit); Kitlutsisti v. ARCO Alaska, Inc., 592 F. Supp. 832 (D. Alaska 1984) (failing to obtain permit), vacated on other grounds, 782 F.2d 800 (9th Cir. 1986); Love v. New York State Dep’t of Envt’l Conservation, 429 F. Supp. 832 (S.D.N.Y. 1981) (failing to obtain proper permit).
application, which consist primarily of the listed toxic pollutants and designated hazardous substances.” Id. In a clarification of EPA policy on Section 304, 33 U.S.C. §1314, and water quality-based effluent limitations, an EPA official recently stated that:

EPA did not intend to require water quality-based permit limitations on all pollutants contained in a discharge. . . . The proper interpretation of the regulations is that developing water quality-based limitations is a step-by-step process. . . . Water quality-based limits are established where the permitting authority reasonably anticipates the discharge of pollutants by the permittee at levels that have the reasonable potential to cause or contribute to an excursion above any state water quality criterion. . . .


The EPA is the federal agency entrusted with administration and enforcement of the CWA. 33 U.S.C. §1251(d). As such, EPA’s reasonable interpretations of the Act are due deferential treatment in the courts. Chevron, U.S.A., Inc. v. Natural Resources Defense Council, 467 U.S. 837, 844 (1984). . . . Because the EPA’s implementation of the CWA is entirely reasonable, we defer to it. . . .

**Conclusion**

For the reasons stated above, we affirm the order of the district court granting summary judgment to Kodak.

**Notes and Questions**

1. Does the court’s decision mean that a discharger with an NPDES permit legally can discharge any material not specifically restricted in its permit? What, if anything, would prevent a discharger from dramatically changing the nature of its discharges once it has been granted an NPDES permit?

2. How did the court and Atlantic States differ in their interpretations of the effect of the language of section 301 providing that “the discharge of any pollutant by any person shall be unlawful” except as in compliance with other provisions of the Clean Water Act? The court’s decision, its interpretation of the statutory language, and EPA’s history of implementation of the permit provisions of the Clean Water Act are criticized in Axline and McGinley, Universal Statutes and Planetary Programs: How EPA Has Diluted the Clean Water Act, 8 J. Envtl. L. & Litig. 253 (1993).

3. The court suggests that its interpretation of the Clean Water Act is justified because it would be impossible for EPA to identify and to regulate every one of the thousands of chemicals that are discharged by industrial facilities. Is it true that compliance with the Act would be impossible if the court accepted Atlantic States’ view that the discharge of unidentified pollutants is prohibited?

4. How realistic is the fear expressed by EPA that if Atlantic States’ view was accepted, “anybody seeking to harass a permittee need only analyze that permittee’s discharge until determining the presence of a substance not identified in the permit”? How difficult would it be for citizen groups to sample and analyze discharges and to prove that pollutants are being discharged that are
unauthorized in a permit? If citizens were successful in proving such discharges, wouldn’t permittees seek to have these discharges specifically addressed in their permits?


6. In October 1994, Kodak agreed to pay a $5 million fine and to spend more than $60 million as a result of violations of federal hazardous waste laws at the plant targeted in Atlantic States’ citizen suit. McKinley, Kodak Fined $5 Million for Toxic Chemical Leaks, N.Y. Times, Oct. 8, 1994, at 29.

7. In Northwest Environmental Advocates v. Portland, 56 F.3d 979 (9th Cir. 1995), the Ninth Circuit held that a citizen group could maintain an action against Portland, Oregon, for violations of water quality standards due to discharges from combined sewer overflow (CSO) outfalls even though the CSOs were not separately listed in the city’s NPDES permit. Despite EPA’s approval of the permit, the court held that because it was illegal for the permit not to establish technology-based effluent limits for the CSOs, the permit should be interpreted as covering those outfalls.

8. Implementation of the permit provisions of the Clean Air Act Amendments of 1990 eventually may produce a new wave of citizen suits. Section 504 of the Clean Air Act mandates new monitoring and reporting requirements that will facilitate citizen suits for permit violations. The 1990 Amendments specifically authorize the imposition of “appropriate civil penalties” in citizen suits, §304(a), and they direct that such penalties either be deposited into a special fund “to finance air compliance and enforcement activities,” §304(g)(1), or “be used in beneficial mitigation projects” (limited to $100,000 per action) consistent with the Act to “enhance the public health or the environment.” §304(g) (2).

PROBLEM EXERCISE: CITIZEN ENFORCEMENT OF THE CLEAN WATER ACT

On August 22, a volunteer for a local environmental group you represent informs you that a fish kill has been discovered in a nearby stream 500 yards downriver from an outfall pipe at a manufacturing plant. The plant has an NPDES permit issued by the state that limits the amount of phosphorus, nitrogen, and total suspended solids in discharges from its outfall. A friend who works at the plant subsequently informs you in confidence that an accident occurred at the plant on August 15 that caused a large quantity of toxic chemicals to spill into a holding tank. He tells you that similar accidents have occurred twice before during the five years he has worked at the plant. Although your friend does not know what happened to the chemicals, he notes that when he checked the holding tank on August 24, he discovered that it had been emptied.

On November 15, the environmental group checks with the state environmental agency to review the discharge monitoring report (DMR) the plant was required to file for August. After discovering that the plant failed to file a DMR for August, the environmental group asks you to file a citizen suit on their behalf. On November 25, you send a letter to the owner of the plant, the state environmental agency, and EPA informing them that you plan to file a
citizen suit against the plant owner for failure to file a DMR for August and for discharging pollutants in violation of the plant’s permit.

On March 25, you file a citizen suit against the owner of the plant, alleging that he has violated the Act by failing to file a DMR and by discharging pollutants in violation of the plant’s NPDES permit. On April 7, the plant owner belatedly submits to the state environmental agency a DMR reporting no violations of the plant’s permit during August.

**Question One.** Suppose that defense counsel, citing *Gwaltney*, files motions to dismiss and for summary judgment arguing that there is no ongoing violation because the missing DMR has now been filed, that the case is now moot, and that you lack standing since there is no relief available that would redress any injury to you. How would you respond? Is your case likely to survive the motion to dismiss? Would the result be different if the company filed the missing DMR the day before you filed your citizen suit?

**Question Two.** Suppose that after your lawsuit is filed the state environmental agency assesses a $1,000 administrative penalty against the owner of the plant for failing to file a DMR in timely fashion. The owner agrees to pay the penalty in return for the state’s agreement not to pursue further investigation into the fish kill. Although you are outraged by what you perceive to be a sweet heart settlement, state law does not permit you to challenge it in court. Defense counsel renews his motion to dismiss, arguing that the penalty should bar your citizen suit because it is now moot and that you lack standing since there is no relief available that would redress your alleged injury. How would you respond? Who is likely to prevail on this issue? Would it make any difference if the administrative settlement included a pledge by the company not to violate its permit terms in the future? Would it make any difference if the state had commenced its administrative enforcement action on March 20? See section 309(g)(6). Is there any way to challenge the administrative settlement outside of state court? See sections 309(g)(4) and (6).

**Question Three.** Your friend who works at the plant reports that the employee responsible for preparing DMRs was told by the plant manager that the plant would be closed and he would lose his job if the company lost the citizen suit. Your friend is reluctant to testify at trial because he is certain he would be fired. Without your friend’s testimony it will be impossible to link the plant to the fish kill. What protection is available to your friend under section 507 of the Clean Water Act?

**Question Four.** Suppose that the court reserves judgment on the motion to dismiss and the case proceeds to trial. With Perry Mason as your co-counsel, you succeed in having the employee responsible for preparing the DMR break down on the stand and confess that he falsified it to cover up deliberate discharge of the toxics. Under section 309 of the Clean Water Act, what is the potential criminal liability of the following persons for the filing of the false DMR or the deliberate discharge of the toxics: (1) the employee who prepared the DMR, (2) the plant manager, and (3) the owner of the company?

**Question Five.** Citing its tough policy of not tolerating violations of the environmental laws by its employees, the company then fires the employee who broke down on the stand and blames him for any violations. Is he entitled to protection under section 507? See section 507(d). If plant employees do not testify, what is the likely outcome of your citizen suit? If you win, what relief can the court grant and what penalties can be imposed on the company?
Question Six. Suppose the company is acquired by another firm pledging to “clean up” the plant in the wake of the adverse publicity concerning environmental violations. The acquiring firm had itself been in trouble with environmental officials for numerous violations of the Clean Water Act three years before. It hires an outside consultant to conduct an environmental audit at the plant. The audit discovers that for years plant employees routinely have been discarding vials containing toxic chemicals into a portion of the river upstream from the outfall pipe, which now has become a biological wasteland as a result of these discharges. This practice has saved the firm approximately $2 million in disposal costs. If the new firm promptly discloses these activities to the authorities and orders its employees to stop the practice, can it take advantage of EPA’s self-auditing policy to seek a penalty reduction? Will the policy protect the workers against criminal liability? Should any penalty be imposed on the firm and, if so, how large should it be?

6. The Eleventh Amendment and Citizen Suits Against States

In Seminole Tribe v. Florida, 517 U.S. 44 (1996), the Supreme Court revived the Eleventh Amendment by holding that Congress does not have authority to abrogate a state’s Eleventh Amendment immunity from suit by private citizens under the Indian Commerce Clause. The 5-4 decision, featuring the same lineup of Justices as in United States v. Lopez, 514 U.S. 549 (1995), also overruled Pennsylvania v. Union Gas Company, 491 U.S. 1 (1989), which had held that the Interstate Commerce Clause gave Congress the power to abrogate states’ Eleventh Amendment immunity for purposes of authorizing private cost-recovery actions against states under CERCLA.

The most significant impact of Seminole Tribe on environmental law enforcement may well be with respect to CERCLA liability itself, where states will no longer be liable for costs of removal or remediation in contribution actions by private parties. Because Eleventh Amendment immunity has not been extended to counties, municipalities, or other sub-state governmental units unless “the state treasury is vulnerable,” Hess v. Port Auth. Trans-Hudson Corp., 513 U.S. 30 (1994), the CERCLA liability of such governmental units is not affected by Seminole Tribe. The decision does not preclude actions by federal authorities or citizen suits authorized by Congress for prospective injunctive enforcement of environmental laws, under the holding in Ex Parte Young, 209 U.S. 123 (1908).

The logic of Seminole Tribe’s limitation on congressional authority to authorize citizen suits against states extends to environmental statutes other than CERCLA, insofar as those statutes are predicated on the Commerce Clause. However, while most of those statutes authorize civil penalties against states that violate the laws (see, e.g., 35 U.S.C. §§1362(5), 1365(a)(1), declaring that states are “persons” for purposes of the citizen suit provisions of the CWA, and making civil penalties available in such cases), monetary awards against states have played a relatively insignificant role in citizen enforcement actions. But see Cronin & Kennedy, Jr., Losing Our Day in Court, N.Y. Times, Apr. 4, 1996, at A25 (describing citizen suit against state prison for unlawful discharges of sewage). Seminole Tribe also leaves unaffected current doctrines governing liability of state officials acting in their individual capacities. See generally Wright v. Smith, 21 F.3d 496, 501 (2d. Cir. 1994) (reviewing categories of behavior that
may render a state official individually liable, including direct participation, failure to remedy a subordinate’s wrongdoing, creation of a policy or custom condoning wrongdoing, gross negligence, or deliberate indifference in supervising subordinates who commit wrongdoing).

In Bragg v. West Virginia Coal Association, 248 F.3d 275 (4th Cir. 2001), the Fourth Circuit held that a citizen suit seeking an injunction against West Virginia officials for violating the Clean Water Act and the Surface Mining Control and Reclamation Act (SMCRA) when issuing permits for mountain top mining practices was barred by the Eleventh Amendment. The court held that West Virginia did not waive its Eleventh Amendment immunity by participating in the SMCRA program, which grants “exclusive jurisdiction” to states with federally approved programs for regulating surface mining. The court refused to allow a citizen suit for prospective injunctive relief against the state director of the surface mining program under the Ex parte Young exception because it found that it was not necessary to “vindicate the supreme authority of federal law.” Noting that under West Virginia law citizens could bring enforcement actions in state court, the Fourth Circuit declared that “[b]ecause West Virginia courts are open to such suits, the federal interest in maintaining the State’s compliance with its own program may be fulfilled via suit in that forum, in a manner that does not offend the dignity of the State.”

In Federal Maritime Commission v. South Carolina State Ports Authority, 535 U.S. 743 (2002), the Supreme Court held that state sovereign immunity bars the Federal Maritime Commission from adjudicating a private party’s complaint against a nonconsenting state agency. Acknowledging that the text of the Eleventh Amendment did not support this result, the Court rested it on the importance of affording “States the dignity that is consistent with their status as sovereign entities.” Federal Maritime could undermine implementation of the whistle-blower protection provisions of the environmental laws when whistle-blowers are state agency employees, as Justice Breyer pointed out in his dissent in the decision. See, e.g., Rhode Island Department of Environmental Management v. United States, 286 F.3d 27 (1st Cir. 2002).

F. ENFORCEMENT AGAINST FEDERAL FACILITIES

Federal facilities have been some of the most notorious violators of the environmental laws. Although most federal environmental legislation is the product of concern over the inadequacy of decentralized regulatory approaches, federal environmental laws rely heavily on state authorities to administer and enforce the national programs. Enforcement against federal facilities has been particularly problematic.

Many of the environmental laws specify that their provisions are applicable to facilities owned or operated by federal agencies. For example, section 313(a) of the Clean Water Act provides that the federal government, its officers, agents, and employees “shall be subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity including the payment of reasonable service charges.” Section 6001 of RCRA has virtually
identical language. But federal agencies are not necessarily subject to the same sanctions as other violators of the environmental laws. Section 313(a) of the CWA provides that “the United States shall be liable only for those civil penalties arising under Federal law or imposed by a State or local court to enforce an order or the process of such court.” RCRA section 6001 initially waived only federal immunity from sanctions for the enforcement of injunctive relief. EPA generally had been precluded from taking direct enforcement action against sister federal agencies, while states had been handicapped in recovering penalties from federal agencies due to narrow interpretations of waivers of sovereign immunity in the environmental laws. Congress amended RCRA in 1992 to make federal violators liable for civil penalties and to authorize EPA enforcement actions against them.

In 1990 the Congressional Budget Office found that the federal government was spending more money trying to bring its own facilities into compliance with the environmental laws than in administering the laws. CBO, Federal Liabilities Under Hazardous Waste Laws (May 1990). However, insufficient funding for environmental compliance and the absence of effective enforcement have contributed to serious compliance problems at some facilities owned or operated by federal agencies. In July 1988, the U.S. Department of Energy estimated that environmental cleanup at federal nuclear weapons facilities could cost between $66 to $100 billion. Department of Energy, Environmental, Safety, and Health Report for the Department of Energy Defense Complex (July 1, 1988). At the time, 32 federal land disposal facilities were on EPA’s list of significant noncompliers with RCRA.

In United States v. Dee, 912 F.2d 741 (4th Cir. 1990), federal employees were convicted of criminal violations of RCRA for the first time. The defendants were engineers working for the United States Army who were convicted for knowing violations of RCRA’s TSD standards. The Fourth Circuit rejected the argument that sovereign immunity barred the prosecution, stating that while “federal officers enjoy a degree of immunity for a particular sphere of official actions, there is no general immunity from criminal prosecution.” Criminal prosecution of federal officials was one of the few effective sanctions for noncompliance when states were not permitted to impose civil penalties on federal facilities. However, there are substantial barriers to states’ conducting criminal prosecutions for violators at federal facilities, including the fact that most crimes at such facilities occur on federal land. Smith, Shields for the King’s Men: Official Immunity and Other Obstacles to Effective Prosecution of Federal Officials for Environmental Crimes, 16 Colum. J. Envtl. L. 1 (1991).

Justice Department officials argued that states should not be able to impose civil penalties for environmental violations by federal agencies because it would be a convenient means for states to line their coffers at federal expense while disrupting federal priorities for environmental compliance.

In Department of Energy v. Ohio, 503 U.S. 607 (1992), the Supreme Court held that federal agencies are immune from civil penalties for violations of the Clean Water Act and RCRA. Emphasizing that waivers of sovereign immunity must be unequivocal, the Court held that federal agencies are liable only for fines designed to induce them to comply with judicial orders to modify their behavior prospectively, and not for fines imposed as penalties for past violations. In dissent, Justice White complained that the Court’s decision “deprives the States of a powerful weapon in combatting federal agencies that persist in despoiling the environment.” 503 U.S. at 630.
The Supreme Court’s decision was overridden in large part when Congress enacted the Federal Facility Compliance Act of 1992 (FFCA), Pub. L. No. 102-386 (1992), which President Bush signed into law on October 6, 1992. The FFCA expressly waives the federal government’s immunity from civil penalties for violations of RCRA. The legislation that became the FFCA had actually passed both houses of Congress during the previous session in 1991, prior to the Supreme Court’s DOE v. Ohio decision, which served as a catalyst for convening a conference committee and achieving final passage of the legislation.

The FFCA amended section 6001 of RCRA to waive federal sovereign immunity for civil or administrative penalties or fines, regardless of whether they are “punitive or coercive in nature or are imposed for isolated, intermittent, or continuing violations.” This effectively overrode the Supreme Court’s unanimous holding in DOE v. Ohio that the previous version of section 6001 did not waive federal sovereign immunity for punitive penalties. The FFCA also amended the definition of “person” in section 1004(15) of RCRA to “include each department, agency, and instrumentality of the United States,” thus effectively overriding the Court’s holding that federal facilities are immune from civil penalties under RCRA’s citizen suit provision. However, the FFCA did not address the Court’s holdings with respect to waivers of sovereign immunity in the Clean Water Act.

Opponents of the legislation had maintained that states could abuse their civil penalty authority to line their coffers at federal expense. In response to this concern, the legislation required that all funds collected by states for violations by federal agencies be used “only for projects designed to improve or protect the environment or to defray the costs of environmental protection or enforcement.” While the term “environmental protection” is not defined in the FFCA, supporters of the Act maintained that it should be construed broadly to include wetlands protection and preservation of open space as well as pollution control. States with preexisting laws or constitutional provisions that bar earmarking of funds collected in enforcement actions are exempted from this limitation.

The Federal Facility Compliance Act also included provisions to force DOE to develop a plan for cleaning up the enormous quantities of mixed radioactive and hazardous waste it had generated. The Secretary of Energy was required to provide a comprehensive state-by-state inventory of the sources and amounts of such wastes to EPA and to the governor of each state where DOE stores or generates mixed wastes. This inventory had to include estimates of the amount of each type of mixed waste that DOE expected to generate at each of its facilities during the next five years and information concerning the technology available for treating such wastes. DOE was required to submit a detailed description of its plans for treating mixed wastes and for identifying and developing treatment technologies for wastes for which no treatment technology exists. EPA or states with delegated RCRA program authority had to review and approve the plans, which were then to be incorporated in administrative orders requiring compliance.

To improve EPA enforcement, the Act also amended section 3007(c) of RCRA to require EPA annually to inspect each federal facility used for the treatment, storage, or disposal of hazardous waste even in states authorized to administer the RCRA program. The 1984 Hazardous and Solid Waste Amendments had previously required such inspections only in states without delegated program authority. EPA was to be reimbursed for the costs of such inspections by
the federal agency that owns or operates each facility. The initial EPA inspection had to include groundwater monitoring unless it had been performed during the year prior to enactment.

A particularly significant provision in FFCA authorized EPA to bring administrative enforcement actions against other federal agencies. While EPA had maintained that it had such authority under RCRA, the Justice Department maintained that it would violate constitutional principles of separation of powers for EPA to issue administrative orders against another executive agency, a position undermined by Morrison v. Olson, 487 U.S. 654, 695-696 (1988). The conference report describes the Act’s express endorsement of EPA administrative enforcement actions against federal facilities as an effort “to reaffirm the original intent” of RCRA. 138 Cong. Rec. H8865 (Sept. 22, 1992 daily ed.). The report states that EPA should use its section 3008(a) administrative order authority against federal facilities for the same types of violations for which it is used against private parties. EPA had complained that other federal agencies were reluctant to negotiate compliance agreements with it because EPA had no credible threat of enforcement leverage to use against them in the absence of such an agreement. With this new authority, EPA will be able to move more rapidly to penalize recalcitrant agencies. FFCA requires that EPA give the defendant agency an opportunity to confer with the EPA administrator before any administrative order can become final.

The U.S. Court of Appeals for the Eleventh Circuit has held unconstitutional EPA’s effort to use an administrative compliance order to impose sanctions on the Tennessee Valley Authority (TVA) for alleged violations of the new source review (NSR) provisions of the Clean Air Act. EPA alleged that projects the TVA characterized as routine maintenance and repair of its coal-fired power plants actually constituted major modifications that required the utility to obtain preconstruction permits imposing more stringent emissions limits. Rather than suing the TVA, another federal agency, in federal court, the EPA issued an administrative compliance order (ACO) against it pursuant to CAA section 113(a), 42 U.S.C. §7413(a). After the TVA conferred with EPA, as permitted under the Act, the EPA repeatedly modified the ACO and then directed the agency’s Environmental Appeals Board (EAB) to informally adjudicate whether TVA had violated the CAA. After the EAB decided that the TVA had violated the Act, TVA sought review of this decision in the U.S. Court of Appeals. In January, 2002, a panel of the Eleventh Circuit issued a decision finding that it had jurisdiction after rejecting the Department of Justice’s arguments that the private utilities lacked standing and that there can be no justiciable controversy because the TVA and EPA are both federal agencies. In June 2003, the Eleventh Circuit reversed course and determined that it had no jurisdiction to review the EAB’s decision. The court determined that ACOs did not constitute final agency action because it would be unconstitutional for EPA to be able to impose severe civil and criminal penalties for violating them without any adjudication or meaningful judicial review preceding their issuance. Tennessee Valley Authority v. Whitman, 336 F.3d 1236 (11th Cir. 2003). The court concluded that “EPA must prove the existence of a CAA violation in district court; until then, TVA is free to ignore the ACO without risking the imposition of penalties for noncompliance with its terms.” 335 F.3d at 1239-1240. Because EPA already is pursuing civil suits against the private utilities involved in its NSR enforcement action, the impact of this decision is likely to be limited. It does not call into question EPA’s administrative penalty authority under
§113(d) because this requires the use of formal adjudicatory procedures to determine whether a violation has occurred.

While the FFCA effectively overruled the RCRA portion of the holding in Department of Energy v. Ohio, the scope of the congressional waiver of sovereign immunity is even broader than the penalties at issue in that decision. Because the federal government is now subject "to the full range of available enforcement tools . . . to penalize isolated, intermittent or continuing violations as well as to coerce future compliance," the legislation also effectively precludes assertion by federal defendants of a *Gwaltney* defense in citizen suits alleging violations of RCRA. As the conference report explains:

By subjecting the federal government to penalties and fines for isolated, intermittent, or continuing violations, the waiver also makes it clear that the federal government may be penalized for any violation of federal, state, interstate or local law, whether a single or repeated occurrence, notwithstanding the holding of the Supreme Court in *Gwaltney* of Smithfield, Ltd. v. Chesapeake Bay Foundation, Inc., 484 U.S. 49 (1987). [Id.]

While the enactment of FFCA overruled the holding of Department of Energy v. Ohio with respect to RCRA, federal facilities may remain immune from civil penalties for violation of the Clean Water Act because the latter are not addressed by the FFCA. For a pessimistic assessment of the effectiveness of the FFCA, see Kassen, The Inadequacies of Congressional Attempts to Legislate Federal Facility Compliance With Environmental Requirements, 54 Md. L. Rev. 1475 (1995).

The Ninth Circuit has upheld the right of states to seek penalties in state court from a federal agency for violating the Clean Air Act. After a California state air quality management district sought penalties in state court for Clean Air Act violations at an Air Force base, the Air Force removed the case to federal court. While the federal district court found the Air Force to be immune from penalties under the Clean Air Act, the Ninth Circuit reversed and ordered the case returned to state court. The Ninth Circuit held that the Clean Air Act specifically preserves the right of state and local governments to seek penalties from federal agencies in state court for violations of state and local air quality regulations. California ex rel. Sacramento Metropolitan Air Quality Management District v. United States, 215 F.3d 1005 (9th Cir. 2000).
Protection of the Global Environment

The continued poverty of the majority of the planet’s inhabitants and excessive consumption by the minority are the two major causes of environmental degradation. The present course is unsustainable and postponing action is no longer an option.

—Global Environment Outlook 2000*

We have entered a new era of public policy, defined by a growing number of concerns that straddle national borders. . . . It poses a dual challenge. One is the need to transform international cooperation from its traditional place as “external affairs” into policy-making applicable to most, if not all, domestic issue areas. The second challenge is to develop the concepts and instruments needed to overcome problems of collective action. In particular this will require actions to “internalize externalities”—to deal with potentially contagious phenomena at the source, before they spill across borders.

—Inge Kaul, Isabelle Grunberg & Marc Stern**

Perhaps the most stunning recent development in environmental policy has been the rapid rise of international concern for the environment. Environmental problems increasingly are viewed as transcending national borders and, in some cases, posing major risks to the health of the planet that could cause worldwide economic and social dislocation. The globalization of environmental concern is having a profound impact on international trade and diplomacy, stimulating the development of new international legal regimes that are assuming an increasingly important role in environmental policy.

The globalization of environmental problems is a product of many factors, including rapid worldwide population growth, the expanding scale of international economic activity, and improvements in scientific understanding of humankind’s impact on earth’s ecosystems. The world’s population, estimated to be 6.1 billion people in 2002, is expected to rise to 9.3 billion by the year 2050 with virtually all population growth occurring in less developed countries. United Nations, World Population Prospects: The 2000 Revision (2001). As global economic activity continues to expand dramatically over the next several decades, the nations of the world will become even more interdependent, both economically and ecologically. Global environmental problems are what the World Commission on Environment and Development has termed

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“interlocking crises,” troubles spawned by the ecological impact of human activity and the scramble to meet the basic needs of a rapidly growing world population.

The link between poverty and environmental degradation is now widely recognized. It is estimated that 1.2 billion people do not have access to safe drinking water and that nearly 2.5 billion people lack proper toilets or sewage disposal systems. More than 5 million people die annually from water-borne diseases. Providing these people with basic human needs without taxing emerging limits on earth systems will require the creative application of technology, policy, and resources.

The process of “internationalizing” environmental law has continued even as domestic environmental laws have been subject to some rethinking. In 1970, the UN listed 52 environment-related treaties; by 1999 the number was 215. L. Brown, N. Lenssen & H. Kane, Vital Signs 1995 90-91 (1995); D. Roodman, Building a Sustainable Society, in State of the World 1999 177 (L. Bronn, C. Flowin & H. French eds., 1999); see also H. French, Partnership for the Planet (1995). By one estimate there are now more than 1,000 international legal instruments with at least one important environmental provision. Weiss & Jacobson, Getting Countries to Comply with International Agreements, Environment, July/Aug. 1999 at 17.

The importance of international forums is not limited to formal diplomatic negotiations. Environmental activists have found that even multinational oil companies and seemingly intransigent governments sometimes can be forced to change plans in response to protests, media coverage, and consumer boycotts. Hertsgaard, Are the French Headed for a Meltdown? Wash. Post, Sept. 3, 1995, at C5. The steady growth in international trade also has caused some industries to support voluntary environmental standards to provide a common baseline to apply even in countries with weak environmental laws. White, Sustainability and the Accountable Corporation, Environment, Oct. 1999 at 30-43.

After introducing international environmental law, this chapter explores a range of issues from ozone depletion and global warming to international trade and development policies. It emphasizes that international law is developed, implemented, and enforced very differently than U.S. law. The need to build consensus among states with vastly different cultures and resources presents great challenges to international law. However, there also are similarities as both legal regimes need to overcome scientific uncertainty and to balance short-term economic considerations with long-term environmental values. The growing role of nongovernmental organizations (NGOs) in a sphere traditionally dominated by states also offers interesting parallels to the importance of citizen participation in U.S. environmental law. The special problems of compliance and enforcement of international agreements are addressed in section E.

A. INTRODUCTION TO INTERNATIONAL ENVIRONMENTAL LAW

Unlike domestic law, where common law, legislation, and constitutional provisions provide a relatively clear framework for the operation of environmental regulation, international law depends largely on negotiations and political
relationships to define the rights and responsibilities of sovereign states. For the most part, international law operates with “little procedural hierarchy” and does not give any court or agency an “accepted primacy over another.” M. Janis, An Introduction to International Law 8 (4th ed. 2003). Litigation and adjudication are rare. International law is “soft law” that is largely the product of international diplomacy and custom and whose enforcement depends less on “legal” sanctions than on “moral” suasion or fear of diplomatic retribution. Id. at 3.

INTernational Environmental Law: A Pathfinder

Treaties to which the United States is a party are published by the U.S. State Department in United States Treaties and Other International Agreements (UST). Prior to the appearance of the bound volumes of UST, slips of such treaties were published by the U.S. Government Printing Office (GPO) as Treaties and Other International Acts (TIAS). Treaties can be shepardized through Shepard’s United States Citations: Statutes. The GPO also issues an annual publication, Treaties in Force: A List of Treaties and Other International Agreements of the United States. Many international documents can be accessed through the Electronic System for International Law at http://www.eisil.org.

Valuable periodicals include the Bureau of National Affairs’ weekly International Environment Reporter, the monthly Department of State Bulletin, which reports on developments in international relations and is accessible through NEXIS, Environment magazine, and the European Environmental Review. A comprehensive, up-to-date compendium of documents relevant to public and private international law (including treaties to which the United States is not a party) can be found in the American Society of International Law’s bimonthly publication, ILM: International Legal Materials, which is accessible through LEXIS. The Worldwatch Institute also publishes a bimonthly magazine entitled Worldwatch. Newsletters include UNEP News, published by the U.N. Environment Programme, and the OECD Observer.


Many valuable on-line sources for international environmental documents and information have become available, and new sources
appear regularly. See generally Hunter, Salzman & Zaelke, supra at 1507-1521. The Climate Convention secretariat has a website with access to the most recent documents and information on the status of national ratification (http://unfccc.int). Web pages are also available for the World Bank and many United Nations agencies. The Earth Negotiations Bulletin (ENB), produced in Canada by the International Institute for Sustainable Development, provides daily journalistic summaries of developments at the most important international environmental negotiations. It has a website at http://www.iisd.ca/ linkages. The American Society for International Law (ASIL) maintains an excellent webpage listing electronic resources in international environmental law at www.asil.org/resource/env1.htm. The webpage for the Hunter, Salzman and Zaelke textbook, located at www.wcl.american.edu/pub/iel/index.html, also is quite useful.

The clearest and most significant source of international environmental law is agreements between sovereign states. International treaties or conventions are akin to contracts in that they derive their legal force from the consent of the parties. Bilateral agreements to address cross-boundary environmental problems long have been popular. For example, the Boundary Waters Treaty of 1909 between the United States and Canada served as the basis for the Trail Smelter decision, and the Migratory Bird Treaty of 1916 between the same nations gave rise to the Supreme Court decision in Missouri v. Holland, 252 U.S. 416 (1920). While President Theodore Roosevelt’s attempt to convene a world conference on conservation of natural resources failed in 1909, multilateral agreements, like the Montreal Protocol on Substances that Deplete the Ozone Layer, have now become an important means for addressing global environmental problems. The United States is a party to approximately one-third of these agreements, many of which have influenced the practices of nonsignatories. J. Sebenius, Grafting a Winning Coalition, in Greenhouse Warming: Negotiating a Global Regime 69, 70-71 (1991). For example, the United States has announced that it will abide by the provisions of the Biosafety Protocol to the Convention on Biological Diversity despite its failure to ratify the convention.

In the absence of express agreements between sovereigns, international law also can be derived from customary practices observed by nations in the course of their international relations, which give rise to reliance interests. The domestic practices of most or all states also can be a source for deriving general principles of international law. The assumption is that rules observed by nearly all sovereigns are sufficiently fundamental to be deemed a component of international law. M. Janis, An Introduction to International Law 5-6 (4th ed. 2003).

Like domestic common law, international law has rarely dealt effectively with transboundary pollution problems. The Trail Smelter arbitration in 1935 relied on common law nuisance principles, recognized in Missouri v. Illinois and Georgia v. Tennessee Copper, see Chapter 2, to hold a Canadian smelter liable for damage caused in the United States. The decision, however, is virtually the only case involving adjudication of a transboundary pollution dispute, and its precedential value is limited because it was founded on unusual stipulations and a bilateral agreement establishing procedures for resolving such disputes.
A. Introduction to International Environmental Law

Developments in the Law—International Environment Law, 104 Harv. L. Rev. 1484, 1500-1501 (1991). See also the International Court of Justice decision on the Gabcikovo dam controversy, p. 1048. In addition to the problem of proving causal injury that has plagued the common law, there is no systematic set of legal procedures governing most international pollution disputes.

1. The UN Conferences

   Efforts to develop general principles for resolving transboundary pollution disputes and for combating other international environmental problems have proceeded in both regional and global intergovernmental organizations (IGOs). In 1972, the United Nations convened the first Conference on the Human Environment in Stockholm. The 133 nations who were represented at the conference approved the Stockholm Declaration on Human Environment, which outlined international environmental rights and responsibilities in strong, but highly general, language. Principle I of the Stockholm Declaration provides that “Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of quality that permits a life of dignity and well-being.” The Declaration states that governments have a responsibility to protect and improve the environment for both present and future generations. While it recognizes that nations have “the sovereign right to exploit their own resources pursuant to their own environmental policies,” it declares that they also have “the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.” Stockholm Declaration on the Human Environment, Principle 21.

   Although it left the development of more specific principles of international environmental law to future negotiation, the Stockholm Conference was a landmark event. It launched a process of international collaboration on environmental policy and led to creation of the United Nations Environment Programme (UNEP). International cooperation intensified after a follow-up conference in Nairobi, UNEP’s headquarters, in 1982. The Nairobi Conference led to the creation of the World Commission on Environment and Development. In 1987, the Commission issued a report, entitled Our Common Future, which proposed that the UN develop an international convention outlining new environmental rights and responsibilities for all nations based on principles of sustainable development. Noting that no effective mechanism exists for settling international environmental disputes through binding procedures, the Commission proposed that new procedures be established to facilitate resolution of disputes parties are unable to resolve through negotiation.

   UNEP’s activities, and the Stockholm and Nairobi conferences, have helped to promote international environmental agreements, such as the Montreal Protocol, that address specific environmental problems. Petsonk, The Role of the United Nations Environment Programme (UNEP) in the Development of International Environmental Law, 5 Am. U. J. Int’l L. 351 (1990). The process initiated with the 1972 Stockholm Conference continued with the 1992 United Nations Conference on Environment and Development in Rio de Janeiro. The Earth Summit, as the Rio meeting was called, was an event of unprecedented size and complexity, an Olympics of international environmental negotiation larger than any previous international summit.
The 178 nations that attended approved a declaration of environmental principles called the Rio Declaration and adopted treaties that addressed global warming and the loss of biological diversity, as well as a nonbinding declaration of forest conservation principles. The most ambitious document, Agenda 21, which was also nonbinding, addressed in 800 pages almost every aspect of environment and development.


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The Conference on Environment and Development, . . .

Recognizing the integral and interdependent nature of the earth, our home,

Proclaims that:

Principle 1. Human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

Principle 2. States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to insure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

Principle 3. The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

Principle 4. In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it. . . .

Principle 7. States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth’s ecosystem. In view of the different contributions to global environmental degradation, states have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

Principle 8. To achieve sustainable development and a higher quality of life for all people, states should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies. . . .
Principle 13. States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

Principle 14. States should effectively cooperate to discourage or prevent the relocation and transfer to other states of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

Principle 15. In order to protect the environment, the precautionary approach shall be widely applied to states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Principle 16. National authorities should endeavor to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

NOTES AND QUESTIONS

1. What is the value of the UNCED Declaration? Does it articulate any new substantive principles of international environmental law? Does it create any new rights or provide any new remedies for addressing international environmental problems?

2. In language virtually identical to the 1972 Stockholm Declaration, the UNCED Declaration reaffirms each nation’s right to exploit its own resources and its responsibility to prevent extraterritorial damage. How much guidance does the Declaration provide concerning how to balance the competing values implicated by environmental protection? Compare the Declaration’s treatment of these issues with that of U.S. environmental law.

3. Tensions between developing countries and the industrialized world are reflected throughout the UNCED Declaration and have continued to be a central theme of negotiations on biodiversity, climate change, trade, and other international environmental issues. Other portions of the Declaration declare eradication of poverty to be “an indispensible requirement for sustainable development” and state that the needs of developing countries “shall be given special priority.” Noting that environmental “[s]tandards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries,” it recommends that further measures to address “transboundary or global environmental problems should, as far as possible, be based on an international consensus.” Why is a provision on consensus-based approaches included in a set of principles on environment and development?

The World Summit on Sustainable Development

The World Summit on Sustainable Development (WSSD) met in Johannesburg, South Africa, in late August and early September 2002 to provide a
ten-year review of progress since the Rio Conference. The mandate for the WSSD was a decision by the UN General Assembly in December 2000 to convene a review of progress since UNCED. In form and appearance, the WSSD shared much in common with the Earth Summit. The official attendance included over 21,000 participants from 191 countries, and several sites were employed over a wide area separating the political events from those of business and civil society. However, there were no new treaties or major agreements; eighty-two heads of state attended (compared with over 100 in 1992), but President Bush was among those who did not. The choice of South Africa was viewed as politically important in emphasizing the need for greater emphasis on African development and the linkages between poverty alleviation and sustainable development.

In contrast with 1992, the focus was primarily on more effective implementation of existing agreements rather than negotiation of new ones, an inherently more difficult task. “If Rio was a coming-of-age party for environmental issues on the global stage, Johannesburg was more like a mid-life birthday party, where the optimism of youth has been tempered by the realities of hard-won experience.” H. French, World Summit Briefs, www.worldwatch.org/worldsummit/briefs/20021022.html (Oct. 15, 2002). For documents and links to related UN activities, see the website of the U.N. Department of Economic and Social Affairs, Division for Sustainable Development at www.un.org/esa/sustdev/index.html.

Several features of the meeting are worthy of note when compared with 1992. One was the much greater participation of non-state actors in the negotiation process. The level and character of private sector participation was also much greater than in 1992, when the concept of a shared interest between business and the environment was relatively new. See generally Hanneberg, From Rio to Johannesburg, Tomorrow, Aug. 2002, at 8-13. More than 100 CEOs and corporate heads attended. Numerous companies had exhibits making the case for their environmental concern and accomplishments, generating praise in some quarters and worries about growing corporate influence on the UN from others.

A second development since Rio was the understanding that sustainable development requires a broader understanding of the links between poverty and environmental degradation. “Unlike Agenda 21, the Plan of Implementation recognizes poverty as a running theme, linked to its multiple dimensions, from access to energy, water and sanitation, to the equitable sharing of the benefits of biodiversity.” Summary of the World Summit on Sustainable Development, Earth Negotiations Bulletin, www.iisd.ca/linkages/2002/wssd (vol. 22, no. 51), Sept. 6, 2002. These issues were also given greater salience by the location of the meeting in Africa. A separate section was also included for the first time on globalization.

Finally, the WSSD process highlighted the need to include finance, development, and environmental ministries in an integrated approach to sustainable development. More ministers attended from non-environment ministries, and the need for synergy across political boundaries (linking the WSSD to a previous meeting on finance and forthcoming meetings on trade) was a frequent theme.

NOTES AND QUESTIONS

1. Has the summit model been exhausted by overuse and the added cost and complexity associated with increasing security concerns? Such events seem generally to have become less newsworthy in and of themselves, and the
availability of the Internet arguably reduces the need for bringing people together for information sharing. On the other hand, the periodic pressure to report on progress and debate emerging trends is difficult to replicate other than through an international summit.

2. Those concerned with developing more effective institutions of global environmental governance are debating several issues. See, e.g., Eileen Clausen, Global Environmental Governance: Issues for the New U.S. Administration, 43 Environment 29 (Jan./Feb. 2001). These include the following: How and to what extent should existing institutions of environmental governance be restructured or replaced? How can coordination between them be improved? Should a World Environmental Organization, on a par with the WTO, be created, or will more decentralized approaches, built on emerging models of collaborative governance, offer more promise of success? Should new patterns of international governance and political authority be developed, and, if so, how can they be reconciled with traditional notions of state sovereignty? Can truly enforceable international environmental obligations be created? International human rights law has evolved to alter older concepts of state sovereignty; how should international environmental law evolve? See also Maria Ivanova, Can the Anchor Hold? Rethinking the United Nations Environment Programme for the 21st Century (Yale FES Report No. 7, 2005).

3. Gus Speth, a founder of the Natural Resources Defense Council, Administrator of the UN Development Programme, and now Dean of the Yale School of Forestry and Environmental Studies, argues that a legalistic approach to global environmental problems was understandable, but with few exceptions has proven to be woefully inadequate. He cites numerous deficiencies: The UN agencies charged with oversight of these issues “are among the weakest multilateral organizations”; the negotiation processes “give maximum leverage to any country with an interest in protecting the status quo”; the diplomats in international negotiations lack “a shared political culture” that might facilitate agreement; and discussions are typically unable to overcome perceptions of “environment versus economy” and “North versus South.” The UN conferences were in his view part of this faulty paradigm, producing a global agenda that “emerged and moved forward thanks primarily to a relatively small international leadership community” and produced outcomes “forged top-down at the international level.” Consequently, he concludes, these processes “underscore the weak political base on which our concern for the global environment has rested.” Speth concludes that “[i]n light of these barriers to progress, it is a wonder that any progress was made.” James Gustave Speth, Red Sky at Morning (2004). If a legal approach has lost its way, what is the alternative? We return to this question at the end of the chapter.

2. International Adjudication of Environmental Disputes

Most international disputes that are adjudicated are decided by domestic, rather than international, courts. M. Janis, An Introduction to International Law 7 (2003). While some international tribunals have been established (e.g., the International Court of Justice (ICJ), the European Court of Justice, and the European Court of Human Rights), sovereign states are reluctant to accede legal responsibility to a foreign tribunal. Proposals to create an international body with authority to enforce standards of environmental conduct have been

In 1997, the International Court of Justice (ICJ) released a rare decision on a dispute between Hungary and Slovakia over whether a dam construction project on their borders should be abandoned on environmental grounds. Following the collapse of communism, Hungary withdrew from the massive project that it had been building jointly with Czechoslovakia, pursuant to a 1977 treaty. On January 1, 1993 Czechoslovakia split into the Czech Republic and Slovakia. After Slovakia continued to pursue the project, Hungary sought relief in the ICJ. The Court’s decision, which found fault with both parties and urged further negotiations to resolve the dispute, discussed the effect of new international environmental norms.

International Court of Justice, Case Concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)
25 September 1997

111. Finally, the Court will address Hungary’s claim that it was entitled to terminate the 1977 Treaty because new requirements of international law for the protection of the environment precluded performance of the Treaty.

112. Neither of the Parties contended that new peremptory norms of environmental law had emerged since the conclusion of the 1977 Treaty, and the Court will consequently not be required to examine the scope of Article 64 of the Vienna Convention on the Law of Treaties. On the other hand, the Court wishes to point out that newly developed norms of environmental law are relevant for the implementation of the Treaty and that the parties could, by agreement, incorporate them through the application of Articles 15, 19 and 20 of the Treaty. These articles do not contain specific obligations of performance but require the parties, in carrying out their obligations to ensure that the quality of water in the Danube is not impaired and that nature is protected, to take new environmental norms into consideration when agreeing upon the means to be specified in the Joint Contractual Plan.

By inserting these evolving provisions in the Treaty, the parties recognized the potential necessity to adapt the Project. Consequently, the Treaty is not static, and is open to adapt to emerging norms of international law. By means of Articles 15 and 19, new environmental norms can be incorporated in the Joint Contractual Plan.

The responsibility to do this was a joint responsibility. The obligations contained in Articles 15, 19 and 20 are, by definition, general and have to be transformed into specific obligations of performance through a process of consultation and negotiation. Their implementation thus requires a mutual willingness to discuss in good faith actual and potential environmental risks.
It is all the more important to do this because as the Court recalled in its Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, “the environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn” (I.C.J. Reports 1996, para. 29; see also paragraph 53 above).

The awareness of the vulnerability of the environment and the recognition that environmental risks have to be assessed on a continuous basis have become much stronger in the years since the Treaty’s conclusion. These new concerns have enhanced the relevance of Articles 15, 19 and 20.

113. The Court recognizes that both Parties agree on the need to take environmental concerns seriously and to take the required precautionary measures, but they fundamentally disagree on the consequences this has for the joint Project. In such a case, third-party involvement may be helpful and instrumental in finding a solution, provided each of the Parties is flexible in its position.

140. It is clear that the Project’s impact upon, and its implications for, the environment are of necessity a key issue. The numerous scientific reports which have been presented to the Court by the Parties—even if their conclusions are often contradictory—provide abundant evidence that this impact and these implications are considerable.

In order to evaluate the environmental risks, current standards must be taken into consideration. This is not only allowed by the wording of Articles 15 and 19, but even prescribed, to the extent that these articles impose a continuing—and thus necessarily evolving—obligation on the parties to maintain the quality of the water of the Danube and to protect nature.

The Court is mindful that, in the field of environmental protection, vigilance and prevention are required on account of the often irreversible character of damage to the environment and of the limitations inherent in the very mechanism of reparation of this type of damage.

Throughout the ages, mankind has, for economic and other reasons, constantly interfered with nature. In the past, this was often done without consideration of the effects upon the environment. Owing to new scientific insights and to a growing awareness of the risks for mankind—for present and future generations—of pursuit of such interventions at an unconsidered and unabated pace, new norms and standards have been developed, set forth in a great number of instruments during the last two decades. Such new norms have to be taken into consideration, and such new standards given proper weight, not only when States contemplate new activities but also when continuing with activities begun in the past. This need to reconcile economic development with protection of the environment is aptly expressed in the concept of sustainable development.

For the purposes of the present case, this means that the Parties together should look afresh at the effects on the environment of the operation of the Gabčíkovo power plant. In particular they must find a satisfactory solution for the volume of water to be released into the old bed of the Danube and into the side-arms on both sides of the river.

NOTES AND QUESTIONS

1. Because it found some fault on both sides while failing to direct specifically what must be done to resolve the dispute, the decision by the ICJ in this
case was widely viewed as not resolving the controversy. Does the decision illustrate that international diplomacy remains more important than international “law” as a vehicle for resolving disputes between nations?

2. A separate opinion by ICJ Vice-President Weeramantry concluded that sustainable development is a principle with “normative value” crucial to the determination of the case.

B. PROTECTION OF THE GLOBAL ATMOSPHERE

The discovery that air pollutants are causing long-term, and potentially irreversible, damage to the global atmosphere has been a powerful catalyst for the development of international environmental law. Unlike transboundary pollution that primarily affects countries downwind or downriver, pollution of the Earth’s atmosphere threatens serious damage to the entire planet. Mounting evidence of damage to this global commons has forced the countries of the world to join together in unprecedented efforts to develop international environmental controls.

Ozone depletion and global warming are the two principal problems caused by pollution of the global atmosphere. The discovery in 1985 of a hole in the Earth’s ozone layer over Antarctica stimulated intense intergovernmental negotiations. These negotiations culminated in a remarkable diplomatic achievement, the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer in September 1987.

