United States Environmental Protection Agency
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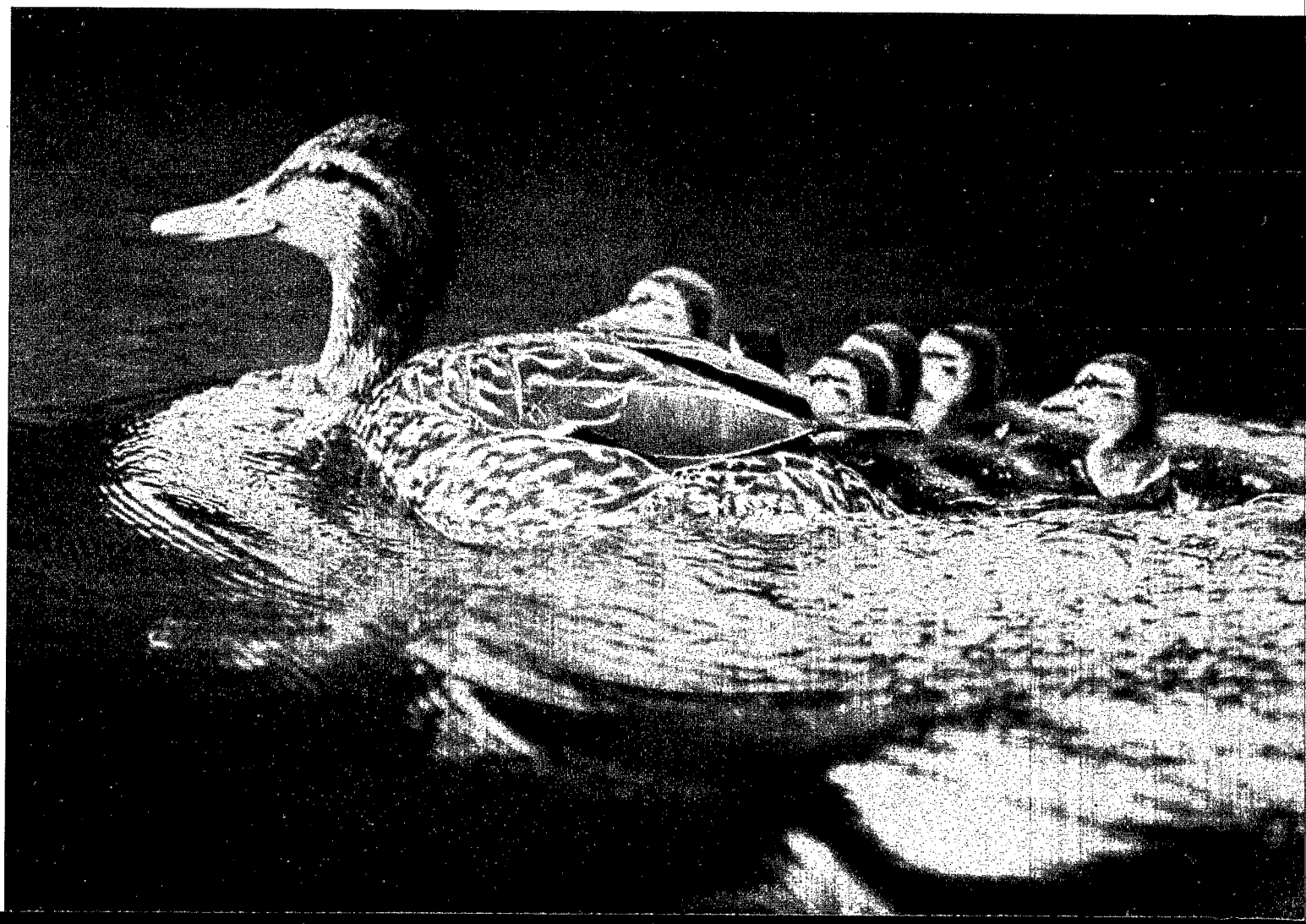
EPA

Environmental Management



Introduction

"Environmental Management" is one package in a series of Technical Information Packages (TIPs) being produced by EPA's Office of International Activities and the Office of Research and Development. The purpose of these packages is to offer to the international community information on the key environmental and public health issues being addressed by EPA. The packages focus, for the most part, on the scientific and technological aspects of different environmental problems and methods for addressing them.

"Environmental Management" was conceived and developed in a somewhat different vein. Its purpose is to provide information on issues to consider when establishing and managing an environmental agency. It does this by giving an overview of how the EPA is organized and managed, as well as by highlighting issues that developing countries may want to consider in managing their own environmental agency or program. This includes topics such as creating an environmental agency, organizational structure, core environmental functions, budgeting and funding environmental programs, information management, and relations with other government entities and the public. The information in this Technical Information Package will be much less technical in nature than information in the other Technical Information Packages, because it is not based on scientific data. It is based on experience, and should therefore be read with a more discerning eye. While water pollution control technologies will be applicable worldwide, the information in this TIP may not. An environmental agency will vary from country to country, depending on the mission of the agency, the environmental problems faced by a country, and the resources a country has available to support the agency. Therefore, the information in "Environmental Management" is not meant to be a blueprint for establishing an environmental agency. Rather, it is designed to outline the kinds of issues a country may face in developing an environmental agency, and to prompt policy-makers to ask the right types of questions when they weigh these issues. The experience related in this TIP should be evaluated within the context of each country's unique problems, needs, and resources.

Section I of this Technical Information Package discusses the creation and evolution of EPA, and its current organizational structure. Section II outlines EPA's "core" environmental functions - those that each office in EPA performs, regardless of its specific programmatic mandate. Section III addresses the major administrative systems EPA uses to manage its environmental programs, including strategic planning and budgeting, and information resources management. Section IV examines EPA's relationships with external groups, and the impact those groups have on EPA's mission and work. Section V concludes with a series of issues and questions that a country may want to consider when establishing an environmental agency or program. We include this with the belief that there are many ways to establish and manage an environmental program, and each country must determine for itself what will work best. Section V is followed by lists of additional references and contacts as well as document ordering information.

FRONT COVER: Photo by S.C. Delaney

SECTION I: CREATION AND CURRENT ORGANIZATION OF U.S. EPA

Creation of EPA

The United States Environmental Protection Agency (EPA) was created on December 2, 1970 under an Executive Order signed by President Nixon in response to growing public concern over the deteriorating conditions of the nation's water, air, and land resources. The purpose of the Executive Order was to consolidate a number of existing Federal environmental activities into a single agency which could develop comprehensive national environmental policies. EPA has never been statutorily established, although efforts are underway in Congress to do so.

The creation of EPA was unique, in that it was not established holistically by an act of Congress. Instead, EPA was formed by bringing together 15 components from five Government departments and independent agencies already in existence. Air pollution control, solid waste management, radiation control, and the drinking water program were transferred from the Department of Health, Education and Welfare (now the Department of Health and Human Services). The Federal water pollution control program was taken from the Department of the Interior, as was part of the pesticides research program. EPA acquired authority to register pesticides and regulate their use from the Department of Agriculture. From the Food and Drug Administration, the EPA inherited the responsibility to set tolerance levels for pesticides in food. EPA gained responsibility for setting certain environmental radiation protection standards from the former Atomic Energy Commission, and absorbed some of the duties of the Federal Radiation Council.

Combining components of already existing programs into a new environmental agency was a difficult task. At the time of its creation, few environmental laws had been passed that would dictate the role and mission of the new agency. Many issues had to be addressed in order to make EPA a viable government agency. Examples of these issues include: programmatic divisions and responsibilities between EPA and the existing agencies, personnel transfers, new budget allocations and reallocations of existing funds, and a new organizational structure, both within EPA and within the Federal government.

Not all environmentally-related programs carried out by the Federal government were transferred to EPA however. EPA's relationships with other Federal Departments and independent agencies continues today, because some programs administered by these Departments have environmental components in which EPA needs to be involved. For example, EPA works with the Department of Agriculture on issues such as agricultural run-off, water quality, pesticide use, and soil erosion. EPA and the Department of Health and Human Services share responsibility for assessing the impact of pollution exposure on human health. EPA and the U.S. Coast Guard jointly address flood control issues, shoreline protection, and dredging and filling activities in U.S. waters. The Federal Emergency Management Agency and EPA work together when spills of hazardous materials occur.

