

Chapter 2

Building A New Framework for A New Century



Future progress requires that the United States broaden its commitment to environmental protection to embrace the essential components of sustainable development: environmental health, economic prosperity, and social equity and well-being. This means reforming the current system of environmental management and building a new and efficient framework based on performance, flexibility linked to accountability, extended product responsibility, tax and subsidy reform, and market incentives.

THE U.S. SYSTEM of environmental management, built largely since 1970, has dramatically improved the country's ability to protect public health and the natural environment. The air and water are cleaner, exposure to toxic wastes is lower, erosion of prime cropland has been reduced, and some wildlife species are back from the brink of extinction. Much still remains to be done, however, to continue these gains and address new environmental threats.

For the last 25 years, government has relied on command-and-control regulation as its primary tool for environmental management. In looking to the future, society needs to adopt a wider range of strategic environmental protection approaches that embrace the essential components of sustainable development: economic prosperity, environmental health, and social equity and well-being. The relationships among these components are clear. Sustained economic growth is dependent on a clean and healthy environment. Further, the ability of the economy to grow, create jobs, and increase overall well-being can suffer if environmental protection strategies deliver low results at a high cost. Resources for other economic and social needs will be diverted if strategies to achieve environmental goals are not designed to achieve results in the most cost-effective way. We, as a Council, have concluded that this will require the nation to develop a new framework for a new century.

There are a number of tools, approaches, and strategies that, if carefully tailored to different challenges, could result in more environmental protection, less economic cost, and--in some cases--greater opportunity for the poor and disadvantaged. It should be clear that market mechanisms are not the right solution for every problem, any more than technology-based

standards are the right answer in all cases. The nation should create a new framework for integrating economic and environmental goals that lets all stakeholders take advantage of these opportunities and ensures that tools are applied to the right problem, in the right way, at the right time.

The experience of the last 25 years has yielded the following lessons, which would be wise to heed in developing a new framework to achieve the objectives of sustainable development:

- Economic, environmental, and social problems cannot be addressed in isolation. Economic prosperity, environmental quality, and social equity need to be pursued simultaneously.
- Science-based national standards that protect human health and the environment are the foundation of any effective system of environmental protection.
- The adversarial nature of the current system precludes solutions that become possible when potential adversaries cooperate and collaborate.
- Technology-based regulation can sometimes encourage technological innovation, but it can also stifle it; pollution prevention is better than pollution control.
- Enhanced flexibility for achieving environmental goals, coupled with strong compliance assurance mechanisms--including enforcement--can spur private sector innovation that will enhance environmental protection at a substantially lower cost both to individual firms and to society as a whole.
- Science, economics, and societal values should be considered in making decisions. Quality information is essential to sound decisionmaking.
- Many state governments have developed significant environmental management capacity. Indeed, many of the most creative and lasting solutions arise from collaborations involving federal, state, local, and tribal governments in places problems exist--from urban communities to watersheds.

Learning to use new approaches to achieve interrelated goals simultaneously will be an evolutionary process. It needs to build on the strengths and overcome the limitations of current economic and regulatory systems and recognize the interrelationships between economic and environmental policies. This will require pursuing change concurrently on two paths: making the existing regulatory system more efficient and more effective, and developing an alternative system of environmental management that uses innovative approaches. Besides improving the cost-effectiveness of the current system, the Council believes that the nation needs to develop policy tools that meet the following broad criteria:

- **Provide Greater Regulatory Flexibility With Accountability.** The regulatory system must give companies and communities greater operating flexibility, enabling them to reduce their costs significantly in exchange for achieving superior environmental performance. While allowing flexibility, the system must also require accountability to ensure that public health and the environment are protected.
- **Extend Product Responsibility.** A voluntary system of extended product responsibility can be adopted in which designers, producers, suppliers, users, and disposers accept responsibility for environmental effects through all phases of a product's life.

- **Make Greater Use of Market Forces.** Sustainable development objectives must harness market forces through policy tools, such as emissions trading deposit/refund systems and tax and subsidy reform. This approach can substantially influence the behavior of firms, governments, and individuals.
- **Use Intergovernmental Partnerships.** Federal, state, and tribal governments need to work together in partnership with local communities to develop place-based strategies that integrate economic development, environmental quality, and social policymaking with broad public involvement.
- **Encourage Environmental Technologies.** The economic and environmental management systems need to create an environment that encourages innovation and the development and use of technologies that will create jobs while reducing risks to human health and harm to the environment.

Developing A More Cost-Effective Environmental Management System Based on Performance, Flexibility, and Accountability

In the past, government has relied mainly on regulatory approaches to managing environmental problems. Under this system, federal and state governments have set health-based standards, issued permits for discharges, and monitored and enforced standards set under each environmental statute. In some cases, regulations implementing these standards prescribe specific technologies to control pollution.

Over the years, the value and limits of this regulatory approach have become clear. There is no doubt that some regulations have encouraged innovation and compliance with environmental laws, resulting in substantial improvements in the protection of public health and the environment. But at other times, regulation has imposed unnecessary--and sometimes costly--administrative and technological burdens and discouraged technological innovations that can reduce costs while achieving environmental benefits beyond those realized by compliance. Moreover, it has frequently focused attention on cleanup and control remedies rather than on product or process redesign to prevent pollution.

Such concerns have contributed to a 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 the 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.

Just as the manufacturing sector has adopted a goal of zero defects, the nation can aspire to the ideal of a zero-waste society through more efficient use and recycling of natural resources in the economy and more efficient use of public and private financial resources in the regulatory system. The nation should pursue two paths in reforming environmental regulation. The first is to improve the efficiency and effectiveness of the current environmental management system. The second is to develop and test innovative approaches and create a new alternative environmental

management system that achieves more protection at a lower cost. To help achieve this, the administrator of the U.S. Environmental Protection Agency (EPA), working in partnership with other federal agencies and other stakeholders, should have the authority to make decisions that will achieve environmental goals efficiently and effectively.

Although moving away from a one-size-fits-all approach will reduce costs to the private sector, creating an optional system could increase administrative and policy burdens on federal agencies, at least in the short term. Like clothing, custom-tailored environmental management may cost the public sector more to deliver than the off-the-rack variety. The new alternative system is designed to reduce aggregate costs to society, but it will require both industry and government to use new skills and resources, especially at the beginning. Negotiating facility-to-facility agreements is labor-intensive compared to administering permit compliance checklists. Developing facility-specific performance measures to ensure business accountability for negotiated goals is more expensive than enforcing uniform standards. Convening stakeholder workshops to reach agreeable environmental goals requires additional travel and staff time. The system would also require a farsighted investment posture on the part of businesses seeking to break out of prescribed solutions to create their own. Nonetheless, the improved environmental protection system is designed to reduce total costs to the private and public sectors over time and will improve the nation's overall economic performance.



