





# Cross-Goal Strategies





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Many of EPA's efforts—strengthening our partnerships with states and tribes, improving the quality and availability of the environmental and health information on which we base our decisions, and improving our management systems to achieve better results—contribute to our progress toward all five of our goals. This cross-Agency, cross-media work includes both support functions, such as administrative and financial management or legal services, and the strategies or means we employ to help accomplish our objectives, such as science and research or information management.

Each of these efforts is a significant component of our work and plays a critical role in the accomplishment of all of our goals. This chapter highlights a few of these cross-goal strategies: Partnerships, Information, Innovation, Human Capital, Science, Homeland Security, and Economic and Policy Analysis. For each, we will discuss the Agency's approach, explain how the strategy will contribute to the achievement of our goals, and describe some of the activities we will conduct and results we hope to achieve using this approach.

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## RESULTS AND ACCOUNTABILITY

EPA is committed to being not only a good steward of the environment, but also a good steward of the public's tax dollars. Guided by the principles of the President's Management Agenda (PMA)<sup>1</sup>—to be “citizen-centered, results-oriented, and market-based”—we are working to improve the efficiency and effectiveness of our programs and activities. We are continuing to make progress under each of the PMA initiatives and other significant efforts to improve program effectiveness and efficiency as described below.

### ASSESSING THE STATE OF THE ENVIRONMENT AND MEASURING PROGRESS

To define our goals, measure our progress, and hold managers accountable for achieving results, EPA needs accurate, timely environmental data. Based on the preliminary work we did to prepare EPA's *Draft Report on the Environment—2003*, we are developing and using a suite of scientifically sound indicators to track trends in environmental conditions and environmental influences on human health. This indicator information, which we will present in our *Report on the Environment—Technical Document* (to be released in 2007), will provide a snapshot of current environmental conditions and a baseline against which we can measure our accomplishments.

Our environmental indicators work is critical to EPA's strategic planning. We have used our latest set of environmental indicators in developing this *Strategic Plan*; indicator information has guided us in establishing our 2006-2011 strategic goals, objectives, sub-objectives, and associated strategic targets, which define the measurable environmental results we are trying

to achieve. Information on trends in environmental conditions and human health will also help us identify key environmental concerns and emerging issues and assess the effect of federal, state, local, tribal, and private efforts in improving environmental quality. We will continue to use environmental indicator information and our *Report on the Environment* to determine critical data needs for future strategic planning.

### MAKING INFORMATION MORE ACCESSIBLE

EPA's information systems ensure that we and our federal, state, tribal, and local agency partners have the accurate, timely information we need to make sound decisions. To make environmental information readily accessible, we have created a computer network that connects EPA and our contractors with states and tribes, standardized our computer systems, implemented data standards, and instituted a variety of streamlining efforts.



EPA will continue to identify information technology and information management challenges and to address them as effectively and cost efficiently as possible. Over the next 5 years, we will focus on four major areas:

- *Analytical Capacity.* We will continue to convert raw environmental data into information that decision makers can use more easily. For example, our geospatial work is converting millions of pieces of data into maps.
- *Governance.* We will ensure that the data EPA collects are of appropriate quality and design, that the data will serve many users, and that we minimize system overlaps to avoid conflict and reduce costs.
- *Excellence in Information Service Delivery.* EPA will use the latest technology to streamline management and data processes and link data partners, making information more accessible to all.
- *Innovation in Information Management.* Through electronic government (E-Gov) efforts, we will continue to convert paper-based administrative or regulatory processes into electronic systems, improving transparency and accessibility, and reducing paper waste.

human resources more closely with the environmental results we deliver. Our Budget and Performance Integration effort under the PMA promotes better performance; enables more informed decision making; increases accountability; and allows more transparent, comprehensive reporting of environmental results to the public.

To ensure consistent, effective performance across EPA, we have developed long-term measures of program performance in our *Strategic Plan* that establish ambitious yet reasonable expectations for future environmental outcomes. These long-term measures establish the framework for crafting annual performance and efficiency measures that meet Office of Management and Budget's Program Assessment Rating Tool requirements. EPA collects and analyzes performance information against these measures to assess program performance over time and to evaluate the effectiveness of our approaches to environmental problems. Based on these evaluations, we can adjust or modify our strategies to achieve better results.

To encourage EPA staff and our partners to be accountable for delivering environmental results effectively and cost efficiently, we are also incorporating performance measures in EPA managers' performance agreements and, as appropriate, in our contracts, grants, and memoranda of understanding. These performance measures strengthen the connection between an individual's or organization's contribution and the delivery of environmental results. Linking our staff's and our partners' performance to EPA's mission, goals, and expectations for environmental outcomes increases everyone's commitment to improving results.