The Montreal Protocol’s innovative approach for implementing global, technology-forcing regulation in the face of widely disparate national interests and considerable scientific and technological uncertainty has become a model for the development of international environmental controls. The sections that follow explore the complex process that led to the Montreal Protocol and efforts to use it as a model for developing an effective international response to global warming.

1. Ozone Depletion

High in the Earth’s stratosphere is a layer of ozone, an unstable compound of three oxygen atoms, that is essential to the health of the planet. Because ozone absorbs certain wavelengths of ultraviolet radiation, it protects the Earth from excessive radiation that otherwise would cause millions of skin cancer deaths, widespread blindness, and other serious health problems, as well as severe damage to plants and animals.

A. SCIENTIFIC WARNINGS

In 1974, two scientists from the University of California, Sherwood Rowland and Mario Molina, published a paper suggesting that the ozone layer could be threatened with destruction from a family of chemicals once hailed as a miracle of modern science. Chlorofluorocarbons (CFCs), chemicals used in a wide variety of industrial applications including aerosol propellants, foam blowing, air
conditioning, and solvents, were discovered in the 1920s but only used widely beginning in the 1950s. Ironically, much of their attraction stemmed from their lack of other environmental risks—they are not toxic or flammable, and they have excellent insulating, cooling, and cleaning properties. Weisskopf, CFCs: Rise and Fall of Chemical “Miracle,” Wash. Post, Apr. 10, 1988, at A1.

The remarkable stability of CFCs allows them to remain in the atmosphere for up to a century or more, unlike conventional air pollutants, which are broken down in a period of hours or days. Thus, Rowland and Molina hypothesized that CFCs would reach the upper atmosphere, where they could be broken apart by the intense energy of the sun, releasing chlorine. The chlorine would then act as a catalyst, converting ozone (O₃) to oxygen, destroying the Earth’s protective ozone shield.

In the mid-1970s, the United States accounted for almost one-half of global CFC use, the majority of it used as propellants for aerosol sprays. As publicity focused on potential harm to the ozone layer, American consumers stopped buying aerosol sprays (including those without CFCs); in less than two years the market for products with such sprays dropped by two-thirds without any government regulation. R. Benedick, Ozone Diplomacy: New Directions in Safeguarding the Planet 31 (1991) (hereinafter Ozone Diplomacy); S. Anderson, K. Sharma & K. Brown, Protecting the Ozone Layer: The United Nations History (2002). The United States banned most aerosol propellant uses of CFCs in 1978, but few other nations followed suit.

Pressure for companies in the United States to develop alternatives to CFCs continued to build following a further warning of the threat to the ozone layer from the National Academy of Sciences in 1979. But this pressure evaporated in the early 1980s after equivocal research results and the Reagan administration’s deregulation campaign resulted in the announcement that the United States would no longer support international controls. Convinced that further regulation was unlikely, U.S. companies shelved research to develop CFC substitutes.

In 1983, after William Ruckelshaus had succeeded Anne Gorsuch Burford as EPA administrator, the United States reversed its position and supported international controls. Not surprisingly, the United States advocated a policy based on what it had already done, that is, a worldwide ban on aerosol propellant uses of CFCs. The European governments, in turn, advocated a ban on construction of new capacity—a policy in effect in the European Community and without adverse economic consequences due to substantial excess CFC production capacity. Leaders of European industry and government “felt that the Americans had been panicked into ‘over-hasty measures.’ . . .” R. Benedick, Ozone Diplomacy 33 (1991). Finding agreement on regulation impossible, the parties in March 1985 approved the Vienna Convention to Protect the Ozone Layer, which established a framework to govern future scientific cooperation and negotiations.

While a major international research effort under the auspices of the World Meteorological Organization and UNEP was under way, scientists with the British Antarctic Survey published startling findings in May 1985. Based on measurements of springtime levels of ozone in the stratosphere over Halley Bay, Antarctica, they found that seasonal ozone loss had sharply accelerated to the point where a “hole” of greatly diminished ozone levels in the stratosphere had grown to cover an area the size of the United States. These findings were so astonishing that the scientists had delayed publication of them for three years while double-checking their accuracy. Because this discovery indicated that the ozone layer was in far greater jeopardy than previously thought, it spurred more detailed
investigations and intensified international negotiations. In 1987, the Airborne Antarctic Ozone Experiment, using high-altitude airplanes, ground monitors, and satellites, launched studies that eventually found even greater ozone loss and linked it to the presence of human-made chemicals in the stratosphere. See CFCs and Stratospheric Ozone, 19 Ambio (Oct. 1990) (special issue).

B. THE MONTREAL PROTOCOL

Even before international research could confirm the role of CFCs in ozone depletion, the discovery of the ozone “hole” had demonstrated the vulnerability of the ozone layer. This contributed to a heightened sense of urgency that spurred international negotiations based on the framework established by the Vienna Convention. Four negotiating sessions, beginning in Geneva in December 1986, culminated in the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer in September 1987. The Protocol called for a freeze on production and consumption of CFCs and halons at 1986 levels, followed by a 50 percent reduction in CFC use by industrialized countries over a ten-year period. While developing countries were allowed to increase CFC consumption for ten years, trade restrictions were imposed on imports to, and exports from, nonparties to the Protocol.

The Protocol represented a remarkable diplomatic achievement given the obstacles to agreement on international environmental controls. First, the science of ozone depletion was highly uncertain throughout the entire negotiation process. S. Roan, The Ozone Crisis (1989). Year-to-year measurements of global ozone had shown no statistically significant changes. Estimates of eventual ozone loss—anticipated to occur decades later—actually had declined from about 18 percent in 1979 to only 3 percent in 1983. Despite the discovery of the ozone “hole,” scientists were unable to link it precisely to CFCs until after the Protocol was completed (some environmentalists even had sought to delay negotiations in hopes that better evidence would become available). R. Benedick, Ozone Diplomacy 9-20 (1991).

To further challenge negotiators, CFCs had high economic value and powerful advocates in industry who argued that reasonable substitutes were unavailable for many applications. Public concern was evident in the United States, but some Europeans were skeptical of U.S. motives. At the outset of the negotiations, the United States, which already had taken unilateral action against aerosols, was virtually the only major country actively seeking CFC reductions. Moreover, developing countries maintained that it would be unfair to restrict their access to a technology that had contributed to development of the industrialized world. Finally, the concept of damage to the ozone layer was not easily translated into identifiable risks except for skin cancer, a relatively manageable disease that afflicts only a subset of the population. Id.; Mathews, Introduction and Overview, in Greenhouse Warming: Negotiating a Global Regime (J. Mathews ed., 1991).

Gus Speth cites four factors arguably most responsible for the successful conclusion of the Montreal Protocol:

- The problem was successfully defined in the public mind in terms of cancer and other serious public health threats;
- The proponents succeeded in making the “precautionary principle” the decision rule, as opposed to waiting for certainty;
The issue was given a major boost by the discovery of the ozone hole, which effectively focused media and public attention; and

The NGOs and other advocates of regulation were more effectively organized and out-hustled the opposition.


Two issues in the evolution of the Protocol merit particular attention:

1. **The Role of Science.** Richard Benedick does not attribute the success of the negotiations to the discovery of the ozone hole because its cause had not been established when the Protocol was signed. Others disagree, arguing that the ozone hole led to media and public interest that in turn influenced political perceptions. Benedick notes that close collaboration and communication between scientists and government officials played an important role in overcoming obstacles to agreement at several stages of the negotiations. R. Benedick, Ozone Diplomacy 78-79 (1991). Scientists played an important role not only in the formulation of national policy but also as an informal transnational network outside government control.

2. **Technology Forcing and the Role of Industry.** The response of industry to the Protocol is remarkable as an example of technology forcing. As late as the spring of 1986, CFC producers were aggressively insisting that substitutes were not feasible and that regulation would be ruinous for many industries. Miller, Cleaning the Air While Filling Corporate Coffers: Technology Forcing and Economic Growth, 1990 N.Y.U. Ann. Survey Am. L. 69 (1991). After the Protocol was signed, substitutes for CFCs were announced at an astonishing rate, and their projected costs declined steadily. By mid-1989, industry accepted the feasibility of a complete phaseout of CFCs, and EPA estimated that a total phaseout would cost less than it had projected for a 50 percent reduction only two years earlier. While chemical companies produced substitutes, about half the market went to not-in-kind alternatives or process changes, rather than proprietary chemicals. Some CFC substitutes were found to offer superior performance. Pollack, Moving Fast to Protect the Ozone Layer, N.Y. Times, May 15, 1991, at D1. OTA, Environmental Policy Tools: A User’s Guide (1995); Barrett, Montreal v. Kyoto: International Cooperation and the Global Environment, in Global Public Goods 192-219 (I. Kaul, I. Grunberg & M. Stern eds., 1999).

**C. Accelerating the Phaseout**

In March 1988, the Ozone Trends Panel, a team of more than 100 scientists from 10 countries, released the results of 16 months of research using newly developed methodology to analyze all previous measurements of the ozone layer. The Panel’s alarming findings showed that significant ozone depletion already had occurred over heavily populated areas of the northern hemisphere, that a “large, sudden, and unexpected” decline in ozone levels had occurred over Antarctica, and that an ozone “hole” might soon be found over the Arctic and mid-latitudes of the northern hemisphere. The Panel was able to conclusively link CFCs and halons to ozone depletion for the first time. Kerr, Stratospheric Ozone Is Decreasing, 239 Science 1489 (1988).

In June 1990, under the Protocol review provisions described by Benedick, the parties met in London to consider measures to strengthen the Protocol.
There were two priorities: agreement on faster, more comprehensive emission reductions, and participation from the major developing nations to avoid increased use by nonparties. The latter was problematic as the major developing nations, especially India and China, were quick to point out that roughly 90 percent of the world’s CFCs had been used by nations with less than a quarter of the world’s population.

Negotiating a phaseout of CFCs proved easier than working out an agreement with developing countries. The European Community, now fully converted, sought the most rapid timetable for emission reductions. The final agreement provided for the total elimination of CFC production and use by 2000, with scheduled interim reductions by 1993, 1995 and 1997. Separate reduction schedules were established for halons and other ozone-depleting chemicals. Developing countries were again extended an additional ten-year grace period and the possibility of continued use of halons if “necessary to satisfy essential uses for which no adequate alternatives are available.” Restrictions on hydrochlorofluorocarbons (HCFCs), chemicals with about .02 of the ozone-depleting potential of CFCs due to shorter atmospheric lifetimes, were debated but left for future consideration. See generally Bryk, The Montreal Protocol and Recent Development to Protect the Ozone Layer, 15 Harv. Envtl. L. Rev. 275 (1991).

The participation of developing nations quickly became primarily a question of money. The parties agreed to establish a multilateral fund with an initial commitment of $240 million. The fund is managed by a secretariat and governed by a 14-nation council equally divided between donors and recipient nations. The processing of applications, design of projects, and distribution of funds is handled primarily by the World Bank and UN Development Programme. See the website of the Multilateral Fund for the Implementation of the Montreal Protocol at www.multilateralfund.org.

As evidence accumulated that ozone depletion had progressed much further than expected, concern grew that even the accelerated phaseout agreed to in London might be inadequate. The European Community responded by further accelerating its own phaseout of CFCs, shortening the deadline by three years to 1997. EPA bested the EC’s new timetable by a year when it announced in February 1992 that it would require the phaseout to be completed in the United States by 1996. This continued acceleration of the phaseout was driven largely by two factors: scientific data revealing even greater damage to the ozone layer, and the discovery that the phaseout would be far less costly than initially anticipated.

U.S. production of ozone-depleting substances has varied over time—surging until environmental concerns were raised in the mid-1970s, falling sharply, and then increasing again until the Montreal Protocol’s restrictions took effect. Their ultimate phasedown was accomplished through use of a market-based approach to regulation. Rather than attempting to determine what emissions reductions each of the five U.S. producers of CFCs were capable of achieving, EPA gave each company tradeable permits for CFC production based on its 1986 production level. As the annual supply of permits declined to comply with the Protocol, companies could ensure that reductions were achieved in the most efficient manner by buying and selling the diminishing pool of CFC production rights.

To create further incentives for finding substitutes for ozone-depleting compounds, Congress imposed an escalating tax on such substances that in 1990 more than doubled, and in 1995 more than tripled, the pre-regulation price of CFCs. The powerful price signal created by this tax helped reduce
dramatically consumption of ozone-depleting compounds. Indeed, CFC production fell so much faster than anticipated that the tax raised only half of the $6 billion it had been expected to raise between 1990 and the end of 1995.

NOTES AND QUESTIONS

1. What lessons can be learned from the acceleration of the Montreal Protocol’s phaseout? A World Resources Institute review of the experience suggests some themes: (1) it is crucial to establish environmental goals in a manner that permits adjustments to reflect new scientific information; (2) market-based approaches to regulation can help government and industry implement regulatory policy with greater flexibility and at lower cost; (3) industries “can find ways to innovate and gain competitive advantages in response to environmental challenges.” Cook, Marking a Milestone in Ozone Protection: Learning from the CFC Phase-Out 12-13 (1996). Jessica Mathews observes that “CFCs seemed irreplaceable only because there had never been a reason to look for substitutes.” She notes that “[o]nce there was a need to replace them, a modest economic incentive (in this case a tax) and enough time to develop alternatives, innovation bloomed.” Mathews, Clean Sweeps: Two Success Stories for the Environment, Wash. Post, Dec. 18, 1995, at A23.

2. Retail prices of CFCs skyrocketed with regulation and continuing demand, particularly for car air conditioners in all models prior to 1993. The federal tax created powerful incentives to develop substitutes, but it also made noncompliance more profitable. A large black market developed as CFCs purchased abroad, sometimes falsely labeled recycled, were smuggled into the United States to avoid the $5.35 per pound federal tax. Halpert, Freon Smugglers Find Big Market, N.Y Times, Apr. 30, 1995, at A1; “Focus Report,” Global Envtl. Change Rep., Mar. 12, 1999 at 1. As production of CFCs in the developing countries is gradually eliminated—a process well along by mid-1999—this problem should correspondingly diminish.

3. One exception to the record of technical and economic success in replacing ozone-depleting chemicals has been a continuing debate about the use of methyl bromide, a gas widely used for pest eradication in the storage and shipping of grain as well as for production of berries and other high-value food crops. Beginning in 2003, the United States requested “essential use” exemptions under provisions of the Montreal Protocol to use about 21 million pounds in 2005, an increase relative to 2003, and to keep millions of pounds of the chemical in production until at least 2008. The Department of Agriculture also announced that either methyl bromide fumigation or blasting with high heat will be required for shipping products to the United States in wood containers. The shift in U.S. policy was criticized by both environmentalists and chemical companies that invested in producing substitutes for ozone-depleting compounds—including DuPont, which invented CFCs. A DuPont official noted, “The companies that stepped up and did the right thing are penalized for it.” Former EPA Administrator William Reilly noted, “Asbestos, lead, PCBs—all of those were efficient products and all played an important role in the economy at the time and were a source of significant revenues to manufacturers and were convenient to consumers. And we phased out every one. This is not unprecedented.” Rebecca Adams, Ozone v. Food Supply, A Chemical Dilemma, CQ Weekly, Sept. 5, 2005.
2. Global Climate Change

Many scientists believe that, as a result of the buildup of carbon dioxide and other gases in the atmosphere, the Earth is on the verge of unprecedented global climate change. If predictions of a worldwide temperature increase of 3-8° Fahrenheit by the middle of the twenty-first century prove accurate, many fear widespread disruption of the Earth’s ecosystems, a rise in sea level, increased drought, and potentially vast environmental and economic damage.

A. SCIENCE AND THE “GREENHOUSE EFFECT”

The “greenhouse effect” at the root of global warming is very much a part of the evolution of climate and life on Earth. As Figure 11.1 indicates, carbon dioxide (CO₂) is known to have been present at a concentration of about 280 ppm in the atmosphere in the mid-eighteenth century prior to the industrial revolution. Since then its concentration has increased by about 30 percent to approximately 360 ppm by 1997. Roughly half of that increase has occurred since 1970. Council on Environmental Quality, Environmental Quality—1997 Report 194 (1999). Carbon dioxide, CFCs, and methane are the most significant gases that have an effect crudely comparable to that of the glass in a greenhouse—they allow visible light to pass through the atmosphere. Heat radiated from the Earth is transmitted in a different form, as infrared rays, and much of it is trapped by these gases, resulting in a net warming effect.

Measurements of ice cores show much higher concentrations of carbon dioxide and much warmer temperatures today than in previous epochs. Further physical proof of the greenhouse effect is provided by study of other planets: Mars, with virtually no atmosphere, is a frozen wasteland, while Venus, with an atmosphere largely comprised of carbon dioxide, is as hot as an oven. Schneider, The Greenhouse Effect: Science and Policy, 243 Science 771 (1989).

![FIGURE 11.1](#)

Atmospheric Concentrations of Carbon Dioxide, 1764-1998

Parts per Million

Source: C. Flavin.
While the greenhouse effect is a part of nature, the rapid increase in the atmospheric concentrations of greenhouse gases is directly caused by human-kind’s activities. The combustion of fossil fuels releases carbon dioxide; coal releases almost twice as much per unit of energy as natural gas, while oil is about halfway in between. Since trees store carbon dioxide as they grow, cutting and burning of trees (as is occurring on a vast scale in tropical rain forests) releases carbon dioxide while simultaneously reducing the amount of carbon dioxide being removed from the atmosphere by forests. Other significant greenhouse gases include methane and nitrous oxides, both of which are emitted by the use of fossil fuels and also from agriculture and other human activities. A new source of concern is the realization that some alternatives to CFCs are potent greenhouse gases.

The problem of controlling emissions of greenhouse gases is exacerbated by their distribution. Western industrialized countries accounted for over two-thirds of CFC use in the mid-1980s but only about 40 percent of greenhouse gas emissions. The use of fossil fuels is increasing far more rapidly in developing countries than in industrialized nations. Developing countries are projected to account for more than 50 percent of carbon emissions from fossil fuels in a few decades. The countries that are the largest sources of carbon emissions from fossil fuels are indicated in Figures 11.2 and 11.3.

The magnitude and pace of global warming are difficult to predict for many of the same reasons weather forecasts remain unreliable—localized climate is a chaotic system, subject to sudden and unanticipated changes. Moreover, year-to-year variations in temperatures can mask long-term trends. Despite a growing consensus that some global warming will occur, there also is great uncertainty concerning the severity of its consequences. Some of the more likely effects include a gradual rise in sea level accompanied by flooding of coastlines and loss of wetlands, localized damage to agriculture and forests, and species loss. Warmer temperatures could exacerbate air pollution, increase the severity of tropical storms, and change the world in other, unexpected ways. See Woodwell, The Effects of Global Warming, in J. Leggett, Global Warming: The Greenpeace Report 116-132 (1990); J. Smith & D. Tirpak, The Effects of Climate Change on the United States (1990); K. Fredrick & P. Gleick, Water and Global Climate Change (1999); David Suzulei Foundation, Taking Our Breath Away (1998).

### FIGURE 11.2
Carbon Emissions by Country, 2000

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Total Emissions (million tons)</th>
<th>Emissions per Person (tons)</th>
<th>Emissions Growth 1990-2000 (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>United States</td>
<td>5,762</td>
<td>20.2</td>
<td>17.9</td>
</tr>
<tr>
<td>2</td>
<td>China</td>
<td>3,473</td>
<td>2.7</td>
<td>39.3</td>
</tr>
<tr>
<td>3</td>
<td>Russia</td>
<td>1,540</td>
<td>10.6</td>
<td>–32.1</td>
</tr>
<tr>
<td>4</td>
<td>Japan</td>
<td>1,225</td>
<td>9.6</td>
<td>12.3</td>
</tr>
<tr>
<td>5</td>
<td>India</td>
<td>1,008</td>
<td>1.0</td>
<td>63.7</td>
</tr>
<tr>
<td>6</td>
<td>Germany</td>
<td>837</td>
<td>10.2</td>
<td>–15.2</td>
</tr>
<tr>
<td>7</td>
<td>UK</td>
<td>558</td>
<td>9.5</td>
<td>–3.3</td>
</tr>
<tr>
<td>8</td>
<td>Canada</td>
<td>521</td>
<td>16.9</td>
<td>22.1</td>
</tr>
</tbody>
</table>

Source: World Resources Institute.
In an effort to reach international consensus on climate change, two UN agencies, the World Meteorological Organization and UNEP, organized an Intergovernmental Panel on Climate Change (IPCC) in 1988. The IPCC is composed of nearly 2,500 independent scientists from more than 100 countries who are charged with reviewing and summarizing what is known about climate change. Its reports are reviewed and approved by governments.

In 1990, the IPCC released its first report summarizing the scientific knowledge about climate change. The report found that it is “certain” that “there is a natural greenhouse effect which already keeps the Earth warmer than it would otherwise be” and that “emissions resulting from human activities are substantially increasing the atmospheric concentrations of the greenhouse gases.” IPCC, Scientific Assessment xi (1990). The report “calculated with confidence” that global mean temperatures would increase at a rate of about 0.3° per decade and that global mean sea levels would rise about 6 cm per decade during the next century under a “business-as-usual scenario” in which emissions continue to rise steadily.

The IPCC issued its first major reassessment of the state of science concerning climate change in 1995. The report’s most widely quoted finding was that “the balance of evidence suggests that there is a discernible human influence on global climate.” In February 2001, the IPCC issued another reassessment warning that the magnitude of global warming will be even greater than previously thought. Intergovernmental Panel on Climate Change, Third Assessment Report (2001). The IPCC report concluded that average global temperatures will rise by between 2.5 and 10.4 degrees Fahrenheit by 2100, a 60 percent increase over the level forecast just six years ago. The IPCC found that there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities, which will continue to change the composition of the atmosphere throughout the twenty-first century.

Following the issuance of the IPCC report, the Bush administration asked the National Academy of Sciences (NAS) to perform its own assessment of the state of scientific knowledge concerning climate change. On June 6, 2001, the NAS’s National Research Council released its report, Climate Change...
Science: An Analysis of Some Key Questions. The report, prepared by a committee of eleven of the nation’s leading climate scientists, confirmed the findings of the IPCC and concluded that global warming could well have “serious adverse societal and ecological impacts by the end of this century.” The report agreed that the climatic changes observed during the past several decades are most likely due to human activities, although the committee could not rule out the possibility that the climate’s natural variability could be responsible for a significant portion of the trend. The NRC agreed that human-induced warming and sea level rise are expected to continue through the twenty-first century and beyond, although current predictions of the magnitude and rate of future warming “should be regarded as tentative and subject to future adjustments (either upward or downward).” The following is an excerpt of some of the NRC’s key conclusions.

**National Research Council, Climate Change Science: An Analysis of Some Key Questions (2001)**

- Are greenhouse gases causing climate change?

  The IPCC’s conclusion that most of the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas concentrations accurately reflects the current thinking of the scientific community on this issue. The stated degree of confidence in the IPCC assessment is higher today than it was ten, or even five years ago, but uncertainty remains because of (1) the level of natural variability inherent in the climate system on time scales of decades to centuries, (2) the questionable ability of models to accurately simulate natural variability on those long time scales, and (3) the degree of confidence that can be placed on reconstructions of global mean temperature over the past millennium based on proxy evidence. Despite the uncertainties, there is general agreement that the observed warming is real and particularly strong within the past twenty years. Whether it is consistent with the change that would be expected in response to human activities is dependent upon what assumptions one makes about the time history of atmospheric concentrations of the various forcing agents, particularly aerosols.

- By how much will temperatures change over the next 100 years and where?

  Climate change simulations for the period of 1990 to 2100 based on the IPCC emissions scenarios yield a globally-averaged surface temperature increase by the end of the century of 1.4 to 5.8°C (2.5 to 10.4°F) relative to 1990. The wide range of uncertainty in these estimates reflects both the different assumptions about future concentrations of greenhouse gases and aerosols in the various scenarios considered by the IPCC and the differing climate sensitivities of the various climate models used in the simulations. The range of climate sensitivities implied by these predictions is generally consistent with previously reported values.
The predicted warming is larger over higher latitudes than over low latitudes, especially during winter and spring, and larger over land than over sea. Rainfall rates and the frequency of heavy precipitation events are predicted to increase, particularly over the higher latitudes. Higher evaporation rates would accelerate the drying of soils following rain events, resulting in lower relative humidities and higher daytime temperatures, especially during the warm season. The likelihood that this effect could prove important is greatest in semi-arid regions, such as the U.S. Great Plains. These predictions in the IPCC report are consistent with current understanding of the processes that control local climate.

• What will be the consequences of global warming (e.g., extreme weather, health effects) of increases of various magnitude?

In the near term, agriculture and forestry are likely to benefit from carbon dioxide fertilization and an increased water efficiency of some plants at higher atmospheric CO₂ concentrations. The optimal climate for crops may change, requiring significant regional adaptations. Some models project an increased tendency toward drought over semi-arid regions, such as the U.S. Great Plains. Hydrological impacts could be significant over the western United States, where much of the water supply is dependent on the amount of snow pack and the timing of the spring runoff. Increased rainfall rates could impact pollution runoff and flood control. With higher sea level, coastal regions could be subject to increased wind and flood damage even if tropical storms do not change in intensity. A significant warming also could have far reaching implications for ecosystems. The costs and risks involved are difficult to quantify at this point and are, in any case, beyond the scope of this brief report.

Health outcomes in response to climate change are the subject of intense debate. Climate is one of a number of factors influencing the incidence of infectious disease. Cold-related stress would decline in a warmer climate, while heat stress and smog induced respiratory illnesses in major urban areas would increase, if no adaptation occurred. Over much of the United States, adverse health outcomes would likely be mitigated by a strong public health system, relatively high levels of public awareness, and a high standard of living.

Global warming could well have serious adverse societal and ecological impacts by the end of this century, especially if globally-averaged temperature increases approach the upper end of the IPCC projections. Even in the more conservative scenarios, the models project temperatures and sea-levels that continue to increase well beyond the end of this century, suggesting that assessments that examine only the next 100 years may well underestimate the magnitude of the eventual impacts.

• Has science determined whether there is a “safe” level of concentration of greenhouse gases?

The question of whether there exists a “safe” level of concentration of greenhouse gases cannot be answered directly because it would require a value judgment of what constitutes an acceptable risk to human welfare and ecosystems in various parts of the world, as well as a more quantitative assessment.
of the risks and costs associated with the various impacts of global warming. In general, however, risk increases with increases in both the rate and the magnitude of climate change.

Climate Science: The Continuing Debate

The next IPCC Assessment Report is scheduled to be released in 2007. In the interim, the scientific debate on the causes and risks associated with the ongoing buildup of greenhouse gas emissions continues. The intense skepticism of climate change in some circles was captured in a novel by Michael Crichton, State of Fear, in which the villains are eco-terrorists seeking to create the appearance of natural disasters in order to enhance public belief in climate change. (The novel also includes extensive footnotes to scientific journals, a lengthy annotated bibliography, and a summary of the author’s views in an effort to add credibility to its aggressive skepticism toward climate change.) Although not a scientist, Crichton was given opportunities to express his views before the Senate Environment and Public Works Committee as well as on national television. The concern that public discussion of climate change might be biased by politically motivated interventions was fueled by reports in 2005 showing that a Bush administration official with a background in the petroleum industry had edited a summary report on climate change to emphasize doubts. Revkin, Bush Aide Edited Climate Reports, N.Y. Times, June 8, 2005, at 1. The journalistic tendency to report both sides of every issue without noting the extent to which one “side” is actually the vast majority of scientific opinion led one group of climate scientists to establish a website with the purpose of presenting neutral scientific information: www.realclimate.org.

On the other hand, the unusual number and severity of hurricanes in 2005 led Time magazine to query whether climate change might be responsible. As hurricanes derive their energy from ocean temperatures, this linkage has some logic but as yet is not agreed upon by scientists. Research by Kerry Emanuel, an atmospheric physicist at MIT, concludes that the total power released by storms has increased dramatically in recent decades. This is consistent with warming in the tropical oceans, although not proof of cause and effect. R. Monastersky, “Stronger Hurricanes? Researchers Debate Whether Global Warming Will Make Storms More Destructive,” Chronicle of Higher Education, Sept. 8, 2005. For a review of research on this topic, see the website of the Pew Climate Center, www.pewclimate.org. Other recent research found a striking parallel between the pattern of ocean warming with actual measurements since the 1960s, a development they argue cannot be explained by any natural temperature variations. R. Monastersky, “Researchers Present What They Call Conclusive Evidence of Global Warming from Greenhouse Gases,” Chronicle of Higher Education, Feb. 18, 2005.

Another striking empirical development supporting climate change has been a steady decline in summer Arctic sea ice, which climate models now predict will disappear in coming decades with untold consequences. Revkin, “No Escape: Thaw Gains Momentum,” N.Y. Times, Oct. 25, 2005. The magnitude of changes in the Arctic has been of particular scientific concern as summarized in an 1800-page international consensus report Impacts of a Warming Arctic, released in November 2004.

Whether or not related to climate change, Hurricane Katrina demonstrated the wide reach and economic impact of weather-related natural disasters. Insurance losses are expected to amount to $40 billion or more, with total costs...
many times greater. Proposals for rebuilding New Orleans and surrounding areas are also likely to have costs in the tens of billions. Indirect costs included a substantial rise in national natural gas and oil prices due to the shutdown in regional production. Midwest farmers dependent on Mississippi River barges for export of corn and soybeans estimated their losses at $2 billion. “Alarm Growing on Storm’s Cost for Agriculture,” N.Y. Times, Sept. 8, 2005. The succession of natural disasters was particularly worrisome for insurance companies, who may have to rewrite policies and increase premiums. “A New Worry for Insurers,” Washington Post, Oct. 5, 2005, at D1. See also Center for Health and the Global Environment, Climate Change Futures: Health, Ecological and Economic Dimensions (2005).

The IPCC process has become an important precedent for building international scientific consensus on other international environmental issues. The Millenium Ecosystem Assessment was initiated in 2001 to assess the consequences of ongoing changes in the ecosystem (including climate change) for human well-being. The final report, Living Beyond Our Means: Natural Assets and Human Well-Being, was released in March 2005. Preparation of the report involved more than 1300 scientists from 95 countries. The Report documents the unprecedented rate of change in the Earth’s natural systems. For example, more land has been converted to crop land since WW II than in the previous two centuries, and more than 20 percent of coral reefs and 35 percent of mangroves have been lost in the last several decades. As much as 30 percent of all bird, mammal, and amphibian species are now threatened with extinction. The Report outlines a broad range of response measures including policies, business leadership, and local action that can reverse these trends. The report is available on-line at www.millenniumassessment.org.

B. Legal and Policy Responses to Global Warming and Climate Change

As noted above, substantial uncertainties surround assessments of global warming, including its timing, pace, magnitude, and distribution of impacts. Faced with a problem that involves both high risk and high uncertainty, how should society respond? The understandable political response is to avoid policies with costs or consequences that risk offending powerful economic interests (compare the evolution of acid rain policy) while seeking further information. See, e.g., letter to the editor from Senators Hagel and Murkowski, High Costs of Kyoto, Wash. Post, Jan. 29, 2000, at A17. However, Jessica Mathews argues that this is akin to driving a car over unknown terrain without headlights and refusing to slow down as it gets darker because nothing has been hit yet. She maintains that the United States should act as it did during the Cold War when it adopted defense policies designed to provide insurance against dangers of uncertain but potentially catastrophic magnitude. “There are too many unknowns for rigorous economic analysis,” she notes, the risks are not reversible, and the uncertainties will not soon be removed. Mathews, Science, Uncertainty and Common Sense, Wash. Post, Nov. 3, 1991, at C7. To these difficult analytical issues must also be added the reality of differences in national political priorities and economic interests. Compare Richard Benedick’s analysis of the Montreal Protocol. Would the absence of U.S. leadership inevitably be a fatal obstacle to achieving an effective international agreement?
An international response to the global warming problem began with a UN General Assembly resolution in December 1988 declaring climate change a “common concern of mankind” and calling for global action to combat the problem. In 1989, the European Community stated its support for an international agreement on global warming. At the end of 1990, the General Assembly adopted a resolution entitled Protection of Global Climate for Present and Future Generations of Mankind that established a process for negotiating an international framework convention on climate change. In response, the UN Secretary General established an ad hoc secretariat in Geneva with the goal of signing an agreement in time for the 1992 Rio Conference on Environment and Development. During the contentious negotiations that followed, most European nations pushed for “targets and timetables” while the United States insisted on a more cautious approach. Abramson, Global Warming Treaty Talks Bog Down, L.A. Times, Feb. 29, 1992, at A22. However, agreement was reached in time for signing in Rio.

In June 1992, the United States and more than 150 governments attending the Rio Earth Summit signed a Framework Convention on Climate Change. The Convention was ratified by the U.S. Senate in October 1992 and entered into force on March 21, 1994, 90 days after having been ratified by 50 signatures. The Framework Convention endorsed the principle of stabilizing emissions of greenhouse gases in order to prevent dangerous interference with the global climate system. However, it did not establish any specific numeric limits or timetables for reducing emissions.

In subsequent negotiations, the parties to the Climate Convention ultimately agreed to establish an ad hoc process for negotiating a protocol or other legal instrument to set quantified limits and emissions reduction objectives, but only for developed countries, for the years 2005, 2010, and 2020. This agreement, subsequently coined “the Berlin Mandate,” took on added importance as U.S. opposition to further action to limit emissions focused on the absence of developing country commitments.

**KYOTO PROTOCOL TO THE CONVENTION ON CLIMATE CHANGE**

The evolution of the Climate Convention took another major step with the conclusion of the Third Conference of the Parties in Kyoto, Japan, in December 1997. The major industrialized nations (those listed in Annex 1 of the Convention) agreed to accept new obligations to reduce their greenhouse gas emissions that, if met, would result in an average reduction of 5 percent relative to 1990 levels in the period 2008 to 2012. Nations negotiated differing obligations reflecting differing circumstances—reductions of 6 percent by Japan, 7 percent by the United States, and 8 percent by the European Union. Several nations were allowed increased emissions, including Australia, Iceland, and Norway. Developing nations rejected any new commitments and only reluctantly agreed in principle to allow emission trading between Annex 1 nations.

The negotiation of a 5 percent reduction followed months of uncertainty concerning the U.S. position. The European Union had come out for a 15 percent reduction relative to 1990 levels in the spring, while Japan announced support for roughly a 5 percent reduction in October. President Clinton waited until October 22, only five weeks before the meetings, to announce that the
United States supported a return to 1990 emission levels averaged over the period 2008 to 2012. The United States also wanted strong provisions for trading to reduce costs and some expression of willingness to constrain emissions by developing nations. The latter requirement was a response to Senate Resolution 98 adopted 95 to 0 only a few months before, which directed the President to sign a climate treaty that includes new commitments to limit greenhouse gas emissions only if it also "mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period." On the politics of the U.S. position, see generally Begley, "Too Much Hot Air," Newsweek, Oct. 20, 1997.

The U.S. position was widely criticized by other nations as inadequate. In response, the administration emphasized that its proposal would require about a 30 percent reduction relative to the increase in emissions that was expected in the absence of government intervention. They also argued that the U.S. position included more gases than the EU, which focused on carbon dioxide, narrowing the effective difference between the two proposals. The Parties thus came to Kyoto with very divergent positions and very little opportunity for serious negotiation prior to the event. See Stevens, "Greenhouse Gas Issue: Haggling Over Fairness," N.Y. Times, Nov. 30, 1997.

Many of the most important issues, including national commitments and the acceptability of trading, remained for resolution in the final hours. At a point when gridlock seemed insurmountable, Vice President Gore arrived and announced that he had instructed the U.S. delegation to be more flexible. The meetings were scheduled to conclude on December 10th but went on through the night and into the next day. In the middle of the night China and India announced opposition to trading provisions deemed essential by the United States, leading to dramatic warnings by the Chair that the agreement could still blow up. After a short break, a compromise was reached allowing for trading in principle but leaving the details for further negotiation at the next Conference of the Parties. Eventually coffee and food ran out, the heat was turned off, and movers arrived to begin preparations for another meeting scheduled shortly thereafter. Many participants had to leave without the final text in order to catch flights. Press reports frequently referred to the final hours as "negotiation by exhaustion."

The U.S. effort to obtain some expression by the largest developing nations of their willingness to constrain their emissions at some future time was completely unsuccessful. The G-7 and China consistently referred to the principles agreed to in Berlin at the first conference of the parties (COP), which included a promise that non-Annex 1 nations would not be subject to any new obligations in the next treaty. New Zealand introduced a proposed compromise that would have triggered negotiation of post-2015 restraints on the growth in non-Annex 1 emissions if Annex 1 nations first fulfilled their commitments to reduce emissions. This and other efforts produced a chorus of loud rejections from developing nations. As a consequence, several Senate Republicans immediately pronounced the Protocol "dead on arrival."

The Protocol became effective on February 16, 2005, as a result of ratification by the Russian Federation and without the United States. The text of the Protocol is available at the website of the UN Framework Convention on Climate Change at www.unfccc.int. While implementation of the Kyoto Protocol was formally initiated by the Russian agreement to ratify in February 2005, many observers continue to believe that a smaller forum with participation limited to the
largest GHG emitters may be more effective. For that reason, there was some hope generated by the G8 Summit at Gleneagles in July 2005. The meeting was joined by representatives of China, India, Brazil, Mexico, and South Africa, as well as the heads of the International Energy Agency, United Nations, World Bank, and WTO. The joint statement included recognition that climate change is happening and that human activity is contributing to it. While broadly stated, the parties agreed on a new dialog between the G8 nations and major developing nations to promote clean energy technologies. The World Bank agreed to take on a direct role in promoting this dialog, which could become the first formal basis for engaging major developing country economies in discussing strategies for reducing the growth in their GHG emissions. See Gleneagles Summit Documents at www.g8.gov.uk.

Arguably the most innovative and controversial feature of the Kyoto Protocol is the Clean Development Mechanism (CDM) authorized by Article 12. Environmentalists have divided in their view of the CDM, with some embracing the opportunity for more efficient reductions while others worry about the potential for creating loopholes and removing incentives for technological innovation. What lessons might be taken from the U.S. experience with emissions trading? Given the potential for investment that it represents, why has rapid implementation of the CDM not been fully embraced by the developing countries? See generally United Nations Development Programme, Issues and Options: The Clean Development Mechanism (1998). Michael Grubb describes the CDM as “a leap into terra incognita that is unlikely to work simply as a way to distribute abatement efforts globally at least cost.” M. Grubb, C. Vrolijk & D. Brack, The Kyoto Protocol: A Guide and Assessment 245 (1999). One problem is that the most cost-effective projects are the ones most likely to be undertaken even in the absence of the CDM. He argues that there will be “powerful tensions over the basic objectives” because while Japan and the United States want to minimize global costs, developing countries want to maximize resource and technology transfer flows without interfering with foreign aid. Eastern European countries “will have an interest in minimizing use of the CDM overall.” Id. Grubb concludes that “the defining purpose of the CDM should be to help direct foreign corporate investment toward goals of sustainable development, in its many forms and interpretations according in part to national preference.” Id. at 247. In this respect the CDM is a natural private sector complement to the Global Environment Facility, discussed on page 1112.

Carbon trading under the Protocol has numerous specific requirements and is overseen by an Executive Board, resulting in complex and sometimes controversial issues of eligibility and verification. For an overview and up-to-date information on Board decisions, see www.unfccc.int. However, the concept of carbon trading assumes numerous forms including an Emission Trading Scheme (ETS) adopted by the EU effective in 2005, a voluntary trading system administered by the Chicago Climate Exchange, and an evolving regional trading system for the northeastern United States initiated by the State of New York. Carbon trading grew rapidly in 2004 and 2005 due to the combined influence of the ratification of the Kyoto Protocol and the implementation of the ETS. Buyers include private and public entities in Europe and Japan. The supply of credits has been concentrated in a few countries, including India, Brazil, and Chile with very limited transactions in poorer or smaller countries and Africa (why might this be so?). By volume, the largest source of emission reduction credits is projects abating non-CO₂ emissions, ironically much of it
destruction of chemicals introduced as refrigerants as alternatives to CFCs. Projects based on the capture and burning of methane and N₂O from landfills and animal waste are also frequent. In both cases, the value reflects the fact that these gases have a much greater global warming impact than does CO₂. In contrast, investments in renewable energy and energy efficiency have accounted for less than a fifth of the total market. International Emissions Trading Association, State and Trends of the Carbon Market 2005. Current trends imply a very large shortfall in emission reductions, insufficient supply of CDM and JI projects, and large price increases. Carbon Market Analyst, Sept. 12, 2005. The biggest short-term question is what happens after 2012, since without further agreements or regulation carbon credits will have no value subsequent to that date.

Carbon trading continues to generate substantial interest because of the potential to lower the costs of reducing greenhouse gas emissions, provide developing countries with a stream of revenue and potentially investments in clean technologies, and more generally to provide a source of financing for projects that contribute to sustainable development. However, there is also a concern that on the one hand the certification and verification process is too cumbersome and expensive, severely constraining the market, while on the other hand, hoped-for contributions to sustainable development have yet to materialize as projects are overly geographically concentrated and primarily limited to destruction of chemicals and burning of landfill gases—projects without substantial sustainable development benefits.

NOTES AND QUESTIONS

1. According to the Energy Information Administration, U.S. emissions of carbon dioxide increased from 1,337 tons in 1990 to 1,559 tons in 2001, and based on current trends and policies will increase to 2,237 tons in 2025. See Annual Energy Outlook 2003, available at the EIA website, www.eia.doe.gov. This growth is continuing, despite an expected decline in the carbon intensity of the economy. It reflects the influence of relatively low energy prices, the trend to less fuel efficient vehicles, and the increased share of electric power generation from fossil energy. Are there risks to the U.S. economy and to U.S. companies in continuing in a direction so contrary to other developed nations, now that the Kyoto Protocol is ratified. Professor Bodansky argues that the answer depends on whether the United States decides to implement stringent domestic requirements, independent of the Protocol. See Bodansky, Working Paper: Implications for U.S. Companies of Kyoto’s Entry into Force with the United States (2002) (available at www.pewclimate.org/events/bodansky.cfm).

2. **State Initiatives to Control Emissions of Greenhouse Gases.** While the Bush administration continues to oppose efforts to regulate emissions of greenhouse gases that contribute to global warming, several states have taken the initiative to do so. A group of nine northeastern states—New York, New Jersey, Delaware, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, and Maine—have formed the Regional Greenhouse Gas Initiative (RGGI) to develop a regional strategy for controlling emissions of greenhouse gases. The RGGI plans to develop a cap-and-trade program that will restrict greenhouse gas emissions in these nine states while incorporating an emissions trading system to more efficiently control them.
In September 2004 California’s Air Resources Board (CARB) approved the first standard to require reductions in emissions of carbon dioxide from new cars and light trucks. The standard, which will take effect beginning in 2009, requires a 30 percent reduction in these emissions by the 2016 model year. It implements California legislation enacted in July 2002 that directed the CARB to adopt regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles. Because California is the largest market for motor vehicles in the United States, with nearly 1.7 million new cars and light trucks being purchased every year, the regulation is enormously significant. Roughly one-third of all carbon dioxide emissions in the United States (and 56 percent in California) come from the transportation sector.

On December 7, 2004, the Alliance of Automobile Manufacturers, a trade association representing nine of the largest automobile manufacturers in the United States, Germany, and Japan, filed suit in federal district court in California to challenge the legality of the standard. The auto manufacturers claim that it is a disguised effort to regulate fuel economy that conflicts with existing fuel economy standards promulgated by the National Highway Traffic Safety Administration (NHTSA). In February 2005, Honda Motors surprisingly endorsed tougher U.S. fuel economy standards in a move widely viewed as a gesture to environmental groups angered by the company’s decision to join the lawsuit against the California standards. Shore, Enlightenment, Envtl. Forum, Sept./Oct. 2002, at 19-25; Thinking Globally, Acting Locally, 7 Global Change, Summer 2002, at 2-2; Rabe, Greenhouse and Statehouse: The Evolving State Government Role in Climate Change (Pew Center on Global Climate Change, 2002); Pew Center on Global Climate Change, Climate Change Activities in the United States 2004 Update. To what extent can state and local action substitute for the absence of national policy?

3. A growing number of lawsuits raise questions of regulatory authority to address global warming and issues of responsibility for its consequences: (i) Connecticut v. American Electric Power, discussed in Chapter 2, is a nuisance suit filed by eight states and the City of New York against six large electric utilities seeking injunctive relief to restrict their carbon dioxide emissions (see page 1012); (ii) A 2-1 decision by the D.C. Circuit in 2005 in Massachusetts v. EPA, rejected efforts by several states seeking to require EPA to regulate emissions of greenhouse gases. This case is discussed in Chapter 5 (see page 482); (iii) Two environmental groups joined by the cities of Boulder and Oakland filed suit under NEPA to require the Overseas Private Investment Corporation (OPIC) to assess their contribution to global warming when insuring fossil fuel projects. A federal district court rejected a motion to dismiss in August 2005. For documents see www.climatelawsuit.org; (iv) Another potential source of litigation is based on requirements for disclosure of material risk under securities regulations. A group of large investors organized the Carbon Disclosure Project to request large companies to analyze and report their emissions. See information at www.socialfunds.com and www.ceres.org; R. Repetto, Protecting Investors and the Environment through Financial Disclosure (2003); (v) The Inuit Circumpolar Conference, a federation of native tribes in the Arctic region encompassing the United States, Canada, Russia, and Greenland, is preparing a claim based on violation of their human rights as a petition to the Inter-American Commission of Human Rights. See http://www.ciel.org/Climate/Climate_Inuit.html. What prospects for success do plaintiffs have in each of these actions? See Grossman, Warming Up to a Not So Radical Idea: Tort-Based Climate Change Litigation, 28 Colum.
How might the increasing prevalence of such litigation influence strategic decisions by corporations? In his novel, State of Fear, Michael Crichton describes environmental litigation brought knowingly without any prospect of success—the litigation team disbands almost immediately after the press conference to announce the suit—solely as a means of supporting the fund-raising efforts of the environmental group. How realistic do you consider his scenario?

4. Economic Models of Climate Change. Resistance to regulating GHG emissions is based on the assumption that doing so to any significant degree necessarily implies large costs to the economy. There is no disagreement that large reductions in GHG emissions will require substantial changes in the sources and uses of energy, but there is considerable controversy with respect to the costs associated with making these changes. While the limitations of models used for predicting climate change from greenhouse gas emissions have been widely noted (and even described at length in a novel—Michael Crichton’s State of Fear), there has been much less discussion of the comparable uncertainties and inaccuracies associated with economic models, and the confidence that should be ascribed to predictions of economic doom associated with policies to reduce emissions.

After reviewing the range of economic analyses of the impact of moderate greenhouse gas reductions on the United States, economist Stephen DeCanio concluded that outcomes “depend primarily on modeling assumptions (including definition of the system boundaries, i.e., whether environmental benefits are included in the analysis).” Stephen DeCanio, Economic Models of Climate Change 150 (2003). Most studies failed to incorporate the full range of means for mitigating costs, including tax shifts (utilizing carbon revenues to offset less efficient taxes), international allowance trading, and some opportunity for investment in carbon sinks (expanding forests to increase the uptake of carbon). In the long run, the most fundamental determinant of reductions costs is the rate of technological changes in measures to reduce emissions (e.g., renewable energy and energy efficiency improvements), assuming that policy instruments can accelerate this process lowers costs and can even result in net economic gains. The link between policies and technological progress cannot be accurately predicted and is one of the critical assumptions noted by DeCanio. See also Goulder, Induced Technological Change and Climate Policy (Pew Center on Global Climate Change 2004).