Partnerships and collaborative decisionmaking must be encouraged and must involve all levels of government, businesses, nongovernmental organizations, community groups, and the public at large. Initiatives are needed to verify that increased operational flexibility on a facility-wide basis can produce environmental performance superior to the current system while greatly reducing costs. To help ensure accountability, demonstrations also are needed to

increase public involvement and access to information. The new system should facilitate voluntary initiatives that encourage businesses and consumers to assume responsibility for their actions. At the same time, the regulatory system must continue to provide a safety net of public health and environmental protection by guaranteeing compliance with basic standards.

Movement toward a performance-based system will be aided by public-private partnerships promoting the research, development, and application of cost-effective technologies and practices. Continued, long-term investment in technology will help ensure U.S. competitiveness and leadership in global technology markets. New manufacturing technologies and processes can lower material and energy use while reducing or eliminating waste streams. Focusing efforts to develop cleaner and more efficient products for domestic and overseas markets will help base U.S. economic growth on the concept of better--rather than just more--products and processes.

The Pollution Prevention Pilot Project

How can companies save money and cut down on waste and pollution? What are the public policy changes that would help companies innovate to increase their economic and environmental efficiency?

These questions brought together a group of experts from industry and the environmental community to learn how money-saving pollution prevention happens at the facility level. The Pollution Prevention Pilot Project (4P) is led by a core group from the Natural Resources Defense Council (NRDC), Amoco Petroleum, The Dow Chemical Company, Monsanto Company, Rayonier, and the New Jersey Department of Environmental Protection.

With a shared industry-environmentalist perspective, the core group, facility staff, and an experienced pollution prevention consultant have begun to identify opportunities to cut production and environmental costs while reducing and preventing pollution at two chemical manufacturing facilities--a Dow Chemical plant in La Porte, Texas, and a Monsanto plant in Pensacola, Florida. Early results show that major cost savings and significant environmental improvements can be achieved by looking for creative ways to address environmental issues.

Through site-specific work, the group is exploring what internal, external, or regulatory barriers may have kept the plants involved from already practicing cost-saving pollution prevention. Later, the group will try to craft policy proposals to spur more economically and environmentally sound innovation.

"The 4P initiative demonstrates that industry and the environmental community can work together for success--enhanced environmental improvements and economic savings. This is an excellent example of how innovative partnerships can yield more through our collective efforts than each could accomplish alone," says David Buzzelli, vice president and corporate director of Dow Chemical, and co-chair of the President's Council on Sustainable Development.

Adds John Adams, executive director of NRDC and a Council member, "What is exciting about this project is that it can produce tremendous environmental benefits by tapping the traditional strength of business--its ability to build a better mousetrap, to find better and more efficient ways of producing a product."

POLICY RECOMMENDATION 1

INCREASED COST-EFFECTIVENESS OF EXISTING REGULATORY SYSTEM

ACTION 1. Federal and state environmental regulatory agencies should accelerate efforts to identify and act on opportunities to reduce the economic cost of current environmental regulatory standards. The private sector and other nongovernmental organizations have an important role in this process as catalysts for new ideas and approaches

Accelerate efforts to evaluate existing regulations and to create opportunities for attaining environmental goals at lower economic costs.

that will streamline and improve the current system. Government agencies should create more flexible, cost-effective approaches to attain the human and ecosystem health goals of existing programs while maintaining monitoring and verification functions. Regulated entities should still be responsible for demonstrating that they are achieving environmental goals.

In addition to achieving economic savings, improving the efficiency of the existing system would help set the stage for a longer term, more fundamental shift in the way in which human health and environmental quality are protected. The data, analysis, and lessons learned through these innovations can create a more solid base of experience from which to launch a new environmental management system that uses a wider range of policy approaches and tools.

ACTION 2. Federal and state environmental regulatory agencies should set performance-based regulations where feasible and appropriate. Performance-based regulations should be based upon national standards designed to protect the health of people and ecosystems.



"THERE AREN'T ENOUGH HOURS IN THE DAY"

They say small is beautiful. Evidence shows that in the United States, small businesses are where most new jobs are created. But when it comes to environmental regulations, small can be frustrating. Unlike large corporations, small businesses do not have departments dedicated to compliance, let alone someone who designs new ways of reducing pollution. How does a small business keep up with the paperwork? "There aren't enough hours in the day," says Robert Murphy.

Murphy -- chief executive office of Japs Olson Company, a Minneapolis-based printer, and chairman of the board of the Printing Industries of America -- has first-hand experience with the paperwork problem. His industry is dominated by small businesses: 80 percent of the print shops in the United States employ fewer than 20 people.[\[1\]](#) Printing is also a chemically intensive process, subject to a complex web of environmental laws, including dozens of state and federal regulations separately

addressing air, water, and land pollution.

In 1993, the printing industry along with representatives from the Environmental Defense Fund (EDF) and the Council of Great Lakes Governors established the Great Printers Project, an effort focusing on printers in the Great Lakes Region. The aim of the project is to find ways to ease the compliance burden, reduce pollution, and lower costs. The three partners invited technical and policy experts from the U.S. Environmental Protection Agency (EPA) and state regulatory agencies to participate in the project as well. At the outset, Murphy said he felt himself in "perhaps the most diverse group I've ever dealt with. There was a certain amount of distrust." Over time the mood changed. "By the end, people were much different. After many, many hours of meetings, we learned to see each other's viewpoint."

On July 22, 1994, in conjunction with a Chicago meeting of the President's Council on Sustainable Development, the Great Printers Project released its findings, which included recommendations on how firms could save money and reduce pollution through voluntary actions. Following the group's recommendations, General Litho Services, a Minneapolis printer, successfully reduced its smog-inducing isopropyl alcohol use from 605 gallons to 95 gallons, saving \$1,355. It reformulated its printing ink, which is listed as a hazardous waste, saving \$18,000 in annual costs. At first glance these savings--both to the bottom line and to the environment--may seem small. But for small companies with narrow profit margins, they are significant. And for the environment, the cumulative pollution prevention efforts can be even more significant.

Another recommendation was aimed at consolidating environmental reporting requirements to streamline administrative efforts. EPA Administrator Carol Browner, a Council member, endorsed the proposal, stating that it "will allow print shops to do their work cleaner, cheaper, and smarter." EDF Executive Director Fred Krupp, also a Council member, says these findings could be transferred to small businesses in other industries. "For industries composed of small businesses, focusing only on permits and inspections cannot attain environmental achievements," according to Krupp. "The Great Printers Project suggests replacing redundant bureaucracy with simpler forms that guide the small business person to reduce photochemical smog, hazardous waste, and wastewater discharges."

MANUFACTURING AND SUSTAINABLE DEVELOPMENT

Manufacturing will continue to be a critical part of the U.S. economy into the foreseeable future. This sector's activities have significant effects on the environment and on social equity and well-being. Consequently, it should aspire to produce, use, and export globally competitive goods and services that use resources efficiently and result in fewer adverse effects on natural systems and human health.

Many of the Council's policy recommendations seek to promote economic, environmental, and equity goals in the manufacturing sector. Two recommendations are to improve the cost-effectiveness of the existing system and to develop an alternative performance-based management system. They call for the creation of performance standards based on strong protection of health and the environment--but without mandating the means of compliance--to give companies and communities flexibility to find the most cost-effective ways to meet environmental requirements.