#### INTEGRATING BUDGET AND PERFORMANCE INFORMATION

One of the first federal agencies to link our planning and budgeting structures, EPA is now working to align our financial and

#### IMPROVING FINANCIAL PERFORMANCE AND ELIMINATING IMPROPER PAYMENTS

EPA has undertaken a multi-office data integration effort which uses financial





information to improve program efficiency and ensure sound financial management. We are focusing on financial information related to one business process at a time as part of our efforts under the PMA. In FY 2005, for example, we reviewed grants management. We have made progress in linking grants management and financial data, producing better information that shows the relationship between grant projects and EPA's environmental objectives. Next we will review emergency management and, in future efforts, analyze such key risk areas as debt management and contracts management.

In another PMA initiative to improve our financial performance, we are working to eliminate improper payments. Under this effort we will identify, prevent, and eliminate erroneous payments and document that the government is using tax dollars for their intended purpose. While EPA's improper payments are minimal, we are committed to reducing the error rate for improper payments even further. For example, in FY 2004 EPA's error rate in the Drinking Water and Clean Water State Revolving Funds, 2 of EPA's largest sources of grant funding, was 0.51 percent, or \$10.3 million; by the end of FY 2005 we reduced it to 0.16 percent, or \$3.1 million. We will continue to uphold high standards of integrity for financial performance.

## MEETING HUMAN CAPITAL NEEDS

EPA has designed our Human Capital Strategy to ensure that our workforce is high-performing, results-oriented, aligned with our strategic goals and objectives, and accountable for delivering environmental results consistent with the PMA. Toward this end, our human capital planning will require us to identify the skills we will need for future work, attract and retain diverse talent, provide continuing opportunities for organizational learning, develop leaders, and ensure adequate succession planning.

Moreover, because EPA increasingly relies on partnerships and collaborative endeavors to accomplish our work, our strategic human capital planning must also consider our relationships with such partners as other federal agencies, state and local governments, tribes, grantees, contractors, and other stakeholders. We need to ensure that all available expertise is brought to bear to achieve our goals for protecting human health and the environment.



Over the next 5 years, we anticipate a dramatic increase in “baby boomer” retirements across both the public and private sectors. To attract and retain the right people in the right jobs for both the short and long terms, we will work to elevate EPA's profile as an employer of choice, increase our use of hiring flexibilities, and emphasize intern and career development programs.

## INCREASING EFFICIENCY THROUGH COMPETITIVE SOURCING

Competitive sourcing—using competition to determine whether federal or private sector employees can most efficiently and effectively perform work that is not inherently governmental—is a key element of the PMA and EPA's effort to deliver environmental results and ensure accountability. Competitive sourcing helps EPA determine the optimal mix of federal employees and contractor personnel for achieving the best results and highest quality of service for our investment. The competitive process drives innovation and efficiency, enabling us to reinvest resultant savings in high-priority activities.

Our competitive sourcing program aligns EPA's business needs with our Human Capital Strategy and uses our planning process to identify activities for competition and reinvestment. Through competitive sourcing, we have already realized efficiencies in delivering certain of our financial and information technology services; as a result, we expect to make savings of more than \$10 million available for reinvestment during the next 5 years. Over the next 3 years, we plan to conduct competitive sourcing competitions for additional information technology and administrative support services, and we anticipate that these competitions will save EPA 15-25 percent.



### INCREASING EFFICIENCY THROUGH ELECTRONIC GOVERNMENT (E-GOV)

EPA is pursuing a number of opportunities for leveraging electronic tools and capabilities to provide one-stop access to services and transactions, reduce duplication in collecting information, and provide transparent, timely, on-line data. Whether

for improving electronic processing and streamlining flows of the Toxics Release Inventory data, or developing new geospatial tools for analyzing environmental data, our E-Gov work is making current data more accessible to EPA managers and stakeholders.

EPA is participating in 18 of the 25 E-Gov initiatives included in the PMA. As the “managing partner” for the E-Rulemaking initiative, we are coordinating the efforts of nine other agencies to redesign the rulemaking process. E-Rulemaking uses the internet to make the rulemaking process more accessible to interested parties. While federal rulemaking was once a paper-based process, E Rulemaking now offers one-stop access and user services such as text and document search capabilities and the ability for the public to submit comments electronically. EPA's system will serve as a template to improve existing “E-DOCKET” systems and will replace duplicative systems in many federal agencies.

As a leader in E-Gov, we are helping to simplify and unify common work processes across federal agencies and within EPA. We will continue applying new principles and methods to achieve better results, improve customer service, and provide greater savings to the American people.