The rapid rise in oil prices from 2004 to mid-2005 illustrates the difficulty predicting adverse impacts on the economy. Oil prices increased more than a dollar a gallon in a period of months, a larger and more rapid rise than implied by proposals for carbon taxes (equivalent in effect to a carbon tax of about $400/ton). See review of studies in M. Toman ed., Climate Change Economics and Policy (2001). The U.S. economy continued its relatively robust growth, demonstrating the limitation of economic models even with respect to short-term changes in energy prices. The issues are much more complex in making long-term forecasts, as technological options and the range of consumer responses becomes much greater.

5. Legislative Debate. The Climate Stewardship Act proposed by Senators McCain and Lieberman was defeated by the margin of 43-55 in October 2003 in the first Senate debate on global warming since 1998. The bill was modeled on the acid rain trading program and would have required a reduction in carbon
dioxide levels to 2000 levels (as opposed to the much lower 1990 baseline used in the Kyoto Protocol) by 2010. The proposal would apply to the electricity generation, transportation, industrial, and commercial sectors, estimated to account for about 85 percent of U.S. emissions. To reduce the costs of compliance, a central feature was proposed reliance on a system of allowances and trading comparable to the acid rain program but considerably more complex reflecting the larger number of emitters, the potential for international trading, and provision for sequestration. For a description of the bill see http://www.pewclimate.org/policy_center/analyses/s_139_summary.cfm.

In an effort to accommodate White House proposals to promote technology-based solutions to global warming, the bill was amended in 2005 to provide for the use of some of the revenues from trading to create incentives for commercialization of alternatives to conventional fossil fuel power generation including solar, wind, and nuclear power. See http://lieberman.senate.gov/newsroom/release.cfm?id=238307.

6. Another topic of growing importance is the relationship between climate change policies and air pollution and ozone layer protection. One source of uncertainty in climate modeling is that while the primary greenhouse gas is carbon dioxide, other anthropogenic sources of “radiative forcing” include gases regulated by the Montreal Protocol and black carbon particles released by the incomplete combustion of fossil fuels. Linkages between protecting the ozone layer and global climate system were the subject of a 2005 IPCC report finding that the phaseout of ozone depleting substances has reduced emissions equivalent to about one-fourth of global fossil fuel combustion. On the other hand, some of the substances introduced as substitutes for CFCs are potent greenhouse gases and will increase the rate of warming if not regulated. IPCC & TEAP, Safeguarding the Ozone Layer and the Global Climate System (2005). Another set of linkages with important policy implications has to do with air pollution regulation. To address acid rain from coal, utilities often install controls that use substantial amounts of energy and result in increased carbon dioxide emissions. On the other hand, uncontrolled emissions of black particles from fossil fuel combustion contribute to global warming. James Hansen et al., Efficacy of Climate Forcings, 110 J. Geophysical Resources D18104 (2005).

7. With the ratification of the Kyoto Protocol and the certain absence of U.S. participation, the Convention process must now turn to the question of what happens after 2012, the final year covered by the Protocol. Bringing both the United States and major developing countries into any future control regime is a high priority. One hint of future directions may be the outcome of the 2005 meetings of the leaders of the G8, the seven largest industrialized economies and the Russian Federation, hosted by the United Kingdom in Gleneagles. The meeting included participation by senior officials from China, India, Brazil, Mexico, and South Africa, all large and rapidly growing sources of greenhouse gas emissions. A communiqué of the parties included the following: “We know that, globally, emissions must slow, peak and then decline, moving us toward a low-carbon economy. This will require leadership from the developed world. . . . Our discussions mark the beginning of a new Dialogue between the G8 nations and other countries with significant energy needs, consistent with the aims and principles of the UN Framework Convention on Climate Change. This will explore how best to exchange technology, reduce emissions, and meet our energy needs in a sustainable way, as we implement and build on the Plan of Action.” www.G8.gov.uk. See generally Bodansky,
RESULTS OF THE MONTREAL CLIMATE CHANGE COP/MOP

Parties to the UNFCCC met in Montreal in December 2005, for the first time as two separate bodies—the Eleventh Conference of the Parties (COP) to the convention, and, following ratification by Russia, the first Meeting of the Parties (MOP) to the Kyoto Protocol. By several measures the meetings were the most significant since Kyoto in 1997 with almost 10,000 attendees, over 40 decisions, and at least modest first steps to open a discussion of the post-2012 climate regime. Several decisions also gave a further boost to the carbon market, making it increasingly likely that a trading system will continue.

The most contentious and momentous discussions in Montreal focused on the process for discussing future commitments. As negotiations approached their climax, the U.S. walked out. The political drama was enhanced by an unscheduled appearance by Bill Clinton shortly thereafter; the former President attacked U.S. concerns about the economic impacts of emissions reductions as “flat wrong” and warned that melting of sea ice could require that future meetings in Canada be held on “a raft somewhere.” The eventual agreement required extending the meetings past their scheduled conclusion on a Friday until 6 a.m. the following morning. The decisions provide for a process of “non-binding” dialogues, consideration of ways to promote climate friendly technologies in developing countries, and the creation of an open-ended ad hoc group to consider further commitments by Annex I Parties beyond 2012.

The meetings also made progress on some important legal and operational issues. One was the approval of the Marrakesh Accords, a set of agreements reached at COP 7 for the implementation of the Kyoto Protocol that had to be, and were, approved again by the Parties to the MOP. A second set of agreements addressed some of the concerns about the logjam of applications and perceived inefficiencies associated with the administration of the CDM. The decision includes measures to improve the CDM Board’s transparency and efficiency. Recognizing the need for increased funding to speed processing, the Parties agreed to additional direct contributions and to levy $0.10 to $0.20 per Certified Emissions Reduction for administrative expenses. The decision also requests further work on how to demonstrate additionality and other methodological issues.

Adaptation was another issue that received increasing emphasis at COP 11/MOP 1. The primary decision on this issue was a commitment to a five-year work program, although without clarifying the necessary additional sources of funds. Progress was made although no final decisions were taken with respect to two additional sources of funding for adaptation projects, a Special Climate Change Fund supported by voluntary donor contributions and a Kyoto Protocol Adaptation Fund to be financed by some proceeds from CDM projects.

The potential need for additional technological options to address climate change was highlighted by a special report of the IPCC on carbon capture and storage presented to the Parties. See www.ipcc.ch. With the evidence increasing that reliance on GHG mitigation measures alone may come too little and too late, the technical and economic feasibility of such technologies may be one

For more detailed written reports on the ministerial debates (high-level segment), see http://www.iisd.ca/vol12/enb12289e.html and http://www.iisd.ca/vol12/enb12290e.html. Complete webcast records of these speeches are available online at http://unfccc.streamlogics.com/unfccc/agenda.asp.

The U.S. also brought a focus on technology to a new Asia Pacific Partnership on Clean Development and Climate, a six country regional initiative which had its inaugural meeting in Australia in January 2006. In addition to the U.S. and Australia—both non-signatories to the Kyoto Protocol and major coal producers—the meetings included China, India, Japan, and Korea. The outcomes reached focused primarily on improving technology for coal combustion and manufacture of aluminum (a very energy intensive process). The meetings were also attended by numerous industry leaders.

The political sensitivity surrounding U.S. climate policy was further highlighted by the revelation in January 2006 that Dr. James Hansen, a prominent NASA climate scientist, had been directed to screen interview requests through the agency’s public affairs staff. Government officials defended the requirement as necessary to assure coordination, avoid surprises, and to leave discussion of policy issues to policy makers. In response, Hansen announced he would ignore the restrictions “because public concern is probably the only thing capable of overcoming the special interests that have obfuscated the topic.” “Climate Expert Says NASA Tried to Silence Him,” N.Y. Times, Jan. 29, 2006.

PROBLEM EXERCISE: LEGAL AND POLICY STRATEGIES TO COMBAT CLIMATE CHANGE

(1) As scientific evidence of human-induced climate change continues to increase, are there legal strategies that might be successfully pursued by environmentalists? Consider the relative benefits and limitations of legal actions based on the following theories:

(a) Environmental groups bring suit on behalf of their members against the Export-Import Bank and Overseas Private Investment Corporation for failing to prepare an environmental impact statement on the effect of their financing of fossil fuel projects on climate change. See www.climatelawsuit.org/ (press release announcing lawsuit by Friends of the Earth, Greenpeace, and the City of Boulder against the Export-Import Bank and Overseas Private Investment Corporation).

(b) A group of countries injured by sea level rise and other impacts of climate change pursue an action against the United States before the International Court of Justice, or in the alternative, the same countries could ask the UN General Assembly to ask the ICJ for an advisory opinion. Seelye, Global Warming May Bring New Variety of Class Action, N.Y. Times, Sept. 6, 2001.

(c) As parties to the Kyoto Protocol, the EU and Japan petition the WTO seeking the right to impose countervailing duties against goods made in the United States due to the refusal of the United States to ratify the Kyoto

(d) Action brought against coal and oil companies by state attorney’s general for health costs and other damages incurred by states. Cortese, As the Earth Warms, Will Companies Pay?, N.Y. Times, Aug. 18, 2002.

Is the value of such litigation solely a function of the chances of success? Consider the views of Professor Esty: “In some circumstances legal actions are evaluated or pursued not with expectations of success in court, but recognizing that a real victory would be in the court of public opinion.”

(2) One legislative proposal developed in response to the Kyoto Protocol is to guarantee U.S. companies that they will receive a credit for voluntary reductions in greenhouse gas emissions even if they are undertaken before the Kyoto Protocol is ratified. The basic concept is to create the equivalent of an escrow account for legitimate greenhouse gas reductions voluntarily achieved by U.S. companies in advance of the 2008-2012 compliance period. Under the proposal, participating companies would be guaranteed credits against any subsequently developed regulatory requirements. The intention is to create an incentive for early action without rewarding phantom emission reductions.

The proposal has divided both supporters and opponents of the Kyoto agreement. Some conservatives oppose it because they fear it will succeed in creating momentum to ratify the Protocol, as the value of credits would depend on the agreement taking effect. Environmental opponents include the executive director of Ozone Action, who describes the credit for early reductions proposal as “corporate welfare wrapped in environmentally friendly rhetoric.” He likens it to “a doctor only prescribing a cholesterol-lowering pill to a patient with heart disease” instead of “prescribing a low-fat diet and increased exercise.”

Should the early reductions legislation be adopted? Even if it is, there is no guarantee that the U.S. Senate will ratify the Kyoto Protocol. If it is uncertain whether the credits ultimately will be worth anything, why would a company choose to reduce emissions unless it already was planning to do so for other reasons? How can it be determined whether an emissions reduction was the result of the credit assurance or something that would have occurred anyway? Even if it is the latter, does the credit for early reduction idea still have any environmental benefits? Why might adoption of the legislation affect prospects for Senate ratification of the Kyoto Protocol?

C. INTERNATIONAL TRADE AND THE ENVIRONMENT

1. Overview

The accelerating trend toward a global economy has become one of the most noted developments of the past decade. With the collapse of communism as a competing economic system, modern capitalism has been compared to a wondrous new machine . . . that plows across field and fencerows with a fierce momentum that is exhilarating to behold and also frightening. As it goes, the machine throws off enormous mows of wealth and bounty while it leaves behind great furrows of wreckage.
Now imagine that there are skillful hands on board, but no one is at the wheel. In fact, this machine has no wheel nor any internal governor to control the speed and direction. It is sustained by its own forward motion, guided mainly by its own appetites. And it is accelerating. [W. Greider, One World, Ready or Not: The Manic Logic of Global Capitalism 11 (1997).]

The trend toward global economic integration is measured in several ways. One is the growth in global trade. From 1950 to 1997, exports increased 15-fold compared with a 6-fold increase in the size of the world economy; they grew from 6 to 15 percent of the gross world product. L. Brown, M. Renner & B. Harwell eds., Vital Signs 1999 at 68 (1999).

Another measure of economic integration is the growth in foreign direct investment (FDI) and the increasing share going to developing nations.¹ FDI in 1997-1998 was more than seven times the level of the 1970s, about 40 percent in developing countries or countries with economies in transition. This trend has been relatively stable even as other forms of financing dropped dramatically during the Asian fiscal crisis in 1998, and multilateral aid flows dropped by a third in real terms from 1990 to less than $60 billion annually. UNDP, Human Development Report 1999 at 30-31; World Bank, Global Development Finance 47-80 (1999). In contrast with the decline in multilateral aid, annual private capital flows to developing countries have exceeded the Earth Summit’s goal of $125 billion in new and additional resources each year since 1992. Schmidheiny & Gentry, Privately Financed Sustainable Development, in Thinking Ecologically 118-119 (M. Chertow & D. Esty eds., 1997).

Not all countries are sharing in the flow of investment dollars. The distribution of investment in developing nations has been extremely uneven, with more than 80 percent going to about 20 countries. Investment is also no guarantee of growth or an improved quality of life; the countries of sub-Saharan Africa maintain a high export-to-GDP ratio, due to an emphasis on exports of primary commodities, but nevertheless have low growth economies. The top fifth of people in the richest countries are the recipients of more than 80 percent of global export trade, while the bottom fifth receive barely 1 percent. More than 100 countries receive less than $100 million per year in FDI. UNDP, Human Development Report 1999 at 30-31; World Bank, Global Development Finance 47-80 (1999).

Another facet of this trend is the increasing concentration of wealth in multinational corporations (MNCs). For many opponents of economic globalization, this perceived shift in power is a central concern. See, e.g., J. Cavanagh & J. Mander, Alternatives to Economic Globalization 49 (2004). The combined value added of MNCs was 7 percent of world GDP in 1997, up from 5 percent in the mid-1980s, and their share of exports reached a third of the world total in 1995. U.S.-based MNCs account for more than a quarter of the country’s GDP. Many large corporations now have annual sales greater than the GNP of most

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¹. FDI includes manufacturing plants owned in whole or in part by foreign companies. In recent years this has included a significant amount of investment in the purchase of government assets like a national steel company in Mexico, and with the privatization of utilities, investment in what would previously have been government-funded infrastructure projects such as power plants. Additional private capital flows to developing nations in the form of privately issued debt and portfolio investments in securities. Schmidheiny & Gentry, Privately Financed Sustainable Development, in Thinking Ecologically 118, 120 (M. Chertow & D. Esty eds., 1997).
countries. As mergers between major corporations continue—Daimler-Chrysler, MCI/Worldcom, Exxon and Mobil, AOL/Time Warner—this trend toward concentration is likely to continue. UNDP, Human Development Report 1999 at 31-32.

Many authorities give considerable credit for the rapid expansion of world trade to the successful evolution of the General Agreement on Tariffs and Trade (GATT), first drafted in 1947 and transformed into the World Trade Organization in 1994. The aim of the GATT treaty “is the moderation of national foreign trade policies to ensure, as much as possible, the unencumbered flow of international commerce.” M. Janis, An Introduction to International Law 296 (2003). Toward this end, a process is created for parties to challenge, through WTO review, national measures (including environmental regulations) that constitute unjustified nontariff trade barriers. Environmental criticism of the GATT regime has been on both procedural and substantive grounds, reflecting its intentionally narrow focus and insular style. As Professor Esty argues, these characteristics arguably have much to do with the success of the system but need to evolve in response to evolving societal needs. D. Esty, Greening the GATT 52-54 (1994). See also Charnovitz, Participation of Nongovernmental Organizations in the World Trade Organization, 17 U. Pa. J. Int’l Econ. L. 331. These issues are taken up further in the section on the WTO below, pages 1078-1091.

The relationship between these global economic trends and the environment is the subject of active debate. A variety of issues have been raised, but the initial question broadly concerns the environmental consequences of expanding trade and associated measures to open national markets.

Herman Daly, a professor at the University of Maryland who is a pioneer in ecological economics, argues that there is a clear conflict between free trade and national efforts to internalize environmental costs.

If one nation internalizes environmental and social costs to a high degree, . . . and then enters into free trade with a country that does not force its producers to internalize those costs, then the result will be that firms in the second country will have lower prices and will drive the competing firms in the first country out of business. [Daly, From Adjustment to Sustainable Development: The Obstacle of Free Trade, 15 Loy. L.A. Int’l & Comp. L.J. 33, 36 (1992).]

Daly maintains that environmental externalities have become so important that this conflict should be resolved in favor of “tariffs to protect, not an inefficient industry, but an efficient national policy of internalizing external costs into prices.” Id.

Daly holds that international free trade is in fundamental conflict with five important domestic policies: (1) getting prices right (by making it more difficult for a country to use regulation to internalize the external costs of pollution), (2) moving toward a more just distribution of income between labor and capital (by reducing returns to domestic labor), (3) fostering community (by forcing greater labor mobility and further separating ownership from the community as foreign investment occurs), (4) controlling the macroeconomy (by creating huge international payment imbalances), and (5) keeping scale within ecological limits (as more nations seek to live in excess of a sustainable development path by importing carrying capacity from others). Daly, From Adjustment to Sustainable Development: The Obstacle of Free Trade, 15 Loy. L.A. Int’l & Comp. L.J. 33 (1992).
In contrast to Daly, a report prepared by the GATT Secretariat for the Rio Summit not surprisingly adopts the view that trade makes countries richer and less polluting. It also argues in favor of consensual multilateral environmental agreements and environmental aid and technology transfer as an alternative to trade sanctions or other penalties against countries with lax environmental standards. GATT Secretariat, Trade and the Environment (Feb. 1992). See also OTA, Trade and Environment: Conflicts and Opportunities 4-6, 22-24 (1992); and Environmental Imperialism, The Economist, Feb. 15, 1992, at 78. Judge Stephen Williams of the D.C. Circuit speculates that trade liberalization may help the environment by reducing poverty. He cites data suggesting that because “low-income persons tend to buy in much smaller quantities than persons of higher income buying economy-size packages, they impose a heavier per capita load of packaging waste.” Public Citizen v. U.S. Trade Representative, 970 F.2d 916, 921 n.6 (D.C. Cir. 1992).

Skepticism about the benefits of trade liberalization appear to be growing as negotiators from the U.S. and other industrialized countries confront the challenges of further reductions in agricultural tariffs and other politically powerful sectors, and evidence mounts that the benefits of economic growth in the developing countries tends to be unevenly distributed. See, e.g., Tired of Globalisation, The Economist, Nov. 3, 2005. However, the case that trade does not—or at least need not—result inevitably in harm to the environment continues to receive general support from economists. See, e.g., Martin Wolf, Why Globalization Works (2004) (“The alleged link between trade liberalization and environmental damage is wholly unsupported by the evidence. What is true, however, is that the management of environmental externalities requires well-targeted measures aimed at making decision makers aware of the costs.” Id. at 194; Douglas Irwin, Free Trade Under Fire (2d ed. 2005) (“[F]ree trade and a cleaner environment are not incompatible. Because free trade in itself is not a driving force behind pollution, a policy of free trade rarely detracts from such goals, in many instances may help.” Id. at 59.

As the preceding discussion suggests, much of the debate on trade and the environment has been based on theoretical and political perspectives. What has been largely missing to date is empirical evidence evaluating the environmental consequences of free trade policies. A review of the evidence concerning these competing claims is presented in the excerpt that follows.

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Although many issues in the trade and environment debate are contentious, a consensus appears to be emerging on a few matters. Many participants in the debate now agree that (a) more open trade improves growth and economic welfare, and (b) increased trade and growth without appropriate environmental policies in place may have unwanted effects on the environment. However, in some situations more open trade may also reduce pressure on the environment. This ambiguity occurs because trade policy and trade flows have several conflicting effects on both the environment and resource use. It has proven
useful to view the various effects of trade liberalization in three categories: *scale*, *composition*, and *technique effects*. This is now a standard way of thinking about the problem and a helpful tool for analyzing the issues involved.

**Scale Effect**

The *scale* effect refers to the fact that more open trade creates greater economic activity, thus raising the demand for inputs such as raw materials, transportation services, and energy. If output is produced and delivered using unchanged technologies, an increase in emissions and resource depletion must follow.

**Composition Effect**

The *composition* effect stems from changes in the relative size of the economic sectors following a reduction in trade barriers. Lowering trade barriers changes the relative prices between goods produced in different sectors, so that producers and consumers face new trade-offs. Countries tend to specialize production in sectors in which they have a comparative advantage; this tendency becomes more pronounced with freer trade. If the difference between abatement costs and the price of resource extraction is sufficiently large—making environmental regulations more important in the determination of comparative advantage—countries with lax regulations are likely to shift away from relatively clean sectors and specialize in more polluting or resource-dependent sectors, thus damaging the environment.

If, on the other hand, the base for international comparative advantage is differences in the supply of labor and capital or in the efficiency of technologies, then the impact of changing sector composition (in response to trade liberalization) on environmental quality and resource extraction will be ambiguous.

**Technique Effect**

The *technique* effect refers to changes in production methods that follow trade liberalization. Pollution emissions per unit of output do not necessarily stay constant; final intensity depends on a number of subcomponents:

- Since trade liberalization generates increased income levels, demand for environmental quality is also likely to increase. Assuming that this leads to political pressure for more stringent environmental policies and enforcement, the per-unit pollution load will be lower.
- If investment liberalization also takes place, foreign investment may bring modern technologies which are likely to be cleaner than older versions.
- As the relative price of intermediate inputs changes when tariffs are lowered, the input mix chosen by firms is adjusted; the new mix may be more or less pollution-intensive.
- Governments may begin competing for investment and jobs by setting lower environmental standards—a “race to the bottom.” However, if foreign consumers demand goods produced with cleaner methods, international trade could reduce pollution intensities, instead stimulating a “race to the top.”
- Closely related to the previous point, incentives for lobby groups to pressure governments for more favorable environmental legislation may shift as a result of liberalization. If the sectoral composition effect

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(discussed above) implies a shift into more pollution-intensive sectors, both industry and environmental interests can be expected to intensify their efforts to receive favors from environmental policy-makers—at higher output levels more is at stake, both in terms of profits and environmental degradation.

In sum, the technique effect has an ambiguous effect on pollution and resource extraction, but is generally believed to be positive for environmental quality. In addition, seen from a global perspective, free trade results in a more efficient use of resources; thus fewer raw materials and inputs are used to produce a given amount of output. As noted above, however, the amount of output produced is not constant.

The three main effects described above often have both local and global environmental implications, and their relative importance differs among countries. The final impact of trade liberalization on the environment is therefore ambiguous. A quantification of the relative magnitude of these effects, and their final result, is therefore useful to understand the range of the relative significance of the three effects in different countries.

The country-specific effects point to a need to identify and forecast the effects of existing and future trade and environmental policies—which puts great pressure on policy-making institutions. Sufficient institutional capacity is not always in place to permit environmental problems to be prevented or handled as they arise, underscoring the need for a thorough analysis of future environmental effects as foreign trade continues to open up.

NOTES AND QUESTIONS

1. Fredriksson identifies three avenues by which trade liberalization may affect environmental conditions. To what extent does his analysis support or contradict Daly’s views?

2. Can international trade agreements preempt domestic law? See Missouri v. Holland, 252 U.S. 416 (1920) (treaties have supremacy over state law). Could a president effectively repeal a domestic environmental law by agreeing to a treaty that preempts it? See Wirth, A Matchmaker’s Challenge: Marrying International Law and American Environmental Law, 32 Va. J. Int’l L. 377 (1992). David Wirth argues that because international law lacks many of domestic law’s procedural protections for ensuring public disclosure, scrutiny, and participation in decision making, the trend toward internationalization of environmental law may prove to be a mixed blessing for environmental interests.

3. Can an international agreement expand foreigners’ standing to seek redress in the U.S. courts? In Corrosion Proof Fittings v. EPA, 947 F.2d 1201 (5th Cir. 1991), Canadian asbestos producers argued that they had standing to challenge EPA’s asbestos ban because GATT gives them the right to challenge another country’s environmental standards as de facto trade barriers. Noting that GATT establishes its own procedures for solving trade disputes, the court rejected this argument. The Fifth Circuit held that the Canadians did not fall within the zone of interests protected by U.S. law because TSCA does not require EPA to consider the extraterritorial effect of domestic regulation. The court noted that section 6(c)(1)(D) of TSCA expressly requires EPA to consider “the effect [of a rule] on the national economy,” 15 U.S.C. §2605(c)(1)(D)
(emphasis supplied), and that “[i]nternational concerns are conspicuously absent from the statute.” 947 F.2d at 1209.

4. Should national interest be considered in attempting to determine whether environmental measures are disguised protectionism? A Canadian tax on alcoholic beverages sold in nonrefillable containers when voluntary recycling was permitted for soft drinks disproportionately impacted U.S. beer importers and was challenged under GATT. Crosby, Green Beer: When Is an Environmental Measure a Disguised Restriction on International Trade?, 7 Geo. Int’l Envtl. L. Rev. 537 (1995). The matter was settled by a compromise. Battle Over a Bottle, World Watch, Jan./Feb. 1994, at 9.

5. The Montreal Protocol’s restrictions on international trade in CFCs initially were opposed by the EC as a possible violation of GATT. Under the Protocol, parties are prohibited from importing CFCs or halons from nonparties and, beginning in January 1995, developing countries were precluded from exporting them to nonparties. These restrictions were included in the Montreal Protocol after a GATT representative explained that they qualified for exceptions provided in Article XX(b) & (g) for standards “necessary to protect human, animal, or plant life or health” or “relating to the conservation or exhaustion of exhaustible natural resources.” Benedick, Ozone Diplomacy 91 (1991). See also Frankel, Climate and Trade: Links Between the Kyoto Protocol and the WTO, 47 Env’t 8 (2005).

2. The GATT and WTO

The World Trade Organization (WTO) is a product of the Marrakesh Agreement that completed the Uruguay Round of negotiations under the old General Agreement on Tariffs and Trade (GATT) in December 1993. United States membership in the WTO was approved by Congress in December 1994, and the WTO came into being on January 1, 1995. The principles established under GATT still remain the centerpiece of the international trading system, which now has been integrated into a new, unified system under the WTO. Unlike GATT’s “contracting parties,” the WTO has “Members” who are required to attend the organization’s ministerial conferences. The WTO’s General Council, which reports to the ministerial conference, is responsible for running the day-to-day business of the WTO. Its subsidiary, the General Council on Trade and Goods administers existing trade agreements, the role GATT used to play. The WTO has dispute settlement provisions that are more developed than GATT’s by making the formation of dispute settlement panels and the adoption of their decisions automatic, subject to appeal to an Appellate Body of seven members.

GATT insulates health and environmental regulations from attacks as trade restrictions as long as they “are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade.” GATT, art. XX. Thus, trade disputes often turn on whether a regulation discriminates against foreign products. While a GATT panel rejected a challenge to CERCLA’s feedstock tax because it applied equally to foreign and domestic chemical products, more difficult issues arise when ostensibly nondiscriminatory measures have a disproportionate impact on imported products, as with the EU’s ban on hormone-treated beef and the U.S. effort to ban asbestos, nearly all of which is imported. D. Esty, Greening the GATT (1994).
Conflicts over the trade implications of environmental standards may be avoided when the standards are themselves a product of international agreement. Several existing treaties, such as the Montreal Protocol, which regulates trade in CFCs, impose trade restrictions to protect the environment. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has been highly effective because it imposes strict controls on trade in endangered species.

Trade disputes have been spawned by U.S. environmental laws that use trade sanctions to promote environmental protection outside U.S. borders. The most prominent example is the Marine Mammal Protection Act of 1972 (MMPA). Designed to reduce the incidental kill of marine mammals in the course of commercial fishing, the MMPA requires the government to “ban the importation of commercial fish or products from fish which have been caught with commercial fishing technology which results in the incidental kill or incidental serious injury of ocean mammals in excess of United States standards.” 16 U.S.C. §1371(a)(2). In order to import yellowfin tuna caught in a certain area of the Pacific Ocean, a country had to demonstrate that the average incidental taking rate (in terms of dolphins killed each time the purse seine nets are set) for its tuna fleet was no more than 1.25 times the average taking rate of U.S. vessels in the same period. While seemingly nondiscriminatory, these regulations spawned international trade disputes because they represented a unilateral effort to promote extraterritorial environmental protection. In 1991, the United States imposed a ban on tuna imports from Mexico and four other countries after environmentalists won a judgment holding that such an embargo was required by the MMPA. Earth Island Institute v. Mosbacher, 929 F.2d 1449 (9th Cir. 1991). Arguing that the embargo was inconsistent with GATT, the Mexican government then asked the GATT Council to convene a panel to hear its complaint. The panel rendered the following decision.


[After describing the tuna embargo, the Panel noted that MMPA also provides for an embargo of tuna products from any “intermediary nation” that fails within 90 days to prove that it has acted to ban tuna imports from the target country. Six months after the initial ban, the Pelly Amendment authorized the president to ban imports of all fish and wildlife products from the target country “for such duration as the President determines appropriate and to the extent that such prohibition is sanctioned by the General Agreement on Tariffs and Trade.”]

The Panel proceeded to examine whether Article XX(b) or Article XX(g) could justify the MMPA provisions on imports of certain yellowfin tuna and yellowfin tuna products, and the import ban imposed under these provisions. The Panel noted that Article XX provides that:

“Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction
on international trade, nothing in this Agreement shall be construed to prevent
the adoption or enforcement by any contracting party of measures . . .
(b) necessary to protect human, animal or plant life or health; . . .
g) relating to the conservation of exhaustible natural resources if such
measures are made effective in conjunction with restrictions on domestic pro-
duction or consumption; . . . ”

The Panel noted that the United States considered the prohibition of
imports of certain yellowfin tuna and certain yellowfin tuna products from
Mexico, and the provisions of the MMPA on which this prohibition is based,
to be justified by Article XX(b) because they served solely the purpose of pro-
tecting dolphin life and health and were “necessary” within the meaning of that
provision because, in respect of the protection of dolphin life and health outside
its jurisdiction, there was no alternative measure reasonably available to the
United States to achieve this objective. Mexico considered that Article XX(b)
was not applicable to a measure imposed to protect the life or health of animals
outside the jurisdiction of the contracting party taking it and that the import
prohibition imposed by the United States was not necessary because alternative
means consistent with the General Agreement were available to it to protect
dolphin lives or health, namely international co-operation between the
countries concerned.

The Panel noted that the basic question raised by these arguments,
namely whether Article XX(b) covers measures necessary to protect human,
animal or plant life or health outside the jurisdiction of the contracting party
taking the measure, is not clearly answered by the text of that provision. It refers
to life and health protection generally without expressly limiting that protec-
tion to the jurisdiction of the contracting party concerned. The Panel therefore
decided to analyze this issue in the light of the drafting history of Article XX(b),
the purpose of this provision, and the consequences that the interpretations
proposed by the parties would have for the operation of the General Agreement
as a whole.

The Panel noted that the proposal for Article XX(b) dated from the Draft
Charter of the International Trade Organization (ITO) proposed by the
United States, which stated in Article 32, “Nothing in Chapter IV [on
commercial policy] of this Charter shall be construed to prevent the adoption
or enforcement by any Member of measures . . . (b) necessary to protect human,
animal or plant life or health.” In the New York Draft of the ITO Charter, the
preamble had been revised to read as it does at present, and exception (b) read:
“For the purpose of protecting human, animal or plant life or health, if
corresponding domestic safeguards under similar conditions exist in the import-
ing country.” This added proviso reflected concerns regarding the abuse of san-
itary regulations by importing countries. Later, Commission A of the Second
Session of the Preparatory Committee in Geneva agreed to drop this proviso as
unnecessary. Thus, the record indicates that the concerns of the drafters of Article
XX(b) focused on the use of sanitary measures to safeguard life or health of
humans, animals, or plants within the jurisdiction of the importing country.

The Panel further noted that Article XX(b) allows each contracting party
to set its human, animal or plant life or health standards. The conditions set out
in Article XX(b) which limit resort to this exception, namely that the measure
taken must be “necessary” and not “constitute a means of arbitrary or unjustifi-
able discrimination or a disguised restriction on international trade,” refer to
the trade measure requiring justification under Article XX(b), not, however, to
the life or health standard chosen by the contracting party. The Panel recalled the finding of a previous panel that this paragraph of Article XX was intended to allow contracting parties to impose trade restrictive measures inconsistent with the General Agreement to pursue overriding public policy goals to the extent that such inconsistencies were unavoidable. The Panel considered that if the broad interpretation of Article XX(b) suggested by the United States were accepted, each contracting party could unilaterally determine the life or health protection policies from which other contracting parties could not deviate without jeopardizing their rights under the General Agreement. The General Agreement would then no longer constitute a multilateral framework for trade among all contracting parties but would provide legal security only in respect of trade between a limited number of contracting parties with identical internal regulations.

The Panel considered that the United States’ measures, even if Article XX(b) were interpreted to permit extrajurisdictional protection of life and health, would not meet the requirement of necessity set out in that provision. The United States had not demonstrated to the Panel—as required of the party invoking an Article XX exception—that it had exhausted all options reasonably available to it to pursue its dolphin protection objectives through measures consistent with the General Agreement, in particular through the negotiation of international cooperative arrangements, which would seem to be desirable in view of the fact that dolphins roam the waters of many states and the high seas. Moreover, even assuming that an import prohibition were the only resort reasonably available to the United States, the particular measure chosen could in the Panel’s view not be considered to be necessary within the meaning of Article XX(b). The United States linked the maximum incidental dolphin taking rate which Mexico had to meet during a particular period in order to be able to export tuna to the United States to the taking rate actually recorded for United States fishermen during the same period. Consequently, the Mexican authorities could not know whether, at a given point of time, their policies conformed to the United States’ dolphin protection standards. The Panel considered that a limitation on trade based on such unpredictable conditions could not be regarded as necessary to protect the health or life of dolphins.

On the basis of the above considerations, the Panel found that the United States’ direct import prohibition imposed on certain yellowfin tuna and certain yellowfin tuna products of Mexico and the provisions of the MMPA under which it is imposed could not be justified under the exception in Article XX(b).

The Panel proceeded to examine whether the prohibition . . . could be justified under the exception in Article XX(g). The Panel noted the United States, in invoking Article XX(g) with respect to its direct import prohibition under the MMPA, had argued that the measures taken under the MMPA are measures primarily aimed at the conservation of dolphin, and that the import restrictions on certain tuna and tuna products under the MMPA are “primarily aimed at rendering effective restrictions on domestic production or consumption” of dolphin. The Panel also noted that Mexico had argued that the United States measures were not justified under the exception in Article XX(g) because, inter alia, this provision could not be applied extrajurisdictionally.

The Panel noted that Article XX(g) required that the measures relating to the conservation of exhaustible natural resources be taken “in conjunction with restrictions on domestic production or consumption.” A previous panel had found that a measure could only be considered to have been taken
“in conjunction with” production restrictions “if it was primarily aimed at rendering effective these restrictions.” A country can effectively control the production or consumption of an exhaustible natural resource only to the extent that the production or consumption is under its jurisdiction. This suggests that Article XX(g) was intended to permit contracting parties to take trade measures primarily aimed at rendering effective restrictions on production or consumption within their jurisdiction.

The Panel further noted that Article XX(g) allows each contracting party to adopt its own conservation policies. The conditions set out in Article XX(g) which limit resort to this exception, namely that the measures taken must be related to the conservation of exhaustible natural resources, and that they not “constitute a means of arbitrary or unjustifiable discrimination . . . or a disguised restriction on international trade” refer to the trade measure requiring justification under Article XX(g), not, however, to the conservation policies adopted by the contracting party. The Panel considered that if the extrajurisdictional interpretation of Article XX(g) suggested by the United States were accepted, each contracting party could unilaterally determine the conservation policies from which other contracting parties could not deviate without jeopardizing their rights under the General Agreement. The considerations that led the Panel to reject an extrajurisdictional application of Article XX(b) therefore apply also to Article XX(g).

The Panel did not consider that the United States measures, even if Article XX(g) could be applied extrajurisdictionally, would meet the conditions set out in that provision. A previous panel found that a measure could be considered as “relating to the conservation of exhaustible natural resources” within the meaning of Article XX(g) only if it was primarily aimed at such conservation. The Panel recalled that the United States linked the maximum incidental dolphin-taking rate which Mexico had to meet during a particular period in order to be able to export tuna to the United States to the taking rate actually recorded for United States fishermen during the same period. Consequently, the Mexican authorities could not know whether, at a given point in time, their conservation policies conformed to the United States conservation standards. The Panel considered that a limitation on trade based on such unpredictable conditions could not be regarded as being primarily aimed at the conservation of dolphins.

On the basis of the above considerations, the Panel found that the United States’ direct import prohibition on certain yellowfin tuna products of Mexico directly imported from Mexico, and the provisions of the MMPA under which it is imposed, could not be justified under Article XX(g).

NOTES AND QUESTIONS

1. Does the panel’s decision mean that the Article XX(b) exemption extends only to measures designed to protect resources within a nation’s boundaries? If other countries choose to harm their own environment, does the United States have a legitimate interest in not trading with them? The UNCED Declaration endorses GATT’s approach and states that “[u]nilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided.” Could restrictions designed solely to protect resources in another country ever be justified? What if the harm spills over into the global commons? Are there any circumstances in which import
restrictions validly could be imposed under GATT solely to protect resources in the global commons?

2. The panel found that the United States failed to meet the “necessity” requirement of Article XX(b) because it had not first exhausted all options to pursue dolphin protection consistent with GATT. What other options were open to the United States? Is the panel saying, in effect, that unilateral import restrictions will presumptively be invalid?

3. Why did the panel reject the U.S. claim that the tuna embargo was a valid conservation measure under Article XX(g)? Could the MMPA regulations be amended to satisfy these objections? In the first dispute involving the Canada-U.S. Free Trade Agreement (the precursor to NAFTA), a trade panel found that regulations under Canada’s Fisheries Act that required biological sampling of fish prior to export were invalid because their primary goal was not conservation. The panel indicated that regulations restricting trade would be upheld only if their sole purpose was conservation and only if there was no available alternative that was less restrictive. McKeith, The Environment and Free Trade, 10 Pac. Basin L.J. 183, 207 (1991).

4. Could this problem be resolved by implementing a “dolphin-safe” labeling scheme, as discussed in Chapter 2? Would such a scheme essentially let U.S. consumers decide whether they are willing to pay more to protect the global commons? In 1990, Congress enacted the Dolphin Consumer Protection Information Act, 16 U.S.C. §1385 (1990), which provides penalties for companies that use “dolphin safe” labels falsely. The GATT tuna panel went on to hold that this legislation was not inconsistent with U.S. obligations under GATT.

5. Hardly any U.S. tuna boats fish in the waters of the eastern tropical Pacific Ocean. If the United States had little or no tuna industry of its own that was competing directly with the Mexican fleet, should this fact make it more likely or less likely that the tuna embargo would be deemed a protectionist measure?

6. How is the methodology used to assess the validity of import restrictions under GATT similar to, or different from, the Supreme Court’s formula for assessing the constitutionality of state restrictions on waste imports? Recall Philadelphia v. New Jersey and its progeny. Note the importance of the principle of nondiscrimination for both. Is the Article XX(b) exception for health and safety measures equivalent to the “nuisance exception” to Commerce Clause doctrine? Is GATT’s provision for measures to conserve natural resources in Article XX(g) the equivalent of the conservation cases discussed above in Chapter 3?

7. Despite this ruling in its favor, Mexico announced that it would strengthen its dolphin protections by requiring internationally certified observers on all tuna boats and by seeking legislation authorizing prison sentences for violators of its dolphin protection laws.

The Tuna/Dolphin II Decision

Although the Mexican government sought to delay enforcing the GATT decision pending negotiations with the United States, a U.S. district court directed that the tuna embargo be broadened, under the provisions of the Pelly Amendment, to prevent “tuna laundering” by 30 countries that purchased tuna from Mexico. Earth Island Institute v. Mosbacher, 785 F. Supp. 826 (N.D. Cal. 1992). The United States then negotiated a compromise to defuse the tuna-dolphin dispute with Mexico. In June 1992, the United States came to
an agreement with Mexico, Vanuatu, and Venezuela to ban the practice of setting purse seine nets around schools of tuna swimming with dolphins. The Earth Island Institute, the group that initiated the lawsuit that required the embargo, supported the compromise, Pro-Dolphin Accord Made, N.Y. Times, June 16, 1992, at D9, which was implemented through amendments to the MMPA approved by Congress in October 1992. The International Dolphin Conservation Act of 1992, 16 U.S.C.A. §§952 et seq., authorizes the Secretary of State to negotiate a five-year moratorium on the use of purse seine nets that encircle dolphins or other marine mammals during the harvesting of tuna. The amendments also banned the sale of any tuna product that is not “dolphin safe.” Does the ban on the sale of such tuna indicate that the labeling approach was a failure? Does the settlement of the tuna-dolphin dispute indicate that, GATT notwithstanding, for certain countries and certain products trade with the United States is so important that unilateral trade sanctions by the United States can be effective in changing how other countries use the global commons?

Several European nations remained dissatisfied with Mexico’s settlement with the United States. They decided to file their own GATT complaint based on their status as “intermediary nations” under MMPA—importers of yellowfin tuna that also export tuna to the United States. Under the Act, these nations must certify that they have not imported products subject to prohibition from import into the United States within the preceding six months. As GATT panel decisions are not binding on subsequent proceedings, the second panel addressed issues similar to those considered in the first. General Agreement on Tariffs and Trade: Dispute Settlement Panel Report on United States Restrictions on Imports of Tuna, 33 I.L.M. 839 (1994).

In its review of Article XX(g), the Tuna/Dolphin II panel rejected arguments that the exhaustible natural resource to be conserved could not be located outside the territorial jurisdiction of the country taking the measure. Noting that the text of the provision is silent and the drafting history ambiguous on the location of resources covered, the Panel cited the fact that Article XX(g) has been applied to migratory species of fish in two previous decisions and that no distinction had been made on the basis of where the fish had been caught. The Panel further observed that other measures of Article XX applied to actions occurring outside the territory of the party taking the measure (e.g., Article XX(e) which relates to products of prison labor). Finally, the Panel made reference to general principles of international law that permit states to regulate conduct outside their territory, especially with respect to fishermen and vessels on the high seas.

The United States was, however, again unsuccessful in defending the legality under GATT of measures that required changes in the policies of other countries in order to be effective. Noting that the bias of GATT decisions has been to interpret Article XX exceptions narrowly, the Panel concluded:

If however Article XX were interpreted to permit contracting parties to take trade measures so as to force other contracting parties to change their policies within their jurisdiction, including their conservation policies, the balance of rights and obligations among contracting parties, in particular the right of access to markets, would be seriously impaired. Under such an interpretation the General Agreement could no longer serve as a multilateral framework for trade among contracting parties.

The United States also lost with respect to assertions that the MMPA was justified by Article XX(b) as a measure necessary to protect the life and health of
dolphins. Based on the same logic that led to its narrow interpretation of Article XX(g), the Panel concluded that allowing trade embargoes to force other countries to protect living things would also seriously impair the objectives of the General Agreement. In a paragraph labeled Concluding Observations, the Panel added that the importance of sustainable development and efforts to protect dolphins was not in dispute: “The issue was whether, in the pursuit of its environmental objectives, the United States could impose trade embargoes to secure changes in the policies which other contracting parties pursued within their own jurisdiction.” Specifically, the Panel had to resolve whether the intent in Article XX was to accord parties the right to impose trade embargoes as a means for promoting conservation. “The Panel had examined this issue in the light of the recognized methods of interpretation and had found that none of them lent any support to the view that such an agreement was reflected in Article XX.”

NOTES AND QUESTIONS

1. Unlike the panel in Tuna/Dolphin I, the Tuna/Dolphin II panel suggests that the resources covered by Article XX(g)’s exemption of measures to conserve exhaustible natural resources do not have to be located within the jurisdiction of the country adopting the conservation measure. Why did the panels reach a different conclusion in this regard?

2. While the United States believed that the embargo on intermediary nations was necessary to prevent “tuna laundering” from undermining the effectiveness of its sanctions, the Tuna/Dolphin II panel finds it objectionable because it seeks to encourage other governments to adopt trade policies similar to those of the United States. Can you think of any circumstances under which an embargo on intermediary nations could be upheld in light of the decision in Tuna/Dolphin II?

3. In September 1994, another GATT panel upheld key provisions of U.S. fuel economy measures that had been challenged by the European Union (EU) as violative of GATT. General Agreement on Tariffs and Trade: Dispute Settlement Panel Report on United States—Taxes on Automobiles (Sept. 29, 1994). The panel held that U.S. Corporate Average Fuel Economy (CAFE) requirements, a “gas guzzler” tax, and a luxury tax on expensive cars did not discriminate against Mercedes and BMW. However, the panel did strike down one aspect of the regulations—CAFE accounting rules that establish separate “domestic” and “import” fleets for determining overall fuel economy. This panel decision is noteworthy because it may suggest latitude within GATT principles for regulations on imports based on more than differences in their physical characteristics or end uses. The two previous panel decisions finding U.S. regulations on the importation of tuna designed to protect dolphins inconsistent with GATT caused significant concern that nations could not regulate imports based on the manner in which they were produced, a potentially serious obstacle to environmental regulation. (Note that none of these panel decisions has been formally adopted, and that there is no stare decisis in GATT or WTO decisions.)

The Auto Taxes panel was still concerned that any discrimination due to an environmental regulation be “based on factors directly relating to the product as such.” Differential taxes based on fuel economy passed the test, but the CAFE accounting regulations did not. “Thus, the Auto Taxes Panel seems to have expanded the leeway for measures that are closely related to, but do not strictly
affect, the product; however, it is impossible to say just how broad or narrow that expansion is.” R. Housman et al., The Use of Trade Measures in Select Multilateral Environmental Agreements (paper prepared for the United Nations Environment Programme, 1995). See Lee, Process and Product: Making the Link Between Trade and the Environment, 6 Int’l Envtl. Aff. 320 (1994).

4. The Auto Taxes and Tuna/Dolphin decisions all concerned the GATT consistency of unilateral legislative acts. The issue might have been very different if presented in conjunction with a bilateral or multilateral environmental agreement. With the increasing number and importance of such agreements, the application of GATT rules to actions taken pursuant to multilateral agreements is of considerable importance. R. Housman et al. argue that Tuna/Dolphin I implied that measures operating under the authority of an international agreement would be covered by the Article XX exceptions to the GATT. Id. The Tuna/Dolphin II panel employed a three-part test for determining the applicability of Article XX, which subsequently was followed by the Auto Taxes panel.

First, the policy upon which the measure is based must fall within the range of policies covered by the relevant article XX provisions.

Second, the measure must be either “necessary” to protect human, animal or plant life or health under XX(b), or “related to” the conservation of exhaustible natural resources, and made effective “in conjunction” with restrictions on domestic production or consumption under XX(g).

Third, the measure must be applied in a manner consistent with the requirements of article XX’s preamble; specifically, the measure cannot be applied in a manner that would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or in a manner that would constitute a disguised restriction on international trade.

Measures taken to protect the environment outside of a country’s territorial jurisdiction were acceptable to the Tuna/Dolphin II panel. However, measures to change the policies of other countries, acting within their own jurisdiction, were not acceptable if such measures would achieve their intended effect only if they were followed by such changes. The Tuna/Dolphin II panel stated that such measures would “seriously impair the objectives of the GATT” and, thus, could neither be considered “necessary” as required by the Article XX(b) exception nor “primarily aimed at” legitimate conservation goals as required by Article XX(g). Multilateral environmental agreements that seek to alter the policies of other countries, acting within their own jurisdiction, thus could be vulnerable under the reasoning of the Tuna/Dolphin II panel.