Recognizing that the greatest opportunity rests not only with producers, but also with those involved throughout the commerce chain, the Council challenges manufacturers, suppliers, users, and disposers of products to share responsibility for the environmental effects and waste streams throughout a product's life cycle.

In addition to a shift in tax policies and subsidy reform, greater use of market incentives would result in significant improvements in the environmental performance of the manufacturing sector at lower cost. Specifically, the Council urges federal and state governments to build on existing programs to design and carry out a system that allows the buying and selling of emissions reductions, guaranteeing permanent overall reductions. Such systems should be appropriate to the local environmental problems being addressed. Further, the Council believes that the federal government should work with the private sector and nonprofit groups to identify cost-effective opportunities to use materials and energy more efficiently.

Progress toward this end could be measured using the following indicators:

- **Materials Use:** Increased efficiencies in the amount of virgin materials used per unit of gross domestic product by industrial sector, and increase in the market shares of renewable and recoverable resources.
- **Water Use:** Increase in recycled water used by industry and increase in groundwater recharge rates.
- **Energy Use:** Reduction in the amount of energy consumed per dollar value of economic activity by industrial sector.
- **Waste Generation:** Reduction in the generation and disposal of both commercial and household waste, and in toxic and regulated emissions.
- **Innovation and Technology Development:** Increase in the development, application, and export of services and technologies that prevent pollution by improving the efficiency of materials, energy, and water use and that reduce emissions or waste generation.

POLICY RECOMMENDATION 2

ALTERNATIVE PERFORMANCE- Government has a central role to play and major responsibility to exercise in setting environmental protection standards that reflect a

BASED MANAGEMENT SYSTEM

Create a bold, new alternative environmental management system designed to achieve superior environmental protection and economic development that relies on verifiable and enforceable performance-based standards and provides increased operational flexibility through a collaborative decision-making process.

broad range of environmental, health, economic, and scientific factors, as well as other concerns. There are, however, significant economic and environmental benefits in allowing companies to participate in the process and in offering them a greater range of choice and flexibility in determining how to achieve needed levels of protection. But the new, more flexible approach needs to be an optional program. Some firms, because of circumstances and constraints, may prefer to continue under the more traditional regulatory program. Further, a new alternative system of regulation that shifts the burden of fashioning compliance strategies from government to industry will require a strong sense of trust among all stakeholders in the process - a level of trust that has not been part of the nation's past environmental efforts.

ACTION 1. Federal and state environmental regulatory agencies should give companies operational flexibility to determine the most cost-effective means of achieving the goals of superior protection. Regulatory agencies should enter into alternative compliance agreements with entities - facilities, companies, industrial sectors, or communities - that look beyond reductions in a single environmental medium - air, water, or soil - and encourage approaches to environmental management that are facilitywide and site specific. Regulatory agencies should ensure that the interests of heavily affected communities or socioeconomic groups are protected. In any new system, government agencies would still maintain monitoring and verification functions, and regulated entities would still have the responsibility to demonstrate that they are achieving the agreed-upon environmental objectives.

ACTION 2. Federal and state regulatory agencies and tribal governments should ensure opportunities for broad and meaningful public participation in the development and implementation of performance standards and regulations. These collaborative processes should afford other levels of government, businesses, nongovernmental organizations, and individuals the opportunity to participate in decisions affecting their future. Steps should be taken to ensure that traditionally under-represented groups have ample opportunity for involvement and that stakeholders have greater access to information on progress in achieving environmental goals.

ACTION 3. EPA and state agencies should accelerate efforts to conduct a series of demonstration projects to gain experience with policy tools and innovative approaches that could serve as the basis for an alternative environmental management system. They should be to work with all interested parties to tailor compliance terms of demonstrations that make a credible commitment to going beyond existing standards. For example, longer compliance periods might be

considered for demonstrations that are designed to achieve superior protection, but this flexibility could be coupled with interim reporting requirements. Alternatively, demonstrations that focus on environmental performance of an entire facility rather than on separate air, water, and soil requirements might stipulate that environmental gains for an entire facility exceed what would have been achieved through source-by-source or medium-specific regulations. These provisions would help ensure that all parties operate in good faith - an essential element of creating trust.

The federal government, working with the private sector and nongovernmental organizations, should review and evaluate the lessons learned from the demonstration projects. Based on the success of the first round of demonstration projects, a second set of projects should be selected within two years.

ACTION 4. National laboratories and federal research agencies should be directed to conduct research necessary to help develop, test, and verify the scientific basis of technologies and practices to move toward the ideal of a zero-waste society. This research would help ensure that over time the new system would reflect improved scientific information and understanding. Research agencies should identify health risks, monitor trends and environmental conditions, and inform decisionmakers of emerging environmental challenges. National laboratories should have the resources they need to help identify opportunities for public-private technology partnerships and be available to evaluate the effectiveness of new technologies and practices in attaining environmental goals at lower cost.

REGULATORY FLEXIBILITY AND ACCOUNTABILITY IN ACTION

Collaboration and experimentation both inside and outside the government and between government and private enterprise are leading to more effective ways of meeting environmental goals while reducing costs. Through the Common Sense Initiative, the U.S. Environmental Protection Agency (EPA) has convened consensus-oriented teams to look for opportunities to turn complicated and inconsistent environmental regulations into comprehensive sector-specific strategies for environmental protection.

Six major industries are the focus of the project's first phase: automobile manufacturing, computers and electronics, iron and steel, metal finishing, petroleum refining, and printing. These major industries account for more than 11 percent of the gross domestic product, employ nearly 4 million people, and generate a significant portion of the toxk releases reported. Representatives from federal, state, and local governments; community-based and national environmental groups; environmental

justice groups; labor; and industry are examining the full range of environmental requirements affecting the six pilot industries. Teams are working to find cleaner, cheaper, smarter approaches in the areas of regulation, reporting, compliance, permitting, and environmental technology - emphasizing pollution prevention instead of end-of-pipe controls.

Project XL is a second example of regulatory flexibility and accountability in action, this time looking at specific facilities rather than specific industries. Six companies - Intel Corporation, Anheuser Busch Companies; HADCO Corporation; Merck & Co., Inc.; AT&T Microelectronics; and 3M Corporation - and two government agencies - Colifomia's South Coast Air Quality Management District and the Minnesota Pollution Control Agency - will participate in the first phase of the Project XL initiative. Denoting Excellence and Leadership, Project XL allows selected businesses and communities to experiment with innovative and flexible strategies to achieve greater environmental results, while providing regulatory flexibility and maintaining accountability. For example, Intel will enter into a contract with EPA and the Arizona Department of Environmental Quality for its new facility in Chandler, Arizona. As proposed, the company will agree to achieve better environmental results than are currently required for air, land, and water pollution. For their part, regulators will grant Intel more regulatory flexibility and expedited permitting procedures, making it easier for the company to meet the higher environmental goals.[\[2\]](#)

On November 3, 1995, President Bill Clinton announced the selection of Intel and the other five firms chosen for the first phase of Project XL: 'To industry, Project XL shows that protecting the health and safety of our citizens doesn't have to come at the expense of a bottom line. And to those in the environmental community, XL shows that strengthening the economy doesn't have to come at the expense of the air we breathe, the food we eat, the water we drink.'