## INNOVATION AND COLLABORATION

EPA's progress over the next several years will depend greatly on our ability and commitment to find more effective tools and approaches to meet today's complex environmental challenges. Broad-based problems, such as polluted runoff, global climate change, and loss of habitat and biodiversity, are often the result of diffuse causes and cannot be solved fully with conventional regulatory controls. Rapid technological and scientific advances can bring breakthrough

solutions, but also pose unknown or unexpected environmental and public health risks.

As EPA faces these complex challenges and a tightening federal budget, we increasingly turn to two important strategies that cross all of our goals and programs: finding innovative solutions and collaborating with others. In the coming years we must work even more effectively with organizations engaged in environmental issues, leveraging



limited resources and coordinating our authorities and capabilities. We also must involve other government agencies, businesses, communities, and individuals who might not ordinarily focus on environmental matters, yet have the distinctive expertise, perspectives, and resources to help solve environmental problems.

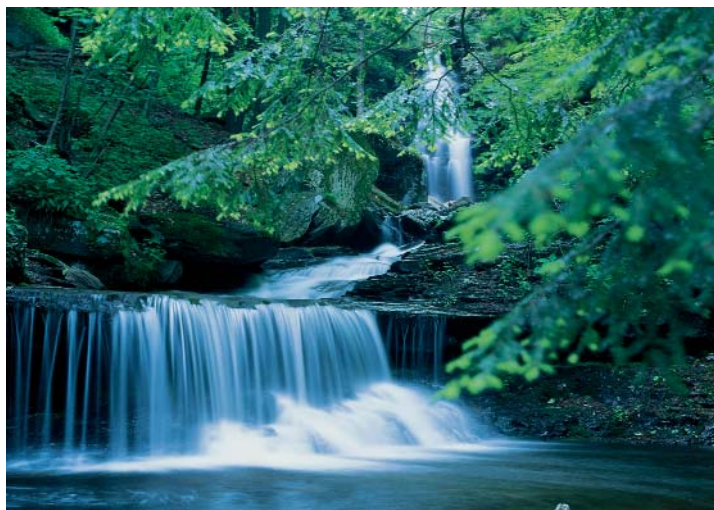
To make the greatest progress, we will promote an ethic of environmental stewardship that engages all parts of society—businesses, companies, communities, and individuals—in taking responsibility for environmental quality and achieving sustainable results. Environmental stewardship is based on the premise that government cannot meet environmental challenges alone. Rather we need all parts of society to understand how environmental protection aligns with broader social and economic interests and to engage with us in actively creating a sustainable future.

## INNOVATING TO IMPROVE ENVIRONMENTAL RESULTS

Innovation is key to environmental progress. Innovation involves developing new ideas, testing their effectiveness, and then determining useful applications. It also involves making proven approaches even more effective or adapting them to address other needs. To drive progress under this *Strategic Plan*, EPA's innovation strategy is based on four elements.

### *Promoting State and Tribal Innovation.*

Because states and tribes are on the frontlines of environmental protection, they are in the best position to recognize problems and craft innovative solutions. EPA is committed to supporting innovation in state and tribal programs in a variety of ways. For example, states participate in EPA's Innovation Action Council. Through this senior-level policy forum, we jointly develop an innovation work plan that focuses attention on priority issues. Together, we are finding innovative



approaches to program management challenges, such as developing total maximum daily loads for impaired water bodies or using alternative approaches for managing hazardous waste under the Resource Conservation and Recovery Act.

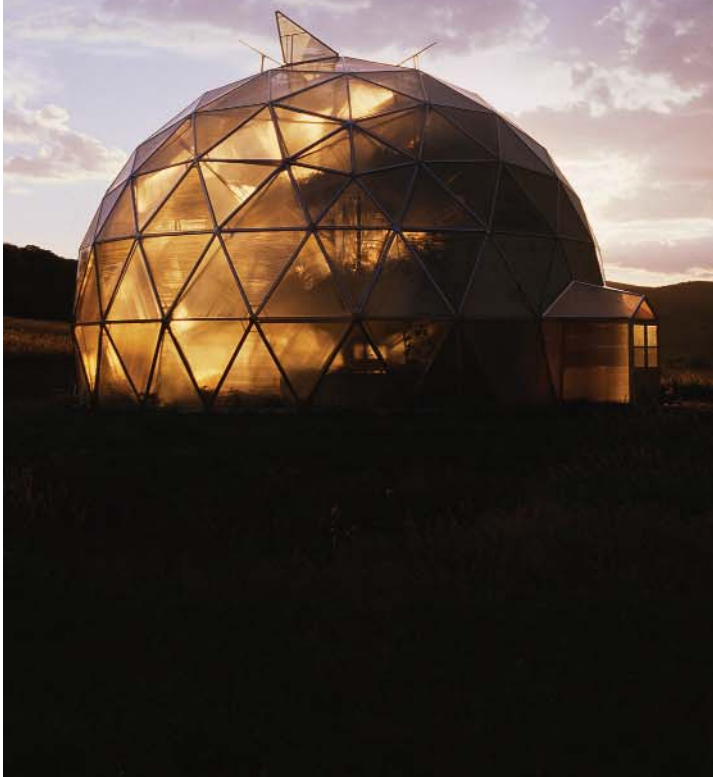
We also support states through the competitive State Innovation Grant program which, since 2003, has provided funding to help states explore innovative approaches in three areas of mutual interest to EPA and states—environmental permitting, environmental management systems, and performance-based leadership programs. For example, these funds have been instrumental in helping states adapt an innovative approach to permitting first developed in Massachusetts. Today, 15 states are developing or applying programs similar to Massachusetts' Environmental Results Program to improve environmental performance in small business sectors, such as dry cleaning and printing.