Housman et al. argue that both the history of GATT and strong policy arguments support treating multilateral protections differently than unilateral protections. They maintain that “broad-based multilateral protections are the only effective means of addressing problems that spill over borders, affect the global commons, or are global in nature” and that they “serve to harmonize measures within their purview,” thus reducing trade barriers. Id.

5. Fears that the WTO could threaten domestic environmental regulations were reinforced in January 1996 when the organization ruled against the United States in response to a complaint by Venezuela. The WTO ruled that a regulation governing reformulated gasoline in the Clean Air Act unfairly discriminated against some foreign refiners because it based standards for domestic refiners on the quality of gasoline they actually produced in 1990, while holding foreign refiners to a standard based on the overall average quality of
of gasoline in the United States. Sanger, World Trade Group Orders U.S. to Alter Clean Air Act, N.Y. Times, Jan. 18, 1996, at D1. Because the provision of the Clean Air Act applied in differential fashion only until 1998, the decision itself was not of great concern, but the potential implications of allowing the WTO to authorize trade sanctions against the United States because of its environmental regulations was worrisome to many.

6. The United States has sometimes availed itself of the WTO to attack regulations motivated by environmental concerns, most notably in response to an EU regulation restricting imports of meat products derived from cattle given growth hormones. Because the United States, but not the EU, produces most of its meat with these hormones, the effect fell disproportionately on U.S. beef exports. The United States based its challenge on the Agreement on the Application of Sanitary and Phytosanitary Measures, relying particularly on Article 5.1, which requires that food safety measures be “based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.”

In reviewing the basis for the EU policy, a WTO appellate body considered the scientific basis for the import restriction and, more particularly, whether the EU had used a risk assessment within the meaning of Article 5.1. The body found against the EU on both counts, noting a lack of scientific evidence supporting the conclusion that use of the hormones is unsafe, even assuming abusive use.

The EU unsuccessfully sought to rely on the precautionary principle as further support for its measures. The United States refused to accept that the precautionary principle represents customary international law and suggested it is more “approach” than “principle.” The appellate body found more narrowly that the principle (whether or not accepted) would not change their interpretation of the provisions of the SPS agreement. WTO, EC Measures Concerning Meat and Meat Products (Hormones), WT/DS26/AB/R, Jan. 16, 1998.

The Shrimp/Turtle Decision

On April 6, 1998, a World Trade Organization (WTO) dispute settlement panel ruled that U.S. enforcement of §609 of Pub. L. 101-162 was inconsistent with U.S. obligations under the WTO Agreement. This law, enacted in 1989, bans the import of shrimp harvested with technology that may adversely affect sea turtles on the endangered species list. Shrimp fishers in the U.S. are required to use “turtle excluder devices” (TEDs) when trawling for shrimp. These devices prevent sea turtles from drowning when caught in shrimp nets, which had been estimated to kill 150,000 turtles a year. Although the U.S. initially applied section 609 only to countries in the Caribbean/Western Atlantic, the U.S. Court of International Trade ruled in December 1995 that it was illegal to so limit the geographical scope of the import ban. After the U.S. Department of State published guidelines broadening the ban to apply to “all shrimp products harvested in the wild by citizens or vessels of nations which have not been certified” as using turtle-safe harvesting methods, Thailand, Malaysia, India, and Pakistan filed a complaint with the WTO.

The WTO panel’s decision focused on Article XX(g) and issues similar to those raised in Tuna/Dolphin I, page 1079 above, with the addition of evidence that the law was designed to protect a highly migratory species identified as
endangered under the Convention on International Trade in Endangered Species. In defending the law, the U.S. had noted that the law applied equally to American fishers and that the TEDs are both inexpensive and effective. Yet the panel refused to interpret Article XX to permit such measures. The panel stated:

In our view, if an interpretation of the chapeau of Article XX were to be followed which would allow a Member to adopt measures conditioning access to its market for a given product upon the adoption by the exporting Members of certain policies, including conservation policies, GATT 1994 and the WTO Agreement could no longer serve as a multilateral framework for trade among Members as security and predictability of trade relations under those agreements would be threatened. This follows because, if one WTO Member were allowed to adopt such measures, then other Members would also have the right to adopt similar measures on the same subject but with differing, or even conflicting requirements. If that happened, it would be impossible for exporting Members to comply at the same time with multiple conflicting policy requirements. Indeed, as each of these requirements would necessitate the adoption of a policy applicable not only to export production (such as specific standards applicable only to goods exported to the country requiring them) but also to domestic production, it would be impossible for a country to adopt one of those policies without running the risk of breaching other Members’ conflicting policy requirements for the same product and being refused access to these other markets. We note that, in the present case, there would not even be the possibility of adapting one’s export production to the respective requirements of the different Members. Market access for goods could become subject to an increasing number of conflicting policy requirements for the same product and this would rapidly lead to the end of the WTO multilateral trading system.

The panel emphasized that it was not dealing with measures undertaken to implement any international agreement and that it did not challenge any nation’s right to ban products that it believes are dangerous. It stressed that the key defect of the law was that it “condition[ed] access to the U.S. market for a given product on the adoption by the exporting Member of certain conservation policies.” While stating that the U.S. could require “that U.S. norms regarding the characteristics of a given product be met for that product to be allowed on the U.S. market,” the panel explained that “requiring that other Members adopt policies comparable to the U.S. policy for their domestic markets and all other markets represents a threat to the WTO multilateral trading system.” The panel concluded by recognizing that protection of sea turtles was an important goal, but it stated that the goal could best be pursued by reaching “cooperative agreements on integrated conservation strategies,” rather than through trade sanctions.

The U.S. decided to appeal the panel’s decision, which had reinforced concerns of environmentalists that the WTO always will rule against the use of trade sanctions to promote environmental goals, no matter how small the restraint on trade.

An appeal produced a similar result, although based on somewhat narrower reasoning, WTO, United States—Import Prohibition of Certain Shrimp and Shrimp Products, WT/DS58/AB/R, Oct. 12, 1998. The Appellate Body emphasized that the application of the law effectively required a regulatory program “essentially the same” as that applied to American vessels. This was unacceptable without taking into account differences in conditions in other territories. In addition, the U.S. scheme excluded imports of shrimp from waters of countries not certified under the regulatory program whether or not caught using methods identical to those required in the United States. Finally, the
United States was found at fault for failing to negotiate seriously with some shrimp-exporting parties and, ironically, for failing to avail itself of potentially relevant mechanisms in international agreements, including several conventions it had failed to ratify.

NOTES AND QUESTIONS

1. Does the Shrimp/Turtle decision represent a threat to domestic environmental regulation, or is it largely a product of U.S. failure to apply a legitimate regulation in a manner that does not discriminate against imports from other nations?

2. The U.S. General Accounting Office issued a report in June 2000 that examined the impact of the WTO’s dispute settlement procedures on U.S. laws and regulations. GAO, World Trade Organization: U.S. Experience to Date in Dispute Settlement System (June 2000). The report found that as of April 2000 the United States had initiated 25 cases at the WTO and had been a defendant in 17 cases brought against it by other countries. In 13 of the 25 cases initiated by the United States, the United States prevailed in a final WTO dispute settlement ruling; 10 cases were resolved without a rule, and the United States did not prevail in the other 2. Of the 17 cases brought against the U.S., 10 were resolved without a ruling, the U.S. lost 6 cases and prevailed in only 1. A total of 187 complaints had been filed with the WTO during the first five years of its existence, with the United States and the European Union being the most active participants in the system. The GAO concluded “that the United States has gained more than it has lost in the WTO dispute settlement system to date. WTO cases have resulted in a substantial number of changes in foreign trade practices, while their effect on U.S. laws and regulations has been minimal.” Id. at 4.

3. Protests against WTO have been cited as evidence of strong grassroots support for efforts to develop a fairer system of world trade and economic development that respects environmental and social justice. The director-general of the World Trade Organization has recognized that “in the absence of environmental protection policies, trade will exacerbate existing environmental problems” and that in some circumstances “trade can itself be the cause of environmental problems.” When industrialists, government officials, and other members of the world elite gathered in Davos, Switzerland last January for their annual World Economic Forum, consumer, labor, environmental, and human rights activists gathered in Porto Alegre, Brazil for the first counter forum, called the World Social Forum. This forum highlighted the distribu-
tional consequences of policies that fail to consider the social and environmental costs of trade liberalization. Stephen Buckley, Foes Take Moderate Tack on Globalism, Wash. Post, Jan. 27, 2001, at A15.

4. While the Corrosion Proof Fittings decision, discussed in Chapter 4, derailed EPA’s efforts to ban asbestos in the United States, a growing number of countries throughout the world are enacting asbestos bans. When Spain banned asbestos on July 3, 2001, it became the thirteenth out of fifteen members of the European Union to ban the import and use of the substance. Chile banned asbestos in July 2001 despite a personal plea not to do so by Canadian Prime Minister Jean Chretien. Argentina followed suit in August 2001. Australia, Saudi Arabia, and Brazilian cities and states accounting for 70 percent of Brazil’s market also have banned asbestos use. El Salvador banned asbestos in the mid-1980s.
In September 2000, a WTO panel rejected a challenge by Canada to France’s 1996 ban on imports of chrysotile asbestos. World Trade Organization, European Communities—Measures Affecting Asbestos and Asbestos-Containing Products (WT/DS135/R, Sept. 18, 2000). Although the panel found that an import ban normally would violate WTO rules promoting free trade, it concluded that a ban on asbestos imports was justified under Article XX(b), the GATT’s provision exempting measures necessary to protect life or health. This decision is highly significant because it represents the first time that a measure restricting trade has been upheld on environmental grounds. Throughout the dispute, Canada argued that France’s asbestos ban was not based on adequate scientific research and that it was contrary to international trade rules. The Canadian government claimed that chrysotile asbestos is safer than many alternative products, and that it is perfectly safe to use and install if adequate safety measures are taken. France, supported by the European Union, maintained that asbestos kills approximately 2,000 people in France each year. All five scientific experts consulted by the WTO panel agreed that chrysotile asbestos is carcinogenic and dangerous to human health. Canada appealed the panel’s decision to the WTO’s Appellate Body, which upheld the decision in March 2001. Canada, the world’s second largest producer and the largest exporter of chrysotile asbestos, is particularly concerned that this decision could influence countries in other parts of the world to ban asbestos, particularly in developing countries where the industry has been making a push to expand exports.

5. An analysis of the implications of WTO decisions for the environment after the Shrimp-Turtle ruling identifies three factors that seem most important to the determination whether environmental measures are being applied in an unacceptably arbitrary manner: the measures must be flexible in allowing how the environmental objective is to be achieved; the enacting state must make good faith efforts to negotiate a multilateral agreement; and there must be reasonable phase-in times for those affected to come into compliance. While noting that numerous questions remain, they conclude: “At the end of the day, though, the new state of trade law in the area of PPMs and ET (extraterritoriality) is a much more balanced and nuanced approach—one that stems directly from the integration of sustainable development into the fabric of WTO law through its preamble.” Mann & Porter, The State of Trade and Environmental Law 2003: Implications for Doha & Beyond vii (2003).

6. From the perspective of developing nations, the effort to link environmental objectives with trade is not always welcome. A self-declared group of “third world intellectuals” led by Columbia University professor Jagdish Bagwati has criticized such efforts as selectively biased and inconsistent with the purposes of the WTO. They argue that an unbiased review of the United States might conclude that trade sanctions should be imposed because of its acceptance of juvenile capital punishment, “an egregious violation of the Convention of the Rights of the Child.” Similarly, the United States could be challenged for its failure to address recurrent evidence of sweatshops (a human rights violation) or even its inadequate protection of the right of laborers to organize (arguably inconsistent with international labor standards). Their position is that social and environmental concerns should be addressed separately, recognizing only inherently overlapping problems such as the need to define the appropriate role for trade sanctions in multilateral environmental agreements. See Linking Trade to Social Issues Is Challenged, Earth Times, Sept. 16-30, 1999, at 11-12.
7. Douglas Irwin argues that WTO rulings have not weakened U.S. environmental protections. He notes that as of late 2004, “fewer than 10 of the 140 disputes brought before the WTO had dealt with environmental and health issues” and the “few environmental cases have mainly focused on whether the regulation in question has been implemented in a nondiscriminatory way, not whether the regulation is justifiable.” Douglas Irwin, Free Trade Under Fire 231 (2005). Irwin draws three lessons from the WTO decisions: (1) world trade rules are not anti-environmental, (2) there are sound reasons for not allowing any and all process regulations because this could open the door to the imposition of standards that developing countries cannot afford, and (3) unilateral trade sanctions are a poor instrument for achieving environmental objectives because keeping foreign goods out of the U.S. market does not solve the underlying problem to which the sanctions are directed.

3. The North American Free Trade Agreement (NAFTA) and the Environment

Some opponents of global free trade, including Herman Daly, distinguish regional trade agreements as more likely to achieve the benefits of trade based on comparative advantage. On the other hand, the economic disparity between the United States and Mexico has been the source of its own unique environmental concerns. Beginning in 1965, the Mexican government created a free-trade zone in a 60-mile strip along the 2,000-mile border with the United States. In this area, maquiladoras owned jointly by U.S. and Mexican companies operate tariff-free, importing raw materials or components and shipping finished products or components back to the United States. More than 2,500 factories operate in this free-trade zone, until relatively recently largely without environmental regulation. See generally P. Johnson & A. Beaulieu, The Environment and NAFTA (1996); Hunter, Salzman & Zaelke, International Environmental Law and Policy 1220-1274 (1998).

The initial proposal to create a North American Free Trade Agreement was opposed by many environmentalists, who feared it would undermine environmental standards in the United States and foster relocation of pollution-intensive industries on the Mexican side of the border, where they could benefit from lax regulation. In response, President Clinton negotiated an environmental side agreement, the North American Agreement on Environmental Cooperation (Sept. 8, 1993), 32 I.L.M. 1480. The side agreement created the North American Commission for Environmental Cooperation (CEC) and endowed it with authority to investigate allegations by citizens that a party is failing to enforce its environmental laws and regulations. Tuchton, The Citizen Petition Process Under NAFTA’s Environmental Side Agreement: It’s Easy to Use, But Does It Work?, 26 Envtl. L. Rep. 10,018 (1996).

The environmental problems of the border zone were the subject of a separate bilateral agreement that created two new institutions, the Border Environment Cooperation Commission and the North American Development Bank.

NAFTA itself makes only sparse reference to environmental protection measures. Under Article 712.2, each country reserves the right to establish the “appropriate level of protection” for life or health within its territory “notwithstanding any other provision” of NAFTA. However, the countries are
directed to “avoid arbitrary or unjustifiable distinctions” in levels of health or environmental protection that would cause “unjustifiable discrimination” against goods from another country or that would “constitute a disguised restriction on trade.” For a more detailed analysis of NAFTA’s environmental provisions, see Charnovitz, NAFTA: An Analysis of Its Environmental Provisions, 23 Envtl. L. Rep. 10,067 (1993).

The first complaint to the CEC, made by the National Audubon Society and two Mexican groups, cited the deaths of more than 40,000 migratory birds at the Silva Reservoir in central Mexico. The CEC determined that the deaths were caused by exposure to raw sewage and recommended that a new agency be created to monitor the health of wildlife. U.S. environmentalists complained to the CEC about the appropriations rider that lifted legal restrictions on “timber salvage” operations on public lands. This claim was rejected on the ground that it reflected a relaxation of the environmental laws, rather than a failure to enforce them. The CEC concluded that “enactment of legislation which specifically alters the operation of pre-existing environmental law in essence becomes a part of the greater body of laws and statutes on the books.” Trade-Environment: NAFTA Environment Commission Disappoints, Inter-Press Service, Dec. 15, 1995.

In 1997 the CEC for the first time directed the United States to respond to a complaint charging it with violating NAFTA by failing to enforce its own environmental laws. The complaint, filed by two citizen groups in the U.S. charged that the U.S. Defense Department violated NEPA by failing to prepare an EIS for its decision to relocate 2,000 new army personnel to a fort in Arizona. A NEPA lawsuit filed by the citizen groups previously had been dismissed because the statute of limitations had expired.

In 1997 the CEC released the results of its investigation into complaints filed in 1996 by three NGOs concerning an alleged failure by Mexican authorities to enforce their environmental laws when approving a new cruise ship pier in Cozumel. Final Factual Record of the Cruise Ship Pier Project in Cozumel, Quintana Roo (1997). The 55-page report summarized the facts concerning the submission, the response of the Mexican government, and other relevant factual information gathered by Secretariat of the CEC. However, the report made no conclusions and provided no remedies, apparently leaving it to the political process in each country to determine the appropriate response.

By June 2001, the CEC had completed its assessment of 19 citizen complaints and had found that only two of these warranted preparation of a public factual record. Twelve additional complaints were under review. There is some evidence that NAFTA has increased environmental awareness in Mexico, contributing to a growing environmental movement there. See Pollution Fight Takes Root in Courtrooms of Mexico, San Jose Mercury News, April 30, 2001, at A11.

Chapter 11 of NAFTA, which is designed to protect foreign investors against arbitrary action by governments, has come under considerable scrutiny as a result of a ruling against Mexico in a case brought by the Metalclad Corporation. Anthony DePalma, NAFTA’s Powerful Little Secret, March 11, 2001, at C2. Metalclad alleged that Mexico had effectively expropriated a hazardous waste landfill it was building when local officials in Mexico refused to license the project, despite prior assurances to the company by the Mexican government that it would be allowed to operate. Metalclad then invoked Chapter 11’s
provisions for convening an arbitral tribunal of the International Centre for the Settlement of Investment Disputes. Mexico argued that the permit denial was the result of a change of plans by Metalclad, which had decided to significantly expand its site despite public opposition. The tribunal awarded Metalclad $16.68 million after finding that the locality had exceeded its authority and that a decree by the region’s governor declaring the site a protected natural area was tantamount to expropriation without compensation.

A study by Kevin Gallagher provides some empirical analysis of the environmental consequences of NAFTA, and by analogy, the larger consequences of trade liberalization. His primary finding is that “on a national level, a number of environmental conditions worsened in Mexico despite rising incomes, but not because dirty industry in the United States flocked there. Rather, environmental degradation worsened because the Mexican and U.S. governments did not instate effective environmental policies that would have brought the desired benefits from economic integration.” Kevin Gallagher, Free Trade and the Environment 7 (2004). He further concludes:

- While Mexico reached $5,000 GDP per capita in 1985, a level of income associated with environmental improvements by the Kuznets Curve, the country has yet to reach a general turning point and may not “for decades to come.” Id. at 8.
- The marginal costs of pollution abatement in the United States are too small to justify relocation to Mexico (the “pollution haven hypothesis”), and the composition of Mexican industry became less pollution-intensive with growth. Id. at 8-9.
- Increases in pollution due to growth in manufacturing exceeded reductions due to declines in pollution intensity, and total criteria air pollution in manufacturing nearly doubled. Id. at 9.
- The impact of transfer of technology (the “technique effect”) was evident in the steel and cement industries, which are less polluting than firms in the United States; but in general “the share of those industries in Mexico that are cleaner than their U.S. counterparts has been shrinking by every measure.” Id.
- “Since 1993, the year after NAFTA was signed, real spending and plant-level environmental inspections have both fallen by 45 percent. On an international level, the environmental side accords of NAFTA, with some exceptions have done little fill this gap.” Id.

Gallagher’s work represents an important middle ground in discussions about the environmental consequences of free trade and leads to several important conclusions. First, policies associated with trade liberalization can lead to environmental problems if they are used to justify dismantling or not enforcing domestic environmental regulations as has unfortunately sometimes been the case. Second, effective environmental policies are not likely to discourage foreign investment and can avoid substantial costs from pollution. And third, Mexico and other developing nations require much greater assistance to develop and implement effective environmental policies simultaneously with the development of the laws and institutions required for economic growth. While economists have widely recognized the general importance of laws and institutions as a fundamental condition for economic growth, few recognize the analogous importance of the same for environmental policies.
4. International Trade in Hazardous Substances

International trade in hazardous substances has exacerbated tensions between developing nations and the industrialized world. As industrialized countries adopt increasingly stringent environmental standards, countries without such standards have become inviting targets for the marketing and disposal of hazardous substances. Three types of activities—exports of hazardous waste, marketing of products banned in industrialized nations, and trade in other hazardous substances—raise environmental concerns explored below.

A. Policy Issues

Exports of hazardous waste from industrialized nations have created international incidents when developing nations have discovered that they were the intended dumping grounds for toxic residue. When 8,000 drums of toxic waste, including 150 tons of PCBs, were dumped in a small Nigerian fishing village by an Italian firm, Nigeria recalled its ambassador to Italy and forced the firm to reclaim the waste. The waste, aboard the *Karin B.*, was then refused by five countries before being returned to Italy. Guinea jailed a Norwegian diplomat after a Norwegian ship dumped toxic waste there. After Panama refused a shipment of incinerator ash on board the *Khian Sea*, the shipper tried to dump it on a Haitian beach but was stopped after unloading 3,000 tons. The *Khian Sea* then roamed the oceans for 18 months, unable to find a willing recipient for its cargo. After visiting five continents and changing its name three times the boat reappeared, without its cargo, which probably was dumped in the Indian Ocean. French, A Most Deadly Trade, World-Watch 11 (July-Aug. 1990).

It is not difficult to understand why increasing quantities of hazardous waste are being exported by industrialized nations. Wendy Grieder of EPA’s Office of International Activities notes that some developing countries charge as little as $40 per ton for disposal of wastes that can cost $250 to $300 per ton to dispose of in the United States. Chepesiuk, From Ash to Cash: The International Trade in Toxic Waste, 51, 35 (July-Aug. 1991). While data on the volume of waste exports are sketchy, it is estimated that industrialized nations shipped three million tons of toxic waste to less developed countries between 1986 and 1988, Obstler, Toward a Working Solution to Global Pollution: Importing CERCLA to Regulate the Export of Hazardous Waste, 16 Yale J. Int’l L. 73, 76 (1991), and that the volume of exports was increasing. But see Montgomery, Reassessing the Waste Trade Crisis: What Do We Really Know?, 4 J. Env’t & Dev. 1 (1995) (arguing that the data do not support the conclusion that the problem is serious).

The export of hazardous substances also has expanded. As regulation and increased consumer awareness reduced the domestic demand for such substances, producers of hazardous substances intensified marketing efforts in developing countries. Products that are banned in the United States generally can be manufactured for export. For example, the pesticides heptachlor and chlordane, which have been banned by EPA, are currently being manufactured in the United States for export. Several other pesticides that have not been approved by EPA also are manufactured for export. Exports of such pesticides and other hazardous materials place workers at risk in developing countries, where regulatory standards are far less strict than in the United States. U.S. consumers may continue to be exposed to pesticides banned as unreasonably
dangerous under FIFRA when residues of such pesticides are present on imported fruits and vegetables, a phenomenon called the “circle of poison.” See D. Weir & M. Shapiro, Circle of Poison: Pesticides and People in a Hungry World (1982).

Export markets have been aggressively pursued for products whose use was phased out or discouraged to protect health in the United States. For example, after the United States prohibited use of lead additives in gasoline to prevent lead poisoning, manufacturers of lead additives expanded their sales to developing countries. In 1991 the Ethyl Corporation of Richmond, Virginia, applied for permission to double production of lead additives at a plant in Sarnia, Canada, to facilitate greater exports to South America. Although Canada also has banned lead additives in gasoline, fuel additives manufactured for export are exempt from the 1988 Canadian Environmental Protection Act’s prohibition on the export of products banned domestically. Gorrie, Groups Oppose Canada’s Export of Lead Additive, Toronto Star, Mar. 25, 1991, at D8. U.S. exports of cigarettes to developing countries have soared, easily offsetting substantial declines in domestic demand. In 1989 smoking in the United States dropped by 5 percent, while U.S. exports of tobacco rose 20 percent. Despite dramatic declines in smoking in the United States, tobacco use has soared by 75 percent worldwide during the past 20 years. The American Medical Association charged that this dramatic increase was a result of U.S. trade policies that ignored the hazards of U.S. products sold abroad. Arguing that the United States has no business dictating how American companies should respond to foreign demand, the U.S. Cigarette Export Association opposed efforts to require foreign-language health warning labels on cigarettes exported from the United States. A.M.A. Assails Nation’s Export Policy on Tobacco, N.Y. Times, June 27, 1990, at A12. When Thailand sought to ban cigarette imports, the United States invoked GATT, and the ban was struck down because it did not apply to Thai cigarettes.

Critics of the international trade in hazardous substances argue that it is unfair or immoral for industrialized nations to export risks they are unwilling to bear to poor countries that are ill-prepared to handle them. Because “[m]ost developing countries have neither the technical capability nor the regulatory infrastructure to ensure safe handling and destruction of toxic waste,” NRDC representatives argue that exports to such countries are “economically, environmentally, morally, and technically indefensible.” Uva & Bloom, Exporting Pollution: The International Waste Trade, 31 Environment 4 (June 1989). Critics argue that the absence of effective controls on hazardous substance exports also promotes environmental damage, poisons relations between industrialized and developing countries, and puts U.S. consumers at risk through the “circle of poison.”

Opponents of stricter regulation argue that it is paternalistic for the industrialized world to dictate environmental standards to less developed countries. They argue that it may be more efficient for developing countries to adopt less stringent environmental standards to promote development. In a controversial memorandum, Lawrence Summers, then the World Bank’s chief economist, wrote that “the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable” because lost earnings caused by a given amount of health damage would be lower there. Arguing that “underpopulated countries in Africa are vastly underpolluted,” the memo maintained that cancer risks should be of less concern there because life expectancy already is low. Weisskopf, World Bank Official’s Irony Backfires, Wash. Post, Feb. 10, 1992,

B. Regulation of International Trade in Hazardous Substances

One approach to the problems raised by international trade in hazardous substances is to emphasize the principle of informed consent in a manner similar to the informational approaches to regulation explored in Chapter 4. This is the approach most existing U.S. laws follow, as indicated in Figure 11.4. Section 3017 of RCRA requires persons seeking to export hazardous waste to notify EPA at least 60 days prior to shipment of the waste. The Secretary of State is then required to notify the government of the intended recipient and those of any countries through which the waste will pass in transit. Waste may not be exported until written consent has been obtained from the recipient’s government, and copies of such consent must be attached to a manifest accompanying such shipments. Waste shipped pursuant to a bilateral agreement, such as the existing agreement between the United States and Canada (the largest recipient of U.S. hazardous waste exports), is exempt from the prior notification and consent requirements on the theory that the agreement already constitutes blanket consent to such shipments.

TSCA and FIFRA require that other countries be notified when regulatory action is taken against a chemical substance or when a pesticide’s registration is canceled or suspended. Both statutes, however, permit products banned in the United States to be exported. Indeed, they actually insulate products manufactured solely for export from most domestic regulation. Under section 12(a) of TSCA, EPA can only regulate such products if it determines the risks they present within the United States are unreasonable, without considering their impact in countries importing them.

Signed in 1989, the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes sought to establish a framework for controlling hazardous waste exports. It banned hazardous waste exports unless the receiving country and any transit countries have consented in writing to such shipments. While the U.S. Senate ratified the Basel Convention in 1992, the U.S. has not become a formal party because Congress has not adopted legislation amending RCRA to conform to Basel requirements. In 1991 African nations signed the Bamako Convention, prohibiting hazardous waste imports into Africa. In 1994 the Basel COP agreed to prohibit exports of hazardous waste from OECD to non-OECD countries. In 1999 the parties to the Basel Convention agreed to impose strict liability on exporting states for damages caused by waste shipments.

Tort Litigation in the United States for Actions Abroad by U.S. Multinationals

One possible strategy for holding multinational companies accountable for damage caused by the export of hazardous substances is tort litigation by foreigners injured due to exposure to such substances. In addition to the usual difficulties of proving causation in toxic tort cases, foreign plaintiffs face other
### FIGURE 11.4
Provisions in U.S. Environmental Statutes Addressing International Trade in Hazardous Substances

<table>
<thead>
<tr>
<th>Statutory Provision</th>
<th>Activities or Substances Covered</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCRA §3017</td>
<td>Export of hazardous wastes</td>
<td>Prohibited unless notification is provided and the receiving country agrees to accept the waste or unless shipped in conformance with agreement between the United States and the receiving country</td>
</tr>
<tr>
<td>TSCA §12(a)</td>
<td>Chemical substances intended for export and so labeled unless found to present an unreasonable risk of injury to health or the environment within the United States</td>
<td>Exempt from all provisions of TSCA except for recordkeeping and reporting requirements imposed under §8</td>
</tr>
<tr>
<td>TSCA §12(b)</td>
<td>Chemical substances intended for export for which a data submission has been required under §4 or §5(b) or for which restrictions have been proposed or promulgated under §5 or §6</td>
<td>Notification of government of importing country of availability of data required to be submitted or of the existence of restrictions</td>
</tr>
<tr>
<td>FIFRA §17(a)</td>
<td>Unregistered pesticides produced solely for export to a foreign country</td>
<td>Exempt from most regulation when prepared and packed according to the specifications of a foreign purchaser when accompanied by a signed statement filed by the purchaser acknowledging that the pesticide is not registered in the United States</td>
</tr>
<tr>
<td>FIFRA §17(b)</td>
<td>Pesticides whose registration is canceled or suspended</td>
<td>Notification of governments of other countries and of appropriate international agencies of cancellation or suspension of registration</td>
</tr>
</tbody>
</table>
formidable obstacles. American courts may refuse to hear cases brought by plaintiffs injured in foreign countries by invoking the doctrine of *forum non conveniens*, as illustrated by the litigation over the Bhopal tragedy, which was rejected by American courts. In *In re Union Carbide Corp. Gas Plant Disaster*, 809 F.2d 195 (2d Cir. 1987). See Arthaud, *Environmental Destruction in the Amazon: Can U.S. Courts Provide a Forum for the Claims of Indigenous Peoples?*, 7 Geo. Int’l Envtl L. Rev. 195 (1994). Because American tort law is perceived to be more generous to plaintiffs than the law in most foreign countries, the choice of forum can have a substantial impact on the amount of damages recoverable. In *Dow Chemical Co. v. Alfaro*, 786 S.W.2d 674 (Tex. 1990), banana workers in Costa Rica claimed that they had been injured by a pesticide that EPA had banned within the United States, but which continues to be produced in the United States for export abroad. The workers brought a tort action in Texas state court against the U.S. company that manufactured the pesticide. After the trial court dismissed the action, the plaintiffs appealed to the Texas Supreme Court. The court’s 5-4 decision produced sharp disagreement among the justices, with the majority ruling that the case must be heard in Texas. In a concurring opinion, Justice Doggett explained why:

Shell Oil Company is a multinational corporation with its world headquarters in Houston, Texas. Dow Chemical Company, though headquartered in Midland, Michigan, conducts extensive operations from its Dow Chemical USA building located in Houston. Dow operates this country’s largest chemical manufacturing plant within 60 miles of Houston in Freeport, Texas. The district court where this lawsuit was filed is three blocks away from Shell’s world headquarters, One Shell Plaza in downtown Houston.

Shell has stipulated that all of its more than 100,000 documents relating to DBCP are located or will be produced in Houston. Shell’s medical and scientific witnesses are in Houston. The majority of Dow’s documents and witnesses are located in Michigan, which is far closer to Houston (both in terms of geography and communications linkages) than to Costa Rica. The respondents have agreed to be available in Houston for independent medical examinations, for depositions and for trial. Most of the respondents’ treating doctors and co-workers have agreed to testify in Houston. Conversely, Shell and Dow have purportedly refused to make their witnesses available in Costa Rica.

The banana plantation workers allegedly injured by DBCP were employed by an American company on American-owned land and grew Dole bananas for export solely to American tables. The chemical allegedly rendering the workers sterile was researched, formulated, tested, manufactured, labeled and shipped by an American company in the United States to another American company. The decision to manufacture DBCP for distribution and use in the third world was made by these two American companies in their corporate offices in the United States. Yet now Shell and Dow argue that the one part of this equation that should not be American is the legal consequences of their actions. . . .

Comity—deference shown to the interests of the foreign forum—is a consideration best achieved by rejecting forum non conveniens. Comity is not achieved when the United States allows its multinational corporations to adhere to a double standard when operating abroad and subsequently refuses to hold them accountable for those actions. . . .

The doctrine of forum non conveniens is obsolete in a world in which markets are global and in which ecologists have documented the delicate balance of all life on this planet. The parochial perspective embodied in the doctrine of forum non conveniens enables corporations to evade legal control merely because they are transnational. This perspective ignores the reality that actions of our corporations affecting those abroad will also affect Texans.
Although DBCP is banned from use within the United States, it and other similarly banned chemicals have been consumed by Texans eating foods imported from Costa Rica and elsewhere. See D. Weir & M. Schapiro, Circle of Poison 28-30, 77, 82-83 (1981). In the absence of meaningful tort liability in the United States for their actions, some multinational corporations will continue to operate without adequate regard for the human and environmental costs of their actions. This result cannot be allowed to repeat itself for decades to come. [786 S.W.2d at 681, 687, 689.] 

In response, Justice Gonzalez argued in dissent:

Under the guise of statutory construction, the court today abolishes the doctrine of forum non conveniens in suits brought pursuant to section 71.032 of the Civil Practice and Remedies Code. This decision makes us one of the few states in the Union without such a procedural tool, and if the legislature fails to reinstate this doctrine, Texas will become an irresistible forum for all mass disaster lawsuits. See generally, Note, Foreign Plaintiffs and Forum Non Conveniens: Going Beyond Reyno, 64 Tex. L. Rev. 193 (1985). “Bhopal”-type litigation, with little or no connection to Texas, will add to our already crowded dockets, forcing our residents to wait in the corridors of our courthouses while foreign causes of action are tried. I would hold that section 71.031 of the Texas Civil Practice and Remedies Code does not confer upon foreign litigants an absolute right to bring suit in Texas. Because I believe that trial courts have the inherent power to apply forum non conveniens in appropriate cases, I would provide guidelines and set parameters for its use. I would thus modify the judgment of the court of appeals and remand the cause to the trial court for further proceedings.

This cause of action arose in Costa Rica where certain Costa Rican agricultural workers suffered injuries allegedly as a result of exposure to a pesticide manufactured by the defendants. The injured workers are seeking to enforce in Texas courts claims for personal injuries that occurred in Costa Rica. Several suits involving many of the same plaintiffs and essentially the same defendants have previously been filed in the United States and then dismissed on forum non conveniens grounds. . . .

In conclusion, I have no intent, much less “zeal,” to implement social policy as Justice Doggett charges. That is not our role. It is clear that if anybody is trying to advance a particular social policy, it is Justice Doggett. I admire his altruism, and I too sympathize with the plight of the plaintiffs. However, the powers of this court are well-defined, and the sweeping implementations of social welfare policy Justice Doggett seeks to achieve by abolishing the doctrine of forum non conveniens are the exclusive domain of the legislature. [786 S.W.2d at 690, 697.]

NOTES AND QUESTIONS

1. The pesticide DBCP to which the plaintiffs were exposed had been banned in the United States since 1977. The history behind this ban is told in Davis, When Smoke Ran Like Water 195-200 (2002).

2. Do you agree with Justice Doggett’s claim that forum non conveniens is an obsolete doctrine in a world of global markets? A court’s decision to invoke the doctrine to avoid hearing a case is often determinative of the outcome. In a portion of his concurring opinion not reproduced here, Justice Doggett cited a study that concluded that fewer than 4 percent of cases dismissed by
American courts pursuant to the doctrine of forum non conveniens ever are litigated in foreign courts. Robertson, Forum Non Conveniens in America and England: “A Rather Fantastic Fiction,” 103 Law Q. Rev. 398, 419 (1987). After the Bhopal litigation was rejected by courts in the United States, the Supreme Court of India approved a settlement in 1989 that barred all actions against Union Carbide, the owner of the plant involved in the Bhopal tragedy, in return for a payment of $470 million to compensate the victims. Efforts to overturn the settlement have not been successful. More than 3,000 people were killed and more than 100,000 were injured by the gas leak.

3. Should foreign plaintiffs be permitted to forum shop in search of the most favorable court to hear their claims? In his dissent, Justice Gonzalez noted that the plaintiffs in Alfaro previously had filed three lawsuits that had been dismissed by courts in other states on forum non conveniens grounds—two in Florida federal courts and one in a federal court in California.

4. Foreigners can be sued in U.S. courts if it is reasonably foreseeable that actions they take outside the United States will cause harm here. See Ohio v. Wyandotte Chemicals Corp., 401 U.S. 493 (1971).

5. It is easy to understand why the Costa Rican plaintiffs preferred a U.S. forum for their claims. Under Costa Rican law they would have been limited to recoveries of no more than $1,500 each. Developments in the Law—International Environmental Law, 104 Harv. L. Rev. 1484, 1618 (1991). The Alfaro decision may have opened the door to similar lawsuits on behalf of foreigners allegedly injured by U.S. corporations. In October 1991, a toxic tort suit was filed against a company in Brownsville, Texas, on behalf of a group of more than 60 Mexican children who are deformed or retarded. McClintock, In Matamoros, Residents’ Rage at Polluting U.S.-Owned Companies Is Growing, Baltimore Sun, Jan. 19, 1992, at A8.

6. The Alfaro case was settled shortly before it was scheduled to go to trial in Texas state court in August 1992. Terms of the settlement were not disclosed, but plaintiffs are thought to have received close to $50 million. One factor leading to the settlement was the plaintiffs’ concern that the Texas legislature or supreme court would overturn Alfaro and reinstate the forum non conveniens doctrine in Texas. The business community expected a change in the membership of the Texas Supreme Court to reinstate the doctrine. When that did not occur, overturning Alfaro through legislation became the business lobby’s top priority for the 1993 legislative session. In February 1993, the Texas legislature passed a bill reinstituting the forum non conveniens doctrine. The legislation took effect on September 1, 1993. Ironically, after Alfaro was decided by the Texas Supreme Court, but before the new legislation was enacted, Exxon moved its corporate headquarters from New York to Texas.

7. The Alfaro case was not the end of tort suits against U.S. chemical companies by foreign banana workers exposed to DBCP. In May 1997, Shell, Dow Chemical Co., and Occidental Chemical Corp. settled a class action filed on behalf of 13,000 banana workers in the Philippines, Honduras, Nicaragua, Ecuador, Guatemala, and Costa Rica who allegedly became sterile or suffered other health problems as a result of exposure to DBCP. Although the companies maintained that any harm to the workers was caused by misuse of the pesticide, they agreed to create a $41.5 million fund to compensate the workers. The first payments from the fund were received by the workers in December 1997. Filipino Workers Receive Compensation from Banana Pesticide Settlement Fund, Wall St. J., Dec. 12, 1997, at B9C. Workers who suffered health problems received...
between $800 and $5,000, depending on the seriousness of their problems. Workers unable to document health problems, but who could show they were exposed to DBCP were to receive $100 each. While these payments are small by U.S. standards, the average daily wage of a Filipino banana worker is approximately $4.60.

8. Several other lawsuits have been brought against U.S. corporations for alleged environmental torts committed in other countries. In the case below, a resident of Indonesia sued mining companies that allegedly discharged 100,000 tons of tailings per day in several rivers, rendering them unusable for bathing and drinking.

Beanal v. Freeport-McMoran, Inc.
197 F.3d 161 (5th Cir. 1999)

Before King, Chief Judge, and Smith and Stewart, Circuit Judges. Carl E. Stewart, Circuit Judge:


Alien Tort Statute

Beanal claims that Freeport engaged in conduct that violated the Alien Tort Statute (the “ATS” or “§1350”). Under §1350:

The district courts shall have original jurisdiction of any civil action by an alien for a tort only, committed in violation of the law of nations or a treaty of the United States.

Section 1350 confers subject matter jurisdiction when the following conditions are met: (1) an alien sues, (2) for a tort, (3) that was committed in
violation of the “law of nations” or a treaty of the United States. See Kadic v. Karadzic, 70 F.3d 232, 238 (2d Cir. 1995). Beanal does not claim that Freeport violated a United States treaty. Thus, the issue before us is whether Beanal states claims upon which relief can be granted for violations under the “law of nations,” i.e., international law. . . . The law of nations is defined by customary usage and clearly articulated principles of the international community. One of the means of ascertaining the law of nations is “by consulting the work of jurists writing professedly on public law or by the general usage and practice of nations; or by judicial decisions recognizing and enforcing that law.” See Carmichael, 835 F.2d at 113 (citing United States v. Smith, 18 U.S. (5 Wheat.) 153, 160-61, (1820)), see also Kadic, 70 F.3d at 238; Filartiga v. Pena-Irala, 630 F.2d 876, 880 (2d Cir. 1980). Courts “must interpret international law not as it was in 1789, but as it has evolved and exists among the nations of the world today.” Kadic, 70 F.3d at 238; Filartiga, 630 F.2d at 881. Although Beanal’s claims raise complex issues of international law; nonetheless, the task before us does not require that we resolve them. We are only required to determine whether the pleadings on their face state a claim upon which relief can be granted. . . .

**Environmental Torts and Abuses**

Beanal argues that Freeport through its mining activities engaged in environmental abuses which violated international law. In his Third Amended Complaint, Beanal alleges the following:

FREEPORT, in connection with its Grasberg operations, deposits approximately 100,000 tons of tailings per day in the Aghwagaon, Otomona and Akjwa Rivers. Said tailings have diverted the natural flow of the rivers and have rendered the natural waterways of the plaintiff unusable for traditional uses including bathing and drinking. Furthermore, upon information and belief, the heavy metal content of the tailings have and/or will affect the body tissue of the aquatic life in said rivers. Additionally, tailings have blocked the main flow of the Ajkwa River causing overflow of the tailings into lowland rain forest vegetation destroying the same.

Third Amended Complaint P 13.

FREEPORT in connection with its Grasberg operations has diverted the aforementioned rivers greatly increasing the likelihood of future flooding in Timika, the home of the plaintiff, TOM BEANAL.

Id. P 14.

FREEPORT, in connection with its Grasberg mining operations has caused or will cause through the course of its operations 3 billion tons of “overburden” to be dumped into the upper Wanagon and Carstensz creating the likely risk of massive landslides directly injurious to the plaintiff. Furthermore, said “overburden” creates acid rock damage which has created acid streams and rendering the Lake Wanagon an “acid lake” extremely high in copper concentrations,

Id. P 15.

However, Freeport argues that Beanal’s allegations of environmental torts are not cognizable under the “law of nations” because Beanal fails to show that
Freeport’s mining activities violate any universally accepted environmental standards or norms. Furthermore, Freeport argues that it would be improper for a United States tribunal to evaluate another country’s environmental practices and policies. The district court conducted a thorough survey of various international law principles, treaties, and declarations and concluded that Beanal failed to articulate environmental torts that were cognizable under international law.


Nevertheless, “[i]t is only where the nations of the world have demonstrated that the wrong is of mutual and not merely several, concern, by means of express international accords, that a wrong generally recognized becomes an international law violation in the meaning of the [ATS].” Filartiga, 630 F.2d at 888. Thus, the ATS “applies only to shockingly egregious violations of universally recognized principles of international law.” See Zapata v. Quinn, 707 F.2d 691, 692 (2d Cir. 1983) (per curiam). Beanal fails to show that these treaties and agreements enjoy universal acceptance in the international community. The sources of international law cited by Beanal and the amici merely refer to a general sense of environmental responsibility and state abstract rights and liberties devoid of articulable or discernable standards and regulations to identify practices that constitute international environmental abuses or torts. Although the United States has articulable standards embodied in federal statutory law to address environmental violations domestically, see The National Environmental Policy Act (42 U.S.C. §4321 et seq.) and The Endangered Species Act (16 U.S.C. §1532), nonetheless, federal courts should exercise extreme caution when adjudicating environmental claims under international law to insure that environmental policies of the United States do not displace environmental policies of other governments. Furthermore, the argument to abstain from interfering in a sovereign’s environmental practices carries persuasive force especially when the alleged environmental torts and abuses occur within the sovereign’s borders and do not affect neighboring countries. Therefore, the district court did not err when it concluded that Beanal failed to show in his pleadings that Freeport’s mining activities constitute environmental torts or abuses under international law.

5. Sands features three environmental law principles: (1) the Polluter Pays Principle; (2) the Precautionary Principle; and (3) the Proximity Principle.

6. Although Beanal cites the Rio Declaration to support his claims of environmental torts and abuses under international law, nonetheless, the express language of the declaration appears to cut against Beanal’s claims. Principle 2 on the first page of the Rio Declaration asserts that states have the “sovereign right to exploit their own resources pursuant to their own environmental and developmental policies,” but also have “the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment or other States or areas beyond the limits of national jurisdiction.” Beanal does not allege in his pleadings that Freeport’s mining activities in Indonesia have affected environmental conditions in other countries.
NOTES AND QUESTIONS

1. Why does the court reject the notion that the principles outlined in the Rio Declaration provide the kind of universal norms a violation of which could be subject to a remedy under the Alien Tort Statute? For a discussion of the history of the Alien Tort Claims Act and efforts to apply it to remedy environmental abuses see Richard L. Herz, Litigating Environmental Abuses Under the Alien Tort Claims Act: A Practical Assessment, 40 Va. J. Int’l L. 522 (2000). Assuming that the practices Beanal complains about would not have been permissible under the law of the United States, why does the court reject his claim?

2. Would it have made a difference to Beanal’s case if he had been able to allege that pollution caused by the mining companies was having an adverse effect on people or property in another country? Why or why not?

3. Following the Fifth Circuit’s decision, the very kind of harm feared by plaintiffs in the Beanal litigation occurred. The plaintiffs had alleged that overburden dumped by the company’s Grasberg mining operation created a risk of landslides that threatened them. On May 4, 2000, a rock-waste containment for the overburden collapsed, causing an adjoining water basin to overflow, killing four workers and spilling waste and water into the Wanagon Valley. Jay Solomon, U.S. Mining Firm, Indonesia at Odds over Latest Spill, Wall St. J., May 8, 2000, at A30. The Indonesian Ministry of Environmental Affairs stated that it had “warned Freeport a long time ago” about the dangers of its waste containment, but that the company had not acted to correct the problem. Id. On May 24, 2000, Freeport agreed not to continue placing overburden in the Wanagon basin and to temporarily limit production at its Grasberg open pit to an average of no more than 200,000 metric tons of ore per day pending completion of studies concerning how to prevent future spills.

4. On June 20, 2001, the Exxon/Mobil Corporation was sued in federal district court in Washington, D.C., by the International Labor Rights Fund, which represents eleven villagers from Aceh, Indonesia. Doe v. Exxon/Mobil Corporation, No. 01-CV-1357 (D.D.C.). The lawsuit seeks to hold Exxon Mobil accountable for human rights abuses by Indonesian soldiers guarding the company’s oil facilities in Indonesia. It alleges that the company bought military equipment and paid mercenaries who have assisted Indonesian security forces in efforts to crush dissent by torturing and assaulting villagers. Exxon denies responsibility for the behavior of the Indonesian military and says that it condemns the violation of human rights in any form. In 2006 the court refused to dismiss the case despite a State Department claim that it could have a “seriously adverse impact on significant interests of the United States, including interests related directly to the ongoing struggle against international terrorism.”