POWER, LEG ROOM, AND 80 MILES TO THE GALLON

Early in the next century, customers could have an exciting new option when they shop for a new automobile. They may be able to purchase cars that achieve up to 80 miles to the gallon, are mostly recyclable, accelerate from 0 to 60 miles per hour in 12 seconds, comfortably hold six passengers, meet all safety and emissions requirements, and cost about the same as comparably sized cars on the showroom floor.

This new generation of car could represent more than a breakthrough in fuel efficiency and design. It would also represent a breakthrough in cooperation among competing automobile manufacturers and among the automobile industry, suppliers, universities, other small and large businesses, and the U.S. government.

On September 29, 1993, Vice President Al Gore and the chief executive officers of the Ford Motor Company, Chrysler Corporation, and General Motors Corporation announced a historic Partnership for a New Generation of Vehicles. The partnership has three objectives: to improve national competitiveness in manufacturing, to promote commercially viable near-term innovation, and to develop a vehicle that is up to three times more efficient than today's comparable vehicle. Achieving this level of fuel economy would stretch the boundaries of technical capability. Underlying these goals is yet another challenge: affordability.

Vice President Gore, meeting with members of the President's Council on Sustainable Development, received an update on the partnership effort during a January 1995 visit to Chattanooga, Tennessee. "By the end of 1997, we will narrow the technology focus. By 2000, we will have a concept vehicle. And by the year 2004, we will have a production prototype," declared a representative of the partnership. "This is not just about jobs," he added. "It is not just about technology. It is not just about the environment. It is also about a new process of working together, for both industry and government, in ways that have not been attempted before."

Adopting Extended Product Responsibility

While environmental programs that focus on a point in the product chain have resulted in resource conservation and pollution prevention, further advances will only be incremental ones as long as the approach taken continues to separate all stages of economic activity, including product design, manufacture, use, and disposal. For example, when looking to reduce air emissions of a particular chemical associated with a product, the production plant is often not the only place to examine. Sometimes, more cost-effective and larger reductions can be found by analyzing emissions from transporting and distributing the product. A life-cycle approach captures the upstream environmental effects associated with raw material selection and use and effects from production processes and product distribution. It also reflects downstream effects associated with product use, recycling, and disposal. Life-cycle approaches can yield better environmental results at lower cost.

Extended product responsibility is an emerging principle that uses this life-cycle approach to identify strategic opportunities for pollution prevention and resource conservation. It also addresses the underlying influence of consumer needs and preferences, government procurement, and the role played by those in the chain of production and distribution. Under the principle of extended product responsibility, manufacturers, suppliers, users, and disposers of products share responsibility for the environmental effects of products and waste streams.

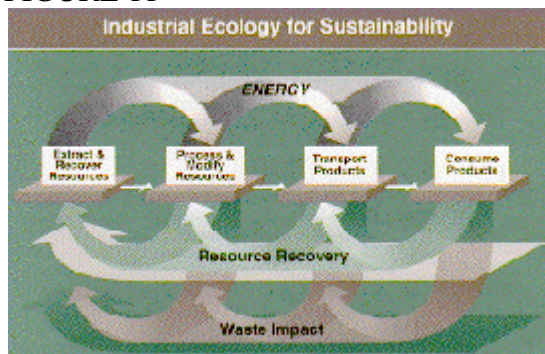
Creating an innovative system of extended product responsibility would improve the current fragmented approach to waste reduction, resource conservation, and pollution prevention. When there are missing links in the chain of responsibility, waste and inefficiency result. Communities bear the greatest burden for the disposal of hazardous products. Similarly, decisions made upstream in the chain by suppliers can reduce a manufacturer's emissions and wastes and

improve profitability. Sharing responsibility implies not only understanding and communicating the environmental effects of product development but also acting collectively to reduce them. By using a mix of regulatory and other incentives, information, education, and institutional support, this new system would encourage individuals, government, and corporations to recognize, understand, and act on the basis of their responsibility to advance sustainable development objectives. Further, government agencies - the nation's largest consumers - can use their market leverage to encourage U.S. manufacturers to increase the efficiency of materials use. Purchasing specifications can give manufacturers strong incentives to create products that result in fewer environmental effects while maintaining similar product performance.

This policy recommendation constitutes a challenge to the American people to develop models of shared responsibility and demonstrate how these models can be put into effect across the country and throughout the world. For example, liability regimes must be consistent with any shifts of product responsibility. A series of demonstration projects that illustrate new models of shared responsibility throughout different product systems could provide valuable experience with extended product responsibility. While extended product responsibility should constitute a national priority, actions of states and localities are integral to its success. Ultimately, the Council believes that sharing responsibility for environmental effects would transform the marketplace into one driven by:

- More efficient use of resources;
- Cleaner products and technologies;
- More efficient and more competitive manufacturing;
- Safer storage, shipping, and handling of materials;
- Improved relations between communities and companies;
- Improved recycling and recovery; and
- Responsible consumer choices.

FIGURE 11



NOTES: Industrial ecology is the study of a closed loop in which resources and energy flow into production processes, and excess materials are put back into the loop so that little or no waste is generated. Products used by consumers flow back into production loops through recycling to recover resources. Ideally, the loops are closed within a factory, among industries in a region, and within national and global economies.

SOURCE: Office of Science and Technology Policy, *Technology for a Sustainable Future* (Washington, D.C., 1994).

POLICY RECOMMENDATION 3

EXTENDED PRODUCT RESPONSIBILITY

Adopt a voluntary system that ensures responsibility for the environmental effects throughout a product's life cycle by all those involved in the life cycle. The greatest opportunity for extended product responsibility rests with those throughout the commerce chain - designers, suppliers, manufacturers, distributors, users, and disposers - that are in a position to practice resource conservation and pollution prevention at lower cost.

ACTION 1. Companies, trade associations, wholesalers, retailers, consumer groups, and other private sector parties can develop models of shared product responsibility. Private sector parties should solicit the participation of government and environmental representatives in developing voluntary product responsibility models or demonstration project proposals. Each demonstration project proposal should identify critical links in the product chain, opportunities for significant improvements, and key participants that need to be involved to prevent pollution or conserve resources within each product system under consideration.

ACTION 2. A joint committee involving the private and nonprofit sectors should recommend to the President individuals to be appointed to a Product Responsibility Panel to review and select demonstration projects, help identify appropriate participants, and provide advice on the execution of the demonstration projects themselves. Demonstrations should include companion training and educational programs to communicate the objectives of the demonstrations and principles of extended product responsibility. The Product Responsibility Panel should help identify means of conducting effective monitoring, evaluation, and analysis of the projects' progress and possible links with other sustainable development initiatives. It should also help coordinate sound economic and environmental analyses to assist in transferring the lessons from local demonstration projects to regional and national policies. The panel should have a balanced representation of stakeholders with interests in the life cycle of a product, including its supply, procurement, consumption, and disposal. By immediately identifying product categories for demonstration projects, U.S. industry, in cooperation with government agencies and the environmental community, could begin to carry out the new models of shared responsibility to produce rapid and measurable results. Necessary measures to protect against the extension of product liability would encourage the voluntary assumption of responsibility by businesses.