Current Organizational Structure of EPA

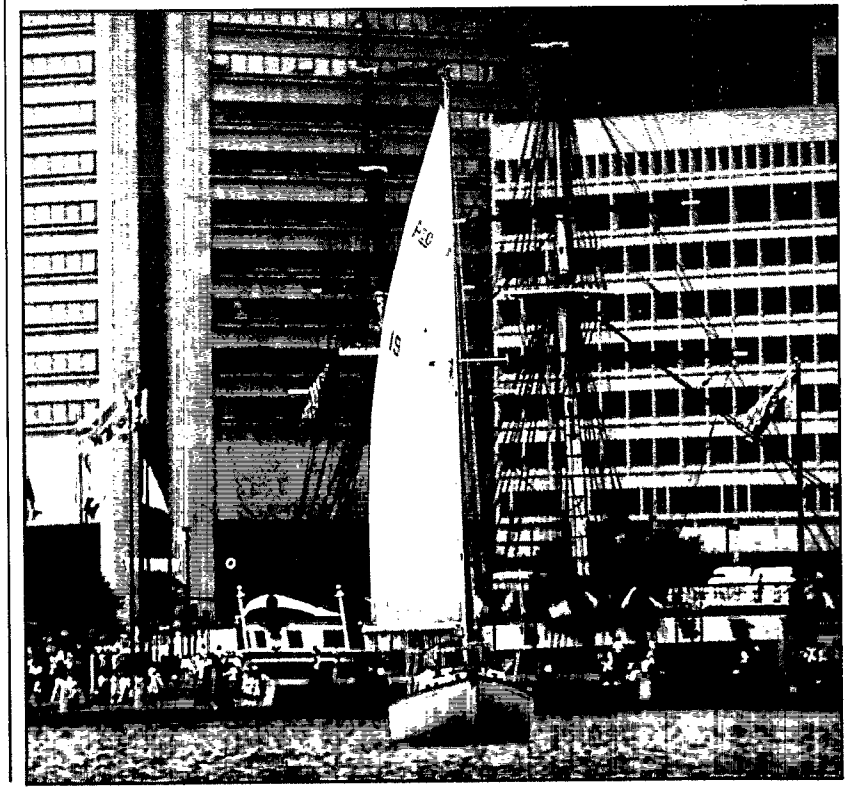
EPA's organizational structure is decentralized, and has three major components: the national Headquarters office, the 10 Regional offices, and field laboratories. EPA's Headquarters office is responsible for developing national environmental policy and programs, overseeing EPA's regional components, requesting the annual budget allowance from the U.S. Congress, providing funding and technical assistance to the Regional offices, conducting research and development, and gathering national environmental data. The Regional offices are responsible for implementing the national

policies and programs, overseeing the Federal environmental programs delegated to the States, approving grants and providing technical assistance to the States, and reviewing Environmental Impact Statements for Federal actions. The field laboratories provide analytical support for EPA's monitoring, enforcement and permit programs, and conduct research on environmental problems that EPA then uses to develop its policies and programs.

EPA is directed by an Administrator and Deputy Administrator who are appointed by the President of the United States, and subject to the consent of the United States Senate. There are 9 Assistant Administrators, an Inspector General, and a General Counsel who serve under the Administrator. They are also appointed by the President and must be confirmed by the United States Senate. Each Assistant Administrator directs an office that is responsible for managing a particular environmental program or function. The environmental programs currently managed by Assistant Administrators are: Air and Radiation; Water; Pesticides and Toxic Substances; and Solid Waste and Emergency Response. The functions managed by Assistant Administrators are: Research and Development; Enforcement; Administration and Resources Management; Policy, Planning and Evaluation; and International Affairs. The major functions of these Assistant Administrators are discussed in Section III - Core Functions. EPA's 10 regional offices are headed by Regional Administrators, who are appointed by the Administrator. Programmatically, the regional offices mirror EPA Headquarters; e.g., each regional office has an air program, a water program, a hazardous waste program.

EPA's programs often originate from legislation enacted by the U.S. Congress. Therefore, the major environmental laws under EPA's jurisdiction are influential in shaping the organizational structure of EPA. For example, the Office of Air and Radiation takes its authority from the Clean Air Act, while the Office of Water operates under the Clean Water Act and the Safe Drinking Water Act. The result is an organization in which each program office focuses on its specific environmental medium - air, water, or land. Because solutions to environmental problems in one medium will have an impact on the other media, EPA frequently uses a "cross-media" matrix approach. This approach encourages the media offices to work together to solve environmental problems that impact more than one environmental medium, and to identify how their programs can be more closely coordinated. One example is addressing water quality, air toxics, pesticides, and acid deposition in the Great Lakes.

Photo by S.C. Delaney



SECTION II: CORE ENVIRONMENTAL FUNCTIONS

EPA has a number of "core" functions which are central to the Agency's mission, and which are integrated in all of the Assistant Administrators' offices, regardless of their particular environmental focus. Core functions are important because they represent common directions for EPA across all of its diverse program activities, and they form the base for the environmental agenda the U.S. has chosen to advance for itself. Core functions within an environmental agency will vary from country to country, depending on how a country defines its environmental mission. EPA's core functions are:

Pollution Prevention

Traditionally, EPA focused on "command and control" environmental protection - that is, regulating pollutants as they were released into the environment, and cleaning up pollutants once they were already in the environment. This approach is often expensive, and usually requires complex regulatory efforts. EPA is now shifting its focus to source reduction through its pollution prevention program. To facilitate this shift, EPA is undertaking a number of activities, including: making State-matching grants to businesses to promote source reduction; reviewing regulations to determine their impact on source reduction; and developing guidance to educate industries on source reduction techniques. By reducing pollutants before they enter the environment, the risk to human health and the environment is decreased, and the cost of regulating and cleaning up pollution is less. EPA's goal is to incorporate pollution prevention into every aspect of its operations in both its program and Regional offices. Another Technical Information Package, entitled "Pollution Prevention", is being developed to discuss pollution prevention technologies and activities in depth. Inquiries about this TIP can be directed to EPA's Office of International Activities.

Risk Assessment and Risk Reduction

As environmental problems have become more diverse and complex, and the resources available to address those problems are limited, EPA faces the challenge of identifying and targeting those problems that pose the greatest risk to human health and the environment, and addressing them first. Every environmental problem poses a measure of risk, and risk assessment is the process by which the form, dimension, and characteristics of that risk are estimated. Risk assessment allows many environmental problems to be measured and compared in common terms, and it allows different methods of addressing those problems to be evaluated from a common basis. From this basis, EPA can then target its research and resources to reduce the risks posed by the most serious environmental problems.

To do this effectively, EPA must involve itself in risk communication. The public's perception of which environmental threats are the most serious is not always supported by scientific data. This dichotomy can make it more difficult for EPA to gain public and congressional support for addressing environmental risks, especially those that are not perceived as serious by the public, but which are classified as serious based on scientific data. While EPA is sensitive to the public's concerns, it also has responsibility for educating the public on comparative risks of different environmental problems, so the public will understand why EPA addresses certain environmental issues first.

The advantages of adopting risk assessment and risk reduction methodologies and incorporating them into environmental policy-making are numerous. There are also uncertainties associated with these methods that must be taken into account when using them as a basis for policy-making. A full discussion of both the benefits and uncertainties of risk assessment and risk reduction are found in the following documents:

Reducing Risk: Setting Priorities and Strategies for Environmental Protection. EPA, SAB-EC-90-021, September 1990. A report by EPA's Science Advisory Board that assesses and compares different environmental risks, examines strategies for reducing major risks, and recommends improved methodologies for assessing and comparing risks and risk reduction options.

Setting Environmental Priorities: The Debate About Risk. EPA Journal; Volume 17, Number 2; March/April 1991; 21K-1007; Office of Communications and Public Affairs. Builds on the SAB report by expanding the discussions on environmental risk to the political, academic, industrial, and public arenas.

Science, Research, and Technology

Science is the underpinning of sound environmental policy. To strengthen the role of science and research in its programs, EPA has made several commitments: a) to gather and analyze the data needed to evaluate environmental risks and trends, measure environmental results, and educate institutions and individuals throughout society as to how choices they make affect the environment; b) to promote and support innovative technological solutions to environmental problems; c) to encourage and conduct research that improves our understanding of health and ecological risks; d) to provide objective, reliable, and understandable information that helps build trust in EPA's judgment and actions; and e) to share research findings and innovative technologies with other nations. EPA's Center for Environmental Research Information (CERI) in Cincinnati, Ohio serves as EPA's technology transfer and technical information clearinghouse for research and development issues.

EPA's research program is conducted through 12 environmental laboratories across the country. The research focuses on areas targeted by the Agency's planning process. The planning process results in two emphases: 1) an applied research and development program that focuses on answering key scientific and technical studies supporting immediate regulatory and enforcement decisions; and 2) a longer-term "core" research program that extends the knowledge base of environmental science and anticipates future environmental problems.

EPA's core research and development program focuses on the following functional areas: 1) health risk assessment; 2) ecological risk assessment; 3) risk reduction; and 4) exploratory research grants and academic research centers. In addition, EPA's research program targets cross-media problems, including global climate change, wetlands, accidental releases, technology transfer, and biotechnology. EPA's Office of Research and Development provides Agency managers with scientific and technical information, products, and assistance, so that management decisions are based on sound science, and the Agency can meet its research commitments. The following attachment offers a description of EPA's research program:

FY-1992 EPA Research Program Guide. EPA/600/9-91/025; Office of Research and Development; September 1991. The document provides descriptions of ORD's research program organized first by media such as air, water, hazardous wastes, etc. These categories are further broken down into research foci such as scientific assessment, monitoring and quality assurance, health effects, environmental processes, and engineering technology.

In addition to the research EPA conducts in its facilities, the Agency also relies on research conducted outside of its laboratories. In Fiscal Year 1991, over 60% of EPA's research budget was spent through extramural contracts, grants, and cooperative agreements with various organizations. Examples of these organizations in-

clude: the Research Centers Program, which supports multi-disciplinary research in university settings; the Small Business Innovation Research Program, which supports small businesses with research ideas relevant to EPA's mission in the areas of control technology or process instrumentation development; and the Visiting Scientists Program, a competitive program which supports members of the environmental research community in 1-3 year fellowships at EPA research facilities.