5. In Jota v. Texaco, Inc., 157 F.3d 153 (2d Cir. 1998), the Second Circuit reversed the dismissal of a lawsuit against a U.S.-based multinational oil company for environmental damage its oil drilling operations caused in the rain forests of Ecuador. The company argues that its operations were approved by the government of Ecuador and that it did not violate any Ecuadorian laws. The plaintiffs argued that the oil company knew that its practices would cause substantial environmental damage and that it never would have operated in that manner in the United States or another developed country. The Second Circuit held that the district court should not have dismissed the lawsuit on grounds of forum non conveniens without at least requiring the company to submit to Ecuador’s jurisdiction. In Aguinda v. Texaco, Inc., 303 F.3d 470 (2d Cir. 2002), the court
affirmed the subsequent dismissal of this suit on *forum non conveniens* grounds conditioned on Texaco waiving statute of limitations defenses in Ecuador.

6. In *Flores v. Southern Peru Copper Corp.*, 414 F.3d 233 (2d Cir. 2003), the Second Circuit affirmed the dismissal of a lawsuit brought by residents of Peru under the Alien Tort Statute (ATS) against a U.S. company operating a copper smelter in their neighborhood. The court held that the plaintiffs’ allegations that uncontrolled emissions from the smelter injured their health and threatened their lives did not rise to the level of a violation of the “law of nations” as required to state a case under the ATS because it only involved “intranational pollution.”

7. **Doe v. Unocal Settlement and Sosa v. Alvarez-Machain Decision.** A settlement was announced in December 2004 in an important Alien Tort Statute (ATS) case that had been reargued en banc in the U.S. Court of Appeals for the Ninth Circuit. The case was filed by 15 Burmese villagers as a class action in federal district court against the Unocal Corporation. Unocal is building a 416-mile gas pipeline in the Yadana region of Burma, beginning underwater, continuing on land through the Tenasserim region, and ending at a new power plant in Thailand. The lawsuit alleged that the Unocal Corporation should be held liable for forced labor, murder, rape, and torture inflicted on natives of Burma by the country’s military in the course of construction of the pipeline. Unocal argued that it is improving Burmese lives by providing schools, electricity, and new roads, plaintiffs alleged that hundreds of Burmese villagers have been abused by military officials during pipeline construction. The villagers sought damages for past injuries, slave trading practices, and gross human rights violations inflicted upon them and asked the court to stop further pipeline development in the region. After the district court dismissed the lawsuits, the plaintiffs appealed to the Ninth Circuit. A panel of the Ninth Circuit held in September 2002 that Unocal could be found liable under the ATS for aiding and abetting the military’s actions if the plaintiffs’ allegations were found to be true at trial. In February 2003, the Ninth Circuit vacated the panel’s decision and agreed to rehear the case en banc. The case was argued before the en banc court on June 17, 2003, with the U.S. government supporting dismissal of the lawsuits. Doe v. Unocal Corp., Nos. 00-56603, 00-56628, 00-57195, 00-57197 (9th Cir.). Before the Ninth Circuit could issue a decision in the case, the settlement was reached. While the terms of the settlement are confidential, Unocal announced that it “will compensate plaintiffs and provide funds enabling plaintiffs and their representatives to develop programs to improve living conditions, health care and education and protect the rights of people from the pipeline region.”

The Ninth Circuit had held off on deciding Doe v. Unocal pending the U.S. Supreme Court’s decision in *Sosa v. Alvarez-Machain*, 542 US. 692 (2004). In *Sosa* the Supreme Court rejected an effort by a Mexican national to recover against the federal government and agents of the U.S. Drug Enforcement Agency for abducting him and forcibly taking him to the United States for trial on charges of murdering a DEA agent, a crime for which he later was acquitted. The Court held that the U.S. government was immune from liability under the “foreign country” exception to the Federal Tort Claims Act. It also held that a single illegal detention of less than one day prior to transferring the Mexican citizen to lawful authorities in the United States did not violate any norm of customary international law that is so well defined as to give rise to a cause of action under the Alien Tort Statute (ATS). The Court’s decision narrowed the range of cases that may be brought under the ATS, while not entirely
foreclosing them. The Court interpreted the ATS as a jurisdictional statute that creates no new causes of action, but it noted that courts could recognize private causes of action for certain torts in violation of the law of nations. However, it cautioned that courts should exercise caution in allowing such actions by not recognizing claims under federal common law for violations of any international law norm with less definite content and acceptance among civilized nations than those familiar when the ATS was enacted in 1789.

D. INTERNATIONAL DEVELOPMENT POLICY AND THE ENVIRONMENT

Environmentalists have been urging international development policy to shift to a model of “sustainable development” that respects the absorptive and regenerative capacities of ecosystems. Sustainable development is development that occurs on a scale that does not exceed the carrying capacity of the biosphere. While it is difficult to define, the concept has been valuable as a broad goal for shaping environmental policy debates. See The Role of Law in Defining Sustainable Development, 3 Widener L. Symp. J. 1 (1998). Efforts to move development policy toward sustainability have focused on influencing federal agencies and international financial institutions.

1. Multilateral Development Banks

The World Bank made more than $20 billion in loans in FY 2004. While much smaller than private financial flows, the influence of the World Bank and the smaller regional development banks on the financing of international development projects greatly exceeds their direct lending, which serves as a catalyst for attracting funding from other sources. These projects have historically included construction of large dams, clearing of large forest areas, and other activities with major environmental impact. Until the early 1990s, lending was done with minimal environmental review and even less public input.

The multilateral development banks (MDBs) are run by boards of governors composed of representatives from member countries with voting power based on each country’s respective financial contribution to the bank. A board of executive directors has substantial delegated authority over significant policy decisions subject to approval of the board of governors. The MDBs are becoming aware of environmental concerns, in part because environmental organizations in the United States and Europe have been able to focus greater public attention on the disparity between environmental requirements in developing countries and those established by European and U.S. law.

With the dramatic increase in private financing directed to developing nations, the role of the World Bank has increasingly been questioned. Countries with open markets and attractive policy environments can obtain private financing on terms as attractive as those from the Bank, and without being subjected to politically sensitive policy dialogues or public scrutiny. Countries without open markets and supportive policies may not be good candidates for Bank loans. In response, the Bank has attempted to demonstrate its continued
relevance to global needs in numerous ways, not all necessarily compatible. As reflected in its 1999 Annual Report, the Bank now emphasizes that its core mission is not generalized growth but poverty alleviation. To achieve this goal, more attention is being given to the “software” of development—training, technical assistance, and institution building more often associated with UN agencies. Other priorities include combating corruption, working with NGOs, and in general responding more directly to country priorities (which rarely include climate change and other global environmental concerns). While not the highest priority, environmental issues have also received increased attention. The World Bank’s environmental experts rose from a handful in 1990 to more than 300 in 1999, and environment was made the subject of its own department. Summarizing these changes, an article in an environmental newspaper was aptly headlined “The Kinder, Softer, Leaner, Tougher, More Transparent, Environmentally Sensitive, Corruption-Busting World Bank.” Earth Times, Sept. 16-30, 1999, at 13 (available at www.earthtimes.org). Environmental initiatives at the World Bank are reported annually in the publication Environment Matters, available at the World Bank’s website at www.worldbank.org.

Seymour & Dubash, World Bank’s Environmental Reform, Agenda Foreign Policy in Focus 1-2 (March 1999)

Environmental concerns have been at the leading edge of a movement to reform the World Bank over the past 15 years. The bank has come under fire for financing a series of environmentally damaging projects, including dams on the Narmada River in India, transmigration in Indonesia, and road building into the Brazilian Amazon. These projects have led to a variety of adverse impacts in borrower countries, including deforestation and displacement of indigenous peoples.

In response to criticism voiced by environmental advocates and amplified through the U.S. Congress, the World Bank adopted policies and procedures in the late 1980s and early 1990s to assess and mitigate the adverse environmental impacts of individual projects. These reforms included mandatory environmental assessment procedures and the public disclosure of these assessments in advance of project approval. In addition, the bank’s board of executive directors has mandated a series of sector-specific policies to guide World Bank investment in such areas as forestry and energy. For example, the bank’s forestry policy prohibits the institution from financing logging in primary tropical forests.

Frustration with the World Bank’s lack of vigilance in applying the new policies and procedures led environmental advocates to pursue a second generation of reforms in the early 1990s focusing on increasing the transparency and accountability of lending operations. Again, conditions set by the U.S. Congress were crucial in pressuring bank management to agree to these reforms. As a result, the World Bank must now comply with an information disclosure policy governing the timing and content of documents released to the public. Moreover, the bank’s actions are subject to review by an independent inspection panel established to investigate claims of those alleging that they were harmed by the bank’s failure to abide by its own policies.
Along with these policy reform efforts, the World Bank has pursued structural changes and investment strategies intended to demonstrate its commitment to environmentally sustainable development. A separate environmental unit created in the 1980s has evolved into a vice-presidency for Environmentally and Socially Sustainable Development (ESSD) in the 1990s. The bank has recruited staff with technical environmental credentials to supplement the institution’s professional core, which is overwhelmingly dominated by economists. By the mid-1990s, these staff had begun to develop a portfolio of environment-sector projects, ranging from support for national environmental agencies to investments in national parks.

These achievements have engendered a sense of complacency in official circles—including bank management and member governments—regarding the urgency of the World Bank’s environmental reform agenda. In fact, World Bank President Wolfensohn’s much touted “Strategic Compact” with the bank’s board in 1997 did not feature environmental performance as a priority objective for improvement.

At the same time, the World Bank has evidenced a growing confidence in its ability to provide global leadership on environmental issues. In 1998, President Wolfensohn convened logging industry leaders from around the world to promote a shift to sustainable forestry practice. In the climate change arena, World Bank staffers have proposed a Prototype Carbon Fund, through which the bank would broker investment flows between industrialized and developing countries tied to reducing greenhouse gas emissions. Critics question the bank’s legitimacy as an environmental leader, given its own poor performance record, its failure to mainstream environmental objectives into its lending portfolios, and its failure to engage key constituencies in borrower countries. The moment is clearly ripe for a reassessment of the World Bank’s environmental reform agenda.

Despite the achievements highlighted above, the World Bank’s mitigation-oriented, “do no harm” approach to the environment has had mixed results on its own terms and has failed to transform the institution into an agent of environmentally sustainable development. In fact, many environmental advocates fear that the World Bank is currently in a period of retrenchment from its environmental commitments. As evidence, they cite the disempowerment of environmental staff through recent reorganizations, the watering down of environmental policies through a recent reformatting exercise, and a proposed reconsideration of the bank’s forestry policy in 1999. Moreover, they note that the bank’s lending portfolio continues to include environmentally destructive projects, particularly in the energy sector.

A decade after the adoption of much-needed environmental policies and procedures, there continue to be significant lapses in the application of policy reforms. A recently published history of the World Bank characterized its environmental reforms as efforts to deflect outside criticism, not as significant changes in the bank’s internal incentives or performance. The bank’s continuing consideration of a major oil pipeline project in West Africa, despite the opposition of most internal environmental specialists, indicates that lending imperatives tied to traditional models of economic growth continue to outweigh environmental considerations.

The World Bank’s project-by-project approach to environmental issues has also failed to address the fundamental choices faced by borrowers in determining which development path to follow. An internal review of the bank’s
environmental assessment procedures concluded that it has insufficiently considered alternative ways of meeting development goals. As it is, the bank’s focus is usually on mitigating the impacts of its original project designs rather than exploring more environmentally sustainable ways of achieving project objectives. For example, environmental assessments of coal-fired power plants focus on technical methods for reducing the emissions of such plants rather than alternative ways of meeting demand for electricity or active management of that demand.

Environmental assessment procedures have not yet been adequately developed or implemented at the ecosystem, sectoral, or economy-wide levels. For example, in 1996 the World Bank failed to consider the likely impacts of rural road improvement on biologically rich forests as part of its transport sector loan to Cameroon. The narrow focus of the bank is also evident in its structural adjustment loans, which, in addition to increasing poverty, often provide incentives that accelerate natural resource exploitation, while forcing governments to cut budgets for social services and environmental protection. The World Bank’s Country Assistance Strategies, which provide a framework for policy advice and lending portfolios, tend not to highlight environmental issues or identify possible strategies to address environmental degradation.

Another problem is the tendency of many environmental advocates, both inside and outside the World Bank, to focus disproportionate attention on the merits of specific projects and on addressing international environmental issues such as biodiversity conservation and climate change at the global level. Though these efforts are important, they too often overshadow the need for the bank to address environmental issues more strategically through development of progressive investment portfolios and promotion of policy reform in individual borrower countries. For example, although it is important that the U.S. executive director on the World Bank’s board vote against environmentally damaging projects, this is not sufficient to change the “upstream” dynamic that generates such projects in the first place.

Despite promises to mainstream environmental awareness into its overall lending program, the World Bank suffers from a credibility deficit. Its legacy of support for environmentally destructive projects and devastating structural adjustment programs has undermined its legitimacy as a proponent of environmental objectives. This credibility problem is evident in Indonesia, where the bank is attempting to promote forestry sector reform in the context of adjustment lending. Previous loans and grants to the Ministry of Forestry under the Suharto regime, allegations that the bank ignored that regime’s corruption, and the inclusion of a Suharto crony in Wolfensohn’s meeting of timber industry leaders all make it difficult for the World Bank to be accepted as a sincere proponent of forestry sector reform. Internationally, the bank’s credibility as an advocate of climate protection has been undermined by its failure to redirect its own energy and transport sector lending portfolios away from fossil fuels and toward alternative investments in renewables and energy efficiency.

**NOTES AND QUESTIONS**

1. Although it has declined dramatically relative to total financial flows, multilateral and nationally supported lending to developing countries still exerts significant influence on the economies of most developing nations.
The United States and other industrialized nations provide insurance and guarantees through agencies like the Export-Import Bank to facilitate exports. By some estimates, such policies support about 10 percent of foreign investment in developing nations, including some of the most controversial projects like the Three Gorges Dam in China. Miller, Environmental Policy in the New World Economy, 3 Widener L. Symp. J. 287, 306 (1998). The indirect stimulus to investment created by such programs may be even greater as the presence of multilateral banks and export credit agencies legitimizes projects for other investors.

2. World Bank policy is largely controlled by a 21-member board, on which each country’s influence is roughly proportional to its financial contribution. As a consequence, no country or small group of countries has a veto; this effectively insulates the Bank from short-term political intervention, but it also impedes attempts at reform. The Bank was also traditionally very restrictive about disclosures of project and loan information. Although it is not subject to the Freedom of Information Act or similar requirements of U.S. law, the Bank has begun to make itself more accessible to public scrutiny, as noted above. These actions respond in part to environmentalists’ criticisms, as articulated in Wirth, Legitimacy, Accountability, and Partnership: A Model for Advocacy on Third World Environmental Issues, 100 Yale L.J. 2645, 2664 (1991); and Rodgers, Looking a Gift Horse in the Mouth: The World Bank and Environmental Accountability, 3 Geo. Int’l Envtl. L. Rev. 457 (1990).

3. In December 1989, the International Development and Finance Act, 103 Stat. 2492 (1989), was enacted by Congress. The Act requires U.S. executive directors of MDBs to refrain from voting in favor of projects with a major effect on the environment unless an environmental assessment has been performed at least 120 days in advance of the vote. This legislation and other amendments to foreign aid laws require the U.S. representatives to the MDBs to promote the hiring of trained environmental staff, to develop and implement management plans to ensure environmental review of projects, to involve citizens’ and indigenous peoples’ organizations in project planning, and to increase the proportion of lending to environmental projects, including integrated pest management, solar energy, and small-scale mixed farming. 22 U.S.C. §§2621(a), (k). The Agency for International Development (AID) is further directed to analyze environmental impacts of proposed multilateral development loans and, where substantial adverse impacts are found, to ensure a public investigation. 22 U.S.C. §262(m)(2)(A). Since 1989, the World Bank has required that an environmental assessment be prepared for virtually all major projects. World Bank Operational Directive 4.00 (1989). In 1991, the Bank broadened this directive to require consultation with nongovernmental organizations and the public in preparation of such assessments. World Bank Operational Directive 4.01 (1991). See Scott, Making a Bank Turn, 1992 Envt’l Forum 21 (Mar.-Apr. 1992). Are these provisions enforceable through litigation by environmental groups? Do they provide any assurance that the U.S. position will prevail? Critics of these provisions argue that they inject politics into World Bank decision making in violation of Article IV of the Bank’s Articles of Agreement, which states that “[o]nly economic considerations shall be relevant” to such decisions.

4. What role, if any, should the World Bank and other MDBs have with respect to climate change? Insofar as developing countries are not obligated to reduce their emissions under the Kyoto Protocol, developing countries may
question the appropriateness of efforts to impose additional costs or otherwise require their response to climate change. On the other hand, the Convention requires all parties to prepare inventories of emissions and to prepare mitigation programs, many developing countries have voluntarily adopted laws and policies to promote clean energy, and lenders as well as recipient countries have reason to identify and modify investments that may be at risk from climate change. The World Bank has also taken an active role in developing the carbon market on behalf of donor governments, and as of 2005 is the largest buyer of carbon credits. Critics also have proposed that the MDBs do more to quantify and report the carbon emissions associated with their investments. Sohn, Nakhooda & Baumert, Mainstreaming Climate Change Considerations at the Multilateral Development Banks (WRI Issue Brief, 2005). The 2005 G8 Communiqué also identified a role for the World Bank in facilitating a dialogue with large developing countries concerning opportunities for emission reductions. In 2004 the World Bank adopted a growth target of 20 percent per year for five years for its investments in renewable energy and energy efficiency improvements. World Bank Group, World Bank Group Progress on Renewable Energy and Energy Efficiency: 1990-2004.

5. A related issue is the appropriate role for environmental analysis and standards when the MDBs facilitate investment through financial intermediaries. As the role of the Banks is less direct, typically providing commercial credit or guarantees to facilitate project finance or the development of domestic financial markets, the extent of their responsibility is one-step removed. In general, environmental standards for such lending have tended to become more stringent. See Curmally, Sohn & Wright, Multilateral Development Bank Lending Through Financial Intermediaries: Environmental and Social Challenges (2005). This influence is also evident in the behavior of many private banks investing in developing countries, a topic discussed below (see pages 1124-1125).

6. In July 2005 James Wolfensohn retired as President of the World Bank Group. Wolfensohn was widely credited with increasing the transparency of Bank operations, expanding the role of the Bank to encompass a much wider range of social, health, and environmental concerns, and actively seeking engagement with civil society. The scope and impact of his efforts continues to be debated. See, e.g., Sebastian Mallaby, The World’s Banker (2004). Wolfensohn was succeeded by Paul Wolfowitz, who had been the U.S. Deputy Defense Secretary and a key architect of the Iraq war.

7. The World Bank and other international financial institutions must walk a narrow line in supporting resource development in poor countries with significant financial needs but weak governance, a combination frequently associated with mining and resource extraction in Africa. The World Bank attempted to create a model for transparency and effective oversight of resource revenues, including prohibitions on redirecting funds to military purposes, in support for an oil pipeline through Chad and Cameroon. The loan had to be suspended when the government of Chad openly announced its intention to use funds for purposes contrary to the agreement. Another loan for mining in Ghana was described by Bank managers as “expected to become a demonstration for how to handle environmental, social and community development issues.” According to a Bank official, the mining company did not need the loan but wanted the stamp of approval that went with meeting the Bank’s environmental and social standards. Duggar, “Loan for Foreign Mining in Ghana Approved,” N.Y. Times, Feb. 1, 2006.
2. The Global Environment Facility

The Global Environment Facility (GEF) was initially created as a pilot program by the World Bank in November 1990. H. Sjöberg, From Idea to Reality: The Creation of the Global Environment Facility (1994). The GEF seeks to promote multilateral funding for environmentally desirable projects. The Fund, which was established with contributions of more than $1.5 billion, is designed to enhance the attractiveness of investments with environmental benefits that fail to meet traditional lending criteria. Loans are available for projects that address biological diversity, forestry, global warming (including energy efficiency), land degradation and persistent organic pollutants, and ozone depletion (where necessary to supplement the ozone fund).

After completing its initial three-year pilot phase, the GEF was the subject of a detailed and highly critical assessment prepared by an independent evaluation committee to inform decisions about restructuring and further financing. UN Development Programme, UN Environment Programme, and the World Bank, Global Environmental Facility: Independent Evaluation of the Pilot Phase (1994). See also I. Bowles & G. Prickett, Reframing the Green Window: An Analysis of the GEF Pilot Phase Approach to Biodiversity and Global Warming and Recommendations for the Operational Phase (1994); Wells, The Global Environment Facility and Prospects for Biodiversity Conservation, 6 Int’l Envtl. Aff. 69 (1994).

Based on the evaluation, participating governments agreed in March 1994 to restructure the GEF. Twenty-six countries pledged to provide $2 billion for three years. Decisions will now be supervised by a council of 32 nations—18 from recipients and 14 from developed countries. Voting is by a “double majority” system and requires a 60 percent majority of both the participating governments and GEF “shareholders” (with shares awarded in proportion to each country’s financial contribution). The future of the GEF grows increasingly important, as it becomes the financial mechanism of choice for implementing environmental agreements including the climate and biodiversity conventions. H. French, Partnership for the Planet 24-28 (1995). H. Sjöberg, Restructuring the Global Environment Facility (1999). In 2002, the donors agreed to further replenish the GEF with an additional $3 billion for four years.

Horta, In Focus: Global Environment Facility

Foreign Policy in Focus 1-3 (Dec. 1998)

The establishment of the GEF prior to the 1992 United Nations Conference on Environment and Development (UNCED), commonly known as the Rio Earth Summit, effectively preempted alternative proposals for a green fund which some Southern governments were expected to present in Rio. Because they had no role in its creation, many Southern governments now feel ambivalent about the GEF, although they will accept whatever financial resources may be made available through the facility. At the Rio summit, Southern nations were presented with an already established GEF with a $1 billion core fund, which donor governments promised to make available in addition to their ongoing development assistance programs.
The Rio summit produced a global action plan called Agenda 21. This ambitious plan to make development environmentally, socially, and economically sustainable stipulated that Northern nations had to increase their aid flow to the South. According to the plan, the North would provide $141 billion annually in grants and low-interest loans in the 1993-2000 period to foster sustainable development. This aid would, among other things, facilitate the North-South transfer of environmental technologies. But the promise of Agenda 21, though initially hailed as a major advance in international environmental cooperation, has fallen short—mainly because it never received the backing of the United States. Other donor countries, pointing to the failure of the U.S. to take the lead and meet its share of Agenda 21 obligations, have also failed to increase their assistance to the South.

The creation of the GEF prior to the Rio Earth Summit allowed the U.S. and its G-7 partners to define global environmental problems as they perceived them and to establish the limits and scope of their responsibilities in assisting developing countries. Furthermore, the existence of the GEF has proved a convenient way for the G-7 nations to sidestep the more ambitious North-South funding plan outlined in Agenda 21.

**Problems with Current U.S. Policy . . .**

Numerous problems beset Washington’s policy with respect to the GEF. These include the U.S. failure: (1) to pay its assessed contribution, (2) to insist on the implementation of environmental reforms by the World Bank and the GEF’s Implementing Agencies (primarily the World Bank), and (3) to ratify the Kyoto Protocol of the UN Biodiversity Conservation Convention and the Kyoto Protocol of the Climate Change Convention.

With support from its German counterparts, the French government launched the GEF proposal as a way of responding to growing domestic pressure to do something about the global environment. With less of a domestic constituency for international environmental efforts, the U.S. government was initially reluctant to accept the Franco-German proposal. The U.S. government knew that making a financial commitment to a new international entity would be fraught with difficulties given congressional reluctance to authorize funding to cover U.S. arrears with the UN. In addition, the administration was aware that any attempt to obtain replenishment funds for international financial institutions like the World Bank would be subject to extensive congressional questioning and delays.

Several key congressional members with seats on important oversight committees together with a few administration officials with years of experience trying to promote environmental reforms in World Bank operations believed that entrusting the World Bank with the management of a fund intended to protect the global environment was tantamount to putting the proverbial fox in charge of the chicken coop. In their view, the World Bank’s massive lending to promote the energy sector and forestry without adequate environmental safeguards made the institution part of the problem in both the climate change and biodiversity areas. Consequently, these congressional members and administration officials felt that the World Bank should first demonstrate the ability to implement environmental reforms in its own operations before undertaking new environmental responsibilities.
But the initial U.S. reluctance to support the GEF was quickly overcome. With preparations for the 1992 UNCED event fully under way and more than one hundred heads of state expected at Rio, endorsement of the GEF was a convenient way of demonstrating environmental leadership. Because the size of the contributions of donor governments to the GEF is based on the size of a country’s economy—a principle known as “burden-sharing”—the U.S. became the GEF's largest donor followed by Japan and Germany.

Congressional conditions on U.S. funding have helped bring about some reforms in the GEF, such as greater public access to information and broader participation by NGOs in both GEF policy discussions and project implementation. But the accumulation of arrears of the U.S. contribution has hampered determined action on the part of the U.S. to obtain more fundamental reforms. When other donor governments threaten to withhold their funding unless the U.S. pays its share, U.S. credibility is hurt. But to achieve further GEF reforms, Washington will need to fulfill its financial obligations.

The greatest problem thus far has been the failure of the implementing agencies (and especially the World Bank) to meet their promises of mainstreaming global environmental goals into their overall programs. The World Bank’s annual lending portfolio of more than $20 billion finances development projects that contribute to the very problems that the GEF seeks to address. What is more, the proposals advocated in the Country Assistance Strategies reports, which are the World Bank’s blueprints for its development financing programs in individual borrowing countries, do not reflect any systematic consideration of the environmental implications of these strategies.

An additional problem for U.S. foreign policy—and a major irony—is that the GEF has been adopted, at least on an interim basis, as the financial mechanism for both the UN Biodiversity Conservation and Climate Change conventions (not yet ratified by the U.S.). As such, one of its principal tasks is to assist countries in implementing their obligations under the conventions.

Finally, U.S. foreign policy with regard to the GEF elicits charges of hypocrisy due to U.S. failure to take determined action at home to reduce the use of fossil fuels and to protect its old-growth forests. Meanwhile, the United States uses the GEF to call on other countries to prevent climate change and conserve biodiversity.

NOTES AND QUESTIONS

1. As of March 2005 the GEF had committed over $5 billion for more than 1,500 projects in 151 countries. GEF Annual Report 2004, available at GEF website www.gefweb.org. An independent evaluation of the GEF is prepared every four years as an input to the negotiation of the GEF replenishment. The most recent is the Third Overall Performance Study 2005, also available at the GEF website.

2. Financial contributions to the GEF are made on the basis of a burden-sharing formula proportional to GDP, with the United States responsible for a little less than 21 percent of the total. As of October 2005, the United States was in arrears due to its failure to make payments of $140 million. Under the GEF Instrument, other parties were allowed to reduce their payments pro rata such that total resources available to the GEF were further reduced. Trustee Report, Oct. 11, 2005 (GEF/C.27/Inf.3), available at the GEF website.
3. GEF support continues to be an important source of incentives for renewable energy and energy efficiency projects. During 2003-2004, the World Bank implemented $489 million of clean energy projects using $104 million of GEF Funds. Sohn, Nakhooda & Baumert, Mainstreaming Climate Change Considerations at the Multilateral Development Banks (World Resources Institute Issue Brief, 2005).

4. The scope of GEF support for global environmental programs continues to expand beyond the original strategies for climate change mitigation and biodiversity. New programs have been added for adaptation to climate change and rehabilitation of coal-burning power plants, and new commitments have been made to support the Convention to Combat Desertification and the Stockholm Convention on Persistent Organic Pollutants. The demand for GEF resources has thus increased considerably, while donor commitment of resources has increased only modestly. Revised Programming Document for GEF 4 (GEF/R.4/27, Nov. 16, 2005).

E. COMPLIANCE AND ENFORCEMENT

As in domestic environmental law, success in international law requires more than agreement on a legal framework; it also requires compliance. In an international regime, the question of compliance presents yet another challenge due to the absence of a centralized enforcement regime. How to respond to this challenge has become the subject of a growing body of investigation. “[A]fter an exciting period of treaty-making and institution-building, international environmental lawyers have now turned to the even more difficult task of building compliance with good laws already made and good institutions already in place.” M. Janis, An Introduction to International Law 234 (1999).

Weiss & Jacobson, Getting Countries to Comply with International Agreements Environment (July/Aug. 1999)

An essential first step in the analysis is to distinguish between implementation, compliance, and effectiveness. Implementation refers to measures that countries take to effectuate international treaties in their domestic law. Most treaties are not self-executing and require national legislation or regulations. Compliance goes beyond implementation. It refers to whether countries in fact adhere to the agreement’s provisions and to the implementing measures that they have instituted. Some obligations are procedural (such as national reporting); others are substantive (such as reducing or phasing out ozone-depleting substances). Moreover, even if the formal obligations are complied with, there may be a question of compliance with the spirit of the convention. Effectiveness is related to compliance, but is not identical. A country may comply with an agreement but the agreement may nonetheless be ineffective at achieving its objectives. . . .
The research confirmed the conventional wisdom that the smaller the number of participants involved, the easier and less expensive it is to regulate and to monitor activity. The striking contrast between the limited number of facilities that produced ozone-depleting substances regulated under the Montreal protocol and the millions of individuals who could engage in illicit trade in endangered species helps to explain why CITES is much more difficult to enforce than the Montreal protocol.

The characteristics of an accord, such as the perceived equity of the obligations, the precision of the obligations, provisions for obtaining scientific and technical advice, monitoring and reporting requirements, implementation and noncompliance procedures, incentives, and sanctions, are important to compliance.

Not surprisingly, for parties to comply with treaties, they must regard the obligations imposed as equitable. The Montreal protocol’s differentiated obligations for industrialized and for developing countries as well as the Montreal Protocol Multilateral Fund to help the latter are essential in convincing developing countries to join the protocol.

Although it is difficult to assess whether a country has complied with an agreement when the obligations are imprecise, stating obligations precisely cannot always override factors that run against compliance. For example, even though the CITES obligations are relatively precise, customs officers find it difficult to identify the subtle differences between species, particularly for flora.

National reporting served as the primary means for monitoring compliance in four of the five treaties studied.

Sole reliance on reporting, however, poses problems. Many parties do not fulfill their reporting obligations and may be unwilling to publicize their own shortcomings. Filing reports also is burdensome for governments, especially for smaller developing countries. The locus of the responsibility for preparing the reports may be unclear. Even larger and richer countries sometimes have difficulty fully complying with reporting requirements.

Incentives and sanctions render additional tools. Giving countries financial or other assistance to help them comply with their obligations under the Montreal protocol helped advance compliance.

The International Environment

The international community’s increasing attention to international environmental issues, including international environmental accords, is one of the most important factors explaining the acceleration in the trend toward improved implementation and national compliance observed in the late 1980s and early 1990s.

The prominence of environmental issues mobilized the worldwide media, roused public opinion, and energized national and international NGOs and the public to put increased pressure on governments to deal with environmental issues. This enhanced implementation and compliance.

Most importantly, having a “leader” country (or countries) was crucial to the negotiation of particular treaties and to compliance with them. For example, the United States enacted laws dealing with its natural heritage, with endangered species, and with ozone-depleting substances and then took the lead in pressing for international treaties that would deal with the same issues and in negotiating the agreements. It also played a leading role in the negotiation of the London Convention of 1972. Later, as the conventions went
into effect (that is, when the required number of states had joined the agreement), the United States and the European Union, because of their economic strength, were in a position to play important roles in promoting treaty compliance.

**Factors Involving the Country**

Countries are at the center of the compliance process and must take the required actions to fulfill their obligations under the treaties. The performance of the eight countries and the European Union in implementing and complying with the five treaties examined in this study differed substantially mainly because of the countries’ varied characteristics. . . .

A country’s administrative capacity is crucial to compliance. Strong administrative capacity generally leads to better implementation and compliance. Administrative capacity correlates with gross national product (GNP). . . .

Citizen monitoring is facilitated by democratic governments more than authoritarian ones because the former are normally more transparent. Citizens can bring pressure to bear for improved implementation and compliance. NGOs generally have more freedom to operate under democratic governments. . . .

At the same time, however, democratic governments are normally more responsive to public opinion than authoritarian governments, and public opinion is not always supportive of environmental concerns. Democratic governments allow conflicts about environmental issues to flare, which may lead to less compliance.

Democratization does not necessarily automatically or quickly lead to improved compliance. Democratization in Brazil and in Russia, however, seems to have contributed to improved compliance for certain agreements. . . .

Individuals make a crucial difference in national implementation and compliance. For example, then Brazilian President Fernando Collor played a major role in having Rio de Janeiro selected as the site for UNCED. Brazil’s compliance with the five treaties improved during his presidency. . . .

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**Zaelke, Stilwell & Young,**

*What Reason Demands: Making Laws Work for Sustainable Development*

**Making Law Work: Environmental Compliance & Sustainable Development**

(Zaelke, Kaniaru & Kruzikova eds., 2005)

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The efforts of various governments and institutions . . . are helping advance the rule of law and good governance. However, these efforts must be further strengthened by increasing the focus on compliance and enforcement. The need to strengthen enforcement and compliance has received some attention at international meetings, but more is required to convert words into action. Many States still lack a sound foundation for the rule of law, and many judicial and legal systems still function poorly. Despite a growing body of environmental law both at the national and international levels, environmental quality and some important social indicators have been declining around the world. One reason for these trends is the inadequate investment in assuring
effective compliance and enforcement, at both the national and international levels. International and national donor agencies should expand their efforts on good governance and rule of law to include an explicit focus on compliance and enforcement.

While the challenges across these levels differ, some notable commonalities exist. Among other things, enhancing compliance requires:

**Strengthening the empirical foundations of compliance.** Effective policies, including those relating to compliance, must be based on a sound empirical foundation. More empirical research is required about the behavior of different actors—states, firms and individuals—in different circumstances. It has been said of compliance at the national level that, “20 percent of the regulated population will automatically comply with any regulation, 5 percent will attempt to evade it, and the remaining 75 percent will comply as long as they think that the 5 percent will be caught and punished.”

Understanding the spectrum of actors in practice, and how to change their behavior, is a key task in conducting empirical research and in enforcing compliance. . . .

**Applying new analytical tools.** New analytic techniques need to be applied to problems of compliance, including systems approaches, simulation and modeling techniques, configurational comparisons and meta-analyses, case studies, counterfactuals and narratives, and structured stakeholder interviews, all of which provide a toolkit for understanding the broader human-environment interactions.

**Strengthening the theoretical foundations of compliance.** Empirical data is interpreted and given meaning through theories, and theories generate testable hypotheses. Theories about compliance provide accounts of why different actors comply or do not comply with international and domestic laws. . . . To be effective, policymakers must understand the various theories and when they will be useful, make their own theoretical assumptions explicit, measure these assumptions against the evolving empirical results to ensure they are sound, and make adjustments as required.

**Diagnosing specific problems.** Reliable empirical data and sound theory can help diagnose underlying problems of non-compliance accurately. Why are some problems harder to address than others? What specifically is the source of non-compliance? Given the limited and fixed budgets of most enforcement and compliance agencies, they need to find the most cost effective means to ensure compliance . . .

**Understanding and empowering key actors.** When diagnosing problems, policymakers at all levels should take an expansive, system-wide view of the actors in the universe they are attempting to regulate. Several of the more recent theories of compliance tend to recognize that States and firms are not unitary actors, but rather are made up of numerous entities and are influenced by various forces that all contribute to compliance behavior. Actors such as scientists, the media, NGOs, and financial institutions, in addition to the individuals and departments that comprise States and firms, all have important roles to play in promoting compliance, the rule of law, and sustainable development. Policymakers should consider how these actors could best be empowered, in order to most efficiently and effectively generate the desired behavioral changes in the regulated community.

**Strengthening the role of civil society.** Enhancing compliance requires tools that empower citizens to participate in governance, including through
access to justice, with opportunities to apply pressure on and through the judicial and legal systems. The international community is moving in this direction. The Aarhus Convention guarantees the rights of access to information, public participation in decision-making, and access to justice in environmental matters. These rights empower citizens to ensure that environmental laws are properly enforced and complied with, as well as foster norms that complement and support the rule of law and good governance.

Building capacity of regulators and those they regulate. Strengthening efforts to build capacity is essential, to enhance both the ability of those in the regulated community to comply and the knowledge and capability of those seeking to secure compliance—judges, policymakers, and other governmental officials...

Building political will and expanding funding. It is increasingly recognized that the fundamental changes needed to promote the rule of law and sustainable development require the support and commitment of the key decision-makers within the system—whether in government or civil society—and this core group needs to be given enabling assistance to help build the essential internal political will these reforms require. Donor assistance is critical, but so is the will to reform, which must be fostered from within.

Strengthening the norms that complement and support compliance and the rule of law. Efforts to strengthen compliance and the rule of law must be complemented by broader efforts to replace cultures of non-compliance and corruption with cultures of compliance. Institutions built on cultures of non-compliance, like buildings erected on sand, are likely to founder. Consequently, additional efforts must be made to promote social norms that complement and support the rule of law and that support legal and judicial reform. This includes general norms such as the norms of good governance; rule of law; and compliance, obedience, and law-abidingness. More specific environmental norms also should be considered.

NOTES AND QUESTIONS

1. The study of compliance has become a major topic within comparative law. See Victor and Skolnikoff, Translating Intent into Action: Implementing Environmental Commitments, 41 Environment 16 (March 1999); Young, Hitting the Mark, 41 Environment 20 (Oct. 1999); and P. Haas, R. Keohane & M. Levy, eds., Institutions for the Earth: Sources of Effective International Environmental Protection (1993). A robust conclusion from the work to date is the absence of a “smoking gun” in the sense of one mechanism or type of mechanism that will provide an explanation as to why some international environmental agreements are more successful than others. Young, Hitting the Mark, 41 Environment 27-28 (Oct. 1999).

2. The question of compliance should not be viewed as necessarily synonymous with effectiveness in achieving the objectives of an international convention; it is possible to have compliance while failing to achieve larger goals. For example, this may be the case with the Convention on International Trade in Endangered Species (CITES), which has not stopped the extinction of many species due to habitat loss despite high rates of compliance with restrictions on trade. Is the opposite possible; that is, can a Convention achieve its goals without high rates of compliance?
3. Compare the role of citizens as agents for domestic enforcement with the role of citizen organizations in promoting compliance with international agreements. In what ways are they similar, and in what ways do they differ?

**Promoting Voluntary Corporate Actions to Improve the Environment**

The increasing economic importance of multinational corporations has led to a growing interest in strategies that foster voluntary environmentalism by corporations. One approach seeks to build on the trend toward corporate environmental reports. By one estimate, more than 1,000 companies now produce such reports annually. White, Sustainability and the Accountable Corporation, Environment, Oct. 1999, 30-43. However, these reports so far lack any common scope or content, making comparison and interpretation difficult. The Coalition for Environmentally Responsible Economies (CERES) launched the Global Reporting Initiative in 1997 to address this need. The GRI is an international initiative that includes UN agencies as well as business and environmental interests. It seeks to achieve some standardization and encompasses criteria for sustainability that transcend narrow environmental, health, and safety concerns. A core group of companies is piloting a set of initial principles as the basis for guidelines expected to be available in 2000. If they are used widely by national environmental agencies and financial reporting services, proponents hope such reporting policies could become highly influential in promoting environmental protection wholly apart from national regulations.

Another source of incentives for voluntary improvements in the environmental behavior of private companies is through private standards developed by national and international standard-setting agencies. The growth in trade has added to interest in this approach because trading companies have an interest in standardized measures of the quality of products purchased from foreign suppliers. Much of this effort is coordinated by the International Organization for Standardization (ISO), an international association of standard-setting agencies founded in 1947. See generally ISO 14001 and Beyond: Environmental Management Systems in the Real World (1997); Miller, Environmental Policy in the New World Economy, 3 Widener Symp. L.J. 287, 297-301 (1998); D. Hunter, J. Salzman & D. Zaelke, International Environmental Law and Policy 1396-1409 (1998).

Historically, ISO standards have mostly focused on technical issues of product manufacture and performance (e.g., procedures for measuring the strength or elasticity of a material). However, in the last decade ISO began to develop standards for quality management systems, including internal audit procedures. Compliance with these standards, ISO 9000 and 10011, has become a condition for doing business in many nations, especially in Europe. More and more, compliance must also be certified by an independent third party.

ISO 9000/10011 touched on environmental issues as one element of overall quality control and generated interest in a more formal examination of the potential for an environmental focus. This led to the initiation of an exploratory committee on environmental issues in 1991 and the creation of a Technical Committee (the basic decision-making body) for environmental standards in 1993, TC-207. Standards are being developed in five areas: management systems, audits, labeling, environmental performance evaluation, and life-cycle assessment. Under the ISO numbering system, these standards have been assigned numbers corresponding to the five main subject areas from ISO 14000 through 14060. Saunders, ISO Environmental Management Standardization Efforts (NISTIR Paper Number 5638, Apr. 1995).
For the most part, ISO standards address business practices rather than environmental outcomes. For example, the EMS draft proposal requires companies to identify key environmental issues, establish an environmental policy, set targets, and adopt training and documentation procedures. The proposal addresses products and services as well as facilities and is expected to be adopted widely; Austria was one of the first countries to adopt the draft specifications document as a national standard.

The potential impact on international practices is enormous. On the positive side, such standards may help alleviate concerns about the practices of multinational corporations investing in developing countries by providing a baseline against which to evaluate performance. For instance, firms operating in Mexico but seeking to export will also have strong incentives to be certified and the standards may expedite changes in practice by Mexican companies still unclear about their environmental obligations. Knight, Wells & Pratt, After the Crisis, Envtl. Forum, May/June 1995, at 22-26. East European firms interested in export have also found they must upgrade to meet ISO standards. “East Looks West,” Tomorrow, Sept./Oct. 1999, 34.

On the negative side, there are also concerns about the extent and effectiveness of developing country participation because of the cost and technical nature of the standards development process. Environmentalists have also only begun to participate recently and have concerns about reliance on management systems in lieu of regulations on emissions. Companies from the United States worry that the draft standards are based on European models and therefore may be more easily satisfied by foreign competitors. Some also fear that despite their voluntary nature, the ISO standards could be used as the basis for tort liability in the United States where such suits are much more easily maintained than in other nations. For a discussion of the potential influence of international voluntary standards on international environmental law, see generally Roht-Arriaza, Shifting the Point of Regulation: The International Organization for Standardization and Global Law-making on Trade and the Environment, 22 Ecol. L.Q. 479 (1995); Fowler, International Standards for Transnational Corporations, 25 Envtl. L. 1 (1995); Baram, Multinational Corporations, Private Codes and Technology Transfer for Sustainable Development, 24 Envtl. L. 33 (1994).

In addition to being involved in the ISO program, some corporations also are involved in voluntary product certification programs that allow them to approach consumers with independent certification that they engage in best environmental practices in their global operations. For example, all of Chiquita’s banana farms have been certified by the Rainforest Alliance as complying with a Better Banana program, a set of environmental and social best practices that involves significant reductions in pesticide use and water pollution and improved waste management practices. In April 2001, officials of the Canadian timber industry agreed with a coalition of environmental groups to protect from logging 1.5 million acres of coastal rainforest in British Columbia. Jim Carlton, Canada, Timber Firms Agree on Rainforest Pact, Wall St. J., April 4, 2001, at A2. The agreement follows successful efforts by environmental groups to get large retailers like Home Depot to agree to phase out selling products using wood from old growth forests. A representative of the Natural Resource Defense Council explained: “The basic goal is for the consumer to ask, ‘Where does my wood come from?’” Id. Other environmentalists predicted that the agreement represented “the beginning of the end for old-growth logging.” Id.
One consequence of increasing global economic interdependence is that exporters must be sensitive to the demands of importers. The significance of this trend was evident from U.S. participation in negotiation of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity. Although the United States is not a party to the Convention, it could not afford to ignore negotiations on rules applicable to imports of genetically modified foods, seeds, and organisms. Along with 129 other nations, the United States on January 29, 2000 agreed to the first global treaty regulating trade in genetically modified foods and crops. When ratified by 50 countries, the Cartagena Protocol will impose a notice and consent feature: Exporters will be required to obtain permission from an importing country before the first shipment of a living modified organism (seeds, fish, or microbes) intended for release into the environment can occur. To allow for compiling and processing information of such a highly technical nature, the Protocol further provides for the creation of a biosafety clearinghouse to help countries share data. See Pollack, 130 Nations Agree on Safety Rules for Biotech Food, N.Y. Times, Jan. 30, 2000, at A1. Text of the agreement can be found at www.biodiv.org.

The United States, Canada, and a few smaller countries resisted agreement on a similar notification system for foodstuffs, insisting that the ability to distinguish such products was impractical and would mire trade in red tape. The issue was therefore postponed for two years, with the understanding that market demand and technology might clarify the issue. The potential for market driven response was illustrated by a large American producer of corn chips that is able to specify that it only will purchase non-genetically modified corn because it contracts for corn directly from farmers. On the other hand, the company lacks similar ability to distinguish the source of oils and other inputs used in making its product. Gillis, New Seed Planted in Genetic Flap, Wash. Post, Feb. 6, 2000, at H1.

Another compromise in the agreement addressed the inclusion of the precautionary principle, allowing for regulation in advance of scientific proof, in contrast with the WTO’s requirement for “sufficient scientific evidence.” The inclusion of this principle was labeled a significant victory by environmentalists, but the relationship between the two treaties was not clarified.

NOTES AND QUESTIONS

1. The Rio Declaration proclaims that “[p]eace, development and environmental protection are interdependent and indivisible.” Rio Declaration, Principle 25. Developing countries argue that a transition to sustainable development will require a massive infusion of aid from the industrialized world. In response to these concerns, Principle 5 of the Rio Declaration states that eradication of poverty is “an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.” How much support should developed countries provide to the developing world in making the transition to sustainable development? To what extent should that support be conditioned on developing countries’ agreement to pursue specific measures, such as population control efforts?

2. Will concepts of national sovereignty have to change before a truly effective response can be made to global environmental problems? Consider
the example of the Montreal Protocol. To what extent did its signatories give up some national sovereignty to combat a global problem?

3. What impact will voluntary international standards such as ISO 14000 have on global environmental progress? Does the absence of government enforcement mechanisms undermine the potential for voluntary standards to change corporate behavior substantially?

4. The literature on non-regulatory and voluntary means of “greening” business continues to grow. For a review of experience with labeling and certification programs such as the Forest Stewardship program for sustainably harvested hardwoods, see, e.g., B. Cashore, G. Auld & D. Newsom, Governing Through Markets: Forest Certification and the Emergence of Non-State Authority (2004). For a thorough, but generally skeptical, view of voluntary environmental and social initiatives, see D. Vogel, The Market for Virtue (2005). For an analysis of the factors that explain why some corporations are more responsive to environmental concerns than others in the same industry, see J. Diamond, Collapse: How Societies Choose to Fail or Succeed (2004).

**PROBLEM EXERCISE: STRUCTURING AN INTERNATIONAL AGREEMENT TO REGULATE PERSISTENT ORGANIC POLLUTANTS (POPs)**

A class of chemicals known as organochlorines has been the subject of long-standing environmental concern due to evidence that they cause harm to humans and animals, including disruption of the hormonal system, and adverse effects on immune and reproductive systems. In addition to their toxicity, these chemicals are particularly dangerous because they accumulate in body fat and resist normal cleansing mechanisms. Because of their persistence and mobility in the global environment, the need for international control measures was recognized in a decision of the Governing Council of the United Nations Environment Programme on February 7, 1997, with the objective of reaching agreement on a treaty by late 2000. For documents and other information about these chemicals see [http://www.chem.unep.ch/pops](http://www.chem.unep.ch/pops).