Similarly, our Innovative Funding Workgroup, supported through EPA's Indian Program Policy Council, is developing options for the strategic and innovative use of funding, resources, and other opportunities to effect environmental change. The workgroup seeks to understand all of the various mechanisms that EPA and other agencies are using or could use to enhance coordination and environmental protection in Indian country.<sup>2</sup>



## SUPPORTING THE GROWING INTEREST IN GREEN BUILDING

Buildings and development have extensive effects on human health, natural resource use, and environmental quality. However, a growing interest in green building aims to reduce those impacts. Green building is the practice of creating healthier, more resource-efficient models of construction, renovation, operation, maintenance, and demolition. While many EPA programs work with the building and construction sectors to improve environmental performance, a cross-Agency Green Building Workgroup is bringing these programs together to share information, leverage resources, and pursue their common objectives with external stakeholders who have joined the green building movement. The Workgroup is a model of collaboration, and its emergence represents the kind of culture change that is called for in EPA's Innovation Strategy. It shows how EPA recognized an external trend and is responding with a multimedia approach that can advance all five of our strategic goals.



*Focusing on Priority Problems.* While innovation is essential for addressing all environmental challenges, EPA's innovation strategy targets a set of priority problems that are national in scope and in need of creative new ideas to assure progress: reducing greenhouse gases and ozone, restoring water quality, and addressing the funding gap for water infrastructure. Our strategy commits us to consider all potential avenues to address these diverse issues—regulations, policy, guidance, voluntary initiatives, and compliance assistance. By exploring such options, we can create a more diverse portfolio of solutions for these and future problems.

*Developing Problem-Solving Tools and Approaches.* EPA needs new tools and approaches to solve existing environmental protection problems and to prevent the emergence of new ones. We believe the future environmental protection system will rely less on technology requirements and more on strategies tailored to address whole facilities, communities, or industry sectors. It also will emphasize pollution prevention and natural resource conservation. Our innovation strategy focuses on developing tools that will expand current capabilities, for example, by supporting environmental technology innovation, increasing incentives, encouraging the use of environmental management systems, and developing results-oriented performance goals and measures.

*Creating a Culture and Organizational Systems to Foster Innovation.* Under the fourth element of our innovation strategy, we are working to foster innovation by changing our organizational culture and management systems. We recognize the need to improve our planning, budgeting, and accountability processes and invest in our human capital. We are also committed to futures planning to ensure that we and our partners are aware of and ready to respond to new trends and opportunities that can affect environmental quality.



## COLLABORATING ON COMMON GOALS

Collaboration is critical to addressing today's more complex and often controversial issues. EPA has a long history of working successfully with others on environmental problems, breaking through institutional and other barriers to achieve more comprehensive results than we could by working alone. Collaborative approaches can produce more effective and durable decisions, because they generate a shared sense of ownership among the stakeholders who will implement them. Collaboration on data gathering and analysis boosts the potential for agreement and can transform our understanding of environmental problems.

We will continue to enhance our capacity to collaborate with others, and we will increase our managers' and staff's "collaboration competency," helping them know when and how to engage productively with others. Further, we are identifying new opportunities for involving stakeholders, making internal and external collaborative process experts more available to help facilitate complex decision making, and implementing a set of initiatives with other federal agencies to strengthen our collective ability to work with the public.

### *With States*

The unique relationship between EPA and states is a cornerstone of the nation's environmental protection system: working together, we have significantly improved environmental quality and public health. Delegated state programs conduct much of the day-to-day work involved in environmental programs—including issuing permits, conducting compliance and enforcement activities, and monitoring environmental conditions—and EPA oversees these activities.