Environmental Education

Sustained environmental improvement requires direct involvement on the part of the general public, both in terms of personal behavior and professional behavior. This, in turn, requires a better informed and better motivated generation of people who will adopt and implement an environmental ethic in their daily lives, and be better prepared for careers in which the environment plays an increasingly important role. If individuals make a commitment to environmental protection in their daily activities, the burden of formal environmental protection programs on regulatory, governmental, and economic structures will decrease.

EPA hopes to instill an environmental ethic that will help guide individuals to make responsible decisions on issues and activities which have an effect upon the environment. This is a difficult challenge however, because it requires individuals to change their lifestyles, as well as the way they think about the environment. The goal of EPA's environmental education program is to foster in the American public a sense of concern for, mutual dependence upon, and intimacy toward, the natural environment.

To fulfill this goal, EPA has established an environmental education program, under authority taken from the National Environmental Education Act of November 16, 1990. Examples of program activities include: 1) multimedia product development, in which the environmental education program works with other Agency offices and public, private, academic and foreign organizations to develop educational material; 2) academic programs which provide grant assistance to local educational agencies, institutions of higher education, and other not-for-profit organizations; 3) an education information clearinghouse to identify and track environmental education information products which exist or are being developed; and 4) programs which present awards to young people who launch projects which result in considerable improvements in the environment.

Regulatory Development

EPA develops regulations in order to implement the legislative mandates given to the Agency by the U.S. Congress. Regulations interpret environmental statutes and translate them into legally enforceable requirements with which the regulated community must comply. These requirements can include operating procedures, reporting and record-keeping guidelines, and standards. Standards dictate what levels of pollutants are allowable in the environment, or, in other words, how clean an environmental medium must be. They are extremely important in the enforcement process because they are used to measure a facility's compliance with the regulations.

Because EPA believes in the value of multiple opinions and discussion to develop regulations that are valid, workable, and represent the best information and technology available, the process EPA uses to develop regulations can be lengthy and complicated. The length of time it takes to develop a regulation depends on the complexity of the statute being interpreted, and the variety of professional differences of opinion expressed. Internally, the proposed regulation goes through many layers of review, comment, and approval before the Administrator signs it. All relevant EPA offices have a chance to review the proposal and discuss changes in its

content. Once the Administrator signs the proposed regulation, it is submitted to the President's Office of Management and Budget (OMB) which assures that, within the constraints of its statutes, EPA chooses among the various regulatory and policy alternatives those that impose the least economic burden. OMB can stop a proposed rule if it believes that the cost imposed on the regulated community is too high to achieve the desired benefits. After EPA and OMB reach agreement on the content of the proposed regulation, the general public is allowed to comment on it. EPA is legally bound to provide the public a chance to comment on any proposed regulation which may impact it. The public has 30-90 days to comment on the proposal, at which point the public comment period is closed, and all public comments are officially recorded in EPA's rule-making dockets. Once all of the comments are resolved, the proposed regulation is re-published in the *Federal Register* as a final rule, and is then legally enforceable under the law. The regulated community is then bound to comply with the regulation or be penalized for not doing so.

The benefit of this process is that it gives all parties potentially affected by the regulation a chance to comment on it before it becomes legally enforceable. In other words, all parties have the opportunity to influence the regulation they will be subject to. This benefit can also cause problems. By providing all parties a chance to comment on a proposed regulation, the process can become lengthy and difficult to conclude. Some proposed regulations take several years to become final. EPA is trying to address this problem by involving relevant parties even earlier in the regulatory development process. It is also important for senior management to be aware of the issues involved in a proposed regulation throughout the process, not just when they approve the proposal. Those who develop the proposed regulation and the senior managers who will approve it need to communicate frequently in order to identify problems and disagreements early in the process.

Enforcement

Implementation of environmental statutes by establishing regulations and, depending upon the statute, by developing specific permits for operation and/or construction for individual facilities, is only a beginning. EPA and its State and local counterparts have dedicated enforcement programs to compel and encourage compliance with requirements once they have been established. This assures that the results anticipated by regulations and permits are achieved.

EPA enforcement personnel, including both technical and legal staffs, are involved in the development of regulations and permits to ensure they are "enforceable," that they are clear, and that there is a basis for determining compliance. Second, the program assures that information on the requirements is available to those required to comply. Third, tailored compliance strategies, enforcement response guidance, and penalty policies are established to ensure there is effective deterrence to violating the law, including:

- a credible likelihood of detection of violations;
- swift and sure response;
- appropriate sanction; and
- communication of the above to the regulated community to encourage widespread compliance.

EPA has a range of authorities to address violations, and its enforcement response policies help to ensure consistent use of authorities, including penalty levels, for specific circumstances. EPA Regional offices screen potential Federal cases to determine whether they should be addressed administratively or judicially, whether they should be treated as civil or criminal enforcement matters, and whether they should be handled as single or multi-media cases. Generally, criminal enforcement is reserved for intentional and willful violations of environmental requirements.

Civil judicial enforcement is often reserved for cases that involve a history of noncompliance, and that demonstrate the need for the greater deterrence that the courts can often provide. Civil judicial enforcement also focuses on cases where there is significant environmental harm or a significant proposed penalty, or on cases that merit a strong signal of the Agency's resolve to address the particular type of circumstances presented. For judicial cases, either civil or criminal, EPA refers cases to the Department of Justice for litigation. EPA handles administrative enforcement on its own, and has independent administrative law judges to handle appeals.

Photo by S.C. Delaney

For the vast majority of enforcement cases, settlements are mutually agreed upon through negotiation between the violator and the government. Enforcement cases are pursued not only to return specific facilities to compliance, but also to send a message to others to deter them from violating their environmental requirements and to encourage prevention of violations. EPA is increasingly seeking creative settlements. At a minimum, EPA seeks to correct the violations as quickly as possible, and usually seeks payment of a significant monetary penalty which at least removes the economic benefit gained by failure to comply with requirements. In addition, EPA is now seeking, for example: 1) to correct underlying management problems, such as those that might be identified through and environmental audit, 2) to prevent pollution either as a means of compliance or as a supplemental agreement, and 3) to leverage an individual case to achieve more widespread compliance (e.g., through training and education programs sponsored by the violator for its company or other industry officials about the importance of environmental compliance.

To allocate responsibility for enforcement between EPA and approved State programs, EPA assumes responsibility for inspections and for responding to violating facilities in States without approved programs, and for programs that are centrally managed and not delegated to the States, such as controls on automobiles or approval for commerce of toxic chemicals. In delegated or approved States, because EPA has parallel enforcement authority with the State, EPA has established agreements with such States to focus Federal enforcement generally, 1) where a State has not taken timely or appropriate enforcement response, 2) where the State requests EPA support, or 3) where there is a national legal or program precedent in the case.

In its continuing oversight responsibility, EPA reviews data on State and regional inspections, enforcement actions, and progress in returning significant violators to compliance. EPA offers training for Federal, State, local and international enforcement personnel, along with its own staff. EPA has also developed, in cooperation with the Netherlands Ministry of Housing, Physical Planning, and Environment, a course on the Principles of Environmental Enforcement. The course was developed on behalf of national and regional environmental officials in Poland, but is appropriate and available to other nations. The course is designed to be taught by non-expert facilitators, and provides a framework, principles, and possibilities for designing enforcement programs that fit the particular culture and problems of any nation.

SECTION III: MANAGING ENVIRONMENTAL PROGRAMS

Strategic Planning and Budgeting

EPA uses a variety of systems and processes to set goals, prioritize activities, budget resources to accomplish its goals, and track progress as it addresses environmental problems. In April of 1991, the Agency issued a document entitled *EPA...Preserving Our Future Today*. The document defines the strategic direction EPA envisions for itself as it fulfills its mission of protecting human health and the environment. To translate its mission into reality, EPA is committed to ensuring that:

1) Federal environmental laws are implemented and enforced effectively.
2) U.S. policy, both foreign and domestic, fosters the integration of economic development and environmental protection so that economic growth can be sustained over the long term.
3) Public and private decisions affecting energy, transportation, agriculture, industry, international trade, and natural resources fully integrate considerations of environmental quality.
4) National efforts to reduce environmental risk are based on the best available scientific information communicated clearly to the public.
5) Everyone in our society recognizes the value of preventing pollution before it is created.
6) People have the information and incentives they need to make environmentally responsible choices in their daily lives.
7) Schools and community institutions promote environmental stewardship as a national ethic.

EPA...Preserving Our Future Today. GPO 523-695, April 1991. Describes EPA's mission and its goals and objectives for accomplishing this mission.

In addition to its mission statement, *EPA...Preserving Our Future Today*, EPA develops a 5-Year Strategic Plan that lays out projected goals and objectives for the Agency. This is a dynamic planning document that is updated each year. Each Assistant Administrator and Regional Administrator also develops a 5-year plan that lays out long-term goals and objectives by program, as well as strategies for accomplishing these objectives. The basic outline used to construct 5-year Strategic Plans includes:

1) a discussion of environmental problems and risks to be addressed;
2) long-term environmental goals that are measurable with interim objectives and milestones;
3) strategies that will be used to achieve those goals, including an overview of what will be done, who will do it, and when it will be done; and
4) measures of progress, such as environmental indicators, that will be used as markers to track status, trends, and progress towards achieving the Strategic Plan.

Overview of Strategic Planning at the Environmental Protection Agency. June 26, 1990; Office of Policy, Planning and Evaluation, EPA. Defines strategic planning, its purpose, and discusses how to develop a strategic plan.