At the initial negotiating session in June 1998, the parties agreed to focus initially on 12 POPs: aldrin, chlordane, DDT, dieldrin, dioxin, endrin, furans, heptachlor, hexachlorobenzene, mirex, PCBs, and toxaphene. Negotiations concentrated on reducing or eliminating the 12 chemicals, and key issues included how to deal with POPs stockpiles, how to eliminate the use of DDT, and how to finance the necessary actions by developing nations.

**Question One.** Based on experience with past multilateral environmental agreements, how should the POPs agreement be structured? What features should be incorporated into it to ensure its adoption both by developed and developing countries? What elements are necessary to enhance its chances of being effective in eliminating, or at least minimizing, use of these chemicals?

**Question Two.** DDT is still used by 23 nations as an inexpensive and effective measure to control malaria by killing mosquitoes that spread the disease. China and India are the largest users; Mexico has pledged to stop spraying by the year 2007. The American Society of Tropical Medicine and Hygiene argues that malaria deaths will increase dramatically if DDT is phased out. This group is proposing that the treaty allow DDT to be sprayed in small quantities on the interior walls of homes. Arguing that even small amounts of DDT
harm the environment, the World Wildlife Fund seeks to have the treaty ban DDT by 2007. Stolberg, DDT, Target of Global Ban, Finds Defenders in Experts on Malaria, N.Y Times, Aug. 29, 1999, A1. Should DDT be phased out in the treaty and, if so, how rapidly?

Question Three. Many developing countries argue that they cannot afford the cost of alternatives to DDT. Pyrethroids, a leading alternative, are considerably more expensive than DDT. An EPA entomologist estimates that the cost of treating one home with DDT ranges from $1.60 to $8.50, compared with $4.20 to $24.00 for treating the same house with pyrethroids. Id. at 6. How should the treaty deal with this problem?

Question Four. In May 2001, 91 countries, including the United States, signed the Stockholm Convention on Persistent Organic Pollutants. The Convention, which entered into force on May 17, 2004, calls for the immediate elimination of eight POPs—aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, and toxaphene—as soon as the treaty enters into force 90 days after 50 countries have ratified it. It is predicted that this will take three to four years. The treaty also prohibits the production of PCBs and calls for the phasing out of their remaining uses over time, including their removal from electrical transformers and other equipment by 2025. The treaty also promotes strong actions to minimize releases of by-product POPs, such as dioxins and furans, and actions taken to eliminate these by-products where feasible. President Bush has submitted the treaty to the Senate for ratification. Why do you think the Bush administration enthusiastically supports this treaty?

Question Five. The controversy over proposals to ban DDT was resolved by providing that DDT eventually should be eliminated, but that it could continue to be used for disease vector control by countries that need to use DDT against malaria until affordable alternatives are available to them. The treaty follows the approach supported by the World Health Organization (WHO). Despite DDT’s temporary exemption from the POPs ban, it is reported that “[t]he world is losing the war against malaria” which today kills more than a million people annually in Africa alone, because developed countries are refusing to fund the use of DDT in the developed world. Fighting Malaria with DDT, N.Y. Times, Dec. 23, 2002, at A26. How would you respond to this concern? For a discussion of the dramatic reduction in levels of DDT found in humans in the developed world due to the banning of DDT and why this actually makes it difficult to assess its health effects, see Devra Davis, When Smoke Ran Like Water: Tales of Environmental Deception and the Battle Against Pollution 167-172 (2002).

The Equator Principles

Beginning in the early 1990s, project finance has become an increasingly common means of financing large infrastructure projects in developing countries. Typically, such financing is based on the creation of a legally independent company with financing secured solely by project assets (e.g., power plants, mines, and toll roads). Private banks frequently help structure project finance as well as acting as lenders. The size and potential environmental consequences of such projects have made private banks an increasing target for environmental critics. In 2002 several large private banks approached the International Finance Corporation (IFC), the private sector arm of the World Bank, to discuss the Bank’s approach to sustainable development. The banks were interested in identifying common standards that would be both practical
and credible, and they quickly settled on the World Bank and IFC policies as the most relevant to private practice. On June 4, 2003, a group of ten large banks announced the adoption of the Equator Principles. By November 2005 the list of participating banks and financial institutions had grown to 36, including institutions accounting for a substantial percentage of all privately funded project finance in developing countries. See www.equator-principles.com; Esty, Knop & Sesia, The Equator Principles: An Industry Approach to Managing Environmental and Social Risks (Harvard Business School, June 2005).

The Equator Principles commit participating institutions to follow IFC safeguard policies and World Bank Pollution Prevention and Abatement guidelines. The basic approach requires categorization of the risks associated with each project and analysis of mitigation measures. Projects with higher levels of risk are required to have an environmental management plan outlining risk mitigation measures that must be included in the loan agreements; failure to comply means a borrower can be declared in default.

Why have so many banks (particularly large banks) signed on to the Equator Principles? Several factors presumably are at work. One is the need for evaluating environmental risks that may threaten the financial performance of an investment, a potentially serious concern with large infrastructure projects. For example, a large, highly profitable gold mine in Peru has been endangered by public uprisings. Perlez & Bergman, Tangled Strands in Fight Over Peru Gold Mine, N.Y. Times, Oct. 25, 2005. While the banks individually define their environmental review procedures, following practices of public institutions provides added credibility; the fact that the IFC and World Bank use them provides some confidence in their practicability.

The environmentalist reaction to the Equator Principles has been mixed. NGOs are suspicious that private banks will not follow the same disclosure and transparency requirements that apply to the IFC and World Bank, and they also worry that the Principles apply only to project finance and not to the much wider range of corporate lending practices. The Principles also do not include “no-go” zones. The IFC is revising its safeguards, a process criticized by some NGOs worried about the potential for downgrading to satisfy the private banks. See http://www.ifc.org/policyreview.

Similar issues have been raised with respect to World Bank funding of commercial banks and with respect to the environmental practices of export credit agencies. Curmally, Sohn & Wright, Multilateral Development Bank Lending Through Financial Intermediaries (WRI Issue Brief 2005); Harmon, Maurer, Sohn & Carbonell, Diverging Paths: What Future for Export Credit Agencies in Development Finance? (2005).

NOTES AND QUESTIONS

1. As consumers become more aware of their influence on corporate behavior, how will companies under pressure from competing interest groups define what constitutes “responsible” behavior? Shell has come under considerable criticism for its activities in producing oil in Nigeria, which includes not only pollution and other environmental concerns but allegations of at least indirect support for government suppression of political dissent. The International Finance Corporation has come under pressure to include conditions related to human rights as an element of its safeguard policies, which will
in turn influence private practice through the Equator Principles. “IFC May Add Human Rights to Lending Criteria,” Financial Times, Nov. 4, 2003. The inclusion of issues such as provision of marital benefits to gay couples has complicated this evaluation still further.

2. Promising to “go green” is one thing, being able to deliver and profit is something else. As The Economist notes in an article about General Electric, a focus on environmental services is no guarantee of success. Many companies rushed into this market in the 1980s expected rapid growth. “Alas, by the late 1990s many of these firms had scaled back their investments. The market continued growing but not at the sizzling pace they had originally expected.” “A lean, clean, electric machine,” The Economist, Dec. 10, 2005, at 79. The risk is particularly notable for companies seeking to pursue new technologies or business strategies, as opposed to investments to reduce waste and improve productivity. In the fall of 2005 GE announced a major commitment to environmental technologies called Ecomagination, supported by a substantial increase in spending on research and a commitment to reduce corporate greenhouse gas emissions in 2012 by 1 percent relative to an otherwise expected increase of 40 percent from levels in 2004. The Economist noted that the targets would require GE to achieve successful product breakthroughs, traditionally not a strength of the company which is better known for efficiency and quality. Ibid.

3. Are the legal obligations of corporations consistent with concepts of social responsibility that go beyond actions that can be clearly justified by enhancements of short-term profitability? Some authorities argue that significant legal changes are needed before companies can safely depart from a pure profit-maximizing norm. Elhauge, Sacrificing Corporate Profits in the Public Interest, N.Y.U. Law Review 80 (2005). A coalition of NGOs in the United Kingdom is promoting legal changes that would give directors broader obligations to society as well as shareholders, and similar initiatives are being discussed in the United States. Doane, “The Myth of CSR,” Stanford Social Innovation Review, Fall 2005, at 22-29.

4. Multinationals with a large presence in developing countries increasingly find themselves expected to provide basic social services in the absence of effective governments. While corporations may feel ill-equipped to serve this role, they may find that—up to a point—accommodating unmet public needs for health, water, and education is a necessary cost of doing business. Such activities reflect the increasingly complicated role of corporations doing business in resource rich but poor countries. “As Exxon Pursues African Oil, Charity Becomes a Political Issue,” Wall St. J., Jan. 10, 2006, at 1.

5. Recall Gus Speth’s pessimistic view of the prospects for continued reliance on legal approaches as a means for advancing the global environmental agenda (page 1047). Can you envision realistic alternatives based on motivating greater corporate social responsibility?
Environmental Progress and Prospects

Early in this century . . . federal sharpshooters hunted wolves for bounty. Today, the federal Fish and Wildlife Service is orchestrating the wolf’s revival. Sixty-five years ago the Hoover Dam, rising 70 stories above the bed of the Colorado River, was hailed as the greatest engineering feat in American history. Today, dams are increasingly seen as enemies of the natural order and are actually being dismantled. Only 30 years ago the Hudson River, once among America’s most majestic waterways, was little more than a 350-mile sewer stretching from the Adirondacks to Manhattan, choked with untreated municipal waste, industrial chemicals and agricultural runoff. Today, the Hudson pulses with life.

—New York Times Editorial*

[1]n the four years beginning in 1969, almost overnight in political terms, congressional action transformed what had been mainly state and local housekeeping chores into a national campaign to protect the environment. . . . [Now] the United States has embarked on a much more difficult and politically treacherous environmental campaign— . . . to control many dispersed, often invisible sources of pollution and to conserve ecological resources on private lands. Those decisions—and the ones that will follow—are far more complex than choices made during the past 30 years to control large sources of pollution and conserve ecological resources on public lands, difficult as those were. They create new tension between national goals and state preferences, between public concerns and private property, and between common interest and commercial enterprise.

—Mary Graham**

This book has provided a whirlwind tour of the complex maze that environmental law has become. Today, four decades after the rise of the modern environmental movement, environmental protection has grown from a national concern to a global imperative. Yet in a very real sense environmental law now stands at the proverbial crossroads. When the 25th anniversary of the first Earth Day was celebrated in 1995, the theme of the National Earth Day Rally was “Don’t Turn Back the Clock on Environmental Protection,” a sign of how dramatically the political climate in Congress had changed with respect to environmental issues. More than a decade later, Congress remains mired in legislative gridlock on environmental issues, but considerable thought has been given about how to improve environmental law to prepare it to face the next


generation of policy challenges. This chapter reviews what environmental law has accomplished to date and its prospects for future improvement.

A. ENVIRONMENTAL PROGRESS

Clearly, much progress has been made, but it is equally clear that most of the laws have failed to live up to the lofty expectations that accompanied their enactment. Looking back to the First Annual Report of the Council on Environmental Quality, one cannot help but be struck by how similar the problems outlined in the report are to today’s environmental concerns. CEQ, Environmental Quality—1970, at 93 (1970). Although the ozone hole had not yet been discovered, the CEQ report devoted an entire chapter to concern that atmospheric pollution might cause global warming and climate change. New concerns, such as ozone depletion and radon, have been added to the environmental agenda. But with the possible exception of noise pollution, none of the environmental concerns outlined by CEQ in 1970 has vanished from the national agenda.

The CEQ was prescient in forecasting not only the significance of the policy changes launched in 1970, but also that environmental problems were bound to get worse before they got better. In the opening paragraphs of its first annual report, CEQ noted that:

Historians may one day call 1970 the year of the environment. They may not be able to say that 1970 actually marked a significant change for the better in the quality of life; in the polluting and the fouling of the land, the water, and the air; or in health, working conditions, and recreational opportunity. Indeed, they are almost certain to see evidence of worsening environmental conditions in many parts of the country.

Yet 1970 marks the beginning of a new emphasis on the environment—a turning point, a year when the quality of life has become more than a phrase; environment and pollution have become everyday words; and ecology has become almost a religion to some of the young. Environmental problems, standing for many years on the threshold of national prominence, are now at the center of nationwide concern. Action to improve the environment has been launched by government at all levels. And private groups, industry, and individuals have joined the attack. [CEQ, Environmental Quality—1970, at 5 (1970).]

What progress has been made? What have been the success stories and the failures, and what can be learned from them to help shape the development of better policy in the future? Consider the following assessment by the Council on Environmental Quality.


Over the past 25 years, Americans have witnessed remarkable changes in policy and perspectives about the environment.

It was not so long ago that most environmental problems were thought to be largely local in nature and to have short-term, benign effects. Even when the
effects were neither short-term nor benign, as in the case of coal mine workers’ exposure to coal dust, there was in some quarters a willingness to accept such conditions as an unalterable part of life. In this 25-year period, we have learned that environmental problems can be local, regional, or global in scale, and that many effects are both long-term and life-threatening. Furthermore, we have learned that some environmental problems actually threaten the most fundamental global systems and cycles. In response, we have taken action on numerous fronts. For example, in just 25 years, we have:

- substantially reduced most conventional air and water pollution;
- taken international action to phase out chlorofluorocarbons (CFCs), after learning they could deplete the stratospheric ozone layer;
- made significant progress in reducing children’s average blood lead levels, after learning that lead can have devastating impacts on children’s intellectual development.

. . . [C]ommand-and-control approaches, with the help of a strong monitoring and enforcement effort, have been successful in controlling large point sources of pollution such as industrial facilities or mass-produced products such as cars. They have been somewhat less successful when the targets are more numerous and diverse and there are many more control options. . . .

Overall, between 1970 and 1994 the combined emissions of the six principal [air] pollutants declined 24 percent. . . . Since passage of the Clean Water Act in 1972, most of the conspicuous water pollution from point sources has been eliminated. More than 57,000 industrial facilities now operate under a pollution control permit. . . . Direct industrial discharges of toxic pollutants are down dramatically since 1972. . . .

Despite the progress that has been made on some fronts, many challenges remain. In some cases, the pressures posed by population growth have been difficult to overcome. Partly as a result of the growth in the number of automobiles on the road, total emissions of nitrogen oxides (NOx) have increased since 1970, which has contributed to a continuing problem with ground-level ozone in many cities. Population and development have played a role in the continuing degradation of coastal zones and estuaries and the wide-scale destruction of critical habitats, though in many cases creative policymaking and careful management can at least partially overcome such conflicts.

In addition, about 40 percent of the nation’s rivers, lakes and estuaries still don’t meet basic clean water standards; wetlands losses on nonfederal lands were about 70,000-90,000 acres per year during the early 1990s; and localized cases of waterborne disease continue to threaten drinking water safety.

A few problems escaped attention under the early command-and-control approaches. The most notable was non-point source water pollution, such as pesticide and fertilizer runoff from farms and stormwater runoff in urban areas. A few problems were late-bloomers, including the realization that indoor air pollutants such as environmental tobacco smoke and radon pose significant human health risks.

Finally, there was a growing realization that human activities could be affecting the global environment. In this realm, the emerging issues have included stratospheric ozone depletion, deforestation, declining marine fishery resources in some species and regions, and new evidence that some air emissions were affecting global climate. Since 1972, for example, worldwide generation of
carbon dioxide, a common “greenhouse” gas, has increased by 8 percent. Most scientists now believe that such emissions have contributed to an increase in global temperature.

Over the past 25 years a great deal has been learned about environmental problems and strategies to deal with them. Though a number of residual problems remain, the effort was generally successful and has almost certainly provided benefits well in excess of the costs.

NOTES AND QUESTIONS

1. Why has environmental policy been more successful in some areas than in others? In its 1990 report, the Council on Environmental Quality suggests that problems with diverse and widely dispersed sources and problems that emerged slowly have been particularly difficult to control. Council on Environmental Quality, Environmental Quality: Twentieth Annual Report 11 (1990). Is this an accurate assessment of progress to date? What examples of specific problems support or contradict this assessment?

2. Dr. Barry Commoner, an outspoken environmental scientist who has been a persistent critic of the current regulatory system, is far less sanguine about environmental law’s accomplishments. He argues that changes in the technology of production are the root cause of modern environmental pollution. . . . Only in the few instances in which the technology of production has been changed—by eliminating lead from gasoline, mercury from chlorine production, DDT from agriculture, PCB from the electrical industry, and atmospheric nuclear explosions from the military enterprise—has the environment been substantially improved. [B. Commoner, Failure of the Environmental Effort, 18 Envtl. L. Rep. 10195, 10196 (1988).]

Commoner maintains that rather than focusing on defining “acceptable” levels of pollution, the environmental laws should focus on changing production technology to prevent pollutants from being generated. Do you agree that changes in technology are the “root cause” of contemporary environmental problems? Even if this is true, does the solution necessarily require that the government intervene in the production process?

3. Note that the prohibition of lead additives in gasoline and the phaseout of the production of CFCs are two prominent examples cited by CEQ as environmental success stories. To what extent were these initiatives the product of idiosyncratic factors, rather than the result of the routine application of existing laws?

4. As a result of progress in combating some of the more obvious sources of environmental problems, environmental policy now confronts a more diffuse, but important, set of challenges. This shift in the environmental policy agenda may have profound political consequences for our ability to address remaining problems successfully, as Mary Graham explains in the following excerpt.

Mary Graham, The Morning After Earth Day (1999)

The generation of national efforts to protect the environment that followed the celebration of Earth Day in 1970 represents a rare and remarkable
achievement in American government: the successful introduction of a new theme into national policy. New themes are unusual in our political system. Sudden change is intentionally minimized by the Constitution’s separation of powers and by a legislative structure that encourages the balancing of opposing interests. Yet in the four years beginning in 1969, almost overnight in political terms, congressional action transformed what had been mainly state and local housekeeping chores into a national campaign to protect the environment. Legislation created new public participation in major government and private decisions, new notions of federalism, and new government power over big business.

Those laws also have sparked 30 years of political battles. . . .

As those conflicts continue, the United States has embarked on a much more difficult and politically treacherous environmental campaign—though without the fanfare that accompanied federal efforts in the 1970s. In the last decade, ad hoc responses to novel conflicts have begun to define policies to control many dispersed, often invisible sources of pollution and to conserve ecological resources on private land. Those decisions—and the ones that will follow—are far more complex than choices made during the past 30 years to control large sources of pollution and conserve ecological resources on public lands, difficult as those were. They create new tension between national goals and state preferences, between public concerns and private property, and between common interests and commercial enterprise. . . .

. . . Today’s most serious water pollution threats come from chemicals and organic wastes in farmers’ fields, commercial developments, city and suburban streets, and homeowners’ lawns, driveways, and septic fields, washed by rain into rivers, lakes, and bays. Today’s most serious air pollution threats arise from diverse sources inside homes, schools, and workplaces, in part because that is where people spend most of their time. Today’s most serious auto pollution problems are caused by emissions from aging or poorly maintained cars, exacerbated by the fact that drivers log in more miles per vehicle each year. Today’s most serious problems from especially hazardous air pollutants can be traced to an array of sources: vehicles and motorized equipment, consumer and commercial solvents, dry cleaners and other neighborhood businesses, as well as factories. Today’s most serious conservation challenges arise from individual choices in the use of private property: the ways that farmers work their land, ranchers graze their herds, and developers plan subdivisions. In terms of contentious problems, the direction of change is from the visible, concentrated, and well known toward the invisible, diffuse, and unfamiliar.

Such controversies change the political calculus. They are difficult to resolve through national standards, which have been the usual means of translating national priorities into requirements for business or guidelines for the management of public lands. They sometimes fail to elicit broad public support. In the early 1970s people became outraged by the pollution from factory smokestacks that blackened window sills and reduced visibility, and by the pollution from refineries and steel mills that clogged rivers in some urban areas. It is easier to ignore invisible gases from small businesses, emissions from aging automobiles, and chemicals carried away by storm runoff. They are hard to identify and hard to trace to their source. Also, such issues create new and potentially explosive clashes between the public’s proven concern with environmental protection and its commitment to other enduring values: protection of private property, encouragement of small businesses and family farms, preservation of local autonomy in land use decisions, and respect for individual choice.
To complicate matters further, the costs and inconvenience of making such adjustments tend to fall directly on more people than has been true of environmental improvements in the past. American businesses pay a high price for pollution control, more than $76 billion a year. In the abstract, voters may understand that ultimately that price is paid by consumers, shareholders, or employees. Yet the impact of those control efforts is rarely discernible to individual buyers, investors, or workers. By contrast, environmental progress that relies on getting people to maintain their cars or improve their septic tanks is experienced directly by millions of people across the country.

In one sense, the growing national concern about these more complex, less visible environmental problems is good news. They are receiving more attention in part because 30 years of national efforts have produced clear successes in controlling many concentrated sources of pollution and in improving balanced management of federal lands. These successes are particularly impressive because they have taken place during a time when economic activity has more than doubled, the nation’s population has increased by nearly a third, and vehicle miles traveled have increased 121 percent.

Successes do not mean that factory pollution is a thing of the past. Manufacturers still discharge millions of pounds of pollutants into the air, on land, or into water—legally. To cite one example, in 1995 industry discharged 2.2 billion pounds of chemicals included in the federal Toxics Release Inventory, most of it into the air. Technological change will continue to play a central role in reducing industrial pollution. But that role, too, is being re-cast. Ongoing efforts to capture pollution from smokestacks and drain pipes before it enters the air or water are beginning to be accompanied by longer term efforts to reorganize industrial processes to minimize waste. Such attempts to employ “industrial ecology” borrow a lesson from nature. Interdependent plants and animals use waste from one process as energy for another. New emphasis is on myriad changes that can reduce use of materials, encourage less-polluting forms of energy, or employ discharges as resources.

Big businesses are still caught cheating.

Public lands also remain political battlegrounds. But during a period when the voters’ confidence in their public servants has been low, it is worth acknowledging a governmental success—the addition of a new set of values to the American political system, and their influence not just on government and industry practices, but also on reducing pollution and improving conservation.

As less visible and more diffuse problems gain prominence, simple assumptions that formed the foundation for national policy 30 years ago have been replaced with new paradoxes. The framework of the laws enacted between 1969 and 1973 reflected a particular moment in American history. Congress responded to the public’s sense of crisis. It responded to voters’ enduring trust in its ability to find quick remedies combined with their suspicions that bureaucrats would thwart those efforts. It responded to doubts that state and local governments could or would address pressing problems. And it reflected the public’s abiding faith in the capability of big business to find technological solutions to the nation’s problems coupled with a deep distrust of its will to use that capability to improve the environment.

A generation later, the political and economic ground has shifted. Basic questions recur and their answers today bear little resemblance to assumptions that have supported national policy for the past 30 years. The public’s sense of crisis has been replaced with enduring support for improving pollution control.
and conservation, but also with a frequent reluctance to pay the public costs of increased protection or to change everyday habits. The federal government’s ability to understand and manage environmental problems has increased immeasurably since the early 1970s. But, in practice, possibilities for national action are now constrained by the increasing power of international forces, the declining influence of federal agencies over state and local government actions, an unmanageable workload, and an aging system of laws and regulations sometimes out of sync with new science and new issues. State governments have gained in competence and been given greater responsibilities. But the strength of state programs varies enormously. And states are caught in a funding squeeze between taxpayer revolts and diminishing federal funds. That funding squeeze is especially damaging in less affluent states, where environmental programs may be weaker than in more prosperous states. American companies, once insulated by tariffs and technological superiority, compete in a fast-changing national and international economy. Interestingly, business attitudes toward environmental protection have become more positive as business’s economic position has become less secure. But big business also has new reasons to minimize costs, and many smaller businesses and farmers, upon whom much environmental progress depends, lack the resources and incentives to modify their practices.

These changes in public support and in government and business capabilities matter because, under our system of government, approaches to environmental protection, like approaches to other domestic problems, are inevitably collaborative. Federal officials cannot themselves reduce pollution or improve conservation, except on government property. They can make rules, impose penalties, and spend money. But ultimately they rely on the cooperation of state and local governments, businesses, and individuals to produce the results they want. Collaboration becomes more important as public attention turns to environmental problems that are hard to manage with simple national rules. . . .

After a generation, pollution control and conservation have been assimilated into the American political system. As national priorities, they have stood the test of time, and they have weathered political challenges. They have become a permanent part of government and business decisionmaking. But changing times also have revealed new puzzles about the character of public support and the capacity of government and business to address a new generation of environmental problems.

NOTES AND QUESTIONS

1. What factors does Graham think explain the extraordinary congressional response to environmental concerns in the early 1970s? What features of current environmental concerns make them a greater political challenge to address?

2. Graham argues that environmental politics has “matured” as both political parties have accepted the appropriateness of federal environmental programs. However, she does not believe that the days of bitter political battles over environmental regulation are over. Graham notes that business interests, environmental groups, and state and local officials are engaged in pragmatic efforts to “customize” many aspects of federal environmental policy. “The simple structure of uniform standards and deadlines of the 1970s is evolving

3. Graham notes that the field of industrial ecology is yielding new insights on how technology can be changed to reduce its environmental impact through process changes that reduce pollution and energy use at the source. For a discussion of how this is being accomplished see Braden R. Allenby, Industrial Ecology: Policy Framework and Implementation (1999). Allenby defines industrial ecology as “the multidisciplinary study of industrial systems and economic activities, and their links to fundamental natural systems.” Id. at 12. He explains that it can help provide product or process design teams with a better understanding of the life cycle environmental costs of alternative designs.

4. Graham believes that developing accurate and objectively interpreted environmental information will be crucial to future innovation in environmental policy. While technological changes are creating unprecedented opportunities to expand the potential of informational approaches to regulation, these opportunities have not been fully exploited yet.

B. ENVIRONMENTAL PROSPECTS

Visions of the future world environment are many and varied. Many believe that changes in technology offer the best hope for defusing some of the political difficulties of regulating smaller and more diffuse sources of pollution and for overcoming the daunting global challenges posed by population growth and increasing resource consumption. Consider the following reflections from the editors of the New York Times, discussing the fundamental changes that occurred in humankind’s attitude toward nature over the past century and what they may portend for the future of environmental policy.

A New Way of Living with Nature
N.Y. Times, Dec. 19, 1999, at 12

A century that will be remembered for material and scientific progress may also be remembered for something more modest—as a moment when mankind, realizing that the earth’s resources were not infinite and perhaps seeking expiation for years of predatory behavior, struck a truce with nature. For the first time since the dawn of the industrial age there was, at least in the West and certainly in America, a rough armistice between the forces of economic growth and the forces of preservation.

The big question on the eve of the next century is whether this armistice will hold. The earth’s six billion people will grow to nine billion by 2050, creating new pressures on natural resources, food and habitation. There is also the related question of whether what can loosely be called the environmental ethic, now largely confined to the industrialized world, can be extended to poorer nations that believe it is their turn to industrialize.

America, for example, seems to have settled on a policy of preserving its national forests and adding incrementally to its protected wilderness. By contrast, countries like Brazil, Malaysia and Indonesia are chewing up their forests at a
ferocious clip. Similarly, the industrialized West is actively seeking alternatives to the carbon-based fuels that are contributing to potentially disruptive changes in the earth’s climate. Yet unless the big developing countries like India and China do likewise, what the West does will make very little difference.

Still, it is worth celebrating the attitudinal changes in this country that have cast nature, once seen as an unruly force needing discipline, in a more congenial light. Early in this century, for example, federal sharpshooters hunted wolves for bounty. Today, the federal Fish and Wildlife Service is orchestrating the wolf’s revival. Sixty-five years ago the Hoover Dam, rising 70 stories above the bed of the Colorado River, was hailed as the greatest engineering feat in American history. Today, dams are increasingly seen as enemies of the natural order and are actually being dismantled. Only 30 years ago the Hudson River, once among America’s most majestic waterways, was little more than a 350-mile sewer stretching from the Adirondacks to Manhattan, choked with untreated municipal waste, industrial chemicals and agricultural runoff. Today, the Hudson pulses with life.

Wolves, dams, wilderness, forests, lakes, rivers, estuaries—all are seen differently now than they were less than 50 years ago. Of course if reparations were to be made at all, the century now ending was surely the proper time to make them. For it was not until the 20th century that we began to develop the technology that enabled us to destroy nature on a truly grand scale—the implacable machinery that in a heartbeat (measured in millennial time) could foul the air, clear-cut the forests and strip-mine the oceans.

It was thus fitting that this same century would eventually produce a citizens’ revolt against environmental degradation. This revolt—symbolized by the first Earth Day in 1970, and defined by the creation of an astonishing body of environmental laws—not only gave the nation the tools with which to heal itself but conferred upon ordinary citizens the indispensable right to take even the government to court if it failed to carry out these laws.

There are many who believe that the technology that got us into trouble will get us out—that fuel cells will replace the internal combustion engine, that microbes will dispose of the waste stream. But of course technology is neutral. What will matter in the future is what has always mattered, namely the values and political will of those at the controls. The truth is, people can accomplish mighty acts of repair. If they can destroy the Everglades with levees and canals, as they did in the 1940’s, they can help save the Everglades by replumbing it. If they can decimate the world’s swordfish with factory ships, they can replenish the swordfish by keeping those ships in port.

Therein lies one answer to the environmental pessimists who believe that the world is past recovery, that the battle to preserve open spaces and biodiversity is already lost because there are simply too many people coveting too much land and demanding too many resources. What they overlook is that we are not at the same point on the learning curve that we were 70 or even 30 years ago. Having discovered that we can actually change the way nature operates, we have also discovered that with this power comes a sacred obligation to restore what we once nearly ruined.

NOTES AND QUESTIONS

1. Who are the “environmental pessimists” to which the Times editors refer? Do environmental groups fall into this category or is this just a facile
caricature? When they refer to society’s “learning curve,” do they mean general improvements in environmental technology, changes in the political process that made it more responsive to environmental concerns, or something else?

2. Journalist Gregg Easterbrook charges that environmentalists have been unduly alarmist about the state of the planet. Adopting an approach he calls “ecorealism,” Easterbrook maintains that most of the developed world’s major environmental problems are nearly solved, as discussed below.

\[\text{Easterbrook, A Moment on the Earth:} \\
\text{The Coming Age of} \\
\text{Environmental Optimism} \\
(1995)\]

Ecological consciousness is a leading force for good in world affairs. Without the imperatives of modern environmentalism—without its three decades of unstinting pressure on government and industry—the Western world today might actually be in the kind of ecological difficulty conventional wisdom assumes it to be in. Instead, the Western world today is on the verge of the greatest ecological renewal that humankind has known; perhaps the greatest that the Earth has known. Environmentalists deserve the credit for this remarkable turn of events.

Yet our political and cultural institutions continue to read from a script of instant doomsday. Environmentalists, who are surely on the right side of history, are increasingly on the wrong side of the present, risking their credibility by proclaiming emergencies that do not exist. What some doctrinaire environmentalists wish were true for reasons of ideology has begun to obscure the view of what is actually true in “the laboratory of nature.” It’s time we began reading from a new script, one that reconciles the ideals of environmentalism with the observed facts of the natural world. Toward that end [I] advance the following premises:

- That in the Western world pollution will end within our lifetimes, with society almost painlessly adapting a zero-emissions philosophy.
- That several categories of pollution have already ended.
- That the environments of Western countries have been growing cleaner during the very period the public has come to believe they are growing more polluted.
- That First World industrial countries, considered the scourge of the global environment, are by most measures much cleaner than developing nations.
- That most feared environmental catastrophes, such as runaway global warming, are almost certain to be avoided.
- That far from becoming a new source of global discord, environmentalism, which binds nations to a common concern, will be the best thing that’s ever happened to international relations.
- That nearly all technical trends are toward new devices and modes of production that are more efficient, use fewer resources, produce less waste, and cause less ecological disruption than technology of the past.
- That there exists no fundamental conflict between the artificial and the natural.
That artificial forces which today harm nature can be converted into allies of nature in an incredibly short time by natural standards.

Most important, that humankind, even a growing human population of many billions, can take a constructive place in the natural order.

None of these notions are now common currency. It is possible to find yourself hooted down for proposing them at some public forums. A few years ago at a speech at a Harvard Divinity School conference on environmental affairs I was hissed merely for saying “People are more important than plants and animals.” What better barometer is there of how nonsensical doomsday thinking can become?

But that is a passing situation. In the near future the propositions stated above will be widely embraced by society and even by the intelligentsia. Collectively I call these views ecorealism.

Ecorealism will be the next wave of environmental thinking. The core principles of ecorealism are these: that logic, not sentiment, is the best tool for safeguarding nature; that accurate understanding of the actual state of the environment will serve the Earth better than expressions of panic; that in order to form a constructive alliance with nature, men and women must learn to think like nature.

Human sprawl is ubiquitous on planet Earth. Cities both grand and dolorogenic dot six of the seven continents. Autos, trucks, and trains scurry everywhere. Mighty aircraft arc the skies; vessels larger than medieval towns course the seas; chandeliers of technology hang in space. Through human action whole provinces of Earth have been converted from forest or prairie to farms and pasture. Countless rivers have been dammed or diverted. And everywhere are man’s machines, from the little motors that power handheld devices to the giant engines known as factories—machines spewing toxic chemicals, respiratory irritants, acids, greenhouse gases, water pollutants, caustic sodas, production slag, agricultural husks, cattle gristle, mineral till, “depleted” uranium, ash, polymer slurries, and products at times hard to distinguish from by-products. In parallel the homes of First World citizens have become little factories in their own right, generating heat or cold, ablaze with lights, pumping out wastes of every variety.

From nature’s perspective the picture is surely different. No one could dispute that genus Homo affects the Earth more than any other species. Humanity is resourceful and mischievous, assiduously engaged in environmental harm. But is nature really on the run? Several important indexes suggest that it is not.

First, the portion of Earth taken over by humanity is fantastically exaggerated in the popular imagination. The United States is the most growth-obsessed and machine-oriented of cultures. Yet so far only two percent of the U.S. surface area is “built up,” according to the U.S. Geological Survey. This figure reflects the concrete footprint of cities, towns, roads, suburbs, homes, offices, factories, airports, and other artificial impositions upon American land. Two percent. If lakes formed by dams are thought of as built-up land, the figure rises to slightly over three percent. The comparable figure for Europe is about eight percent built-up. Europe has been in pursuit of the materialist lifestyle for several centuries longer than the United States. Yet even there only a small portion of the biosphere has been seized by people. North and west of New York City and London and Chicago, south of Paris and Bonn, east of San Francisco and Moscow, in all directions around Atlanta and Denver and Warsaw and Madrid, and in many
similar locations worldwide, extensive tracts of habitat that have known only occa-
sional human intervention abut centers of mechanistic human excess. . . .

An important area in which human and natural perceptions differ is the
forest. That portion of the world that remains wooded is a fine proxy for whether
nature is in decline; for forests, even the tree plantations of the big lumber
companies, are primarily temples of nature, not man.

Today most Americans would surely say that forests are in critical
condition. Commentary on the 1990s dispute pitting loggers against the spotted
owl in the Olympic forests of Oregon and Washington State was, for example,
thick with the words “disaster,” “destroyed,” “ravaged,” and “lost forever” in
reference to American forests.

Deforestation is without doubt currently taking a toll on forests in many
tropical nations. But in most affluent countries, forest cover has not been
declining but expanding for at least several decades. The environmentalist’s
notion of a forest wipeout in progress is in the Western nations the reverse of
the natural reality.

Western Europe today has nearly 30 percent more forest area than it had
half a century ago, despite the fact that its human population has increased
rapidly through that period. In the United States forests reached their nadir
in the 1920s, damaged extensively by shoddy logging practices. But as the
forestry analyst Roger Sedjo, of the Washington think tank Resources for the
Future, has written, sometime around the early 1940s “forest growth nationally
came into balance with harvests, and since that time growth has exceeded
harvest.” The total amount of forest has been expanding in the United States
and Western Europe during the postwar era—the very period during which,
environmental doctrine says, nature has been put to rout. . . .

At several points in the twentieth century, various environmental problems
have seemed to reach a level at which they become irreversible. Forest loss,
overuse of bioaccumulative pesticides such as DDT, and stratospheric ozone
depletion are three examples. In each case commentators decreed hopeless-
ness. In each case the irreversible problem promptly reversed itself. Forest acres
in the developed world are now expanding; DDT was banished and its bioaccu-
mulative effects are nearly gone from the U.S. biosphere; CFCs and other
chemicals linked to ozone depletion are already in decline and will go out of
production in most countries in 1996, with projections now showing ozone layer
replenishment beginning early in the twenty-first century. Yet doctrines of pes-
simism somehow never get amended as the result of positive experiences.

At this writing two problems widely viewed as irreversible are loss of equa-
torial rainforests and the artificial greenhouse effect. But what if the developing
world executes the same sequence of forest protection seen in the industrial
world? A period of unregulated forest loss may be followed by a period of
stabilization (deforestation rates have declined sharply in the last three years
in Brazil, the country where the problem is worst) and after that a forest recov-
ery. A forestation of tropical woodlands might begin as soon as the early twenty-
first century, a split second from now by the natural stopwatch. And what if
nations learn to reduce greenhouse emissions through energy efficiency?
That is already underway in many countries. Rather than steadily increasing,
as commentators consider inevitable, artificial greenhouse gases may begin to
decline. Then the specter of global warming will recede as well. . . .

Today we cannot imagine a Western economy based on anything
other than a whopping consumption of petroleum. But a century ago no
leading intellectual imagined the world running on oil. Just as horses in nineteenth-century cities were certain to yield to some other mode of transportation, what the materialist lifestyle today depends on for its inputs is certain to change repeatedly through the centuries ahead.

Perhaps the most fundamental point of understanding about the biosphere is that it is a living system, not static but continuously reacting with itself and its circumstances. Human society is the same, alive and always in transition. If human society attempted to stand still by continuing to gulp petroleum at its current rate, fiasco would follow. But social change will not come to a halt, freezing current trends in place. Through the last 20 years, Western use of petroleum has begun shifting markedly in the direction of conservation. Such changes are partly driven by prices and government policies. But partly they may be seen as organic self-adaption—society reacting just as nature would to self-correct a resource imbalance.

A Western energy economy based on hydrogen, solar-electric conversion, biomass from vegetation, and similar renewable power is not only not science fiction, it is odds-on to be realized in the lifetimes of some readers of this book. Currently many engineers scoff at the notion that hydrogen and solar-electric conversion will be useful on a commercial scale. But not much more than 100 years ago, gasoline and internal combustion were derided as nonsense. A century ago any sensible economist would have sworn that every dollar of capital in the world would be insufficient to construct the vast infrastructure necessary to create an auto culture: oil fields, refineries, pipelines, ubiquitous gasoline stations, automobile manufacturing facilities, repair shops, and so on. Yet Western society reinvented itself from no cars to all cars in 50 years.

It is well to remember that approaching the turn of the twentieth century, commentators called horse proliferation an “irreversible” peril to society—pasture land would crowd out farms, horse droppings would make cities unlivable, towns would run out of space to bury the horse carcasses, and so on. Just at the moment too many horses seemed an unresolvable environmental threat, the horse population began to drop drastically in response to the arrival of motor carriages. Running out of coal was a common refrain in the 1920s; the U.S. Department of the Interior and the British admiralty, charged with stocking the colliers of the English fleet, were among many authorities to declare coal would soon be gone forever. Within a decade a coal glut began, in response to new coal seam finds occurring at the same time that coal demand fell as the world’s infatuation with petroleum commenced. In turn the imminent exhaustion of petroleum was universally decried in the 1970s. Shortly thereafter the price of oil began to plummet.

Here we may proclaim a law of environmental affairs: Whenever all respectable commentators believe a problem cannot be solved, it is about to be solved. Since respectable commentators now consider global warming unstoppable, this law predicts the greenhouse effect is about to become old news. And since respectable commentators now are “sure” that society can never wean itself from fossil fuels, therefore let’s predict that the end of the fossil-fuel economy is near at hand.

Though a zero-polluting, renewable-energy economy is not practical at present, no improbable technological leaps are required to bring one into being. Today’s fossil-fuel economy is already much closer in structure to a renewable-energy regime than the last century’s energy economy was to today’s. The Princeton physicists Joan Ogden and Robert Williams have suggested that
within a decade or two, cost-effective solar-electric converters will become widely available. Large fields of such devices, placed in deserts where sunshine is intense and there are few living things to disturb, would provide renewable power to separate hydrogen from water. The hydrogen would be piped back to cities for use as a gasoline replacement. In such an energy economy the basic fuel sources would be sunlight and water; the pollution output would be negligible, as hydrogen burns without meaningful air emissions or greenhouse gases. Once an advanced energy economy is realized, petroleum might still be employed as a chemical feedstock and for other uses, but its political and social significance will conclude. Oil by and large will return to its former status of a murky nuisance that sometimes leaks from the ground; historians will come to consider the Oil Age a curiosity of less lasting significance than the Bronze Age. The industrial way of life may be irksome, but on several important fronts like this it is well ahead of the world’s feudal cultures in pursuit of ecological transparency. Nature may love the citizens of the Third World but be rooting for the engineers of the First.

NOTES AND QUESTIONS

1. Do you agree with Easterbrook that environmentalists often have exaggerated the true dimensions of the environmental problems we face? If so, what have been the consequences of such “doom and gloom” forecasts?

2. What is the source of Easterbrook’s optimism concerning future environmental prospects? Trends already in place? Technological advances? The adaptive capacity of the environment?

3. Not surprisingly, Easterbrook’s views generated considerable controversy. Environmentalists maintained that he did not fully appreciate that many of the positive environmental trends he cites are due to hard-fought battles waged by them. As one reviewer writes, “He wants it both ways—to condemn professional enviros and other doomsayers and at the same time to champion nature. This amounts to ecosophistry and ignores the fact that what are often perceived as extreme positions effect moderate, positive gains in any field.” Conaway, Mother Nature’s Prospects, Wash. Post Book World, Apr. 23, 1995, at 5. Fellow environmental journalist Philip Shabecoff argues that “Easterbrook’s ecorealism is constructed out of a tissue of muddy logic, careless dismissal of what in many cases is overwhelming scientific consensus, and confused or caricatured use of facts.” Shabecoff, “Feel-Good” Environmentalism, in Is There Cause for “Environmental Optimism”? 29 Envtl. Sci. & Tech. 366, 368 (1995). Scientist Devra Davis maintains that “[i]n his search for glad tidings, Easterbrook confuses a lack of environmental health data with success.” She maintains that “Easterbrook tacitly adopts the ‘dead body’ approach to public health regulation, appearing to side with those who require proof of human harm and discount experimental evidence.” Davis, A “Dead-Body” Approach to Health, in Is There Cause for “Environmental Optimism”? 29 Envtl. Sci. & Tech. 366, 368 (1995).

4. The Environmental Defense Fund (EDF) convinced Easterbrook to print an erratum correcting his charge that EDF had accepted payments from corporations for its advice. EDF prepared what it calls a list of scientific errors it found in Easterbrook’s book. The following is an excerpt from their report.
INTRODUCTION

In his book *A Moment on the Earth*, Gregg Easterbrook argues that environmentalists “are surely on the right side of history, but increasingly on the wrong side of the present, risking their credibility by proclaiming emergencies that do not exist.” Yet his account of environmental issues is replete with errors and misinterpretations of the scientific evidence. This is especially notable in regard to the four chapters that deal with habitat loss, global warming, ozone depletion, and species extinction, probably the four most serious threats to the natural environment, according to a recent report by the Science Advisory Board of the U.S. Environmental Protection Agency.

We believe that the record should be set straight on Easterbrook’s critical scientific errors, for the faulty statements in these four chapters substantially undermine his thesis that many environmental problems have been overstated . . .

In his chapter on global warming, Easterbrook makes many fundamental errors. He continually confuses global, regional, and local temperature trends, which may differ considerably; he mischaracterizes the results of a poll that was undertaken to determine scientists’ views on global warming; and he mistakenly asserts that the sea level has not risen significantly, when it has.

Most flagrantly, however, he erroneously claims that the National Academy of Sciences (NAS) and the Intergovernmental Panel on Climate Change (IPCC), the two most respected scientific authorities on the subject, have substantially lowered their projections of future warming due to a doubling of carbon dioxide in the atmosphere, when they have not . . .

In *[the] chapter* [“Radiation, Natural”] and elsewhere, Easterbrook attempts to contrast what he calls the “doomsday” approach to environmental problems with his own so-called “eco-realism,” ridiculing, for example, the “idea that relatively tiny amounts of CFCs could trigger an unstoppable progression that strips the entire ozone layer, leaving the biosphere defenseless” ([*A Moment on the Earth*, p. 535]). Yet this is what in essence could well have occurred, with very large depletions developing throughout the world, unleashing potentially disastrous consequences for the biosphere, if the decision to aggressively limit the use and production of CFCs had not been made.

Moreover, he places himself against the weight of scientific evidence in claiming that UV radiation may not have risen since the emergence of ozone depletion, and that where radiation increases occur, they may have little or no effect. Along the way, he makes elementary errors in relating the history of the discovery of ozone depletion and even suggests, against medical evidence to the contrary, that increases in UV radiation may not be harmful to human health . . .

The chapter on the northern spotted owl in *A Moment on the Earth* is so full of scientific errors and inaccurate assumptions that its conclusion—that the threat of extinction faced by the owl is overstated—is essentially worthless.

To his credit, Easterbrook is supportive of the Endangered Species Act and the efforts of environmental groups to save species in general. But in opposing
the conclusions of independent biologists that the northern spotted owl faced extinction, Easterbrook neglects to cite the voluminous scientific evidence for this position, as contained in numerous peer-reviewed studies. Most importantly, he neglects to mention the definitive findings of the meeting in December 1993, in Colorado, in which biologists and statisticians from throughout the United States and Europe undertook the single largest population study of a bird of prey, and concluded that the northern spotted owl was indeed in rapid decline.

Easterbrook’s arguments in his chapter on endangered species are equally problematic. While disputing the conclusions of natural scientists and wildlife biologists that human activities are causing the planet to experience a loss of species of major proportions throughout the globe, he relies on inaccurate assumptions and faulty reasoning.

Moreover, as in the spotted owl chapter, he fails to grasp the difference between the better counting of existing numbers of species with observed trends that show that many of these species are in decline. This is evident when he wrongly dismisses as contradictory the increasing scientific estimates of the total number of species on Earth, and the consensus of biologists that extinction is proceeding at a rate unprecedented since the close of the age of the dinosaurs.

CONCLUSION

In *A Moment on the Earth*, Gregg Easterbrook attempts to contrast his own supposedly “eco-realistic” views with the views of those he labels environmental “doomsayers.” Yet what the book really does is to set Mr. Easterbrook’s own opinions against the weight of scientific evidence, consisting of the findings of hundreds of independent climatologists, atmospheric scientists, and wildlife biologists, working in their respective fields throughout the world. While continually dismissing the assessments of these experts as overly pessimistic, he caricatures their positions, and incorrectly characterizes their work as part of a biased environmental “orthodoxy.” In the process, he impugns the intelligence, judgment, and impartiality of some of the most esteemed scientists of our time, including Rachel Carson, James Anderson, and E.O. Wilson.