ACTION 3. Following evaluation of the projects, the federal government, private companies, and individuals should voluntarily adopt practices and policies that have been successfully demonstrated to carry out extended product responsibility on a regional and national scale. The Product Responsibility Panel should recommend any legislative changes needed to remove barriers to extending product responsibility. The procurement policies of federal, state, local, and tribal governments should reflect preferences for resulting cost-effective, environmentally superior products.

FROM THE TOP OF A MOUNTAIN TO THE HEART OF THE CITY

Ever wonder what happens to those recycled plastic soda bottles? just take a walk along a mountain trail on a crisp autumn day. Many of the brightly clad hikers will be sporting jackets that were once soda bottles. Pile jackets, produced from petroleum-based fibers, have been worn for over two decades; today, many are made from recycled plastic bottles.

One producer of the recycled fabric is Malden Mills, a century-old business located in the Lawrence/Methuen area of Massachusetts. Malden estimates that in 1995 about 20 percent of the pile it manufactures will come from recycled soda bottles. With each jacket using around 20 bottles, more than 140 million bottles each year will be in clothing rather than in landfills. Along with using 60 times less new plastic, recycled fibers discharge 17 times fewer pollutants, six times less sulfur dioxide, and four times less carbon dioxide.

"The whole notion of product stewardship - minimizing waste, water use, energy use, chemical use - as well as how we work with our customers and suppliers is a fundamental principle of our company," says Walter Bickford, Malden's environmental manager. "You need to encourage top-down and bottom-up support within the corporation and along each step in the supply chain."

One of Malden's customers, Patagonia, an outdoor clothing company, is also wrestling with the concept of corporate stewardship. Its founder, Yvon Chouinard, discusses his concerns in the book *Sacred Trusts*. "Other than shutting down the doors and giving up, what Patagonia can do is to constantly assess what we are doing. With education comes choices, and we can continue to work toward reducing the damage we do. In this process, we will face tough questions that have no clear-cut answers. Should we add a bit of synthetic fiber in a cotton fabric if it makes a pair of pants last twice as long? Which is better to use - toxic chemical dyes or natural dyes that are less colorfast and will fade?"

For businesses like Malden and Patagonia, stewardship extends beyond products and includes a strong commitment to the communities in which they are located. Malden's hometown at Lawrence is a struggling New England mill town where the population is half its post-World War II peak of 90,000. Starting in the late 1950s, it faced a population exodus as textile firms migrated South or overseas. By the 1980s, acres of downtown Lawrence were a vast wasteland of abandoned buildings. Malden, which employs 2,500 workers at its Lawrence factory, is now the city's largest employer and has a strong influence over the health of its economy.

"Stewardship ultimately comes back to growth policy and land use planning," says Bickford. "For us, that means sticking with a depressed and crime-ridden city. It means

renovating our turn-of-the-century brick factory that lies in the heart of that city. It means a workforce that is 70 percent minority, paid union wages. It means educating ourselves, our employees, and the community. In sum, it means achieving product excellence with social responsibility."

[Before our report went to press, Malden Mills was struck by a tragic fire which destroyed much of the factory. Molden's president, Aaron Feuerstein, recently announced that the comoany plans to rebuild the plant on the same location as soon as possible.]

TOOLS FOR EXTENDED PRODUCT RESPONSIBILITY

A variety of tools can help make extended product responsibility a reality. Some, like labeling programs, inform consumers. Others, like product fees, put a value on environmental impact. All help decisionmakers recognize and respond to opportunities to change. These tools may focus on individual actions or reflect coordination among many participants in the chain of commerce. The tools used for a particular product category should be designed to achieve the desired change at the most appropriate links in the chain, and, where possible, by voluntary action. Following are exomples of these tools.

Product Stewardship Programs and Public-Private Partnerships: Stewardship programs typically deal with the downstream environmental and safety aspects of product use. Many companies and organizations already have voluntary programs of this nature. Examples include the U.S. Environmental Protection Agency's Green Programs such as the Energy Star initiatives; Chemical Manufacturers Association's Responsible Care^R program; Environmental Defense Fund/McDonald's partnership; and initiatives by the Business Council for Sustainable Development, Coalition for Environmentally Responsible Economies, International Standards Organization, National Association of Chemical Distributors, and Synthetic Organic Chemical Manufacturers Association.

Take Back, Buy Back, Leasing, or Reuse/Recycling: Under take-back or buy-back systems, products, packaging, or waste materials are returned to their source for reuse, recycling, treatment, or safe disposal This mitigates downstream environmental effects and permits recovery of valuable materials. Take-back programs are not appropriate for all product categories, such as those that are extremely complex or where recycling infrastructure already exists, but there are many valid applications. Under leasing systems, ownership of materials or products is never transferred, thus encouraging manufacturers to close material flow loops and extend product life. Reuse or recycling by other manufacturers also closes material flow loops.

Education, Information, or Training: Purchasers and users can be given information to facilitate informed environmental decisions. Information can be made available through labeling, product literature, and certification programs. What is important is a continuous flow of information from the designer to the manufacturer, to the user, and back to the designer.

Government Subsidies, Tax Credits, and Procurement Preference: Direct subsidies or tax credits can encourage sustainable processes and products. Because a national priority is usually the justification for a subsidy or tax credit, these tools should not conflict with the goals of sustainability and should be revenue neutral. Federal, state, local, and tribal governments can exert influence in the marketplace through their purchase specifications for environmentally superior products.

Taxes/Fees or Deposit/Refund Systems: Taxes and fees can add the value of environmental effects to the costs of materials and products, making them relatively less preferable in the marketplace. Taxes and fees can also be used to shift the cost of waste management to the waste generator. Examples include taxes on automobile tires and variable pricing for household wastes.

RESPONSIBLE CARE*

When the Vista Chemical Company expanded its Lake Charles, Louisiana, plant's ethylene unit, community members expressed concern about high flames coming out of a stock. "Our neighbors were afraid of the high flames and unhappy about the vibration and noise caused by the flares," according to Nancy Tower, community relations coordinator at the Lake Charles plant. "That's why we held assembly meetings at local schools, distributed information to the media, and sent mailers out informing the community about the flare's role as a safety and control device." Ultimately, the company decided that the only way to really address community concern was to purchase a flare tip to reduce the noise. Tower notes, "This is an example of the public outreach that we are committed to and the dialogue that Responsible Care encourages."