Based on the Strategic Plans, each office develops its specific Annual Operating Guidance. Operating Guidance provides an outline, by fiscal year, of the main activities for EPA's national and

regional programs. This overall strategic planning process and annual Operating Guidance provides the context for the Agency's budget formulation and review. EPA develops its annual budget requests by estimating the amount of resources that will be needed to accomplish the goals, objectives, and activities contained in the planning and guidance documents.

EPA's budget request is prepared at the operational level, setting in motion a three-stage process of formulation, review, and execution. Coordinating the budget development and review process is the Comptroller's Office which acts to ensure that the budget requests reflect the policies of the Agency. First, guidelines are issued that articulate the priorities of the Administrator, which include ensuring that budget needs are in accordance with the Agency's Strategic Plan. Second, the issues that deserve particular scrutiny are analyzed. Third, during the review process, the Comptroller's Office rigorously reviews the budget submissions of each office for accuracy, consistency, and conformity to overall Agency policy.

The Agency's budget is then submitted to the President's Office of Management and Budget (OMB). OMB has the responsibility of coordinating the budget submissions of all Federal agencies and departments into one coherent and consistent submission to Congress. It also has the responsibility of ensuring that the budget represents the President's policies and directions, and that it does so in the most cost-effective manner possible.

Congress, which has the responsibility for funding all Federal programs, then debates the President's budget submission at length. Congress appropriates the funds necessary to carry out the programs, and thus wields considerable power in determining which programs grow or diminish, and which are fully funded.

The appropriations EPA receives from Congress allow the Agency to implement its programs in accordance with the goals and objectives outlined in the 5-Year Strategic Plan and the annual Operating Guidance. Throughout the fiscal year, EPA tracks its progress in implementing its programs. The Strategic Plans contain measures of progress such as environmental indicators. Environmental indicators measure environmental quality, such as the amount of lead in drinking water, or the amounts of pollutants in the air. The indicators are underpinned by numeric data against which EPA can track its progress in cleaning up the environment over time. EPA also has a national database, called the Strategic Targeted Activities for Results System (STARS), that contains measures to track the progress of its environmental programs over the short term. A STARS report is printed and distributed on a quarterly basis, which allows program managers to examine whether or not the program activities they have accomplished match the objectives that were agreed upon at the beginning of the operating year.

EPA's budget process observes an underlying concept essential to good management: clear separation between those responsible for budget review and those responsible for budget execution. In EPA's approach, this concept operates in at least two phases of the process — when EPA's Budget Division reviews the budget submission of its program offices, and when OMB reviews the budget submission of the various departments and agencies. However this division of responsibility is accomplished, ensuring the independence of the review process from the execution process is essential.

The Agency's total budget is $6.1 billion in Fiscal Year 1991. The budget contains three main categories: 1) Operating Programs, 2) Trust Funds, and 3) funds transferred directly to the States through the Construction Grants program. Operating Programs implement most of the environmental laws of Congress and promote the protection of the environment — such as those intended to improve air and water quality, protect drinking water, and regulate hazardous waste. The Trust Funds provide resources to clean up abandoned

hazardous waste sites and leaking underground storage tanks. Construction Grants provide funds to the States to support wastewater treatment programs.

Funding Environmental Programs

Paying for infrastructure and services is one of the major challenges for the environmental movement in the 1990s. Public demands and expectations for environmental protection continue to grow, despite increasing budgetary constraints and limitations on traditional funding sources. The United States spends more than $100 billion a year on environmental protection, and the majority is expended by State and local governments. This figure is expected to grow to $150 billion per year by the year 2000.

To ensure sufficient resources for environmental protection, EPA has developed several alternative funding programs. One of EPA's significant alternative funding programs is the Public-Private Partnerships initiative. Launched in 1988, the initiative is designed to promote greater cooperation between EPA, States, municipalities, and the private sector community.

The Public-Private Partnership initiative has made significant progress in the environmental finance arena, and has ignited the national debate over how the United States should pay for environmental services in the future. Through EPA's publication, *Paying for Progress*, the Administrator has raised a number of issues by providing national leaders an opportunity to express their views through a series of essays on environmental finance. In addition, in August 1989, EPA established the Environmental Financial Advisory Board as a national focal point for environmental finance expertise. The Board is comprised of prominent financial leaders in the public and private sectors who are currently charged with providing EPA with analysis and advice on environmental financing strategies. The Board is developing financing options and alternatives that examine issues that include reducing the cost of financing environmental facilities, discouraging polluting behavior, and creating incentives to increase private investment in environmental facilities.

The Public-Private Partnership initiative encourages the use of innovative financing techniques and technology for providing environmental protection in a cost-effective manner. Its focus is to provide communities with a range of financing alternatives to help them meet environmental standards in light of increasing public expectations, expanded programs, and diminishing resources. To do this, the EPA has established four primary goals:

- *Raising the environmental literacy by* elevating awareness of environmental financing issues at all levels of government, the private sector and the general public;

- *Building state and local capacities to finance environmental activities* by providing municipalities with innovative, cost-effective ways to comply with environmental regulations, including increasing private investment in environmental projects to maximize available resources;

- *Improving Federal and international coordination* by fostering cooperation among agencies addressing issues related to managing natural resources (e.g., EPA, Army Corps of Engineers, Dept. of Agriculture); and

- *Increasing private sector participation* to lower the cost of environmental services and encourage pollution prevention.

One way the Agency supports State and local governments is through educational publications and training. Relevant publica-

tions include self-help guides for local governments on how to implement partnerships and a case studies book detailing 23 successful examples of public-private partnerships. In addition, the Agency is currently examining ways that the universities and colleges could assist State and local governments. The following documents discuss environmental financing, and offer examples of public-private partnership projects.

Paying For Progress: Perspectives on Financing Environmental Protection. EPA 20M-2004, Office of Administration and Resources Management, Fall 1990. Discusses the roles of Federal, State, and local governments in financing environmental programs.

Public Private Partnerships for Environmental Facilities. EPA 20M-2003, Office of Administration and Resources Management, May 1990. A self-help guide for local governments interested in establishing public-private partnerships.

Public-Private Partnership Case Studies. EPA 20M-2005, Office of Administration and Resources Management, September 1989. Offers profiles of successful public-private partnerships that provide environmental services.

EPA has several other alternative financing programs it is developing and promoting. It is analyzing the feasibility of user fees; e.g., charging a fee to facilities to obtain a permit. EPA is also encouraging cost-effective technology development and technology transfer as a way to reduce and/or share costs among industries and State and local communities. Finally, EPA is supporting pollution prevention efforts as a way to reduce regulatory and clean-up costs by reducing the amount of pollutants released into the environment. All of these efforts will help shift or reduce the burden of environmental financing from its traditional source - Federal budget appropriations and grants - to a greater variety of sources. EPA's goal is to find more creative methods to finance environmental protection in an era when the traditional sources of funding are becoming more constrained.

As the examples above illustrate, there is a wide variety of funding sources a country may use to finance its environmental programs. Which methods work best for a country can depend on many different factors, for example: the existence and strength of a tax system, including ways to appropriate funds; and the financial strength of the business community and its commitment to addressing environmental issues. Some of the more fundamental financing methods a country may want to consider include appropriating tax money, assessing environmental user fees, and offering grants to regional or local governments to fund environmental services at the grass roots level. A country may also want to consider more complex methods such as public-private partnerships, forging cooperative agreements with academia, industries, regional and local governments, and funding research into cost saving environmental technologies. Section V outlines some of the funding issues a country may want to consider when establishing an environmental agency.

Workforce Profile/Human Resources Management

Workforce Profile

In the twenty years since EPA was first established, its mission and environmental agenda have grown appreciably, as has its workforce. EPA has tripled its workforce from 5,500 employees in 1970 to 18,500 in 1991. These employees are divided among the EPA Headquarters office, the 10 regional offices, and the field laboratories. While the workforce in the Headquarters office has remained relatively static, new positions in recent years have largely been allocated to the regional offices, a direct reflection of decentralizing environmental programs to regions and the States. About one-third of the employees work in the Headquarters office, and are responsible for policy guidance and direction; about 47% work in the regional offices, which are responsible for implementing EPA's programs and overseeing the States; and about 19% work in our field offices and laboratories.

EPA's success in improving and preserving the quality of the environment is permanently linked to the expertise and commitment of its workforce. As such, EPA has a strong management philosophy and work ethic that revolves around four straight-forward human resources principles: 1) employ the best; 2) capitalize on the diversity of individuals; 3) invest in people; and 4) focus on quality. The uniquely appealing mission of protecting human health and the environment is our best drawing card in attracting talented, committed people to work at EPA. However, recruitment of high quality scientists and engineers in the Federal service continues to be a difficult challenge because private sector salaries are more lucrative. Hence, it is important for EPA to work with colleges and universities to nurture students to have a commitment not only to the environment, but to public service. EPA uses workforce planning techniques to forecast the agency's and individual organizations' short- and long-term employment needs. EPA's new environmental education program will also seek to encourage academia to develop an appropriate environmental curriculum at the grammar school, high school, and university levels to meet our specialized needs well into the future.

EPA has an educated workforce: 67% of the workforce has a college degree or better, and 34% have post-graduate degrees. The educational background of the workforce is diverse and mirrors the diversity of the environmental work of the agency: 20% of the workforce has an academic background in agriculture, health, and biological sciences; 24% are engineers; 17% have education in environmental and physical sciences; 15% have degrees in business/communications/public affairs; 10% are educated in the social sciences; 8% are attorneys; and 6% have degrees in miscellaneous fields.