Moreover, he repeatedly criticizes scientists whose dire predictions have not come to pass, without fully acknowledging that their forecasts catalyzed changes in laws and policies that forestalled the predictions themselves.

Though the Environmental Defense Fund celebrates the successes of the past, including the banning of DDT and the restrictions on the use of CFCs, and believes that further achievements are within our grasp, we hold that this will be possible only with a realistic assessment of those environmental problems that still remain, based on the best scientific evidence.

Far from being “eco-realistic,” Easterbrook’s work betrays an extreme naivete concerning the workings of physical processes and natural ecosystems, resulting in an entirely unwarranted optimism that we will easily solve all of our environmental problems in the near future, if we have not done so already. Perhaps he himself should take to heart the advice he offers up so readily to environmentalists: “Learn science and speak logic. Many lesser creatures will thank you.” (*A Moment on the Earth*, p. 647.)
NOTES AND QUESTIONS

1. Were the successes of past policies due in part to public response to “doom and gloom” forecasts by environmentalists? While Easterbrook maintains that ecorealism “is not a philosophy of don’t worry, be happy,” isn’t there a danger that his views will prompt precisely such a response?

2. What forces are operating to influence how technology develops? To what extent do existing environmental regulations help or hinder the development of environmentally superior technology? What types of collective action are best suited for stimulating such technological innovation?

3. While population control measures have not been a focus of environmental regulation in the industrialized world, population growth has played a prominent role in competing forecasts concerning the future health of the planet. Warning that population growth would soon overwhelm the Earth’s carrying capacity, ecologist Paul Ehrlich attracted national attention in 1968 with his book, The Population Bomb, which forecast mass starvation and mineral shortages. Calling Ehrlich a Malthusian, economist Julian Simon argued in The Ultimate Resource that “[n]atural resources are not finite” because human ingenuity continually finds more efficient ways to use them. In 1980, the two agreed to test their theories by betting $1,000 on whether the prices of five metals—chrome, copper, nickel, tin, and tungsten—would be higher or lower in the year 1990. Ehrlich argued that prices would rise with increased demand for a finite supply of the metals. Simon bet that prices would fall. In 1990, Simon won the bet when the prices of all five metals had declined in real terms due in part to the development of substitutes (such as plastics). The story of the bet is told in Tierney, A Bet on the Planet Earth, N.Y. Times Mag., Dec. 2, 1990, at 52. Tierney notes that Ehrlich, who lost the bet, had been highly popular with the public, while Simon, who won, had few followers.

4. Does the outcome of Ehrlich’s bet with Simon prove that Ehrlich’s ideas are wrong, or just that he is a poor gambler? Does Simon’s argument imply that no action needs to be taken to avert environmental crises or just that we need not get too worried about the future because we can and will act to avert crises? The more people agree with Ehrlich, the more likely it is that society will impose stringent environmental protection measures. Is Simon’s optimism more likely to prove correct if more people believe that Ehrlich is right and act to prevent environmental damage? Prior to Simon’s death in 1998, Simon and Ehrlich had been sparring over terms for another bet. Ehrlich offered “15 separate bets, totaling $1,000 each, that 15 environmental indicators—things like greenhouse gases, biodiversity, fishery stocks—will get worse over the next decade.” Simon rejected the proposal. McCoy, When the Boomster Slams the Doomster, Bet on a New Wager, Wall St. J., June 5, 1995, at A1.

Easterbrook Round II? Bjorn Lomborg’s “Skeptical Environmentalist”

A book by Bjorn Lomborg, an associate professor of statistics from Denmark’s University of Aarhus, received considerable attention due to its claims that the global environmental movement has vastly overstated the scope of environmental problems. Lomborg’s book, The Skeptical
Environmentalist (Cambridge Univ. Press 2001), makes claims remarkably similar to those in Gregg Easterbrook’s A Moment on the Earth. Lomborg writes:

We will not lose our forests; we will not run out of energy, raw materials, or water. We have reduced atmospheric pollution in the cities of the developed world and have good reason to believe that this will also be achieved in the developing world. Our oceans have not been defiled, our rivers have become cleaner and support more life. . . . Nor is waste a particularly big problem. . . . The problem of the ozone layer has been more or less solved. The current outlook on the development of global warming does not indicate a catastrophe. . . . And, finally, our chemical worries and fear of pesticides are misplaced and counterproductive.

Lomborg claims to have been a committed environmentalist until encountering the work of Julian Simon (see notes 3 & 4 above). He bases his argument on analysis of statistical data concerning global environmental trends. Lomborg then charges that the reason this good news is not more widely accepted is that environmental groups have engaged in a pattern and practice of exaggeration and statistical manipulation to mislead the media. Not surprisingly, opponents of environmental regulation were quick to acclaim Lomborg’s work. See, e.g., Alex Kozinski, Gore Wars, 100 Mich. L. Rev. 1742 (2002) (book review).

Lomborg’s claims provoked a fierce reaction from the environmental community, much as Gregg Easterbrook’s “eco-skepticism” launched a similar debate in 1995. In response to criticism, Lomborg has had to acknowledge some errors in his statistical analysis. Critics note that Lomborg’s focus on global averages masks more localized environmental trends such as the collapse of particular fisheries and worsening environmental problems in heavily overpopulated urban areas of the developing world. Like Easterbrook, Lomborg also fails to give credit to increased public awareness of environmental problems and the public policies this spawned for much of the progress he cites. Lomborg’s replies to his critics are available online at: www.lomborg.com. Case Western Law Review published a symposium issue on Lomborg’s work that can be found at 53 Case W. Res. L. Rev. 249-495 (2002). Grist Magazine published extensive criticisms of Lomborg’s work in its Dec. 12, 2001 issue.

Surprisingly, Lomborg never cites Eastbrook’s work, nor does it appear in Lomborg’s extensive bibliography. Despite the striking similarity of their theme that environmental conditions are improving more than most environmentalists acknowledge, Easterbrook’s work is more nuanced than Lomborg’s. Although making the same optimistic claims Lomborg does, Easterbrook recognizes that not all environmental trends are moving in a positive direction, and he gives more credit to environmental regulation as a source of environmental progress. While both decry doom and gloom forecasts by environmentalists, Lomborg puts a different “spin” on his argument. Lomborg claims that fear mongering by environmentalists has led society to put too much emphasis on environmental protection, and he suggests that resources should be shifted to other priorities.

Lomborg’s work is criticized in Robert V. Percival, Skeptical Environmentalist or Statistical Spin-Doctor? Bjorn Lomborg and the Relationship Between Environmental Law and Environmental Progress, 53 Case W. Res. L. Rev. 263 (2002). This article notes that while Lomborg observes a correlation between environmental progress and increasing levels of national income, he makes no systematic effort to explore the underlying causes of environmental progress. If rising national incomes correlate with improvements in environmental conditions because the public increasingly demands government action to protect the
environment, then Lomborg’s work provides scant basis for suggesting that existing environmental protection efforts should be relaxed. It also notes that Lomborg appears to be concerned only with the possibility that exaggerations by environmentalists could cause overregulation, ignoring how frequently industries have made highly exaggerated claims concerning the doom and gloom that would befall our economy if environmental protection measures were adopted. With scant evidence to support him, Lomborg denies the possibility that much of the environmental progress he trumpets is the product of existing environmental protection policies. If the state of the environment is improving because environmental policies are working, this progress provides no basis for Lomborg’s claim that environmental protection efforts should be relaxed. As one reviewer has noted, “The ultimate irony is that Lomborg could have presented his mass of data as a tribute to the effectiveness of environmental policy. That he chooses to do the opposite says far more about him than about any claimed objectivity of his statistical analysis.” Michael Grubb, Relying on Manna from Heaven?, 294 Science 1285, 1286 (Nov. 9, 2001).

NOTES AND QUESTIONS

1. A vigorous debate over the future of environmental politics has been spawned by environmental advocates who are frustrated with the movement’s progress in recent years. In fall 2004 Ted Nordhaus and Michael Shellenberger presented foundation leaders with a paper entitled “The Death of Environmentalism” that argues in favor of focusing the environmental movement’s energy on a broader set of progressive causes. Felicity Barringer, Debate Stirs on the Value of Ecopolitics, N.Y. Times, Feb. 6, 2005, at A1. Their paper cites data finding that the percentage of people who believe pollution is necessary to protect jobs rose from 17 percent in 1992 to 29 percent in 2004. Adam Werbach, a former president of the Sierra Club, made a similar argument in a speech entitled “Is Environmentalism Dead?” in December 2004. Carl Pope, executive director of the Sierra Club, vehemently disagrees with this assessment. The text of these speeches and other contributions to this ongoing debate can be viewed at http://gristmill.grist.org/story/2005/1/13/134030/929.

2. A mass market thriller, entitled “State of Fear,” by popular author Michael Crichton was published in 2005. It portrays environmentalists as fearmongering wimps eager to create disasters to convince the public that global warming is an imminent peril. While the book is a work of fiction, it includes extensive footnotes and a bibliography intended to convey the impression that the author has discovered the real facts debunking global warming. The result has been described by one reviewer as “pure porn for global warming deniers” and by another as an indication that Crichton “has completely lost all sense of perspective.” Bruce Barcott, Not So Hot, New York Times Book Review, Jan. 30, 2005, at 12. Crichton’s book is also reviewed in Alan S. Miller, Bad Fiction, Worse Science, Issues in Science and Technology, Winter 2006, at 93. For a response to the book by the Natural Resources Defense Council see “They Don’t Call It Science Fiction for Nothing,” at http://www.nrdc.org/globalwarming/crichton.asp. For a response by environmental scientists see “Michael Crichton’s State of Confusion,” at http://www.realclimate.org/index.php?p=74.

3. Several groups have been involved in projects to assess how to improve the environmental protection infrastructure. These groups include the National
Academy of Public Administration (NAPA), the President’s Council on Sustainable Development (PCSD), the Next Generation Project of the Yale Center for Environmental Law and Policy, and a group called the Enterprise for the Environment (E4E). These projects, often described as efforts to “rethink” or “reinvent” environmental regulation, have generated several reports. The themes articulated in these reports provide a glimpse of potential future directions for environmental law and policy, as summarized below.

There are many convergent themes in the reports, as discussed in the sections below.

The Environmental Protection System, Past and Future

- All of the reports recognize that the current system has brought about a much cleaner environment over the past three decades, largely through application of technology-based regulations on large point sources of pollution and through national standards applicable to various products, processes and substances.
- At the same time, the reports argue that the current system is not well-equipped to address the environmental challenges that remain or that loom on the horizon.
- Several of the reports describe the current system as likely being in a zone of “diminishing returns,” where further tightening of technology-based regulations will produce modest environmental improvement at very high cost.
- The reports call for evolution, not revolution. None of the reports call for a dismantling of the current regulatory system; they recommend building on it. The reports recommend modifying and supplementing the existing system, experimenting with new approaches, and carefully evaluating the results. In E4E, the metaphor for this evolution was the use of “stepping stones” to cross a river. The E4E report stated that this evolution would require “experimentation, prudent risk taking, mistakes, learning, adaptation, and a rebuilding of trust.” In a similar vein, the Aspen Institute concluded, “The Alternative Path supplements the current regulatory system rather than replacing it. The current system is needed to serve as a benchmark for performance as new methods are tested.”

Goals

- Most next generation reports emphasize the need for the nation to set clear, measurable environmental goals to guide the environmental protection system. The PCSD set forth 10 interrelated goals that it felt were...
essential in guiding the nation toward sustainable development, and it offered suggestions of indicators to measure progress toward each goal. One of the Aspen Institute’s 11 broad, underlying principles developed in *The Alternative Path* is: “Environmental protection goals should underlie a new system and be clear and measurable.” E4E’s vision for the future recommended that an improved environmental protection system “set and pursue clear environmental goals and milestones for the nation, states, localities, and tribes, and use understandable indicators to measure progress.”

- None of the next generation reports suggest that environmental goals (or milestones) obviate the need for regulations or nonregulatory policy tools to bring about reductions in pollution or other changes necessary to protect the environment.

**Information and Data**

- Next generation reports stress the need for greatly improved information and data systems. Information and data relevant to the environmental protection system encompass those related to ambient conditions, emission sources, and risks to human health and ecosystems, as well as measures of Agency resource use and impacts, and broader social and economic impacts.
- The improved environmental protection system called for in next generation reports requires better information and data than does the current system. A system focusing on environmental goals as described above requires better monitoring and tracking of environmental conditions and more sophisticated information systems than traditional technology-based regulations.
- The PCSD, E4E, and NAPA reports contain recommendations to strengthen the base of scientific knowledge; increase its use by decision-makers and the general public; and improve the quality, collection, management, and accessibility of environmental information.

**Evolution of the Regulatory System**

- Next generation reports call for evolutionary change in the regulatory system, with an emphasis on performance-based standards (rather than technology-based standards) and with regulated entities having more flexibility in meeting these standards while maintaining high standards of accountability.
- This evolution would also include a more integrated, multimedia regulatory structure; more encouragement of pollution prevention; and more streamlined reporting requirements.
- The PCSD’s conclusion in this area represented a breakthrough: for the first time, a prominent group of national environmental organizations and business leaders jointly endorsed the . . . growing consensus that the existing regulatory system may be greatly improved by moving toward performance-based policies that encourage pollution prevention. Regulations that specify performance standards based on strong protection of health and environment—but without mandating the means of
compliance—give companies and communities flexibility to find the most cost-effective way to achieve environmental goals. In return for this flexibility, companies can pursue technological innovation that will result in superior environmental protection at far lower costs. But this flexibility must be coupled with accountability and enforcement to ensure that public health and the environment are safeguarded. [PCSD, Sustainable America 28 (1996).]

- Several next generation reports address the thorny issue of “superior environmental performance,” i.e., whether regulators should offer more flexible, cost-saving approaches only if regulated entities provide greater environmental protection than that achieved by current regulations. The conclusions are very similar: superior environmental performance should not be required of each and every improvement to the regulatory system. The PCSD distinguished between general streamlining and improvement of the regulatory system (expected to produce cost savings and/or incremental environmental improvement), and bold experiments in alternatives to the current system that would require superior environmental performance as a condition for a far greater range of flexibility for the regulated entity. This distinction is echoed in The Alternative Path and the E4E report.

- Many next generation reports cited the desirability of regulatory approaches that encouraged pollution prevention across all media.
- Many reports emphasize the desirability of improving the collection, organization, and dissemination of information to reduce duplication and streamline reporting requirements while enhancing access to relevant information by regulators and the public at large.

**Expanded Set of Policy Tools**

Next generation reports call on government to expand the set of policy tools it uses to protect the environment. Examples include greater use of:

- Pollution taxes, often discussed in the context of a revenue-neutral tax shift in which taxes on labor and/or capital would be reduced.
- Pricing of various services that reflects their environmental impacts; e.g., transportation and waste disposal.
- Reform of subsidies that encourage environmental degradation.
- Tradeable permits, such as the Clean Air Act’s sulphur dioxide allowance trading system, the RECLAIM program for controlling air pollution in the Los Angeles air basin, various water effluent trading programs, and land-oriented tradeable permits (e.g., wetlands mitigation banking).
- Information disclosure requirements, such as the Toxics Release Inventory and California’s Proposition 65.
- Systems of extended product responsibility in which designers, producers, suppliers, users and disposers accept responsibility for environmental effects through all phases of a product’s life.

**Federal-State Partnerships**

- Several next generation reports address the nature of the federal-state partnership in protecting the environment.
• Next generation reports generally embrace the principle that EPA should differentiate its oversight responsibilities based on a state’s environmental performance. The PCSD recommended differentiated oversight based on performance: “Federal agencies should develop effective partnerships with state governments to administer environmental regulatory programs. These partnerships should eliminate duplicative activities and greatly reduce federal oversight of state programs that have a proven track record.”

Federal Policy Integration

• Next generation reports emphasize the need for better policy integration at the federal level. The policies of many federal departments and agencies have a significant impact on the environment through their influence on the activities of various sectors of the economy. Consistent with this theme, the PCSD report contains sections addressing many of these sectors.
• Several next generation reports recommend environmental concerns be better integrated into federal agencies through revitalization of the National Environmental Policy Act. E4E also cited the need for stronger coordination among agencies in dealing with problems ranging from water quality to endangered species to climate change, and argued that responsibility for this ultimately lies with the president who can choose to empower the Council on Environmental Quality or another White House office to perform the leadership and coordination function.
• Several reports call on Congress to better integrate its fragmented committee structure to improve both its legislative and oversight functions in the area of environmental protection.

Other Themes in Next Generation Reports

Several next generation reports emphasize the key role of private sector stewardship in protecting the environment. The Council recommends adoption of a voluntary system that ensures responsibility for a product’s environmental effects by all firms involved in the product’s life-cycle. The E4E report contains recommendations including: development of better metrics and indicators for stewardship; more extensive private networks of information sharing on pollution prevention and environmental stewardship; and industry adoption of a set of environmental best practices that promote both environmental protection and improved profitability.

NOTES AND QUESTIONS

1. Which of these recommendations do you think is most likely to be adopted? Which are likely to be the most problematic? What policies offer the greatest prospects for substantial improvements in environmental protection?
policy must “not become an excuse for shifting pollution costs onto the public or for inattention to the risk of environmental disasters.” Id. at 233. Esty and Chertow sketch their vision for the future by attempting to describe how the world would look in 2020 if policies incorporating the ideas of the “Next Generation” project were implemented.

Our vision is deliberately optimistic, and by no means the most likely. But we think it is useful as an illustration of the changes in day-to-day life that might unfold with the right mix of next-generation policies: . . .

- Environmental policy has become more ecological—comprehensive in focus and attentive to linkages across problems. Systems thinking in the form of both industrial ecology and ecosystem management has emerged as the analytic core of ecological policy. Fragmented regulatory approaches derived from individual laws separately governing air and water pollution and waste management have, over time, been reassembled, omitting some parts, adding others, into a more coherent and unified set of obligations. Similarly, a focus on the integration of human and natural systems, with its broad perspective on the competing needs and desires of the public, gives concreteness to commitments to sustainable development.

- In the land use context, this new policy approach provides a mechanism to address the cumulative impacts of many small harms and thus to ensure that environmental goals are better connected to development decisions. With an emphasis on comprehensive analysis and data-driven decisionmaking, new procedures gauge the air, water, and habitat impacts of proposed land uses. This process supports local priority setting and helps to guarantee that any environmental burdens created are not unfairly imposed on those in the next town, in the next state, or even thousands of miles away. . . .

- While responsibility for some policy matters has been decentralized, the “spirit of regulatory devolution” from the 1990s has given way to a recognition that the diversity of environmental and resource use issues requires a diversity of responses. Some problems are known to be best dealt with at a community or company level; other issues require a national or even global response. Local, state (and Indian tribe), and federal activities are supplemented by multitown, multistate, and multinational compacts where the ecosystem scale dictates.

- Environmental rights—the entitlement of every person to be free from pollution harms—have been firmly established, actually reestablished, building on the tradition of nuisance law. The property rights of the public have similarly been clarified, and landowners recognize that they must pay for harms that spill beyond their property boundaries or for
any scarce common resources such as air or water that they consume or pollute.

- A carefully structured system of fees for emissions has been established. Payment is required for discharges that cause adverse ecological or public health effects above established thresholds. After a phase-in period that extended twenty years in some sectors, companies from multinational giants to mom-and-pop enterprises pay emissions fees. Similarly, users of public resources such as water and grazing land are charged market prices for their consumption. Even farmers have gotten used to paying full price for their water and “nitrogen-loadings” fees on their fertilizer purchases.

- Individuals, as well, pay for their pollution. Pay-as-you-throw garbage charges have become a universal standard, and the prospect of a flat fee for trash pick-up seems as humorously outdated as unmetered electricity might have in the 1990s. Other “green” fees have also become commonplace: “highway bills” for those commuting on major roads (many of which have now been privatized—improving maintenance and decreasing congestion); electronically collected smog tolls for those driving polluting vehicles in areas with substandard air; and greenhouse gas taxes on gasoline, fuel oil, and natural gas (scaled to reflect the relative climate change impacts of the various fossil fuels).

- Tax-free electric cars have become popular among commuters and most fleet vehicles run on natural gas to reduce the environmental fees they must pay. General Motors, spurred by the changing economics of engine fuels, has a full line of hydrogen-powered vehicles.

- The income tax has been abolished. A consumption tax—with rates determined by annual family purchases—augmented by revenues from pollution fees has replaced it. The new revenue structure encourages savings and investment and simultaneously promotes resource conservation. Equity concerns over the regressive nature of pollution taxes and the fear that poor people will not be able to pay fees such as highway use charges have been addressed through a graduated consumption tax schedule under which the first twenty thousand dollars in purchases for an average household is tax-free.

- Systems thinking has led to a reorganization of federal policymaking. The former Environmental Protection Agency, Department of Energy, Forest Service, Interior Department, National Oceanic and Atmospheric Administration, Food and Drug Administration, and Occupational Safety and Health Administration have been consolidated into a new Public Health, Environment, and Resources Department (PHER, “Fair,” as it is called). PHER’s central role is evaluating and putting a price on public health and ecological harms.

- PHER’s work is supported by a Bureau of Environmental Indicators and Statistics and a reconfigured independent scientific agency, the National Institutes of Health and Environment (NIHE). The NIHE scientists, drawn from a variety of disciplines, have garnered a reputation for anticipating new environmental and health issues, and even a grudging respect from regulated industries for the rigor and transparency of their technical analyses.

- Although the enforcement officials still must pursue a small set of industry laggards, most companies operate under a command-and-covenant
In many cases, environmental protection efforts proceed without government involvement. Companies pay close attention to their “resource productivity” and competitive advantages gained through technological innovation. Corporate cost accounting practices have been refined to permit close tracking of all materials and energy flows. The International Organization for Standardization’s environmental management guidelines (ISO 14000) from the 1990s have flowered into the ISO 28000 series of substantive product and production process requirements.

Moving beyond the end-of-pipe pollution controls of the 1970s and even the pollution prevention efforts of the 1990s, businesses now analyze comprehensively the environmental harms and risks created by all of their facilities and throughout the life-cycles of their products. Sophisticated computer models linked to vast impact databases give a methodological rigor to life-cycle analysis that seemed unimaginable in the late twentieth century. Moreover, the systems focus encouraged by industrial ecology-based policies promotes careful corporate consideration of opportunities to reduce environmental impacts across the spectrum of activities of the firm, as well as upstream (with suppliers) and downstream (with customers).

If a proposed building site contains a wetland or other ecologically important area, the developer instantly learns its “value rank.” Although permission to build on red maple swamps or other high-value habitats is severely restricted, construction is permitted on low-value sites after a contribution (commensurate with the value of the habitat loss) is made to a wetlands or “ecosystem conservation” bank. The bank uses the funds to purchase high-value properties for protection and also to restore damaged wetlands as an offset against the habitat loss from new construction.

Internationally, a half-dozen U.N. agencies and various treaty secretariats with environmental missions have been consolidated into a Global Environmental Organization (GEO). This new, leanly staffed body manages the international response to global-scale problems, provides a mechanism for data and information exchange, coordinates policy with other international bodies such as the World Trade Organization (WTO), and offers dispute settlement services for trans-boundary environmental issues. GLOBE, a group of environmentally interested legislators from around the world, conducts oversight hearings on the GEO’s performance.

The World Bank and other multilateral development banks have been rechartered. They now focus on assistance to the least developed countries (those unable to attract private capital) and on subsidizing the global benefits of environmental investments in projects where a nation-state level benefit-cost analysis would not justify action because the benefits fall outside the country.

Environmental nongovernmental organizations (NGOs) help to shape and legitimize international environmental policymaking. As part of a rapidly evolving global civil society, the NGOs link local citizens to the otherwise distant governance processes at the world scale, inform the
public about policy choices, and ensure a measure of public participation in various international organizations such as the GEO and the WTO.

NOTES AND QUESTIONS

1. Which features of the vision described above would require changes in the federal environmental laws? What changes would have to be made, and to which statutes? How realistic politically is it to expect that such change could be accomplished?

2. To what extent could the changes described above be accomplished without changing the environmental laws? What would be required to bring these changes about?

3. In Chapter 11, we noted the analysis by Gus Speth, who argues that the legal approach to international problems may be an inadequate response. Drawing on work by the World Business Council for Sustainable Development, Speth outlines a scenario called “JAZZ”:

“[P]eople and businesses create a world full of unscripted, voluntary initiatives that are decentralized and improvisational, like jazz. In the JAZZ world, information about business behavior is abundant, and good conduct is enforced by public opinion and consumer decisions. Governments facilitate more than regulate, environmental and consumer groups are very active, and businesses see strategic advantage in doing the right thing.”

Speth, Red Sky at Morning 173 (2004). What prospects do you foresee for the JAZZ scenario? How would it affect the role of law in promoting environmental protection?

4. Enactment of the Sarbanes-Oxley Act of 2002 has placed increased attention on disclosure of environmental liabilities by corporations. The Act requires a company’s chief executive officer and chief financial officer to certify that the company has an adequate internal management system consisting of “disclosure controls and procedures” encompassing environmental matters required to be reported in filings with the Securities and Exchange Commission (SEC). While the SEC’s role in environmental matters has been relatively minor, both environmental groups and advocates for improved corporate governance have been pushing companies to make greater environmental disclosures. In recent years there has been a significant increase in the percentage of large companies voluntarily producing reports on their environmental performance. This trend has been facilitated by the Global Reporting Initiative (GRI) spearheaded by the Coalition for Environmentally Responsible Economies (CERES) and the United Nations Environment Programme (UNEP). See http://www.globalreporting.org and http://www.ceres.org.

C. SOME CONCLUDING THOUGHTS

Because environmental regulation raises many fundamental policy dilemmas for which there are no clear answers, it is hardly surprising that it has been such a persistent source of controversy. As we saw at the outset of this book, beneath the veneer of consensus on environmental values that permits politicians to declare the environment a “moral issue,” lie deep divisions over policy.
The characteristics of modern environmental problems—uncertainty of mechanism and effect, the collective nature of risk, irreversibility, and potentially catastrophic effects—help explain why. While some believe that these challenges are so daunting that environmental protection should become “the central organizing principle for civilization,” A. Gore, Earth in the Balance: Ecology and the Human Spirit 269 (1992), others depict environmentalists as power-hungry alarmists bent on destroying jobs. See, e.g., Will, Earth Day’s Hidden Agenda, Wash. Post, Apr. 19, 1990, at A27.

These divisions are not simply the product of different interpretations of environmental “facts”; they also turn largely on differences in values concerning how much environmental risk society should tolerate, how that risk should be distributed, and how cautious society should be in the face of uncertainty. The difficulty of resolving such questions of value is reflected in the common law’s long struggle between utilitarian and rights-based approaches to environmental problems. This tension persists today, even as public law has taken center stage in environmental protection efforts, in the fierce debate over competing approaches to regulatory policy.

While public law has overcome many of the common law’s limitations, it faces difficulties of its own in designing and implementing regulatory policies that will affect human behavior in predictable ways. More than three decades of experience with federal regulation has generated considerable knowledge that can be used to improve future regulatory policy. We have learned that regulation can affect human behavior in unintended and counterproductive ways, but that it also can stimulate technological innovation, expanding our capability to control environmental problems and reducing the costs of such controls. As the limitations of policies that emphasized command-and-control regulation become more evident, environmental law is becoming increasingly receptive to approaches that use economic incentives to affect behavior.

Improved scientific understanding of environmental problems has made us more acutely aware of the limits of our knowledge even as our desire to know more intensifies. We have come to realize that even small changes in human behavior can have an enormous impact on our environment, even if we still cannot trace micro-level impacts with precision. This understanding is contributing to expanded notions of social responsibility embodied in laws that extend liability to parties more remotely connected to environmental damage or that seek to regulate increasingly smaller entities.

As legal responsibility for environmental protection expands, conflicts between environmental regulation and individual autonomy may arise more frequently. In such circumstances, environmentalists may become the cool analysts while their opponents seek to muster moral outrage against perceived threats to their property. Recognition that concern for fairness and respect for individual autonomy are at the root of much environmental regulation should provide some common ground for resolving these controversies as society decides how to control environmental risks and how to distribute the costs of regulation.

Many of the same policy dilemmas that have confronted national environmental policy making are now appearing on a global scale as the international community seeks to develop a coordinated response to global environmental problems. How the world community addresses these issues will have a profound effect not only on what sort of planet we leave our children, but also on the values they will hold and their ability to fulfill their aspirations.
This glossary and the acronym list in Appendix B are adapted from various EPA publications, including EPA, Terms of Environment (1997). Some of them have been modified by the casebook authors to improve their clarity or accuracy. EPA now maintains a more extensive glossary and acronym list on-line at www.epa.gov/OCEPAterms/. The definitions are intended to acquaint you with the basic concepts; they do not represent legal definitions of the terms.

**Acid deposition.** Particulates and gases deposited onto soil and surface waters after emissions of sulfur and nitrogen compounds are transformed by chemical processes in the atmosphere. The wet forms, popularly called “acid rain,” can fall as rain, snow, or fog.

**Action level.** The level of a pollutant or contaminant that, when detected, triggers a requirement for some form of further action.

**Active ingredient.** In any pesticide product, the component that kills, or otherwise controls, target pests. Pesticides are regulated primarily on the basis of their active ingredients.

**Administrative order.** A directive requiring an individual, business, or other entity to take action or to refrain from an activity. It can be enforced in court and may be issued as a result of an administrative complaint ordering payment of a penalty for violations of a statute.

**Advanced waste water treatment.** Treatment of sewage that goes beyond the secondary or biological water treatment stage by removing nutrients such as phosphorus and nitrogen and a high percentage of suspended solids.

**Advisory.** A non-regulatory document that communicates risk information to persons.

**Airborne particulates.** Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets, including windblown dust, emissions from industrial processes, smoke from the burning of wood and coal, and the exhaust of motor vehicles.

**Air quality criteria.** Documents summarizing what is known about adverse health and welfare effects associated with various levels of air pollution.

**Air quality standards.** Regulations limiting levels of pollutants in the ambient air that may not be exceeded during a specified time in a defined area.

**Anthropogenic.** Caused by or relating to the impact of human activity on the environment.

**Anti-degradation policy.** A policy that restricts activities that would cause air or water quality to deteriorate in areas that currently meet applicable air or water quality standards.
Aquifer. An underground layer of permeable rock, sand, or gravel containing groundwater that can supply wells and springs.

Asbestos. A family of fibrous silicate minerals with electrical and thermal insulating properties that can cause lung cancer, mesothelioma, or asbestosis when inhaled.

Asbestosis. A disease associated with chronic exposure to and inhalation of asbestos fibers that makes breathing progressively more difficult and can lead to death.

Ash. The mineral content of a product remaining after complete combustion.

Assimilative capacity. The ability of a body of air or water to receive pollutants without causing significant environmental damage.

Attainment area. An area where air quality is in compliance with the national ambient air quality standards established under the Clean Air Act. An area may be an attainment area for one pollutant and a nonattainment area for others.

Background level. The naturally occurring level of a chemical substance found in air, water, or soil in the absence of a source of pollution.

Banking. A system for recording credits for qualified emissions reductions for later use in bubble, offset, or netting transactions.

BEN. EPA’s computer model for analyzing a violator’s economic gain from not complying with the law.

Benthic organism (Benthos). A form of aquatic plant or animal life that is found on or near the bottom of a stream, lake, or ocean.

Benthic region. The bottom layer of a body of water.

Best available control technology (BACT). An emission limitation based on the maximum degree of emission reduction achievable through application of production processes and available methods, systems, and techniques. Use of the BACT concept is allowable on a case-by-case basis for major new or modified emissions sources in attainment areas, and it applies to each regulated pollutant.

Best Demonstrated Available Technology (BDAT). As identified by EPA, the most effective commercially available means of treating specific types of hazardous waste. The BDATs may change with advances in treatment technologies.

Best Management Practices (BMP). Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources.

Bioaccumulative. The propensity of substances to increase in concentration in living organisms as they are ingested because they are very slowly metabolized or excreted.

Bioassay. A test used to evaluate the effects of a chemical substance by exposing living organisms (in vivo) or isolated tissue (in vitro) to it.

Biochemical oxygen demand (BOD). A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water.

Biodegradable. Having the ability to break down or decompose rapidly under natural conditions and processes.

Biodiversity. Refers to the variety and variability among living organisms and the ecological complexes in which they occur. Diversity can be defined as
the number of different items and their relative frequencies. For biological diversity, these items are organized at many levels, ranging from complete ecosystems to the biochemical structures that are the molecular basis of heredity. Thus, the term encompasses different ecosystems, species, and genes.

**Biological treatment.** A treatment technology that uses bacteria to consume waste by breaking down organic materials.

**Biomass.** All of the living material in a given area; often refers to vegetation. Also called “biota.”

**Biomonitoring.** (1) The use of living organisms to test the effects of effluent discharges. (2) Analysis of blood, urine, and tissues to measure chemical exposure in humans.

**Biosphere.** The portion of Earth and its atmosphere that can support life.

**BOD5.** The amount of dissolved oxygen consumed in five days by biological processes breaking down organic matter.

**Brownfields.** Real estate with some degree of environmental contamination, usually due to previous industrial use, which may deter redevelopment because of fears of environmental liability.

**Bubble policy.** An EPA policy that allows a plant complex with several facilities to decrease pollution from some facilities while increasing it from others, so long as total results are equal to or better than those required by previous limits. Facilities where this is done are treated as if they exist in a bubble in which total emissions are averaged out.

**Cancellation.** Refers to revoking the registration of a pesticide under section 6(b) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) if unreasonable adverse effects to the environment and public health develop when a product is used according to widespread and commonly recognized practice, or if its labeling or other material required to be submitted does not comply with FIFRA provisions.

**Cap.** A layer of clay or other highly impermeable material installed over the top of a closed landfill to prevent entry of rainwater and to minimize production of leachate, or a limit on the total amount of emissions from a group of pollution sources covered by a particular control regime.

**Cap and trade.** Technique for controlling pollution by setting a limit on the total emissions from a group of sources while allowing the sources to trade emissions allowances to reduce the overall cost of complying with the cap.

**Carbon dioxide (CO2).** A colorless, odorless gas that results from fossil-fuel combustion and is normally a part of the ambient air. Increasing levels of carbon dioxide in the atmosphere are contributing to the greenhouse effect.

**Carbon monoxide (CO).** A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion.

**Carcinogen.** Any substance that can cause or contribute to the production of cancer.

**Carrying capacity.** The amount of use a natural area can sustain without deterioration of its integrity.

**Catalytic converter.** An air pollution abatement device that removes pollutants from motor vehicle exhaust, either by oxidizing them into carbon dioxide and water or reducing them to nitrogen and oxygen.

**Categorical exclusion.** A class of actions that does not require preparation of an environmental assessment or environmental impact statement under
the National Environmental Policy Act (NEPA) because they are deemed not to have a significant effect on the environment.

**Categorical pretreatment standard.** A technology-based effluent limitation for an industrial facility that discharges into a municipal sewer system.

**Characteristic hazardous waste.** A waste deemed hazardous because it exhibits any one of four hazardous characteristics: ignitability, corrosivity, reactivity, or toxicity.

**Chlorinated hydrocarbons.** A class of compounds consisting of chlorine, hydrogen, and carbon that are very persistent in the environment and that tend to bioaccumulate in living organisms. Examples include polychlorinated and polybrominated biphenyls and pesticides such as DDT, aldrin, dieldrin, heptachlor, chlordane, lindane, endrin, mirex, and toxaphene.

**Chlorination.** The application of chlorine to drinking water, sewage, or industrial waste to disinfect it or to oxidize undesirable compounds.

**Chlorofluorocarbons (CFCs).** A family of inert, nontoxic, and easily liquified chemicals formerly used widely in refrigeration, air conditioning, packaging, and insulation or as solvents and aerosol propellants. Because of their stability, CFCs are not destroyed until they drift into the upper atmosphere, where their chlorine components destroy the Earth’s protective ozone layer.

**Chronic toxicity.** The capacity of a substance to cause adverse health effects due to exposure for an extended period of time, usually at least one-tenth of an organism’s lifetime.

**Clear-cut.** The harvesting of all trees in one area at one time, which can contribute to soil erosion and nonpoint source water pollution.

**Climate change.** Changes in worldwide climate and weather patterns of anthropogenic origin, including changes in precipitation patterns and storm activity, induced by global warming.

**Closed-loop recycling.** Reclaiming or reusing materials in an enclosed process.

**Coastal zone.** An area adjacent to a seacoast whose use can affect the sea and coastal ecosystems.

**Coefficient of haze.** A measurement of atmospheric interference with visibility.

**Coliform index.** A rating of the purity of water based on a count of fecal bacteria.

**Combined sewers.** A sewer system that carries both sewage and storm water runoff. Normally its entire flow goes to a waste treatment plant, but during a heavy storm, the storm water volume may be so great as to cause overflows, releasing untreated mixtures of storm water and sewage into receiving waters.

**Comment period.** Time provided for the public to review and comment on a proposed federal agency action after the proposal is published in the Federal Register.

**Community water system.** Under the Safe Drinking Water Act, a system for providing the public with water that has at least 15 service connections or that regularly serves at least 25 individuals.

**Compliance schedule.** An agreement between a regulated entity and a government agency that specifies a schedule of actions to be taken by certain dates to bring the entity into compliance with a regulation.

**Concentrated animal feeding operation.** Agricultural operations where large numbers of animals are kept and raised in confined situations with feed
being brought to the animals rather than the animals grazing or otherwise seeking feed in pastures. These operations are subject to regulation under the Clean Water Act because the animal waste and wastewater they generate can enter water bodies from spills or breaks of waste storage structures (due to accidents or excessive rain), and from non-agricultural application of manure to crop land.

Consent decree. A legal document, approved by a judge, that formalizes an agreement reached to settle litigation between opposing parties.

Conservation biology. An interdisciplinary approach to the problems of biological conservation emphasizing the maintenance of biodiversity at the genetic, species, and ecosystem levels.

Contaminant. Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil.

Contingency plan. A document outlining a planned course of action to be followed in case of an accident that releases materials that threaten human health or the environment.

Conventional pollutants. Water pollutants other than those listed as toxic or nonconventional. These include suspended solids, fecal coliform, and oxygen-demanding nutrients.

Corrosive. A chemical agent that reacts with the surface of a material, causing it to deteriorate or wear away.

Cost-effectiveness analysis. Analysis that compares alternative means to achieve a given objective in order to determine which is the least costly.

Cost recovery. A legal process by which potentially responsible parties who contributed to contamination at a Superfund site can be required to reimburse the government for money it spent during cleanup actions.

Criteria air pollutants. Six air pollutants for which national ambient air quality standards have been established by EPA: ozone, carbon monoxide, total suspended particulates, sulfur dioxide, lead, and nitrogen oxide. The term derives from the requirement that EPA issue air quality criteria describing the characteristics and potential health and welfare effects of these pollutants.

Critical areas. Environmentally sensitive lands, often located adjacent to shorelines, that may be subject to particular restrictions on development to protect the environment.

Critical habitat. A region where physical and biological features essential to the survival of an endangered or threatened species are found.

Data call-in. A request that pesticide manufacturers provide EPA with test data on the effects of existing pesticides to expedite re-registration or cancellation.

DDT. The first chlorinated hydrocarbon insecticide (chemical name: dichloro-diphenyl-trichloroethane). It has a half-life of 15 years and can collect in fatty tissues of certain animals. EPA banned registration and interstate sale of DDT for virtually all but emergency uses in the United States in 1972 because of its persistence in the environment and accumulation in the food chain.

Decommissioning. Process of closing, dismantling, and rendering safe abandoned nuclear power plants after the end of their operating lives.

Decomposition or degradation. The breakdown of matter by bacteria, enzymes, erosion, and fungi to transform a complex substance into simpler compounds or its constituent elements.
Delegated program. A federal program that a state (or other government entity) has applied for and received authority to administer within its territory, subject to federal supervision.

Delisting. A decision to exclude a waste generated at a particular facility from listing as hazardous under RCRA subtitle C in response to a petition demonstrating that site-specific factors render the waste nonhazardous.

Designated uses. The purposes for which individual water segments are to be protected as identified by state authorities under the Clean Water Act (e.g., cold water fisheries, public water supply, or agriculture).

Dioxin. Any of a family of compounds known chemically as dibenzo-p-dioxins that are a by-product or contaminant of herbicides, paper mill emissions, and combustion processes. Concern about them arises from their persistence and bioaccumulative capacity, their adverse effects on the immune system, and their association with cancer and birth defects in certain animal species.

Direct discharger. A municipal or industrial facility that introduces pollution directly into surface waters.

Dissolved oxygen (DO). The level of oxygen available in water, an important indicator of a water body’s ability to support aquatic life.

Dissolved solids. Disintegrated organic and inorganic material contained in water. Excessive amounts make water unfit to drink or use in industrial processes.

Ecological economics. Movement that promotes the integration of economics and ecology into a transdiscipline that promotes sustainable development by properly valuing natural resources and the environmental services they provide.

Ecological impact. The effect that an action or activity has on living organisms and their nonliving (abiotic) environment.

Ecology. Study of the relationship of living things to one another and their environment.

Ecosystem. The interacting system of a biological community and its environmental surroundings.

Ecosystem services. Benefits produced by ecosystems through natural processes including filtration of pollutants, flood control, pollination, nutrient cycling, and other services.

Effluent. Waste material discharged into surface waters.

Effluent limitation. A regulation restricting the quantities, rates, or concentrations of pollutants in wastewater discharges.

Effluent trading. The purchase, sale or exchange of allowances to discharge effluents or runoff into particular watersheds.

Electrostatic precipitator. An air pollution control device that removes particles from the gas stream (smoke) after combustion occurs by imparting an electrical charge to the particles, causing them to adhere to metal plates inside the precipitator.

Eminent domain. Government acquisition of private land for public use, with compensation paid to the landowner.

Emission standard. A regulation limiting the amount of pollutants that legally may be discharged from a source.

Emissions trading. The buying and selling of allowances to emit pollution in order to enable pollutant sources to reduce the cost of pollution control.
**Endangered species.** An animal, bird, fish, plant, or other species that is in danger of extinction throughout all or a significant portion of its range.

**Environment.** The sum of all external conditions affecting the life, development, and survival of an organism.

**Environmental assessment.** A written analysis prepared pursuant to the National Environmental Policy Act to determine whether a federal action would significantly affect the environment and thus require preparation of a more detailed environmental impact statement.

**Environmental audit.** A systematic assessment of an entity’s compliance with applicable environmental requirements which may include evaluation of compliance policies, practices, and controls.

**Environmental impact statement.** A document the National Environmental Policy Act requires federal agencies to prepare before undertaking major projects or legislative proposals significantly affecting the environment. It provides a detailed assessment of the environmental consequences of the proposed action and it must include an analysis of alternative actions.

**Environmental management system.** Corporate management system for ensuring compliance with environmental regulations and for incorporating environmental concerns into corporate decisions.

**Epidemiology.** Study of the health effects of environmental exposures to a substance based on systematic comparisons of the incidence of diseases in population groups that differ primarily in their levels of exposure to the substance.

**Estuary.** Regions of interaction between rivers and near-shore ocean waters where tidal action and river flow create a mixing of fresh and salt water.

**Eutrophication.** The process by which shallow bodies of water receive increased amounts of dissolved nutrients such as nitrogen and phosphorus that encourage excessive plant growth and result in oxygen depletion.

**Exceedance.** Violation of environmental protection standards by exceeding allowable limits or concentration levels.

**Extremely hazardous substances.** Any of hundreds of chemicals identified by EPA on the basis of their toxicity and listed as extremely hazardous under the Emergency Planning and Community Right-to-Know Act.

**Feasibility study.** Analysis of the practicability of alternative means for remediating environmental contamination, a study that usually starts as soon as a remedial investigation is under way; together, they are commonly referred to as the “RI/FS.”

**Filtration.** A treatment process for removing solid (particulate) matter from water by passing the water through porous media such as sand or a man-made filter.

**Finding of no significant impact.** A decision, based upon the results of an environmental assessment, finding that a proposed action would not have a significant impact on the environment and thus would not require preparation of an environmental impact statement.

**Flue gas desulfurization.** A technology that uses a sorbent, usually lime or limestone, to remove sulfur dioxide from the gases produced by burning fossil fuels.

**Fly ash.** Noncombustible residual particles from the combustion process carried by flue gas.
**Food chain.** A sequence of organisms, each of which uses the next lower member of the sequence as a food source.

**Fuel economy standard.** The Corporate Average Fuel Economy Standard (CAFE), which imposes financial penalties on motor vehicle manufacturers whose vehicles fail to meet certain average levels of fuel economy (as measured in miles per gallon).

**Fugitive emissions.** Emissions not caught by a capture system.

**Fungicide.** A pesticide used to control, prevent, or destroy fungi.

**General permit.** A permit automatically applicable to a class or category of dischargers that does not require processing of individual permit applications.

**Global warming.** An increase in worldwide temperature due to increased atmospheric concentrations of carbon dioxide and other gases that contribute to the greenhouse effect.

**Greenhouse effect.** The accumulation of carbon dioxide and other greenhouse gases in the upper atmosphere that allows sunlight to raise the surface temperature of the Earth while preventing the escape of heat.

**Greenhouse gas.** A gas whose presence in the upper atmosphere contributes to the greenhouse effect by allowing visible light to pass through the atmosphere while preventing heat radiating back from the Earth from escaping. Greenhouse gases from anthropogenic sources include carbon dioxide, nitrous oxide, methane, and CFCs. There also are even larger quantities of naturally occurring greenhouse gases, notably ozone and water vapor, whose concentrations may be affected by interactions with atmospheric pollutants.

**Groundwater.** The supply of fresh water found beneath the Earth’s surface, usually in aquifers, which is often used for supplying wells and springs.

**Habitat.** The place where a population (e.g., human, animal, plant, microorganism) lives and its surroundings, both living and nonliving.

**Habitat conservation plan.** A plan for minimizing and mitigating the impact of activities that otherwise would harm endangered species that must be approved as a condition for receiving a permit authorizing activities that would result in the incidental taking of such species pursuant to section 10 of the Endangered Species Act.

**Hazard identification.** A determination of whether or not a substance is capable of causing some form of adverse effect (e.g., determining if a substance is a carcinogen or reproductive toxin).

**Hazardous air pollutants.** Air pollutants that may cause death, serious irreversible, or incapacitating reversible illness and that are not covered by ambient air quality standards. Since the 1990 Clean Air Act Amendments these include an initial list of 189 chemicals designated by Congress that is subject to revision by EPA.

**Hazardous substance.** Any material that poses a threat to human health or the environment. CERCLA makes broad classes of parties strictly liable for the costs of remediating releases of hazardous substances which it broadly defines to include any toxic water pollutant, hazardous waste, hazardous air pollutant, imminently hazardous chemical, or any substance designated by EPA to be reported if a designated quantity of the substance is released into the environment.
Hazardous waste. A solid waste regulated under subtitle C of RCRA because it may pose a substantial present or potential hazard to human health or the environment when improperly managed either because it exhibits at least one of four hazardous characteristics (ignitability, corrosivity, reactivity, or toxicity) or because it has been specifically listed by EPA as hazardous.