Responsible Care is an initiative that provides the ethical framework within which member and partner companies of the Chemical Manufacturers Association (CMA) operate. It was adopted in 1988 and is continually subject to critical appraisal with an eye toward improved implementation. All CMA members and partners pledge to abide by 10 underlying principles, which include recognizing and responding to community concerns about chemicals and plant operations; developing and producing chemicals that can be manufactured, transported, and disposed of safely; making health, safety, and environmental considerations a planning priority; reporting promptly on health or environmental hazards and recommending protective measures; pursuing relevant research and communications activities, and participating with government and others

in creating responsible laws, regulations, and standards to safeguard the community, workplace, and environment. A public advisory panel composed of individuals from the public and private sectors meets four times a year and helps CMA identify public concerns and decide how to respond to them, reviews Responsible Care's codes of management practices, and evaluates other features of the initiative.

In sum, says Fred Webber, president of CMA, "Through Responsible Care, the chemical industry has taken a significant step toward satisfying the public's desire for both useful products and a safe and clean environment. The chemical industry's commitment to following through on performance improvement is unprecedented. In my opinion, Responsible Care is more than a good initiative - it's the industry's franchise to operate."

*Responsible Care[®] is a registered trademark of the Chemical Manufacturers Association.

Greater Use of Market Forces

In the American economic system, the marketplace plays a central role in guiding what people produce, how they produce it, and what they consume. The choices and decisions made by millions of consumers and firms determine prices for the wide range of goods and services that constitute the national economy. The marketplace's power to produce desired goods and services at the lowest cost possible is driven by the price signals that result from this decentralized decision process.

Despite the nation's commitment to a free market economic system, governmental policy substantially influences the workings of the marketplace. For example, tax levels on different products and activities lower or raise their market prices and artificially encourage or discourage their use. Some government subsidy programs encourage activities that result in economic inefficiency as well as destructive use of resources. At other times, government tax and spending subsidy programs may be essential if the short-term rewards of the marketplace do not coincide with the long-term goals of the nation. To ignore the importance of economic policy is to miss opportunities to encourage economic, environmental, and equity goals.

To improve environmental performance, the design of environmental and natural resource programs should take advantage of the positive role the marketplace can play once environmental goals and market signals are aligned. Current policies generally do not use the power of the marketplace, and at present, some environmental costs in the product chain may be shifted to society at large, rather than be fully reflected in the product price. The cost of air, soil, and water pollution associated with materials and energy used in production as well as the expense to local communities for product disposal are two examples of costs not typically included in a product price. But if these types of costs are reflected in the price of a product, the marketplace sends an important signal. All other things being equal, consumers generally will purchase the lower priced product, creating an important incentive for a company to reconsider how it makes a product. Increasing the use of market forces can create opportunities to achieve

natural resource and environmental goals in the most cost-effective way possible by encouraging the innovation that flows from a competitive economic system.

Examples of market incentive strategies include greater use of systems that allow regulated firms to buy and sell emissions reductions rather than more traditional pollution control approaches, reform of governmental tax and spending policies, and more comprehensive measures of economic performance.[\[4\]](#)

PRESERVING THE LONG ISLAND PINE BARRENS

For more than 20 years, developers, environmentalists, and local government officials in Suffolk County, New York, waged a costly and emotionally charged battle over the Pine Barrens, a 100,000-acre expanse of rare pitch pines and scrub oak forest located on Long Island. In addition to being valued natural habitat, the Pine Barrens rest atop a vast underground aquifer that provides water for the residents of Suffolk County, one of the most densely populated counties in the nation. The prolonged and intense conflict over the Pine Barrens eventually culminated in a lawsuit brought by the Long Island Pine Barrens Society.

In 1993, weary of litigation and stung by a real estate recession, the parties to the dispute and other stakeholders, aided by the Suffolk County Water Authority, joined together to help the state legislature draft a bill that led to the creation of the Pine Barrens Commission. The commission promotes a distinctive management plan for the region, which, except in special hardship cases, will prohibit further development in a 52,500-acre core preservation area, of which 14,000 acres are privately-owned, and will foster efficient, compact development in a surrounding 47,500-acre growth area and outside the central Pine Barrens altogether. It will achieve this not only through outright purchase of some land but through an innovative market-oriented method to preserve vital areas.

Under the plan, landowners in the core area whose property is not acquired outright but who cannot build on it, can sell their development rights for use in outlying areas that are suitable for higher density development than local zoning currently allows. The plan has identified three types of receiving areas: areas where residential development may increase modestly, areas where commercial density may increase, and planned development districts where densities may increase substantially. The result is a program that offers a cost-effective and equitable way to preserve land with the potential to improve the future shape of communities on the periphery of the Pine Barrens.

Across the United States, communities are struggling to save ecologically important areas while also allowing for growth and development. The use of transfer of development rights helps address this challenge by harnessing market incentives to allow developers, environmentalists, and local citizens to implement new methods for

long-term community planning.

Tax Shift and Subsidy Reform

It became increasingly apparent as several of the Council's task forces grappled with various aspects of sustainable development that tax policy is an important consideration in formulating strategies for achieving the desired goals.

The Council believes a tax system should be designed to raise sufficient revenues without discouraging capital formation, job creation, environmental improvement, and social equity. Currently, the federal government raises more than \$1 trillion per year, predominantly (nearly 90 percent) by taxing wages and personal and corporate income.^[5] And since tax policies influence individual and institutional investment patterns and consumption decisions, the Council believes that an effective use of the tax system could be a powerful tool in meeting the challenges of sustainable development. Council members wrestled with the question of whether these challenges could be met, in part, by shifting some of the nation's taxes to activities and forms of consumption that are economically bad for society--inefficiency, waste, and pollution--and away from those that are economically good--employment, income, and savings and investment.

Ideally, a tax system that supports the recommendations of the Council would promote economic growth and jobs in a socially equitable manner, while discouraging pollution and other forms of inefficiency. The Council believes substantial progress in reaching these objectives can be made through revenue-neutral system improvements--changes that shift the ways revenues are raised without increasing overall tax obligations. In addition to revenue neutrality, tax reform efforts must be guided by the following criteria:

- Tax policy must ensure that individuals and families at different income levels are treated as fairly as possible. We, as a Council, strongly believe that taxes should not place a disproportionate burden on lower income individuals and families, and we recognize the limitation of some options - such as the value-added tax or a national sales tax - in meeting this criterion. Federal tax policy must address social equity to be consistent with the goals of sustainable development.
- The tax system must promote savings and investment, employment, and economic growth. The Council is firmly convinced that any tax shift should encourage savings, private investment, and job creation.
- Tax-based policy should also be more skillfully employed to provide for enhanced environmental performance. While there was strong support among many of the Council members to shift tax policy from "taxing goods to taxing bads," there was no consensus regarding any of the specific policy options discussed. However, the Council acknowledged that there is sufficient merit to market mechanisms, such as pollution taxes and taxes on consumption, to warrant further evaluation. Moreover, the Council did agree that any tax shift needs to be done gradually, will not obviate the need for legally enforceable environmental standards or agreements, and should be designed to increase the efficiency of national efforts to improve environmental quality.

Although special tax, spending, and credit provisions may have been economically justified at some time in the nation's development, they may no longer be serving their original purposes and instead may have unintended side effects that run counter to national economic and environmental objectives.