Workforce Planning

EPA's mission is to protect human health and the environment. To fulfill this mission, EPA needs a mixture of skilled employees in technical, administrative, and policy-related fields. Activities in which EPA engages that demand technical expertise include environmental remediation work, testing for health and ecological impacts of toxic substances, and assessing the risks of different environmental problems. The technical occupations that EPA uses most frequently fall into several major categories: Environmental Engineers and Environmental Protection Specialists, Physical Scientists (including Hydrogeologists, Environmental Scientists, and Chemists), and Life Scientists (including Toxicologists, Health Scientists, Ecologists, and Biologists). Administrative occupations are also essential to EPA's work. The Agency needs staff to place contracts, make grants, formulate the budget, manage the facilities, recruit, develop, and compensate employees, and manage information sys-

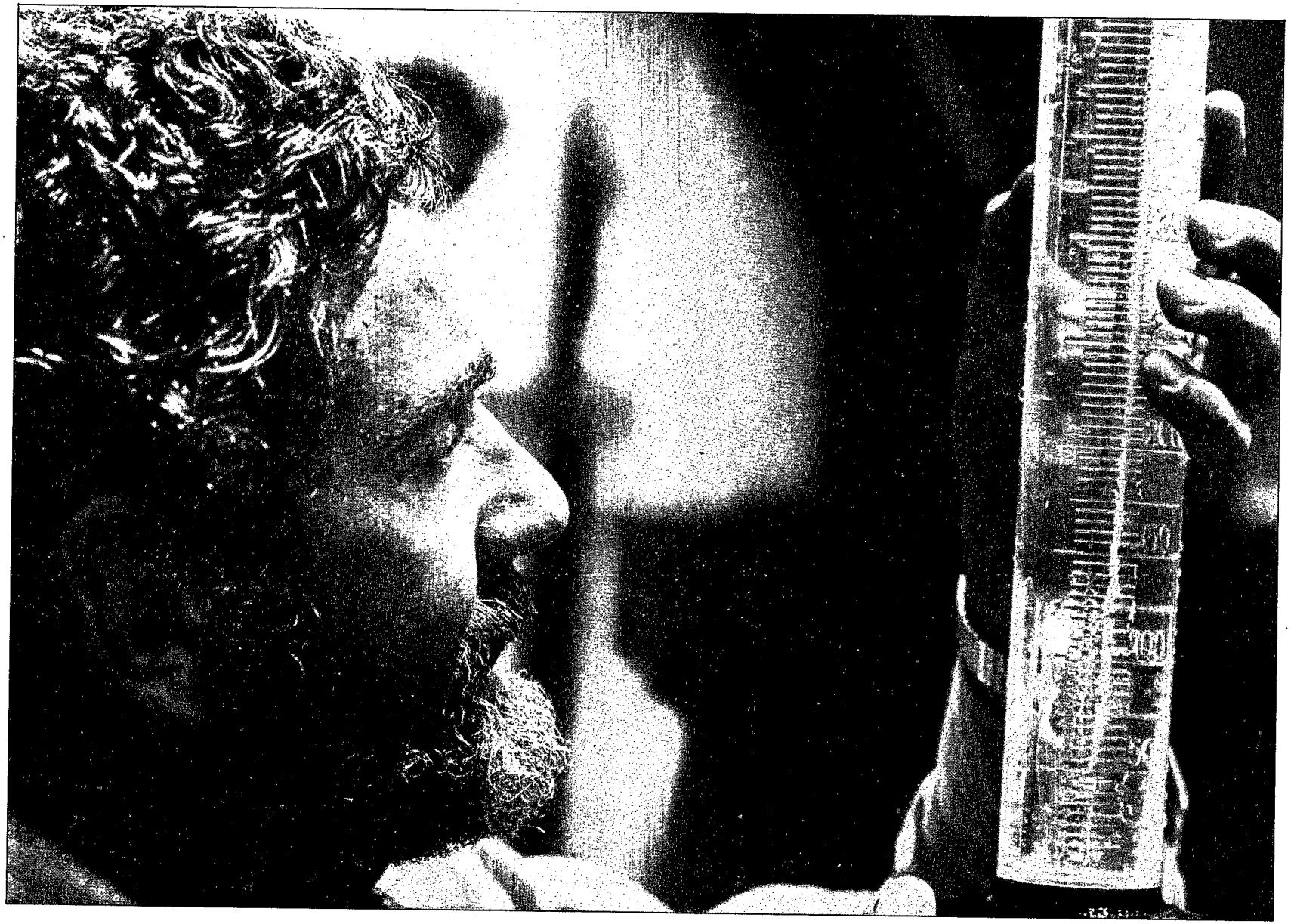


Photo by S.C. Delaney

tems. Backgrounds that meet these needs include Accountants, Contract and Grant Specialists, Computer Specialists, and Budget and Personnel Analysts. EPA also develops environmental policy and regulations. Backgrounds that are useful in this area include economics, and program and policy analysis, and law.

The types of employees an environmental agency needs will vary depending on what the agency wants to accomplish. For example, a predominantly regulatory agency will need more lawyers than a non-regulatory agency. An agency concerned with conservation will have different staffing needs than an agency more concerned with sustainable development. Defining the agency's mission, and formulating its goals and objectives is the first step to staffing the agency. When the mission, goals, and objectives have been defined, an agency can focus on the programs it will establish and the people it will require to implement the programs.

Training and Development

EPA's managers and employees must stay abreast of the changes in science, technology and case law that affect the work of the Agency and the skills needed by its employees. EPA sponsors training programs in a number of areas: general training, including management development, non-supervisory leadership, negotiation skills, time management, briefing techniques, Total Quality Management, and office support activities; enforcement training, including techniques for conducting inspections and investigations; and technical training, including remediation technologies, risk assessment, and regulatory development. Short courses, lasting from a few days to a few weeks, are offered by Government agencies, universities, professional associations, private corporations and others to meet these training needs. In order to alleviate the cost of such necessary training, EPA has formed an "EPA Institute" which uses in-house experts to train other employees in specific areas at no cost. Because the Institute courses are developed and taught by in-house experts, they can be specifically tailored to meet EPA's needs. EPA also uses participation in cross-media workgroups and rotational assignments to provide employees with other types of training and experience.

Information Resources Management

Public Access to EPA Information

Public access is the ability of a citizen to obtain information collected and maintained by the government. EPA believes that an informed public is essential to meeting the Agency's mission to protect human health and the environment. Effective access to environmental information facilitates public participation in environmental protection. The EPA definition of "public access" includes dissemination of information to industries, Federal, State and local governments, special interest groups, academia, and citizens. This also includes access to all kinds of information — technical and scientific, legal, administrative, and educational or general. Another Technical Information Package, entitled "EPA Information Sources," addresses the sources of EPA information. It includes information on "Access EPA", a system that provides special information services to EPA staff and other users. Specialized services available through "Access EPA" include access to databases and information collections, and the development of automated and printed information packages organized by environmental topics.

Information Resources Management

Information resources management means planning and budgeting for information programs, as well as organizing, directing and controlling information. Information management encompasses both the information itself and related resources such as personnel,

equipment, funds, and technology. The Paperwork Reduction Act of 1980 (P.L. 96-511) introduced information resources management to the Federal Government, emphasizing information as a resource with associated costs and values. Concepts advanced through information resources management approach include the life cycle management of information activities (i.e., creation, collection, use and disposition); information functions (i.e., automatic data processing, records management, reports management, and telecommunications); the integrated approach to managing information resources (total systems concept); and the promotion and use of new technologies to improve the effective use and dissemination of information.

Factors to Consider When Establishing an Information Management Program

There are a number of factors a country may want to consider when establishing a base information resources management program. The following questions highlight some of these considerations:

- What types of information will be managed?

- What are the clients' needs, and how will they be met?
  - Who are the clients and what are their information needs?
  - How will the program promote information sharing?
  - How will the program support the needs of the environmental community?

- What are the best technologies practicable to provide effective information resources management with the available resources?
  - What data integration tools and activities are necessary to ensure access to existing systems?
  - Will the technology chosen provide the greatest functionality at the lowest cost, while still meeting users' needs?
  - How can improved planning and communications ensure effective deployment of information and technology?
  - Are information systems designed so that users devote minimal time to learning their technical aspects?

- What are the immediate needs to get the system operating, and what will the requirements be in the next 3-5 years? Can planning for these needs be integrated, so that in building for the short term, the foundation is laid for long-term achievements?

The following EPA documents address different aspects of EPA's policies in the area of information management:

Information Resources Management Policy Manual. EPA 2100, May 17, 1990. The policy framework for EPA's information resources management program is contained in this document. The appendix includes a glossary and a description of the primary Federal statutes and regulations.

IRM Strategic Plan. 1991-1995, EPA, November 1990. This document defines EPA's information resources management mission, evaluates external factors and trends, and relates strategic issues to new objectives.

Information Resources Management Guidance

Rapidly changing technology makes information resources management a dynamic field. Much of the development of information systems, data utilization and human resources occurs at the regional and program office level in EPA, and is disseminated and discussed in EPA's Information Resources Steering Committee. Documents have been developed to establish policy and to promote standards and security. The following documents form the core of the written guidance:

NDPD Operational Policies Manual. EPA, June 27, 1991. The National Data Processing Division (NDPD) is responsible for establishing internal policies and procedures for the efficient management of automated data processing (ADP) resources. ADP resources include mainframe or large-scale computers, minicomputers, microcomputers, data telecommunications equipment, data circuits, and operating system software.