In addition to our partnerships with individual state environmental, public health, and agriculture agencies, EPA works at the national level with a variety of associations

## A STRATEGY FOR REDUCING ELECTRONICS WASTE

With America's increasing reliance on electronics, how can we best address the burgeoning problem of electronic waste? Part of the solution is supporting the market for environmentally-preferable electronic products. That is the goal of the Federal Electronics Challenge, an EPA partnership program that leverages the \$65 billion spent annually in the United States on electronic equipment and services. Under this challenge, government agencies commit to making electronic purchases that meet certain environmental criteria, such as reduced use of toxic substances, virgin materials, and energy, thereby harnessing their considerable buying power to ensure that these greener goods are available for many other purchasers as well.

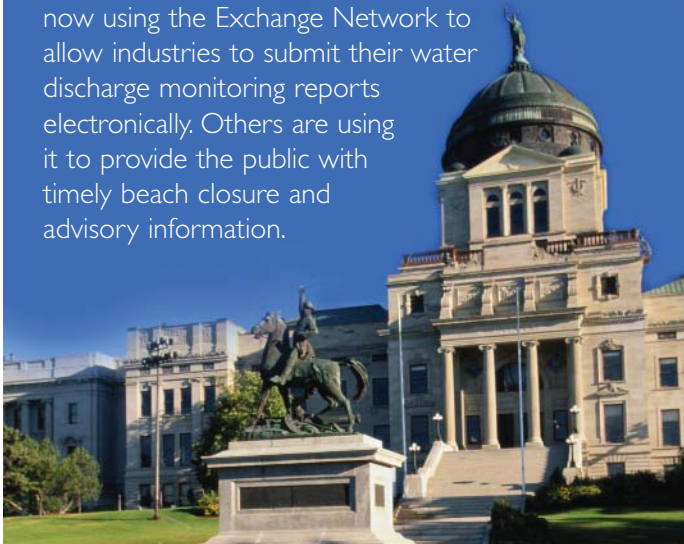


representing state governments. These organizations provide the state perspective that EPA needs to shape policies and programs. We work closely with the National Governors Association, National Council of State Legislatures, and the Environmental Council of the States, as well as with groups representing managers of specific environmental media programs, such as the Association of State and Interstate Water Pollution Control Administrators.

In 1995, EPA and state officials created the National Environmental Performance Partnership System, the foundation for our work with states. Through this system of performance-based partnerships, EPA and states are setting environmental priorities and program strategies, improving how we measure performance, implementing innovative solutions to environmental problems,

## COLLABORATING WITH STATES ON ENVIRONMENTAL DATA

One of the best examples of state and EPA collaboration is the National Environmental Information Exchange Network. Designed to help states and EPA share information more efficiently and effectively over the internet, this system provides real-time access to high quality data while saving agencies time and money once spent on paper-based data entry and reporting. Since 2002, EPA has provided more than \$80 million in grants to help states, as well as tribes and territories, develop this Web-based system. The results are revolutionizing the exchange of environmental data. Several states are now using the Exchange Network to allow industries to submit their water discharge monitoring reports electronically. Others are using it to provide the public with timely beach closure and advisory information.



and strengthening data collection and management. Critical to this work is finding ways to maximize flexibility so that states can address their own priority needs while ensuring accountability for results.

### ***With Tribes***

EPA's work with tribes is based on the recognition that tribes have unique cultural, jurisdictional, and legal issues that must be considered when coordinating and implementing environmental programs in Indian country. One of their cultural distinctions is a longstanding commitment to environmental stewardship. Native Americans recognize the importance of not only protecting the environment, but of pursuing a longer-term goal

of sustainability—a perspective that has much to offer as EPA pursues stewardship efforts.

EPA works with each tribe on a government-to-government basis. The Agency's 1984 Indian Policy formally recognizes the uniqueness of tribes and their rights as sovereign governments. In keeping with that policy, EPA will pursue innovative and coordinated programs that complement tribal government structures and incorporate tribal priorities to protect human health and the environment in Indian country.

As part of the National Tribal Operations Committee, EPA's Administrator, Deputy Administrator, and other senior Agency officials work with 19 elected or appointed tribal leaders, who comprise the National Tribal Caucus, to address environmental and human health issues in Indian country. EPA's nine regions with federal Indian tribes have similar working relationships or mechanisms in place for this purpose.

### ***With Local Governments***

Local governments are uniquely positioned to collaborate with EPA, other public agencies, and the private sector in finding ways to make life better for their citizens. Regulatory tools, such as land use planning authorities, building and health codes, and other ordinances allow local governments to address problems falling outside federal or state jurisdiction. At the national level, EPA's Local Government Advisory Committee provides advice and recommendations for building state and local capacity to deliver environmental services and programs.

### ***With Other Federal Agencies***

The President's 2004 Executive Order on Cooperative Conservation placed new emphasis on the need for collaboration on environmental problem-solving by calling for expanded cooperation among federal agencies with environmental and natural resource responsibilities. EPA will continue to be an active partner in Cooperative



Conservation and seek opportunities for further coordination with our federal partners.