In addition to recognizing the need for alignment of tax policy with the goals of sustainable development, the Council emphasized the need to examine the practical effects of various kinds of subsidies, some of which are obvious and appear to conflict with the Council's goals. As this nation moves toward a more sustainable society, the Council believes that it is absolutely essential to scrutinize existing subsidies and to determine their efficiency in advancing the goals of sustainable development.

POLICY RECOMMENDATION 4

SHIFT IN TAX POLICIES

Begin the long-term process of shifting to tax policies that -- without increasing overall tax burdens -- encourage employment and economic opportunity while discouraging environmentally damaging production and consumption decisions.

ACTION 1. A national commission should be established to review the effect of federal tax and subsidy policies on the goals of sustainable development. The commission would have two major responsibilities. First, it should conduct an explicit assessment of alternative tax policies and, in particular, should assess opportunities for increased use of pollution taxes while reducing reliance on more traditional income taxes. The commission should make recommendations to the President and Congress on tax reform initiatives that are consistent with the goals of economic prosperity, a healthy environment, and social equity.

Second, the commission should review all existing tax and spending subsidies to determine if there remains a national need to continue individual subsidies. The commission should recommend to the President a list of subsidies that fail to meet this test and should be phased out or rapidly eliminated. Any remaining subsidies should be made subject to a sunset or review clause that would require the appropriate government agency to ensure on a regular basis that these subsidies are not inconsistent with national sustainable development goals; otherwise they would be eliminated.

POLICY RECOMMENDATION 5

SUBSIDY REFORM

Eliminate government subsidies

Unlike the tax reform proposal above, subsidies have been the subject of analysis and debate and their likely economic, environmental, and equity effects are relatively well-known. Proposals to reform subsidies have been prevented in the past by intractable political barriers that have proven very difficult to

that encourage activities inconsistent with economic, environmental, and social goals.

overcome. Hence, the commission should also evaluate alternative mechanisms for addressing these political hurdles. Modifications to the U.S. Tax Code or the elimination of subsidies would result in short-term dislocations, but would provide long-term benefits for the nation as a whole. The commission should evaluate and act on remedial or preventive steps to mitigate any short-term effects.

ENERGY AND SUSTAINABLE DEVELOPMENT

Decisions on energy production, distribution, and use can have important effects on the U.S. and global environment, the prices of most basic goods and services, international competitiveness, and national and economic security. Changes in technology and economic behavior offer an effective way to reduce the environmental and social burden associated with energy production and use. Cost-effective investments in energy efficiency, for example, lead to economic, environmental, and equity benefits by reducing energy costs and environmental effects. The energy sector and individual citizens can strive to improve the economic and environmental performance of energy use to enhance national competitiveness and social well-being.

It is important to recognize the global context of energy issues in shaping strategies for the future. If people in developing countries follow U.S. patterns of development, consume similar amounts of resources, and generate as much pollution, they will reinforce many unsustainable trends and undermine global progress in reducing environmental problems. Solutions and innovations developed for challenges in the United States can be adapted to conditions in developing countries to help them achieve their economic, environmental, and equity aspirations.

A number of the Council's policy recommendations would remove institutional, economic, and regulatory barriers that prevent progress toward achieving sustainable development in the energy sector. For example, the increased regulatory flexibility envisioned by the Council under an alternative performance-based management system would encourage energy efficiency as a method of pollution prevention. For many industries, introduction of innovative technologies that prevent pollution and lower compliance costs typically decreases energy consumption. The industries that produce the most pollution and incur the highest abatement costs -- chemicals, petroleum refining, pulp and paper, and primary metals -- also consume the most energy.^[6] Successful research and development aimed at pollution prevention and waste minimization would reduce pollution remediation costs as well as consumption of energy and raw materials. Federal research and development technology partnerships are catalysts for innovation and can also create important economic incentives as part of an alternative performance-based management system.

Other policy recommendations that would help foster progress in the energy sector include shifting tax policies, reforming subsidies, and making greater use of market incentives as discussed earlier in this chapter. Progress in this area can be gauged using the following indicators:

- **Energy Use:** Reduction in the amount of energy consumed per dollar of gross domestic product.
- **Renewable Energy:** Increase in the share of renewable energy use in the U.S. energy supply.
- **Electricity Efficiency:** Increase in the average efficiency of electricity generation.
- **Greenhouse Gas Emissions:** Reduction in U.S. emissions of greenhouse gases due to human activity and a continued downward trend in other regulated pollutants.

POLICY RECOMMENDATION 6

USE OF MARKET INCENTIVES

Make greater use of market incentives as part of an overall environmental management system to achieve environmental and natural resource management objectives, whenever feasible. This system must provide for verification, accountability, and the means to ensure that national standards are met or exceeded.

ACTION 1. Federal and state governments should build on existing programs to design and carry out a system that allows the buying and selling of emissions reductions guaranteeing permanent overall reductions. Such systems should be appropriate to the environmental problems being addressed and local conditions. If applied appropriately, this approach would reduce the costs of meeting air and water quality standards without compromising human and environmental health.

ACTION 2. The federal government should work with the private sector and nonprofit groups to identify cost-effective opportunities to reuse and recycle materials. For example, federal, state, local, and tribal governments should use such information to design procurement policies to encourage new markets for recycled materials that will create jobs.

ACTION 3. States could develop incentives for energy-efficiency investments during the transition from highly regulated to more competitive electricity market forces to create a decentralized approach to investments in energy efficiency.

Energy efficiency is a primary tool of sustainability because it can help achieve the interdependent objectives of improving the economy, increasing equity, and reducing environmental costs. Despite the substantial efficiency gains of the past 20 years, consumers and industry can still save energy cost-effectively by

using newer technologies and improved practices. Many of the least affluent in society have not yet reaped the economic gains from energy efficiency because of lack of financial resources and access to technology. And because current patterns of energy production exact a toll on the environment, energy efficiency can directly reduce environmental effects.

Over the past two decades, energy markets have become more competitive and direct governmental influence has waned. This is an evolution that has brought significant benefits for consumers and contributed to more efficient energy use. For example, the natural gas and electricity markets have moved from being completely regulated to being partially regulated with the introduction of new competitive forces. However, this transition to increased competition needs to be managed with efficiency and the environment in mind. Specifically, many analysts question whether even the best energy conservation programs currently in place will survive the transition to more competitive markets. Also unclear is the extent to which businesses will take advantage of opportunities in this area and respond with innovative approaches to replace traditional demand-side conservation programs. Energy efficiency should continue to be emphasized during the period of transition and beyond.

One approach would be to replace the existing patchwork of utility-sponsored conservation programs with temporary market-based approaches. Under this concept, states would place a small fee on all electricity users. The revenue collected would be placed into an energy efficiency fund awarded to electricity suppliers that compete for the opportunity to install cost-effective energy-saving equipment at a partially defrayed cost. The competition for projects would largely replace traditional bureaucratic programs with an active market in energy efficiency.

It is clear that residential, commercial, and small manufacturing customers, for example, that do not already engage in extensive demand-side conservation efforts would benefit from programs of this type. However, many large facilities that may be subject to global competition already make significant investments in energy efficiency as a business mainstay. In these cases, incentive programs involving surcharges may not be warranted.