EPA System Design and Development Guidance. EPA 21M-1011, June 1989. This is a three-part volume of guidelines and standards to assist with EPA's system development efforts.

Volume A: Mission Needs Analysis. Volume A provides assistance in conducting initial studies of system requirements, needs, feasible options, and cost benefit to meet information needs.

Volume B: Preliminary Design and Options Analysis. Volume B provides guidance and a methodology for structuring design options to meet the requirements defined in Volume A and provides guidance for selecting the most cost effective option.

Volume C: System Design, Development and Implementation. Volume C provides guidance and standards for automated system development efforts.

Supplement to Volumes A & B: Guidance for Developing Image Processing Systems in EPA. EPA, February 1991. The term "image processing system" is defined as the storage, retrieval, processing, and control of document images (i.e., document pages, maps, drawings, etc.) in electronic digital form. This document provides guidance for EPA managers interested in determining whether electronic image processing technology may be a cost-effective alternative for their information management needs. It explains how to define mission needs and how to conduct a feasibility study, the first steps necessary to justify investment in an imaging system.

Supplemental Guidance to Volume B: EPA/ADP Applications Guidance to Hardware/Software Selection. EPA, August 1990. This document provides a structured approach for selecting hardware, software and communication options to meet the requirements of an automated system. When used in conjunction with Volume B, it provides guidance during the stages of preliminary options design and in defining feasible options for cost/benefit analysis.

Operations and Maintenance Manual. EPA, April 1990. This document presents the important aspects of managing a software system during the operations and maintenance phase of the system life cycle. As a companion to the EPA System Design and Development Guidance, this document completes total life cycle management guidance.

Agency Catalog of Data Policies and Standards. EPA 21M-1019 (draft). To take full advantage of growing technological and data resources, there needs to be an increased emphasis on improving data compatibility among EPA systems as well as among outside systems. A data standards program can help establish an environ-

ment in which data is managed effectively and is shared from one program to another. Standards help to improve quality and efficiency, reduce waste and unnecessary duplication in the application and use of systems, and enhance the portability of data, software, and technical skills across systems. This catalog provides information on the current data standards that should be followed in developing, implementing, operating, and maintaining all EPA information systems and services. This catalog contains all the EPA Agency-wide standards and lists the Federal standards and guidelines that are issued by the National Institute of Standards and Technology as Federal Information Processing Standards, and international standards relevant to EPA mission and functions.

Information Security Manual. EPA 21M-1008, December 1989. EPA policy recognizes information as an Agency asset and establishes an Agency-wide information security program. The objectives of the program are to maintain information availability, integrity and confidentiality. This manual deals comprehensively with all types of information assets (paper records, mainframes and minicomputers, information systems, personal computers and word processors).

Information Security Manual for Personal Computers. EPA 21M-1009, December 1989. Because personal computer security affects many employees and is a relatively new area of security vulnerability, this manual deals exclusively with personal computer procedures.

Model Regional Records Management Operating Procedures Manual. EPA. An effective records management program is an essential component of the Agency's comprehensive information resources management program. A major theme of the program is to promote consistently high standards for managing records across EPA's highly decentralized organization. The overall purpose of this document is to guide regional managers as they establish records management programs which provide ongoing operational support to all regional staff. The guidance is focused on addressing issues of efficiency as well as performance.

Geographic Information Systems (GIS) Guidelines Document. EPA/OIRM 88-01, January 1988. Geographic information systems (GIS) are computer-based systems which combine geographic and/or cartographic analysis capabilities with data base management capabilities to support input, storage, manipulation, analysis, and display of spatial data. GIS are particularly useful for examining geographic, cultural, political, environmental, and statistical data in a common spatial framework. The Manual provides an overview of GIS technology, discusses selected current and potential EPA and State GIS applications, and summarizes managerial and technical issues relating to using GIS.

Tracking Information Systems

EPA has developed an inventory that contains information on roughly 500 of the Agency's current information systems, as well as some models and data bases.

Information System Inventory (ISI). EPA 21M-1016, May 1991. For each system in the inventory, the following information is collected and maintained: system name and acronym, system level, responsible organization, contact person, legislative authorities, database descriptors, access information, hardware and software, system abstract, key words. Hardcopy and automated versions are available through the National Technical Information Service.

The Inventory is important because of the large number of information systems EPA uses. It serves to increase users' awareness of existing Agency information systems, to reduce duplicative information system development and data collection efforts, to improve EPA's coordination of information system development, and to provide EPA with the ability to effectively respond to information requests about Agency information systems.

Establishing Data Communications Networks

A data communication network can be important for an environmental agency for several reasons. First, the network enables information to be transmitted and shared electronically. Second, it enables the agency to have access to environmental databases in other agencies with which it has a data sharing agreement. Third, an electronic network will allow an agency to access international environmental databases, such as the United Nation's Environment Programme's INFOTERRA system.

When a data network is initially established, it is important to consider several basic requirements before proceeding. Technology should not be a major consideration, nor should existing infrastructure necessarily drive the design and implementation of a data network. Rather, a step-by-step process of requirements definition and validation should be undertaken first to clarify what the expectations of the network will be. Only when it is clearly understood what is expected from the network should technical details be considered. Also, when designing a data network, the evolutionary nature of the requirement should be closely examined. Most data exchange requirements start out small and evolve into more complexity as the information systems become more sophisticated and the data to be exchanged accumulates over time and becomes more widely needed. Implementation of a network that is much larger or complex than needed can be as costly as not providing sufficient capacity or services when required.

Factors to be considered in establishing a data communications network include the following:

- What purpose will the network serve?
  - Will you need to communicate with people via electronic mail? If so, will you purchase a service from an existing network provider, or install software to run on your computing environment.
  - Will you need to exchange data files between computers? If so, it must be understood that most computers format data uniquely, and data cannot be easily transferred from one manufacturer's computer to another.
  - Will you be accessing data or executing programs on a host computer (usually a mainframe or mini-computer)?

- What are your data transfer requirements?
  - How much data will you be sending or receiving?
  - With whom will you be exchanging data?
  - How often will you be transferring data?
  - In which direction will you be transferring data (sending or receiving)?

- What are your immediate needs, and what will your requirements be in the next year; in the next 3-5 years? This should include what services are required as well as how much data will be transmitted on the network.

- How available and reliable must your network be? This relates to the amount of support available for the network, both inside your organization as well as outside, to the type of training available and necessary for your users and support personnel, and to the types and quantities of equipment and circuits necessary.

- How much money do you have to spend, both for initially establishing the network, as well as for its operation and support? Network operation and support can easily cost more than the initial cost of installing equipment and services.

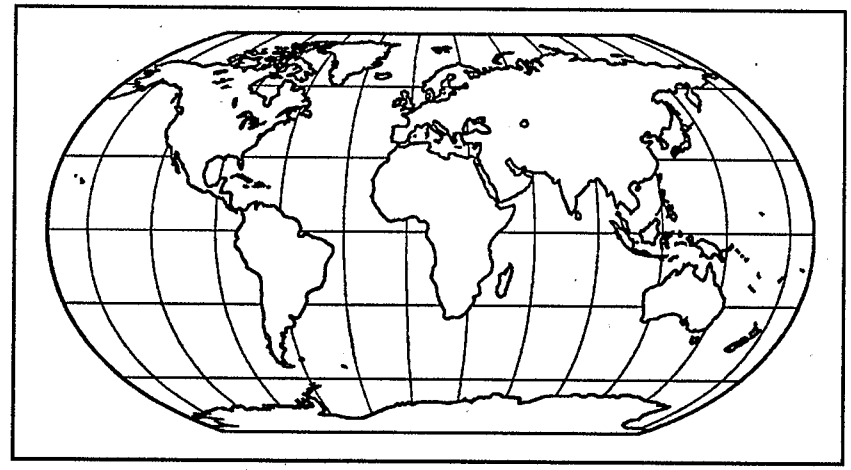
Once these questions are answered, two other factors must be considered. First, what types of computers will be connected to the network, and second, what existing infrastructure is in place that could support the requirements? The primary consideration here is compatibility and sufficient power and capacity of the equipment and software.

After completing the analysis described above, a plan should be developed that describes the steps necessary to implement an initial capability that will satisfy the immediate requirements, as well as support the evolution of the network as it increases in complexity and capacity. This plan should take into consideration any existing infrastructure, any existing laws or regulations governing telecommunications and networking, and any existing international standards that would govern planned or future compatibility with other systems outside your area of jurisdiction.

Data Sharing with States and Beyond National Boundaries

EPA's capacity to identify and examine environmental trends and report on its own performance and that of delegated State programs depends directly on a program of timely and accurate data sharing with the States. In 1987, EPA initiated the State/EPA Data Management Program to enhance EPA's goals of sound environmental decision-making, pollution prevention, and risk reduction efforts nationwide by supporting effective environmental information sharing and integrated data analysis among States and EPA. The State/EPA Data Management Program is committed to supporting activities essential to satisfying the regulatory data gathering and reporting requirements between States and EPA. By working with the States, EPA Regions, and Headquarters offices, the State/EPA Data Management Program actively encourages and supports effective communication and coordination among decision makers in the information management community.