One especially important component of Cooperative Conservation is a competency-based approach to developing collaboration and partnering skills in the federal workforce. In 2006, EPA developed a dynamic initial plan, which will be revised through dialogue with Agency staff and management, to ensure that these skills are a part of hiring, training, and recognizing EPA employees. By implementing this plan, we will enhance EPA's capability to foster collaborative problem-solving and attain our environmental and public health objectives.

#### **With Other Countries**

As our understanding of environmental issues has increased, so has our appreciation of the need to partner with other countries on environmental goals. International cooperation is vital to achieving our mission, and EPA has established three strategic priority areas for our international engagement.

*Reduce Transboundary Pollution.* Air pollution and toxic substances generated in other countries circulate through the atmosphere and can ultimately reach the United States. To meet many of our domestic environmental protection goals, therefore, we must address international sources of pollutants. In many cases, it is more efficient to reduce emissions from foreign sources than from domestic ones. For example, the majority of all mercury deposited in the United States originates from outside of our borders, and water-borne disease is greater along the U.S.-Mexico border than in the rest of the United States due to inadequate wastewater treatment. We must collaborate with our international partners to solve these and other problems.

*Advance U.S. Interests Abroad.* Our shared goals for environmental protection can open doors between the United States and foreign governments. Assisting other countries in their environmental protection efforts can be an effective part of a larger U.S. strategy for promoting sustainable

## LEARNING FROM LOCAL LEADERS

Bartow County, Georgia is a model for collaborative environmental problem-solving at the local level. A fast-growing area northwest of Atlanta, Bartow County is implementing the first county-wide environmental management system in the nation. Designed to significantly reduce pollution across the county, this program is the result of a partnership that includes six cities, two school districts, the local chamber of commerce, several industry leaders, and the agricultural community. Over the past several years, the county has conducted a baseline audit of environmental performance and has developed environmental management resources, such as a Web site database for tracking air emissions, waste minimization, and water quality, and an air quality "tool box" for local officials. Air emissions have already been reduced by 25 percent. Based on its results, the Bartow County program is gaining attention at all levels of government; it was among the models showcased at the 2005 White House Conference on Cooperative Conservation.



development and advancing democratic ideals. EPA supports U.S. diplomatic, trade, and foreign policy goals that extend far beyond our domestic agenda.

*Promote Good Environmental Governance.* Good environmental governance abroad not only yields a cleaner environment, it helps ensure that U.S. companies and communities compete on an equal footing in the international marketplace. In particular, EPA works

with U.S. trading partners to help them enforce their own environmental laws. Through leadership in the Organization for Economic Cooperation and Development, EPA supports environmental performance reviews of other countries so that good governance best practices—such as providing access to information, collaborating with diverse stakeholders, and providing transparency in environmental decision making—are shared and countries continually improve.

## BEST AVAILABLE SCIENCE

Effective, proactive environmental protection requires a strong foundation of scientific knowledge. EPA uses the best available scientific approaches, data, and models to anticipate potential threats, evaluate risks, identify solutions, and develop standards that protect the environment and safeguard human health. Our science strategy is designed to generate the data we need to understand and manage risks and to guide research that can inform our decision making.

### ASKING THE RIGHT QUESTIONS

EPA works with states and tribes and across public and private sectors, drawing on the best scientific information available to help us ask the right questions and characterize problems clearly.

Our intramural research program conducts leading-edge research to help us understand the biological, physical/chemical, social, and other processes that drive environmental systems, and it provides the fundamental scientific basis for addressing a wide variety of environmental problems. For example, our intramural research program produces information used to conduct assessments for EPA's Integrated Risk Information System (IRIS), an electronic database of information on human health effects that may result from exposure to various chemicals in the environment. IRIS is a valuable risk assessment tool for EPA's regulatory programs, states, and industry. To guide our intramural program, EPA prepares multiyear research plans that set out the research goals we intend to achieve over a 5-10 year period and establish annual performance goals and measures of our progress.<sup>3</sup>

Each of EPA's environmental programs is supported by scientists and engineers with specialized program knowledge. Toxicologists, hydrologists, ecologists, and other experts apply best available science to implement our programs. For example, these experts may identify appropriate criteria for assessing water quality, set air pollutant standards that protect human health, explain fate and transport of pollutants in soil and groundwater, or characterize complex ecosystem responses to stress.





EPA's regional offices also rely on scientific expertise. The National Regional Science Council (NRSC), composed of representatives from each of 10 Regional Science Councils, develops informational products; sponsors conferences, workshops, and training; fosters collaboration; and identifies common regional needs.<sup>4</sup> The Tribal Science Council provides another forum that encourages key stakeholders to work with us on environmental science issues in Indian country,<sup>5</sup> including research, monitoring, modeling, data, technology, and training.