ACTION 4. Congress should enact legislation to remove provisions in current laws prohibiting state and local governments from developing market-based transportation management strategies that more fully reflect travel costs. The U.S. Department

of Transportation should encourage states and manufacturers to work together to standardize technology specifications to enable communities interested in doing so to adopt common standards for electronic road and parking pricing technologies.

States and localities that choose to use these market tools should apply the revenues to offset cuts in nontransportation taxes and to enhance the public transit and transportation systems, maintenance, and services. The revenues should also help finance toll discounts, exemptions, and/or rebates for low-income commuters who need to use the roads to travel to jobs during times of the day when tolls are collected. All levels of government should consider offering funding bonuses to areas that implement road user fees more fully. Bonuses should be available to states or regions that achieve measurable improvements in reducing transportation-related pollution, energy consumption, or vehicle miles traveled.

Building Intergovernmental Partnerships

When the current system of environmental management was created some 25 years ago, most state governments did not have the capacity to operate environmental regulatory programs. This is no longer the case. As the environmental regulatory system has matured, many states have developed strong programs.

Two related reforms are now in order to help shift the focus from the narrow goal of environmental protection to the broader goal of sustainable development. The first reform is to move from a federally focused governmental decision-making structure to a collaborative design that shares responsibility among levels of government. The second reform is to shift the focus from centralized environmental regulation organized around separate programs to protect air, water, and land to a comprehensive place-based approach. It should be designed to integrate economic, environmental, and social policies to meet the needs and aspirations of localities while protecting national interests.

To accomplish these reforms, the new system will need to rely heavily on partnerships among federal, regional, state, local, and tribal levels of government. These partnerships will require unprecedented cooperation and communication within and among levels of government in a geographic area. For example, carrying out a community-designed sustainable development strategy may depend on close collaboration by a local economic development agency, a regional transportation authority, a state housing department, and a federal environmental agency.

This shift in focus to place-based partnerships will require major changes in the roles and responsibilities of federal and state regulatory agencies in communities interested in

accepting new local responsibilities. The agencies should help build local decision-making capacity so that communities can begin to develop integrated economic, environmental, and social equity strategies themselves. Rather than simply issuing regulations from afar, these agencies will need to work in communities and provide information and technical assistance.

Along with the devolution of responsibilities to states and localities, however, some traditional responsibilities must be preserved. For example, the federal government must continue to establish consistent national standards to ensure uniform levels of protection across state lines. Greater flexibility is needed - not in the standards themselves, but to encourage greater efficiency in determining the means to attain such standards. In addition, in the development and implementation of place-based strategies, federal agencies must continue to represent and protect national interests that may not be represented by local interests in all cases. Examples include controlling transboundary pollution and protecting biodiversity.

POLICY RECOMMENDATION 7

INTERGOVERNMENTAL PARTNERSHIPS

Create intergovernmental partnerships to pursue economic prosperity, environmental protection, and social equity in an integrated way.

ACTION 1. 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. Savings from eliminating duplication and unnecessary oversight should be dedicated to cover some of the increased public sector costs associated with regulatory flexibility and place-based partnerships. States should also share in the increased flexibility when using federal grant monies, conditioned on performance-based measures of environmental results agreed upon by federal and state agencies.

ACTION 2. Federal and state agencies should enter into partnerships with communities that wish to develop and carry out sustainable development strategies designed to address local circumstances.

ACTION 3. Federal agencies should work with national associations representing regional, state, local, and tribal governments to create model guidance that could be issued to government employees to encourage cooperation and communication among and within government agencies in geographic areas where place-based sustainable development strategies are being developed.

TRANSPORTATION AND SUSTAINABLE DEVELOPMENT

The U.S. transportation system plays a critical role in the everyday lives of millions of Americans. Access to affordable transportation is necessary for people to work, recreate, and purchase goods. Transportation choices, land use patterns, community design, and pollution are inherently linked. Further, transportation affects national and economic security as it increasingly accounts for the largest share of oil consumed in the United States - two-thirds in 1994.[\[7\]](#) The nation can aspire to improve the economic and environmental performance of the U.S. transportation system while increasing all Americans' access to jobs, markets, services, and recreation.

This report outlines many steps that can be taken by government at all levels, communities, businesses, and residents to address the challenge of a sustainable transportation system. The recommendations and actions listed below are presented in chapter 4, "Strengthening Communities."

- Improve community design to contain sprawl better, expand transit options, and make efficient use of land within a community to locate homes for people of all incomes, places of work, schools, businesses, shops, and transit in close proximity and in harmony with civic spaces.
 - Shift tax policies and reform subsidies to improve economic and environmental performance and equity in the transportation sector significantly.
 - Make greater use of market incentives in addition to changes in tax and subsidy policies to achieve environmental objectives.
 - Accelerate technology developments and encourage public-private collaboration to move industrial sectors closer to economic, environmental, and equity goals.
- Progress in the transportation sector could be measured using the following indicators:
- **Congestion:** Decrease in congestion in metropolitan areas.
 - **National Security:** Increase in economic and national security through reduced dependency on oil imports.
 - **Transportation Efficiency:** Decrease in the rates of freight and personal transportation emissions of greenhouse gases and other pollutants, including carbon monoxide, lead, nitrogen oxides, small particulate matter, sulfur dioxide, and volatile organic compounds.
 - **Transportation Patterns:** Progress toward stabilizing the number of vehicle miles traveled per person while increasing the share of trips made using alternative transportation modes.

[1] U.S. Department of Commerce, Bureau of the Census, *Census of Manufacturing* (Washington, D.C.: Government Printing Office, 1995), p. 13.

[2] The Common Sense Initiative and Project XL are outlined in "Regulatory Reinvention (XL) Pilot Projects," *Federal Register* 60, no. 99 (May 1995): 27282; and U.S. Environmental Protection Agency, Office of Communications, Education, and Public Affairs, "Project XL: Innovative Projects in Environmental Excellence and Leadership," press release (Washington, D.C., 3 November 1995).

[3] Yvon Chouinard, "Patagonia: The Next Hundred Years," in Michael Katakis, ed., < and Stewardship on Essays Trusts:>(San Francisco: Mercury House, 1991).

[4] For example, in the 1990 amendments to the Clean Air Act, Congress authorized the trading of sulfur dioxide emission allowances. See Clean Air Act Amendments of 1990, Pub. L. 101-549, 104 Stat. 2399.

[5] U.S. Department of Commerce, *Statistical Abstract of the United States 1994* (Washington, D.C.: Government Printing Office, 1994), p. 330, table 504; and p. 331, table 505.

[6] U.S. Congress, Office of Technology Assessment, "Industry, Technology, and the Environment: Competitive Challenges and Business Opportunities" (Washington, D.C., 1994), p. 190.

[7] U.S. Department of Commerce, *The Effect of Imports of Crude Oil and Refined Petroleum Products on the National Security* (Washington, D.C., 1994), p. ES-4.