In an effort to apply the traditional information resources management mission to its concern for the global environment, EPA established a program to facilitate the exchange of environmental information internationally. The International Data Sharing Program has three objectives: (1) establish the U.S. as a reliable partner in information exchange relationships; (2) make information available in a form that is useful to international partners; and (3) assist developing nations to establish effective local information management capabilities needed to foster sustainable development. EPA's partnerships in the United Nations Environment Programme's INFOTERRA and International Register of Potentially Toxic Chemicals (IRPTC) systems, and its membership in the Organisation for Economic Cooperation and Development (OECD), help EPA promote its goals of international data sharing.



SECTION IV: EXTERNAL RELATIONS

EPA is joined by a large number of external groups in forming and implementing U.S. national environmental policy. These groups include other Federal government agencies, State and local governments, environmental groups, and the industries that EPA regulates. This section will discuss the most important of those external relations.

Other Federal Agencies

There are environmental issues that occur in programs administered by many other U.S. Government agencies. EPA works with these agencies in an effort to coordinate environmental policy and implementation. Examples include working with the Department of Transportation on transporting hazardous materials, working with the Department of Justice on environmental enforcement, and working with the U.S. Coast Guard when oil spills occur. In addition, all Federally owned and operated facilities are required, by Executive Order, to comply with environmental statutes. EPA works with Federal agencies, most notably the Department of Defense, the Department of Energy, and the Department of the Interior to help ensure that their facilities are in compliance with Federal environmental law, and to consult with them regarding remediation if they are not. Another area in which EPA and other Federal agencies work together is when they share responsibilities for addressing an environmentally related problem such as an oil spill. Depending on the circumstances of the spill, several different agencies could be involved in the response. EPA and the other relevant agencies have developed lead responsibilities and protocols for responding to spills based on its characteristics. The broad scope of U.S. environmental policy demands good communication between all relevant agencies in order to develop uniform national policy, and to ensure that it is implemented and adhered to consistently.

In a more formal arena, EPA also coordinates with other Federal agencies on environmental issues through meetings of the President's Cabinet and the Domestic Policy Council. At meetings of the President's Cabinet, the Administrator of EPA can work with the heads of other government agencies to debate and formulate coherent environmental policies that become the President's policy. The Domestic Policy Council provides a forum for discussing Administration policies on the environment in the context of economic and societal values and needs. The Council's purpose is to advise the President on domestic policy issues, including environmentally related issues.

In addition, EPA has the authority to review the Environmental Impact Statements prepared by other Federal agencies, as required under the National Environmental Policy Act (NEPA) of 1970. NEPA directs any Federal agency undertaking an action that will have a significant impact on the environment to conduct an environmental assessment, write an Impact Statement, and submit it to EPA for review. These reviews are conducted by EPA's regional offices, with guidance from the Headquarters office. EPA has the authority to make recommendations on whether an Agency's project plan should be altered or not, but does not have the authority to halt a project. This authority rests with the Council on Environmental Quality, which is an Executive Office of the President. If EPA believes that a project will have a significant environmental impact, and the responsible Agency disagrees, EPA can appeal the case to the Council. Some States also have process requirements similar to NEPA's provisions which require Environmental Impact Statements. These requirements are contained in State law however, and EPA does not have a role in reviewing them. The Technical Information Package entitled *Environmental Impact Assessments* presents a detailed discussion of the assessment process and Environmental Impact Statements.

State and Local Relations

The operation of national environmental programs relies increasingly on the efforts and resources of State governments. Many States in the U.S. have their own Environmental Departments to implement their unique State environmental laws, as well as to implement and enforce the Federal environmental programs which are delegated to them by EPA. This split in the States' responsibility between State and Federal laws has its source in the U.S. Constitution, which gives States the right to enact their own laws as long as they are not in conflict with Federal laws.

EPA's relationship with the States is one of cooperation and partnership in which they work together to achieve environmental goals. While EPA sets national environmental policies, it relies on State governments to carry out implementation and enforcement of these policies. State governments, in turn, rely on EPA for guidance, resources, and technical assistance. The partnership between EPA and State governments promotes a better leveraging of resources to achieve environmental goals. However, it also results in a natural tension between sometimes conflicting priorities. Much effort is placed in building sound and effective EPA/State relations, and the cornerstone of this relationship is coordination and clear communication.

Local governments (those at the city or county level) also have a role in implementing and enforcing environmental programs. Local governments provide environmental services to their residents, such as safe drinking water and solid waste disposal. The services they provide, however, are subject to State and Federal environmental regulations.

Congressional Relations

The U.S. Congress has considerable influence over the operation of EPA and its programs, so the Agency maintains a close working relationship with Congress. First, Congress enacts the legislation that establishes many of EPA's programs, and EPA is often active in helping Congress draft new legislation and providing supporting data. In addition, Congress provides funding for these programs through its power to appropriate monies. EPA assists Congress in this process by submitting an annual budget request, through the President, for Congress to debate and vote on. Finally, Congress oversees EPA's operation of the environmental programs Congress creates by holding hearings to learn about progress and problems in these programs. EPA officials are often summoned by Congress to testify at these hearings. Because EPA and the Congress are from two different branches of the U.S. Government, and have different "constituents," there can be ideological and technical differences of opinion about environmental directions, policies, and programs. EPA must balance its responsibility to advance the President's environmental agenda with responsiveness to the environmental directions given by the people, as voiced by Congress. EPA representatives and Congress meet often to come to agreement on what environmental programs will be implemented and how they will be funded.

Constituent Relations

EPA's programs affect many different constituent groups, including the public, regulated industries, and environmental advocacy groups.

The public's perception of the condition of the environment and the cost of environmental protection has an effect on the laws that are passed to protect it. In turn, these laws affect peoples' lifestyles, and can change the way the public interacts with the environment. This relationship is a critical one that affects how EPA accomplishes its mission, and how the Agency spends its resources. There are numerous EPA publications that discuss environmental

problems, policies and programs. EPA officials are quoted in the newspapers and are seen on television news shows discussing environmental issues. The public's views are solicited when EPA proposes environmental regulations, or when it takes an environmental action affecting their community. In addition, EPA provides educational material on request to schools that are interested in learning about the environment. EPA officials attend town meetings at the local level to respond to citizens' questions about environmental problems in their communities. The Agency also has special telephone "hotlines" for the public to get information about various environmental issues. All of these activities are examples of ways EPA serves the public. To have credibility in the public eye, EPA must keep citizens informed of environmental problems and progress, and must treat the public as a partner in improving environmental quality.

Industries are regulated by Federal statutes in several ways: for example, they must comply with Federal pollutant discharge levels, they must obtain permits to operate their facilities, and if they produce a new chemical, pesticide or potentially toxic substance, they must submit it to EPA for testing and approval before it is marketed. Because environmental laws have a substantial impact on industries, EPA often consults with representatives from industry when developing environmental regulations. Industries can also be helpful in developing and testing new environmental technology, and in advancing pollution prevention techniques.

Environmental advocacy groups are numerous in the U.S., and they address a broad range of environmental issues. They lobby Congress to convince legislators of the need for new or amended laws. They also help educate the public on environmental issues, and encourage the public to put pressure on Congress to address these issues. And, they often challenge EPA's interpretation and implementation of environmental statutes, sometimes suing EPA in court to force changes in EPA's policies and regulations.

EPA's relationships with its constituent groups are complex. They involve the private sector, the public sector, and the non-profit sector. EPA works hard with all of these groups to ensure that EPA officials are made aware of their views, and that the constituency groups, in turn, are informed of the full range of environmental issues affecting them. The relationships can sometimes become adversarial, as each group tries to advance its own agenda. EPA must remain objective and analytical in balancing constituent groups' needs and desires against the public interest.

International Relations

One of EPA's goals is to improve the global environment. The Agency is committed to 1) maintaining and strengthening U.S. leadership to protect and improve the global commons; 2) working with other government agencies and nations, the private sector, and public interest groups to identify and solve transboundary pollution problems; 3) ensuring that environmental concerns are integrated into U.S. foreign policy, including trade, economic development, and other policies; and 4) providing technical assistance and scientific expertise to other nations.

These commitments are especially important as the globalization of environmental issues increases. All of the Agency's media programs, and many of its functional programs, which were once solely domestic in focus now have international components which address environmental issues bi-laterally, multi-laterally, and globally. The Office of International Activities is the Agency's focal point for international environmental affairs. It promotes coordination and communication throughout the U.S. government and international community to help address global environmental challenges. It also advises the Administrator on policies and initiatives concerning international issues, and it supports and coordinates all Agency international actions. Finally, EPA maintains liaison with foreign governments and international organizations to promote Agency environmental goals consistent with U.S. foreign policy.