Our competitive Science to Achieve Results (STAR) program funds research grants and graduate fellowships in many environmental science and engineering disciplines. STAR engages the nation's best scientists and engineers in targeted research that complements EPA's intramural research program and those of our federal agency partners. Through this competitive process, we also periodically establish large research centers to address specific areas of national concern, such as children's health, hazardous substances, particulate matter, and estuarine and coastal monitoring.

EPA's Science Inventory<sup>6</sup> reflects the full range of our science activities: research, technical assistance, assessments, scientific and technical products, and peer reviews. A searchable catalogue of science activities, peer-reviewed products, and EPA archival records, the Inventory helps EPA scientists and managers track and coordinate scientific initiatives and serves as a resource for people interested in state-of-the-science at EPA.

## ASSURING SCIENCE QUALITY

EPA's quality assurance programs ensure the integrity of environmental data by overseeing monitoring programs, approving data collection activity plans, and evaluating monitoring and laboratory practices. For example, as part of EPA's 2002 Information Quality

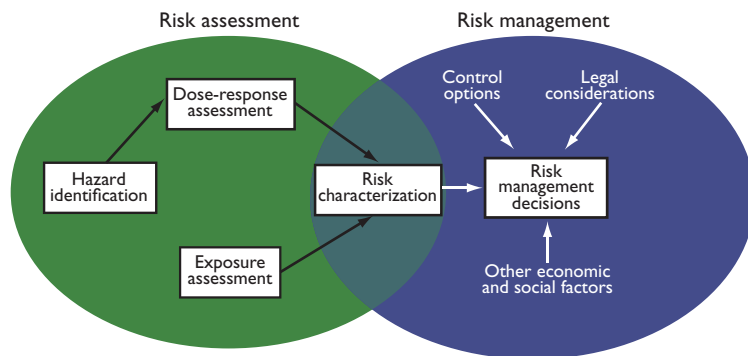


Guidelines,<sup>7</sup> we must ensure that the material our regulatory programs present to support risk assessments is comprehensive and informative. The information must be accessible enough to make our methodology, as well as our plans for identifying and evaluating risk, understandable to affected populations.

A key strategy for assuring science quality is peer review, an EPA priority for many years. EPA's Peer Review Policy<sup>8</sup> requires that major scientific and technical work products be reviewed by qualified, independent scientists outside of EPA. Peer review enhances credibility, uncovers technical problems, identifies additional information needs, and ensures that conclusions that follow from data comport with generally accepted scientific standards. The National Academy of Sciences (NAS), our Science Advisory Board (SAB), and the Board of Scientific Counselors (BOSC) are among the scientific organizations that review our products and advise EPA.

## USING SCIENCE CORRECTLY

EPA organizes much of its scientific information around the principles of risk assessment and risk management. We conduct risk assessments to help us understand the relative size (magnitude) and likelihood (probability) of risk that environmental stressors, such as air pollution or



Source: EPA Office of Research and Development

chemicals in drinking water, pose to human health and ecosystems. Risk management involves determining whether and how to reduce such risks.

Risk assessment is critical to EPA's work; we integrate risk assessments with economic data, engineering studies, and other information to provide the comprehensive scientific analyses we need to inform our decisions. Our Risk Assessment Forum, a standing committee of senior EPA scientists, focuses on fundamental, generic issues concerning risk assessments and related science policy and promotes Agency-wide consensus on difficult or controversial issues. EPA's Risk Characterization Policy and Handbook<sup>9</sup> guides our scientists in characterizing risk assessments properly.

Our Action Development Process also ensures that EPA's decisions are well informed by sound science and high quality data. Through this process, EPA's senior managers can consider a broad range of regulatory and non-regulatory options and analytic approaches in the earliest stages of project planning. The Action Development Process ensures that EPA scientists, economists, and other technical experts are appropriately involved in determining research and analysis needs, identifying alternatives, and selecting options.

A number of entities within EPA support our science efforts:

- The Office of Science Policy applies scientific expertise from within EPA's

Office of Research and Development to ensure that consistent, cross-Agency scientific results, aided by technical evaluation and peer review, are part of our regulatory and policy decisions.

- Our Science Policy Council (SPC), chaired by the EPA's Science Advisor, addresses significant Agency-wide science policy issues. The SPC has produced the Genomics Action Plan, EPA's Nanotechnology White Paper, and the Risk Assessment Principles and Practices Staff Paper.
- The Council on Regulatory Environmental Modeling guides us in developing and using environmental models. The Council has developed an inventory of the EPA models that are used most frequently and continues to promote open, transparent model design.