Hazard ranking system. The principal screening tool used by EPA to evaluate risks to public health and the environment associated with abandoned or uncontrolled hazardous waste sites. Based on assessment of the potential for hazardous substances to cause harm to human health or the environment, the HRS calculates a score that is the primary factor in deciding if the site should be on the National Priorities List for cleanup under the Superfund program.

Heavy metals. Metallic elements with high atomic weights (for example, mercury, cadmium, and lead), which can damage living things and can be stored in tissues for long periods of time.

Herbicide. A chemical agent designed to control or destroy unwanted vegetation.

High-level radioactive waste. Highly radioactive waste generated by the fuel of a nuclear reactor, found primarily at nuclear power plants. This waste will remain highly radioactive, and thus dangerous, for thousands of years.

Hydrocarbons (HC). Chemical compounds that consist entirely of carbon and hydrogen.

Hydrogeology. Study of geological formations that contain groundwater, with particular emphasis on its fate and transport.

Hydrology. The science dealing with the properties, distribution, and circulation of water.

Ignitable. Capable of burning or causing a fire.

Impoundment. A body of water or sludge confined by a dam, dike, floodgate, or other barrier.

Indicator species. A species whose condition is thought to reflect the health of a larger ecosystem.

Indirect discharger. Commercial or industrial facilities that discharge wastes into local sewers.

Indoor air pollution. Chemical, physical, or biological contaminants in the air inside a home, building, or other habitable structure.

Inert ingredient. Pesticide components such as solvents, carriers, and surfactants that are not active against target pests.

Injection well. A well into which fluids are injected for purposes such as waste disposal, improving the recovery of crude oil, or solution mining.

Injection zone. A geological formation, group of formations, or part of a formation receiving fluids through a well.

Inorganic chemicals. Chemical compounds that do not contain carbon.

Insecticide. An agent that destroys or controls the growth of insects.

Inspection and maintenance. Programs to ensure proper operation of emission control systems on automobiles.

Integrated pest management. Pest control practices that emphasize the use of natural predators to control pests.

Interim status. Regulatory status that allowed treatment, storage, and disposal facilities for hazardous waste to continue to operate temporarily after the enactment of RCRA in 1980 pending denial or issuance of a permit.
Interstitial monitoring. The continuous surveillance of the space between the walls of an underground storage tank.

Inversion. An atmospheric condition that occurs when a layer of warm air prevents the rise of cooler air trapped beneath it, causing pollutants that might otherwise be dispersed to become more concentrated.

In vitro. (1) “In glass”; a test-tube culture. (2) Any laboratory test using living cells taken from an organism.

In vivo. In the living body of a plant or animal. In vivo tests are those laboratory experiments carried out on whole animals or human volunteers.

Ionizing radiation. Radiation with enough energy to penetrate matter and eject electrons or protons, producing charged ion pairs.

ISO 14000. A series of voluntary standards relating to environmental management systems for corporations drafted by the International Organization for Standardization, named “ISO” after the Greek prefix for “equal.”

Joint and several liability. A concept employed in CERCLA and derived from the common law of torts that permits any or all joint tortfeasors to be held for the full amount of damage they cause in the absence of proof of divisibility of the harm.

Land disposal restrictions. Rules issued under RCRA that require hazardous wastes to be treated before disposal on land to destroy or immobilize hazardous constituents that otherwise might migrate into soil or groundwater.

Landfills. Sites where wastes are disposed by being buried and covered with soil.

Leachate. The liquid that results from water collecting contaminants as it trickles through a landfill, which may result in the entry of hazardous substances into surface water, groundwater, or soil.

Leachate collection system. A system that gathers leachate and pumps it to the surface for treatment.

Leaching. The process by which soluble constituents are dissolved and carried down through the soil by a percolating fluid.

Lead (Pb). A heavy metal that exerts toxic effects on the nervous, reproductive, renal, and immune systems, and that is associated with increases in blood pressure.

Liner. A relatively impermeable barrier, usually of plastic or clay, that is designed to prevent leachate from leaking from a landfill.

Listed hazardous waste. Waste expressly listed as hazardous under subtitle C of RCRA because it is part of a waste stream that may pose a substantial threat to human health or the environment when managed improperly.

Local emergency planning committee. A committee appointed by a state’s emergency response commission, as required by section 301 of the Emergency Planning and Community Right-to-Know Act, to formulate a comprehensive emergency response plan.

Lowest achievable emission rate (LAER). Under the Clean Air Act, this is the rate of emissions that reflects (a) the most stringent emission limitation contained in the implementation plan of any state for such source unless the owner or operator of the proposed source demonstrates such limitations are not achievable; or (b) the most stringent emissions limitation achieved in practice, whichever is more stringent.
Low-level radioactive waste. Radioactive wastes generated by hospitals, research laboratories, and certain industries that contain lower levels of radioactivity than those generated by a nuclear reactor.

Major modification. Any nonroutine physical or operational change in a stationary source that will result in a significant net increase in emissions that may subject the source to PSD or new source review requirements under the Clean Air Act.

Major stationary source. Any stationary source that emits or has the potential to emit certain threshold levels of emissions to which PSD and new source requirements of the Clean Air Act are applicable.

Material safety data sheet. A compilation of information OSHA requires certain employers to provide to workers to inform them of the identities of hazardous chemicals, health and physical hazards, exposure limits, and precautions.

Maximum contaminant level (MCL). The maximum permissible level of a contaminant in water delivered to any user of a public water system established pursuant to the Safe Drinking Water Act.

Maximum contaminant level goal (MCLG). The maximum level of a contaminant in water at which no known or anticipated adverse effects on health occur and which includes an adequate margin of safety.

Methane. A greenhouse gas that is colorless, odorless, and flammable which is produced by the decomposition of organic matter.

Metropolitan planning organization. Metropolitan-wide planning organization that is responsible for developing regional transportation plans under the Urban Mass Transportation Act.

Mitigation. Measures taken to reduce the adverse environmental effects of an activity.

Mixing zone. Area in which effluent discharges mix with receiving waters to be diluted prior to assessing compliance with water quality standards.

Mobile source. A source of air pollution that moves, such as cars, trucks, motorcycles, and airplanes.

Modeling. Efforts to predict the fate and transport of pollutants or the environmental effects of human activities by using a mathematical or physical representation of a system to test the effect of changes in system components.

Monitoring. Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements or to assess pollutant levels in various media or in humans, animals, and other living things.

Monitoring wells. Wells drilled to collect groundwater samples for the purpose of determining the amounts, types, and distribution of contaminants in the groundwater.

Mutagen/Mutagenicity. Any chemical or physical agent capable of causing a permanent genetic change in a cell other than that which occurs during normal growth. Mutagenicity is the capacity of any agent to cause such changes.

National Ambient Air Quality Standards. Uniform, national air quality standards established by EPA that restrict ambient levels of certain pollutants to protect public health (primary standards) or public welfare (secondary standards).
National Contingency Plan. The federal plan that outlines procedures and standards for responding to releases of oil and hazardous substances including responses to sites designated for cleanup under the Superfund program.


National Pollutant Discharge Elimination System. The Clean Water Act’s national permit program that regulates the discharge of pollutants into waters of the United States.

National Priorities List. EPA’s list of sites identified as priorities for remedial action under CERCLA.

National Response Center. Operations center run by the U.S. Coast Guard and open 24 hours per day that receives notifications of releases of oil and hazardous substances into the environment, evaluates the reports, and notifies the appropriate agency for responding to the releases.

National Response Team. Representatives of various federal agencies who coordinate federal responses to nationally significant incidents of pollution and provide advice and technical assistance to the responding agency or agencies before and during a response action.

Navigable waters. Initially, waters sufficiently deep and wide for navigation but now including waters adjacent to or connected to waters navigable in fact.

New source. Any stationary source built or modified after publication of final or proposed regulations that prescribe a standard of performance intended to apply to that type of emissions source.

New Source Performance Standards. Uniform national EPA air emissions and water effluent standards that limit the amount of pollution allowed from new sources or from existing sources that have been modified.

Nitrate. A form of nitrogen that can exist in the atmosphere or as a dissolved gas in water and that can have harmful effects on humans and animals.

Nitric oxide (NO). A gas formed by the oxidation of nitrogen or ammonia, whose primary source is the combustion pressure in an internal combustion engine. It can change into nitrogen dioxide in the ambient air, contributing to photochemical smog.

Nitrogen dioxide (NO₂). A major component of photochemical smog formed when nitric oxide combines with oxygen in the atmosphere.

Nitrogen oxide (NOₓ). A product of combustion by mobile and stationary sources and a major contributor to acid deposition and the formation of ozone in the troposphere.

No Observable Adverse Effect Level (NOAEL). An exposure level at which there are no statistically or biologically significant increases in the frequency or severity of adverse effects between the exposed population and its appropriate control.

Nonattainment area. A geographic area that is not in compliance with the National Ambient Air Quality Standard for a criteria air pollutant under the Clean Air Act.

Nonconventional pollutant. Water pollutants that are not listed as toxic pollutants or conventional pollutants, including color, nitrates, iron, ammonia, and chlorides.

Nonpoint source pollution. Pollution from sources that are diffuse and that do not have any single point of origin or discharge, such as pollutants generally carried off land by runoff.
Nutrient. Any substance assimilated by living things that promotes growth. Contaminant of water resources by excessive inputs of nutrients causes excess algal production.

Oncogenic. Capable of causing tumors, whether benign or malignant.
Opacity. A measure of the amount of light obscured by particulate pollution in the air; clear window glass has a zero opacity, a brick wall has 100 percent opacity.
Open dump. A site where solid waste is disposed of without satisfying the criteria established by EPA under section 4004 of RCRA.
Organic. (1) Derived from or relating to living organisms. (2) In chemistry, any compound containing carbon.
Organic matter. Carbonaceous waste contained in plant or animal matter and originating from domestic or industrial sources.
Organism. Any living thing.
Organophosphates. Relatively nonpersistent insecticides that contain phosphorus.
Organotins. Chemical compounds used to kill bacteria, algae, molluscs, fungi, and insects which are known to be toxic to the immune system.
Outfall. The place where effluent is discharged into receiving waters.
Overburden. The rock and soil cleared away before mining.
Overfiling. Filing of federal enforcement actions in cases where states with delegated enforcement authority either have failed to act or have pursued actions deemed insufficient by federal authorities.
Ozone (O₃). A substance found in the stratosphere and the troposphere. In the stratosphere (the atmospheric layer beginning 7 to 10 miles above the Earth’s surface), ozone is a form of oxygen found naturally that provides a protective layer shielding the Earth from ultraviolet radiation. In the troposphere (the layer extending up 7 to 10 miles from the Earth’s surface), ozone is a chemical oxidant and a major component of photochemical smog.
Ozone depletion. Destruction of the stratospheric ozone layer caused by the breakdown of certain chlorine- and/or bromine-containing compounds (chlorofluorocarbons or halons), which catalytically destroy ozone molecules.

Particulates. Fine liquid or solid particles found in air, such as dust, smoke, mist, fumes, or smog.
Pathogenic. Capable of causing disease.
Pathogens. Microorganisms (such as bacteria, viruses, or parasites) that can cause disease in other organisms, including humans, animals, and plants.
PCBs. A group of toxic, persistent chemicals (polychlorinated biphenyls) formerly used in electrical transformers and capacitors for insulating purposes and in gas pipeline systems as a lubricant.
Perculation. The movement of water downward and radially through subsurface soil layers, usually continuing downward to groundwater.
Permit. An authorization, license, or equivalent control document issued by a government agency.
Persistence. The length of time a compound, once introduced into the environment, stays there.
Pesticide. A general term for any agent that destroys, injures, inhibits, or prevents the growth of rodents, insects, plants, algae, or fungi.
Pesticide tolerance. The amount of pesticide residue allowed by law to remain in or on a harvested crop.

pH. A measure of the acidity or alkalinity of a liquid or solid material.

Phosphates. Organic compounds of phosphoric acid physiologically important for acid-base balance in the blood. Produced in the environment by decaying organic matter and used as a component of detergents and fertilizers, phosphates have been a major cause of the eutrophication of water bodies by serving as nutrients for algae blooms.

Photochemical oxidants. Air pollutants formed by the action of sunlight on oxides of nitrogen and hydrocarbons.

Photochemical air pollution. Also called photochemical smog, a type of oxidizing pollution characterized by hydrocarbons, nitrogen oxides, and photochemical oxidants. Results from photochemical reactions of sunlight, automobile exhaust, and other oxidant pollutants.

Point source. A stationary location or fixed facility from which pollutants are discharged or emitted such as a pipe, ditch, or smokestack.

Pollutant. Generally, any substance introduced into the environment that adversely affects the usefulness of a resource.

Pollution. Generally, the presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.

Polychlorinated Biphenyls (PCBs). A group of toxic, persistent chemicals used in electrical transformers and capacitors for insulating purposes, and in gas pipeline systems as lubricants, the sale and new use of which were banned in 1979.

Post-closure period. The time period following the shutdown of a waste management facility during which the site must be monitored.

Potentially responsible party. Any individual or company potentially liable under section 107 of CERCLA for the costs of responding to releases of hazardous substances.

Preliminary assessment. The process of collecting and reviewing available information about a known or suspected waste site or release.

Pretreatment. Processes used to reduce, eliminate, or alter the toxicity of pollutants in wastewater from nondomestic sources before it is discharged into a sewer system.

Prevention of significant deterioration. An EPA program in which state or federal permits are required to restrict emissions from new or modified stationary sources in places where air quality is already better than required to meet primary and secondary ambient air quality standards.

Primary waste treatment. The first steps in wastewater treatment which typically use screens and sedimentation tanks to remove most materials that float or will settle.

Project XL. A project, whose acronym stands for Excellence and Leadership, that is designed to provide businesses and state and local governments with greater flexibility in deciding how to meet environmental standards. Participants enter into contracts with EPA that promise greater reductions of pollutant discharges than would be achieved through existing standards.

Prompt letter. Letter from the administrator of OMB’s Office of Information and Regulatory Affairs requesting an agency to consider taking some regulatory action.

Publicly owned treatment works. A waste-treatment works owned by a state, unit of local government, or Indian tribe, usually designed to treat domestic wastewaters.
Public water system. Under the Safe Drinking Water Act, a system that provides piped water for human consumption to at least 15 service connections or that regularly serves at least 25 individuals.

Radiation. A general term for radiant energy emitted in the form of particles or electromagnetic waves from radioactive elements, fluorescent substances, or luminous bodies.

Radio Frequency Radiation. Non-ionizing electromagnetic radiation that does not change the structure of atoms but does heat tissue and may cause harmful biological effects. This radiation is emitted by microwaves, radio waves, and low-frequency electromagnetic fields from high-voltage transmission lines.

Radionuclide. Isotopes of elements that spontaneously emit radiation by disintegration (decay) of their unstable nuclei. Can be man-made or naturally occurring.

Radon. A colorless, naturally occurring, radioactive, inert gaseous element formed by decay of radium atoms in soil or rocks.

Reasonably available control technology (RACT). Control technology that is reasonably available and both technologically and economically feasible. Usually it is applied to existing sources of air pollution in nonattainment areas.

Recharge. The process by which water is added to a zone of saturation, usually by percolation from the soil surface, for example, the recharge of an aquifer.

Recharge area. A land area in which water reaches to the zone of saturation from surface infiltration, for example, an area where rainwater soaks through the earth to reach an aquifer.

Recommended maximum contaminant level. The term formerly used for maximum contaminant level goal.

Record of decision. A public document that explains which cleanup alternative(s) will be used at National Priorities List sites.

Recycling. The process of minimizing the generation of waste by recovering usable products that might otherwise become waste. Examples are the recycling of aluminum cans, wastepaper, and bottles.

Reference Dose (RfD). A numerical estimate of a daily oral exposure to the human population, including sensitive subgroups such as children, for which a particular substance is not likely to cause harmful effects during a lifetime.

Registration. Formal listing with EPA of a new pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act so that it can be sold or distributed in intrastate or interstate commerce.

Remedial action. The actual construction or implementation phase of a Superfund site cleanup that follows remedial design.

Remedial design. A stage of the Superfund cleanup process that follows the remedial investigation feasibility study and includes development of engineering drawings and specifications for a site cleanup.

Remedial investigation. An in-depth study designed to gather the data necessary to determine the nature and extent of contamination at a Superfund site, establish criteria for cleaning up the site, identify preliminary alternatives for remedial actions, and support the technical and cost analyses of the alternatives. The remedial investigation is usually done with the feasibility study. Together they are referred to as the “RI/FS.”
Removal actions. Short-term actions taken to address releases of hazardous substances (e.g., removal of chemical drums).

Reportable quantity. The quantity of a hazardous substance that triggers reporting requirements under CERCLA. If a substance is released in amounts exceeding this quantity, the release must be reported to the National Response Center, state authorities, and community emergency coordinators for areas likely to be affected.

Reregistration. The reevaluation and relicensing of existing pesticides originally registered prior to the implementation of current scientific and regulatory standards.

Resource recovery. The process of obtaining matter or energy from materials formerly discarded.

Response action. A CERCLA-authorized action involving either a removal action or a remedial action.

Restricted use. A pesticide whose uses have been restricted because it requires special handling due to its toxicity. Restricted-use pesticides may be applied only by trained, certified applicators or those under their direct supervision.

Riparian rights. Entitlement of a land owner to the water on or bordering his or her property, including the right to prevent diversion or misuse of upstream waters.

Risk assessment. The process of identifying and characterizing the nature and magnitude of the adverse effects of a substance or activity.

Risk communication. The exchange of information about the nature and magnitude of health or environmental risks between risk assessors, risk managers, and the general public.

Risk management. The process of evaluating and selecting among alternative strategies for managing environmental risks.

Rodenticide. An agent that kills, repels, or controls rodents to prevent the spread of disease and consumption or contamination of food.

Rolling easements. Legal arrangements that transfer property rights through options, easements, covenants or defeasible estates as shorelines migrate.

Saturated zone. A subsurface area in which all pores and cracks are filled with water under pressure equal to or greater than that of the atmosphere.

Scrubber. An air pollution device that uses a spray of water or reactant or a dry process to trap pollutants in emissions.

Secondary treatment. The second step in most publicly owned waste treatment systems, in which bacteria consume the organic parts of the waste. It is accomplished by bringing together waste, bacteria, and oxygen in trickling filters or in an activated sludge process.

Sedimentation. Letting solids settle out of wastewater by gravity during wastewater treatment.

Sedimentation tanks. Holding areas for wastewater where floating wastes are skimed off and settled solids are removed for disposal.

Sediments. Soil, sand, and minerals washed from land into water, usually after rain.


Service line. The pipe that carries tap water from the public water main to a building.
Settling tank. A holding area for wastewater where heavier particles sink to the bottom for removal and disposal.

Sewage. The waste and wastewater produced by residential and commercial establishments and discharged into sewers.

Sewage sludge. Waste produced by sewage treatment processes at a publicly owned treatment works, the disposal of which is regulated under the Clean Water Act.

Sewer. A channel or conduit that carries wastewater or stormwater runoff from the source to a treatment plant or receiving stream.

Silviculture. Management of forest land for timber.

Site inspection. The collection of data concerning the extent and severity of hazards posed by a site where hazardous substances have been released to gather information necessary to score the site, using the Hazard Ranking System, and to determine if the site presents an immediate threat that requires prompt removal action.

Siting. The process of choosing a location for a facility.

Sludge. A semisolid residue from any of a number of air or water treatment processes.

Slurry. A watery mixture of insoluble matter that results from some pollution control techniques.

Smart growth. Policies that seek to encourage residential, commercial and industrial development that is environmentally sound and fiscally smart by channeling new development to areas with existing infrastructure.

Smelter. A facility that melts or fuses ore, often with an accompanying chemical change, to separate the metal.

Smog. Air pollution associated with oxidants.

Sole source aquifer. An aquifer that supplies 50 percent or more of the drinking water of an area.

Solid waste. Defined by RCRA to include “any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous materials resulting from industrial, commercial, mining, and agricultural activities.”

Solvent. A substance (usually liquid) capable of dissolving or dispersing one or more other substances.

Sorption. The action of soaking up or attracting substances.

Special review. A regulatory process through which existing pesticides suspected of posing unreasonable risk to human health, nontarget organisms, or the environment are referred for review by EPA.

Species. A reproductively isolated aggregate of interbreeding populations of organisms.

Spoil. Dirt or rock that has been removed from its original location, destroying the composition of the soil in the process, as with strip-mining or dredging.

Stabilization. Conversion of the active organic matter in sludge into inert, harmless material.

State emergency response commission. The commission appointed by each governor according to the requirements of the Emergency Planning and Community Right-to-Know Act. The SERCs designate emergency planning districts, appoint local emergency planning committees, and supervise and coordinate their activities.
**State implementation plans.** EPA-approved state plans for the establishment, regulation, and enforcement of air pollution standards.

**Stationary sources.** Fixed, nonmoving producers of pollution, including power plants and other facilities using industrial combustion processes.

**Storm sewer.** A system of pipes that carry only water runoff from building and land surfaces.

**Stratosphere.** The uppermost portion of the atmosphere that is 10 to 25 miles above the Earth’s surface.

**Strip-mining.** A process that uses machines to scrape soil or rock away from mineral deposits just under the Earth’s surface.

**Sulfur dioxide (SO$_2$).** A heavy, pungent, colorless, gaseous air pollutant formed primarily by the combustion of fossil fuels, which causes respiratory problems in humans and contributes to acid deposition.

**Sump.** A pit or tank that catches liquid runoff for drainage or disposal.

**Sump pump.** A mechanism for removing water or wastewater from a sump or wet well.

**Superfund.** A trust fund established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to help pay for cleanup of hazardous waste sites and for legal action to force those responsible for the sites to clean them up. Also used to refer to the program operated under the legislative authority of CERCLA that carries out EPA response activities.

**Surface impoundment.** A facility for the treatment, storage, or disposal of liquid wastes in ponds.

**Surface water.** All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, and so on) and all springs, wells, or other collectors that are directly influenced by surface water.

**Suspended solids.** Small particles of solid pollutants that float on the surface of, or are suspended in, sewage or other liquids.

**Sustainable development.** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Synthetic organic chemicals.** Man-made organic chemicals.

**Tailings.** Residue of raw materials or waste separated out during the processing of crops or mineral ores.

**Technology-based standards.** Emission limits that are established on the basis of what levels of pollution control certain types or levels of technology can achieve.

**Teratogen.** A substance that causes malformation or abnormal development of embryos and fetuses.

**Tertiary treatment.** Advanced cleaning of wastewater that goes beyond the secondary or biological treatment stage to remove nutrients such as phosphorus and nitrogen and most suspended solids.

**Thermal pollution.** Discharge of heat from industrial processes that can affect the environment adversely.

**Threshold limit value.** The maximum air concentrations of chemical substances to which it is believed that workers may be exposed on a daily basis without adverse effect.

**Threshold planning quantity.** A quantity designated for each chemical on the list of extremely hazardous substances that triggers EPCRA notification to state emergency response commissions.
Tolerances. Permissible residue levels for pesticides in raw agricultural produce and processed foods.

Total maximum daily loading. The maximum amount of a pollutant that can be discharged into a water segment each day by all sources without causing violation of a water quality standard.

Total suspended solids. A measure of the suspended solids in wastewater, effluent, or water bodies.

Toxicity. The degree of danger posed by a substance to living organisms. Acute toxicity involves harmful effects in an organism through a single or short-term exposure. Chronic toxicity is the ability of a substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated or continuous exposure sometimes lasting for the entire life of the exposed organism. Subchronic toxicity is the ability of the substance to cause effects for more than one year but less than the lifetime of the exposed organism.

Toxicology. The study of adverse effects of chemicals on living organisms.

Toxic pollutant. A pollutant that is capable of causing adverse effects on living organisms.

Toxics Release Inventory. The national inventory of the quantities of toxic substances released into different environmental media annually by facilities that manufacture, process, or use (in quantities above a specific amount) chemicals listed under the Emergency Planning and Community Right-to-Know Act.

Transferable development rights. Development rights sometimes allocated to property owners unable to develop a specific property that can be sold or used to qualify to develop another property in a more suitable location.

Treatment, storage, or disposal facility. A site where hazardous wastes are treated, stored, or disposed.

Trichloroethylene (TCE). A stable, low-boiling, colorless liquid, toxic by inhalation. TCE is used as a solvent and as a metal degreasing agent and in other industrial applications.

Troposphere. The lowermost portion of the atmosphere up to 10 kilometers from the Earth’s surface, where clouds are formed.

Tundra. A type of ecosystem dominated by lichens, mosses, grasses, and woody plants, which is found at high latitudes (arctic tundra) and high altitudes (alpine tundra).

Turbidity. (1) Haziness in air caused by the presence of particles and pollutants. (2) A similar cloudy condition in water due to suspended silt or organic matter.

Ultraviolet rays. Radiation from the sun to which humans are exposed that can cause skin cancer or other tissue damage.

Underground injection control. The program under the Safe Drinking Water Act that regulates the use of underground injection wells to pump fluids into the ground.

Underground storage tank. A tank located totally or partially underground that is designed to hold gasoline or other petroleum products or chemical solutions.

Unsaturated zone. The area above the water table where the soil pores are not fully saturated, although some water may be present.
Urban growth boundary. Growth management device that seeks to channel future urban growth inside a boundary drawn around an existing urban area generally by prohibiting or discouraging urban development outside the boundary.

Urban runoff. Stormwater from city streets and adjacent domestic or commercial properties that may carry pollutants of various kinds into the sewer systems or receiving waters.

Vaporization. The change of a substance from a liquid to a gas.

Variance. Government permission for a delay or exception in the application of a given law, ordinance, or regulation.

Virus. A minute organism comprised of either one strand of DNA or RNA, which is dependent on nutrients inside cells in order to live and to reproduce intracellularly.

Volatile. Capable of evaporating readily.

Volatile organic compound. An organic compound that participates in atmospheric photochemical reactions.

Waste load allocation. The maximum load of pollutants each discharger of waste is allowed to release into a particular waterway.

Waste minimization. Measures or techniques that reduce the amount of wastes generated during industrial production processes; term also is applied to recycling and other efforts to reduce the amount of waste going into the waste stream.

Wastewater treatment plant. A facility containing a series of tanks, screens, nitters, and other processes by which pollutants are removed from water.

Water quality criteria. Specific levels of water quality that, if reached, are expected to render a body of water suitable for certain designated uses.

Water quality standards. State-adopted and EPA-approved ambient standards for water bodies that specify the water quality that must be met to protect designated uses.

Watershed. The land area that drains into a stream or other water body.

Water table. The level of groundwater.

Wetlands. An ecosystem that depends on constant or recurrent shallow inundation or saturation at or near the surface. Wetlands commonly feature hydric soils and hydrophytic vegetation, except where specific factors have removed them or prevented their development.

Xenobiotic. A chemical substance that is not normally a constitutive component of a biological system (i.e., non-naturally occurring man-made substances found in the environment, such as synthetic material solvents or plastics).

Zero-Emission Vehicles. Cars or trucks that will produce no tailpipe emissions of any pollutant throughout their lifetimes. ZEVs presumably will be powered by electricity.
## APPENDIX B

### List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>AA</td>
<td>Assistant Administrator or Associate Administrator</td>
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<tr>
<td>ACGIH</td>
<td>American Council of Government Industrial Hygienists</td>
</tr>
<tr>
<td>ACL</td>
<td>alternate concentration limit</td>
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<tr>
<td>ADI</td>
<td>acceptable daily intake</td>
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<tr>
<td>ADR</td>
<td>alternative dispute resolution</td>
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<tr>
<td>AEA</td>
<td>Atomic Energy Act</td>
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<td>AFO</td>
<td>animal feeding operation</td>
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<tr>
<td>AHERA</td>
<td>Asbestos Hazard Emergency Response Act</td>
</tr>
<tr>
<td>ALJ</td>
<td>administrative law judge</td>
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<tr>
<td>ANPR</td>
<td>advance notice of proposed rulemaking</td>
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<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
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<tr>
<td>ANWR</td>
<td>Arctic National Wildlife Refuge</td>
</tr>
<tr>
<td>APA</td>
<td>Administrative Procedure Act</td>
</tr>
<tr>
<td>ARAR</td>
<td>applicable or relevant and appropriate standards, limitations, criteria, and requirements</td>
</tr>
<tr>
<td>ATSDR</td>
<td>Agency for Toxic Substances and Disease Registry (HHS)</td>
</tr>
<tr>
<td>BACT</td>
<td>best available control technology</td>
</tr>
<tr>
<td>BADT</td>
<td>best available demonstrated technology</td>
</tr>
<tr>
<td>BART</td>
<td>best available retrofit technology</td>
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<tr>
<td>BAT</td>
<td>best available technology</td>
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<tr>
<td>BATEA</td>
<td>best available treatment economically achievable</td>
</tr>
<tr>
<td>BCT</td>
<td>best control technology</td>
</tr>
<tr>
<td>BDAT</td>
<td>best demonstrated achievable technology</td>
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<tr>
<td>BDT</td>
<td>best demonstrated technology</td>
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<tr>
<td>BLM</td>
<td>Bureau of Land Management</td>
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<td>BMPs</td>
<td>best management practices</td>
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<tr>
<td>BOD</td>
<td>biochemical oxygen demand</td>
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<tr>
<td>BPJ</td>
<td>best professional judgment</td>
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<tr>
<td>BPT</td>
<td>best practicable technology, or best practicable treatment</td>
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<tr>
<td>BTU</td>
<td>British thermal unit</td>
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<tr>
<td>CAA</td>
<td>Clean Air Act</td>
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<tr>
<td>CAFE</td>
<td>corporate average fuel economy</td>
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<tr>
<td>CAFO</td>
<td>concentrated animal feeding operation</td>
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<tr>
<td>CAG</td>
<td>Carcinogen Assessment Group</td>
</tr>
<tr>
<td>CAIR</td>
<td>Clean Air Interstate Rule</td>
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<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
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<tr>
<td>CASAC</td>
<td>Clean Air Scientific Advisory Committee</td>
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<tr>
<td>CBA</td>
<td>cost-benefit analysis</td>
</tr>
<tr>
<td>CBF</td>
<td>Chesapeake Bay Foundation</td>
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<tr>
<td>CBO</td>
<td>Congressional Budget Office</td>
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<tr>
<td>CDC</td>
<td>Centers for Disease Control (HHS)</td>
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<tr>
<td>CDM</td>
<td>Clean Development Mechanism</td>
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<tr>
<td>CEC</td>
<td>Commission for Environmental Cooperation</td>
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<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
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<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</td>
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<tr>
<td>CERCLIS</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Information System</td>
</tr>
<tr>
<td>CERES</td>
<td>Coalition for Environmentally Responsible Economics</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>CFCs</td>
<td>chlorofluorocarbons</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CMA</td>
<td>Chemical Manufacturers Association (now the American Chemistry Council)</td>
</tr>
<tr>
<td>COP</td>
<td>Conference of the Parties</td>
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<tr>
<td>CPSC</td>
<td>Consumer Product Safety Commission</td>
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<tr>
<td>CRA</td>
<td>Congressional Review Act</td>
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<tr>
<td>CRS</td>
<td>Congressional Research Service</td>
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<tr>
<td>CSO</td>
<td>combined sewer overflow</td>
</tr>
<tr>
<td>CWA</td>
<td>Clean Water Act (also known as FWPCA)</td>
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<tr>
<td>CZMA</td>
<td>Coastal Zone Management Act</td>
</tr>
<tr>
<td>DDT</td>
<td>dichloro-diphenyl-trichloroethane</td>
</tr>
<tr>
<td>DMR</td>
<td>discharge monitoring report</td>
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<tr>
<td>DO</td>
<td>dissolved oxygen</td>
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<tr>
<td>DOD</td>
<td>Department of Defense</td>
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<tr>
<td>DOE</td>
<td>Department of Energy</td>
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<tr>
<td>DOI</td>
<td>Department of the Interior</td>
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<tr>
<td>DOJ</td>
<td>Department of Justice</td>
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<td>DOL</td>
<td>Department of Labor</td>
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<tr>
<td>DOT</td>
<td>Department of Transportation</td>
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<tr>
<td>DPA</td>
<td>Deepwater Ports Act</td>
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<td>DSAP</td>
<td>data self-auditing program</td>
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<tr>
<td>EA</td>
<td>environmental assessment</td>
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<tr>
<td>EC</td>
<td>European Commission</td>
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<tr>
<td>EGOS</td>
<td>Environmental Council of the States</td>
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<tr>
<td>ECRA</td>
<td>Environmental Cleanup Responsibility Act (New Jersey)</td>
</tr>
<tr>
<td>EDF</td>
<td>Environmental Defense Fund (now Environmental Defense)</td>
</tr>
<tr>
<td>EEC</td>
<td>European Economic Commission</td>
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<tr>
<td>E4E</td>
<td>Enterprise for the Environment</td>
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<tr>
<td>EHS</td>
<td>extremely hazardous substance</td>
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<tr>
<td>EIS</td>
<td>environmental impact statement</td>
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<tr>
<td>EF</td>
<td>environmental justice</td>
</tr>
<tr>
<td>ELI</td>
<td>Environmental Law Institute</td>
</tr>
<tr>
<td>EO</td>
<td>executive order</td>
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<tr>
<td>EMF</td>
<td>electromagnetic frequency radiation</td>
</tr>
<tr>
<td>EMS</td>
<td>environmental management system</td>
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<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>EPCRA</td>
<td>Emergency Planning and Community Right-to-Know Act</td>
</tr>
<tr>
<td>ESA</td>
<td>Endangered Species Act</td>
</tr>
<tr>
<td>ETS</td>
<td>emergency temporary standard, environmental tobacco smoke</td>
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<td>EU</td>
<td>European Union</td>
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<tr>
<td>FACA</td>
<td>Federal Advisory Committee Act</td>
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<td>FDA</td>
<td>Food and Drug Administration</td>
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<tr>
<td>FDF</td>
<td>fundamentally different factors</td>
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<tr>
<td>FERC</td>
<td>Federal Energy Regulatory Commission</td>
</tr>
<tr>
<td>FFDC</td>
<td>Federal Food, Drug, and Cosmetic Act</td>
</tr>
<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
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<tr>
<td>FIFRA</td>
<td>Federal Insecticide, Fungicide, and Rodenticide Act</td>
</tr>
<tr>
<td>FIP</td>
<td>federal implementation plan</td>
</tr>
<tr>
<td>FLPMA</td>
<td>Federal Land Policy and Management Act</td>
</tr>
<tr>
<td>FMCSA</td>
<td>Federal Motor Carrier Safety Administration</td>
</tr>
<tr>
<td>FOIA</td>
<td>Freedom of Information Act</td>
</tr>
<tr>
<td>FONSI</td>
<td>finding of no significant impact</td>
</tr>
<tr>
<td>FR</td>
<td>Federal Register</td>
</tr>
<tr>
<td>FS</td>
<td>Forest Service (U.S.)</td>
</tr>
<tr>
<td>FTC</td>
<td>Federal Trade Commission</td>
</tr>
<tr>
<td>FWPCA</td>
<td>Federal Water Pollution Control Act (Clean Water Act)</td>
</tr>
<tr>
<td>FWS</td>
<td>Fish and Wildlife Service (U.S.)</td>
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<td>Government Accountability Office</td>
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<td>GATT</td>
<td>General Agreement on Tariffs and Trade</td>
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<td>GEF</td>
<td>Global Environment Facility</td>
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<tr>
<td>GEMI</td>
<td>Global Environmental Management Initiative</td>
</tr>
<tr>
<td>GPRA</td>
<td>Government Performance and Results Act</td>
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<td>HCP</td>
<td>habitat conservation plan</td>
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<td>HHS</td>
<td>Department of Health and Human Services</td>
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### Appendix B. List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>HLRW</td>
<td>high-level radioactive waste</td>
</tr>
<tr>
<td>HMTA</td>
<td>Hazardous Materials Transportation Act</td>
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<td>HRS</td>
<td>hazard ranking system</td>
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<td>HSWA</td>
<td>Hazardous and Solid Waste Amendments of 1984</td>
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<td>HWIR</td>
<td>Hazardous Waste Identification Rule</td>
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<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
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<tr>
<td>ICS</td>
<td>individual control strategy</td>
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<tr>
<td>IG</td>
<td>inspector general</td>
</tr>
<tr>
<td>I/M</td>
<td>inspection/maintenance</td>
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<tr>
<td>IPM</td>
<td>integrated pest management</td>
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<tr>
<td>IQA</td>
<td>Information Quality Act</td>
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<tr>
<td>ISC</td>
<td>Interagency Scientific Committee</td>
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<td>ISTEA</td>
<td>Intermodal Surface Transportation Efficiency Act</td>
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<td>JI</td>
<td>joint implementation</td>
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<tr>
<td>LAER</td>
<td>lowest achievable emission rate</td>
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<td>LEV</td>
<td>low-emission vehicle</td>
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<tr>
<td>LLRWPA</td>
<td>Low Level Radioactive Waste Policy Act</td>
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<tr>
<td>LOEL</td>
<td>lowest observed effect level</td>
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<td>MACT</td>
<td>maximum achievable control technology</td>
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<td>MAER</td>
<td>maximum allowable emission rate</td>
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<tr>
<td>MCL</td>
<td>maximum contaminant level</td>
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<td>MCLG</td>
<td>maximum contaminant level goal</td>
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<td>MDB</td>
<td>multilateral development bank</td>
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<td>MIR</td>
<td>maximum individual risk</td>
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<tr>
<td>MMPA</td>
<td>Marine Mammal Protection Act</td>
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<tr>
<td>MMT</td>
<td>methylcyclopentadienyl manganese tricarbonyl</td>
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<tr>
<td>MOU</td>
<td>memorandum of understanding</td>
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<tr>
<td>MPO</td>
<td>metropolitan planning organization</td>
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<td>MPRSA</td>
<td>Marine Protection, Research, and Sanctuaries Act (Ocean Dumping Act)</td>
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<td>MSHA</td>
<td>Mine Safety and Health Administration (DOL)</td>
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<td>MSW</td>
<td>municipal solid waste</td>
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<td>MTBE</td>
<td>methyl tertiary butyl ether</td>
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<td>MTD</td>
<td>maximum tolerated dose</td>
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<tr>
<td>NAAEC</td>
<td>North American Agreement on Environmental Cooperation</td>
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<td>NAAQS</td>
<td>national ambient air quality standards</td>
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<td>NAFTA</td>
<td>North American Free Trade Agreement</td>
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<td>NAPA</td>
<td>National Academy of Public Administration</td>
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<td>NAPAP</td>
<td>National Acid Precipitation Assessment Program</td>
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<td>NAS</td>
<td>National Academy of Sciences</td>
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<td>NBAR</td>
<td>non-binding allocation of responsibility</td>
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<td>NCP</td>
<td>National Contingency Plan</td>
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<td>NEPA</td>
<td>National Environmental Policy Act</td>
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<td>NEPPS</td>
<td>National Environmental Performance Partnership System</td>
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<td>NESHAP</td>
<td>national emissions standard for hazardous air pollutants</td>
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<td>NFMA</td>
<td>National Forests Management Act</td>
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<td>NGO</td>
<td>nongovernmental organization</td>
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<td>NHANES</td>
<td>National Health and Nutrition Examination Survey</td>
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<td>NHTSA</td>
<td>National Highway Traffic Safety Administration</td>
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<tr>
<td>NIEHS</td>
<td>National Institute of Environmental Health Sciences</td>
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<td>NIH</td>
<td>National Institutes of Health</td>
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<td>NIMBY</td>
<td>not in my backyard</td>
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<td>NIOSH</td>
<td>National Institute of Occupational Safety and Health</td>
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<td>NMFS</td>
<td>National Marine Fisheries Service</td>
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<td>NO</td>
<td>nitric oxide</td>
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<td>NO₂</td>
<td>nitrogen dioxide</td>
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<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
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<tr>
<td>NOAEL</td>
<td>no observable adverse effect level</td>
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<td>NOₓ</td>
<td>nitrogen oxide</td>
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<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
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<tr>
<td>Acronym</td>
<td>Definition</td>
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<td>NPL</td>
<td>National Priority List</td>
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<td>NPRM</td>
<td>notice of proposed rulemaking</td>
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<td>NPS</td>
<td>National Park Service</td>
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<td>NRC</td>
<td>National Research Council, National Response Center, or Nuclear Regulatory Commission</td>
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<td>NRDC</td>
<td>Natural Resources Defense Council</td>
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<tr>
<td>NSF</td>
<td>National Science Foundation</td>
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<tr>
<td>NSO</td>
<td>nonferrous smelter orders</td>
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<td>NSPS</td>
<td>new source performance standards</td>
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<tr>
<td>NSR</td>
<td>new source review</td>
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<td>NTP</td>
<td>National Toxicology Program</td>
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<tr>
<td>NWF</td>
<td>National Wildlife Federation</td>
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<tr>
<td>NWPA</td>
<td>Nuclear Waste Policy Act</td>
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<td>OCS</td>
<td>outer continental shelf</td>
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<tr>
<td>OCSLA</td>
<td>Outer Continental Shelf Lands Act</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<td>OIRA</td>
<td>Office of Information and Regulatory Affairs (OMB)</td>
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<td>OMB</td>
<td>Office of Management and Budget</td>
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<td>OPA</td>
<td>Oil Pollution Prevention, Response, Liability, and Compensation Act</td>
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<td>ORV</td>
<td>off-road vehicle</td>
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<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
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<td>OSH Act</td>
<td>Occupational Safety and Health Act</td>
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<td>OSM</td>
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<td>OTA</td>
<td>Office of Technology Assessment (abolished in 1995)</td>
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<td>OTAG</td>
<td>Ozone Transport Assessment Group</td>
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<td>OTC</td>
<td>Ozone Transport Commission</td>
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<td>OTR</td>
<td>ozone transport region</td>
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<td>PA</td>
<td>preliminary assessment</td>
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<td>PCBs</td>
<td>polychlorinated biphenyls</td>
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<td>PCSD</td>
<td>President’s Council on Sustainable Development</td>
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<td>PEL</td>
<td>permissible exposure limit</td>
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<td>PIC</td>
<td>prior informed consent</td>
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<tr>
<td>PM2.5</td>
<td>particulate matter smaller than 2.5 micrometers in diameter</td>
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<td>PM10</td>
<td>particulate matter (nominally 10m and less)</td>
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<td>PM15</td>
<td>particulate matter (nominally 15m and less)</td>
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<td>PMN</td>
<td>premanufacture notification</td>
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<td>POM</td>
<td>polycyclic organic matter</td>
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<td>POP</td>
<td>persistent organic pollutant</td>
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<td>POTW</td>
<td>publicly owned treatment works</td>
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<td>ppm</td>
<td>parts per million</td>
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<td>PRA</td>
<td>Paperwork Reduction Act</td>
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<td>PRP</td>
<td>potentially responsible party</td>
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<td>PSD</td>
<td>prevention of significant deterioration</td>
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<td>PTE</td>
<td>potential to emit</td>
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<td>PVC</td>
<td>polynvinyl chloride</td>
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<td>QA/QC</td>
<td>quality assurance/quality control</td>
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<tr>
<td>QRA</td>
<td>quantitative risk assessment</td>
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<tr>
<td>RA</td>
<td>regulatory analysis, remedial action, or risk assessment</td>
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<td>RACM</td>
<td>reasonably available control measures</td>
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<td>RACT</td>
<td>reasonably available control technology</td>
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<td>RARG</td>
<td>Regulatory Analysis Review Group</td>
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<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
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<td>RD</td>
<td>remedial design</td>
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<td>REACH</td>
<td>Registration, Evaluation, and Authorisation of Chemicals (EU)</td>
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<td>R&amp;D</td>
<td>research and development</td>
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<td>RECLAIM</td>
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<td>Regulatory Flexibility Act</td>
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<td>RFDs</td>
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<td>RGGI</td>
<td>Regional Greenhouse Gas Initiative</td>
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<td>RTF</td>
<td>reasonable further progress</td>
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<td>RIA</td>
<td>regulatory impact analysis</td>
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<td>RI/FS</td>
<td>remedial investigation/feasibility study</td>
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<td>ROD</td>
<td>record of decision</td>
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<td>Acronym</td>
<td>Definition</td>
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<td>---------</td>
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<td>RPAR</td>
<td>rebuttable presumption against registration</td>
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<td>RQ</td>
<td>reportable quantities</td>
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<td>SAB</td>
<td>Science Advisory Board</td>
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<td>SAR</td>
<td>structure activity relationship</td>
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<td>Superfund Amendments and Reauthorization Act of 1986</td>
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<td>SBLRBRA</td>
<td>Small Business Liability Relief and Brownfields Revitalization Act</td>
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<td>SBREFA</td>
<td>Small Business Regulatory Enforcement Fairness Act</td>
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<td>SCAQMD</td>
<td>South Coast Air Quality Management District (California)</td>
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<td>SCR</td>
<td>selective catalytic reduction</td>
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<td>SCS</td>
<td>Soil Conservation Service</td>
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<td>SDWA</td>
<td>Safe Drinking Water Act</td>
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<td>SEPA</td>
<td>State Environmental Protection Agency (China)</td>
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<td>state emergency response commission</td>
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<td>state implementation plan</td>
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<td>SMCRA</td>
<td>Surface Mining Control and Reclamation Act</td>
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<tr>
<td>SNUR</td>
<td>significant new use rule</td>
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<td>SO₂</td>
<td>sulfur dioxide</td>
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<td>SQG</td>
<td>small quantity generator</td>
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<td>STEL</td>
<td>short-term exposure limit</td>
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<td>SUWA</td>
<td>Southern Utah Wilderness Alliance</td>
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<td>SWDA</td>
<td>Solid Waste Disposal Act</td>
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<tr>
<td>SWMU</td>
<td>solid waste management unit</td>
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<td>TCE</td>
<td>trichloroethylene</td>
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<td>TCDD</td>
<td>dioxin (tetrachlorodibenzo-p-dioxin)</td>
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<td>TCDF</td>
<td>tetrachlorodibenzofurans</td>
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<td>TCLP</td>
<td>toxicity characteristic leachate procedure</td>
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<td>TCP</td>
<td>transportation control plan</td>
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<td>transferable development right</td>
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<td>total dissolved solids</td>
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<td>Tetraethyl lead</td>
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<td>total kjeldahl nitrogen</td>
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<td>TLV</td>
<td>threshold limit value</td>
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<td>TMDL</td>
<td>total maximum daily loading</td>
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<td>total quality management</td>
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<td>Toxics Release Inventory</td>
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<td>TSCA</td>
<td>Toxic Substances Control Act</td>
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<td>TSD</td>
<td>treatment, storage, and disposal facility</td>
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<td>TVA</td>
<td>Tennessee Valley Authority</td>
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<td>UDMH</td>
<td>unsymmetrical dimethylhydrazine</td>
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<td>UGB</td>
<td>urban growth boundary</td>
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<td>underground injection control</td>
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<td>ULEV</td>
<td>ultra low-emission vehicle</td>
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<td>UMTRCA</td>
<td>Uranium Mill Tailings Radiation Control Act</td>
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<td>United Nations</td>
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<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<td>UST</td>
<td>underground storage tank</td>
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<td>UV</td>
<td>ultraviolet</td>
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<td>VOC</td>
<td>volatile organic compound</td>
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<td>World Commission on Environment and Development</td>
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<td>World Trade Organization</td>
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<td>WSA</td>
<td>wilderness study area</td>
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<td>ZEV</td>
<td>zero-emission vehicle</td>
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