Scientific information often includes some degree of uncertainty, inviting a diversity of interpretations. However, scientists are increasingly able to calculate and quantify uncertainty. For example, states most often cite nutrients, pathogens, and sediments as the stressors contributing to impaired surface waters. But our ability to measure pathogens and infer their sources within watersheds is very limited, and the quantitative dose-response data for sediments are virtually non-existent. As a result, uncertainty is high, and it limits EPA's and states' ability to meet water quality goals. Accordingly, we attach a high value on research to address these problems. Similarly, EPA places a high priority on efforts to reduce the uncertainty associated with calculating the reference dose, reference concentration, or benchmark dose. The Stochastic Human Exposure and Dose Simulation model and the Exposure Related Dose Estimating Model are two examples of promising physically-based probabilistic computer models designed to estimate human exposure, absorbed dose, and eliminated dose.

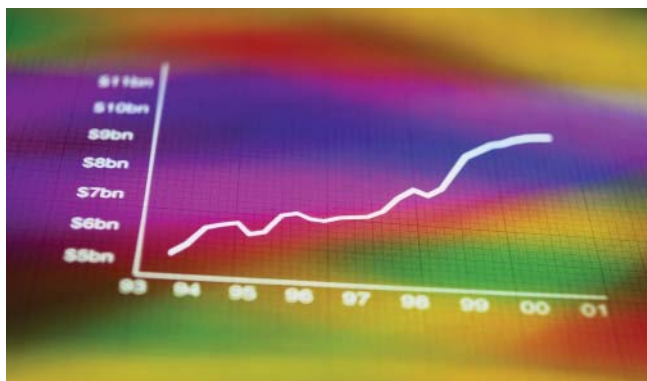


## MEASURING SUCCESS

Measuring our performance is key to improving it. Regulatory agencies are accountable for demonstrating that their expenditures result in measurable outcomes. For EPA, that means linking regulatory and policy decisions—reducing emissions of particulate matter, for example—to quantifiable improvements in public health and ecological condition—fewer deaths from cardiovascular disease.

Empirical observations and research are increasing our ability to measure the effectiveness of our programs and to adjust and improve them to gain efficiencies and meet our goals. We will continue to improve the ways we use existing information to assess our performance by strengthening systems that monitor environmental conditions and developing surveillance systems that track ecological or health outcomes.

EPA's *Report on the Environment* work has also advanced our performance measurement, using existing and new analytical information to describe current national environmental conditions and trends and identify additional research needs. The work we are doing to prepare our *Report on the Environment*—



*Technical Document* (to be released in 2007) will further our efforts to frame innovative solutions to complex cross-goal issues and advance rigorous scientific approaches to measuring associated outcomes.

Under the President's Management Agenda initiative, EPA is applying explicit research and development (R&D) investment criteria to improve R&D program management, inform funding decisions, and increase public understanding of the benefits of their R&D investments. EPA's R&D programs have well-conceived plans that identify program goals and priorities and are linked to regional and national needs. These plans are developed by Research Coordination Teams, comprising program office, regional, and research program representatives, to ensure strong coordination.





## NOTES

1. U.S. Office of Management and Budget. 2002. *The President's Management Agenda: FY 2002*. Washington, DC: U.S. Government Printing Office. Available online at: [www.whitehouse.gov/omb/budget/fy2002/mgmt.pdf](http://www.whitehouse.gov/omb/budget/fy2002/mgmt.pdf): Executive Office of the President, OMB Web Site. Date of Access: September 15, 2003.
2. Use of the terms “Indian country,” “Indian lands,” “tribal lands,” “tribal waters,” and “tribal areas” within this *Strategic Plan* is not intended to provide any legal guidance on the scope of any program being described, nor is their use intended to expand or restrict the scope of any such programs.
3. Refer to: [www.epa.gov/osp/research.htm](http://www.epa.gov/osp/research.htm).
4. Refer to: <http://intranet.epa.gov/ospintra/scienceportal/>.
5. Use of the terms “Indian country,” “Indian lands,” “tribal lands,” “tribal waters,” and “tribal areas” within this *Strategic Plan* is not intended to provide any legal guidance on the scope of any program being described, nor is their use intended to expand or restrict the scope of any such programs.
6. Refer to: [www.epa.gov/si](http://www.epa.gov/si).
7. Refer to: [www.epa.gov/quality/informationguidelines/](http://www.epa.gov/quality/informationguidelines/).
8. See “Peer Review and Peer Involvement at the U.S. Environmental Protection Agency” and the second edition of the Peer Review Handbook, which provides detailed guidance for implementing the policy ([www.epa.gov/peerreview](http://www.epa.gov/peerreview).)
9. Refer to: [www.epa.gov/OSA/spc/pdfs/rchandbk.pdf](http://www.epa.gov/OSA/spc/pdfs/rchandbk.pdf).