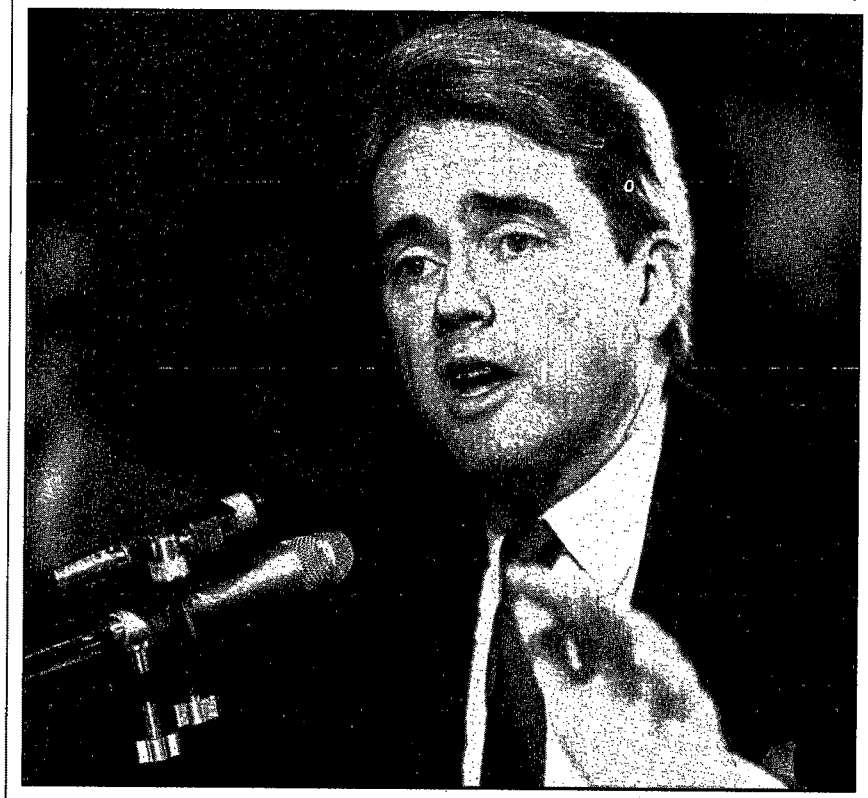
Advisory Committees and the Science Advisory Board

EPA has a number of Federal Advisory Committees that are designed to provide the Administrator of EPA with independent advice and recommendations on various scientific, technical, management and policy issues. Committee members are selected and appointed on the basis of professional qualifications from universities, State and local governments, research institutions, industry, and the general public. The Advisory Committees provide valuable insights from a real-world perspective that enhance the quality and credibility of EPA's decisions. Examples of these Advisory Committees include: the Clean Air Scientific Advisory Committee which reviews air quality standards criteria, and the National Drinking Water Advisory Council which provides advice on policies relating to drinking water quality.

The Science Advisory Board is a special advisory committee that provides advice to the Agency on technical matters. Established by the Congress, its purpose is to provide outside, independent "peer review" on the scientific and engineering underpinnings for EPA regulations. The Science Advisory Board has eight permanent standing committees that advise EPA on topics such as environmental health, research strategies, environmental engineering, and indoor air quality. Over the past 10 years, the Science Advisory Board has assumed increased stature because of growing public concern about the quality of environmental decisions being made which affect peoples' lives. As a result, EPA has placed greater emphasis on basing its regulations on solid scientific grounds, and the Science Advisory Board helps to provide this scientific grounding.

The National Advisory Council for Environmental Technology Transfer is another special advisory committee that is responsible for advising EPA's Administrator on ways to reduce barriers to program and technology development and transfer, and to establish effective cooperative environmental management approaches among Federal, State, and local governments, business, and academia. EPA's objectives for cooperative environmental management emphasize developing improved State, local, and private sector environmental management capacity; expanding the roles of education, training, and assistance to implement environmental management programs and achieve voluntary compliance; stimulating development, commercialization, and use of needed new technologies; and sharing effective technologies and environmental management approaches between the U.S. and other countries.

Photo by S.C. Delaney



William K. Reilly, EPA Administrator

SECTION V: ISSUES TO CONSIDER WHEN ORGANIZING AN ENVIRONMENTAL AGENCY

The evolution and current organization of EPA depict only one way in which an environmental agency can be established and managed. When EPA was established, it had considerable public support, there were substantial financial resources available to fund the Agency, and it was backed by considerable enforcement powers. These circumstances created a supportive environment for establishing EPA. Each country that undertakes the effort to establish an environmental agency or program will face its own unique set of environmental and institutional problems, will enjoy varying degrees of public support, and will have its own unique resource base from which to build an agency. Therefore, the agency that is established may take a variety of forms, and may have a mission that is considerably different from that of EPA. Regardless of a country's unique circumstances however, there are some universal issues that every country may want to consider when it is developing or reorganizing its environmental agency: political considerations, interagency considerations, funding considerations, and public support considerations.

A Political Perspective

Since each country has its own unique political structure, policy makers may want to consider the answers to the following questions before establishing an environmental agency:

- What should the mission of the agency be? In creating an environmental agency, is the priority environmental regulation? Or, is it broad natural resources availability and protection?

- What are the country's major environmental issues? How are they currently being addressed? Which existing government agencies are already involved? What areas do these government agencies focus on? How do these agencies draw their power and authority?

- What new and emerging environmental issues are projected to become important?

- How is an agency formally established in this country? Through what formal channels must the proposals go? Who is the ultimate decision-maker?

- Should the agency be independent, or should it be part of a larger department or ministry?

- What administrative functions are necessary in any agency within this government?

- From what level of the government is the recommendation/request for an environmental agency coming? Does the authority to make such a request lie at this level? Does the request need to be approved at a higher level?

- What is the legal framework within which the agency will be operating? What authorities or powers will be delegated to the agency?

- What border and international issues will need to be addressed?

- Are there any standards or ideals that the country, or this agency, will have to meet that have been established by another country or group of countries of which this country is a part?

- How much responsibility for environmental programs will be delegated to regional or local governments? What will the relationship be between the Federal government and the local governments? How will local roles be developed, agreed upon, and documented? What level of central control/oversight will be needed to assure national consistency and progress?

- What governmental and non-governmental organizations will have influence over the decision of whether or not to establish an environmental agency?

- What role does public acceptance and support play in establishing the agency?

- What economic factors will affect environmental policy?

An Interagency Perspective

An environmental agency does not operate in a vacuum. As discussed in Section I, EPA works with many other government agencies on environmental policy. As comprehensive as any agency's mission may be, there will inevitably be other agencies or government organizations that will have partial responsibility for environmental programs. By their very nature, environmental issues affect or even conflict with the goals and missions of other governmental agencies. For these reasons, developing an approach to working with other government agencies is a priority when establishing an environmental agency. The following questions highlight some of the relevant issues:

- What "environmental" programs are currently in place? What agency or staff office is managing these programs? What is working or not working with the structure and implementation of these programs?

- Is an agency needed to coordinate or consolidate environmental programs that are scattered throughout the current government?

- Can the environmental agency be assigned sole responsibility for specific environmental issues so that the ultimate responsibility for a particular program is not dispersed throughout the government?

- What functions would be centralized into the environmental agency? What functions would remain in other government entities? Would current personnel move to the new agency along with the functions?

- What would the relationship be between the new environmental agency and the other government bodies that have environmental responsibilities? Would the new agency be of equal status and authority as the other organizations?

- At what level would issues between the environmental agency and other agencies be resolved? What coordinating and dispute resolution mechanisms can be used between the agencies?

- What possible problems may arise in developing a plan for the new agency to work with other agencies, especially if the new agency is assuming authorities from existing agencies? What options are there for overcoming these problems?

- What will the relationship between the Environment Department and the department responsible for development be? How can those two departments work as partners in insuring sustainable development?

A Funding Perspective

There are many costs associated with creating and maintaining an environmental agency. Policy makers need to strongly consider whether or not they are willing or able to invest in such an agency. The following questions focus on budget and funding issues that are important to consider:

- How will priorities among environmental projects and efforts be determined, in order to set budget priorities? Who will make these decisions? the agency? a governing body? At what level will these decisions be made?
- What programs currently are, and will be, allocated the greatest portion of the environmental budget?
- What private organizations are currently involved in providing some portion of environmental protection? How are these organizations funded?
- What opportunities exist for private involvement in funding environmental issues?
- Will the country be able to develop new sources of revenue for the agency, such as general revenue taxes, corporate taxes, trust funds, user fees, grants, donations, etc.?
- How will the money be allocated and distributed to the agency? Who will control the money, and how will payments be made?
- How will expenditures be tracked? Who will have accountability for ensuring budgetary and financial integrity?
- What possible problems may arise in obtaining the necessary funding? What options are there for overcoming these problems?
- Can enforcement fines and penalties be returned to the Environment Department for funding other environmental priorities?

A Public Support Perspective

The level of public support for an environmental agency may determine whether or not the agency will be established, as well as how effective it will be. The questions listed below raise some of the issues relevant to gaining public support:

- What level of public support and participation is necessary to successfully develop a new environmental agency? How likely is this level of support? What public relations strategy will assure that support?
- Which sectors need to be targeted for support? Corporate? Industrial? Agricultural? General citizenry? Are different strategies necessary for each of these sectors?
- What are the possible problems you may encounter in obtaining the necessary public support? What options are there for overcoming these problems?
- What level of public education is necessary for this agency to be successful? In which areas will the public need to be educated? Will the education be directed at gaining public support for the new agency, or will educational efforts be directed at public involvement in environmental actions once the agency is created?

- How will the agency provide information about its programs to the public?

- How could public input be considered in the environmental policy-making process?

- What role will Non-Governmental Organizations (NGOs) play in supporting the new agency, developing the environmental agenda, and sharing in environmental work?

Organizational Options

Considering the questions listed above will give a country a picture of what their environmental program or agency may look like. The next step to establishing the program or agency is to decide on an organizational structure. There are three functional levels an environmental agency is likely to encompass. First is the core operating functions that any government agency, regardless of its mission, will need to perform. They are the basic administrative functions, and they include budgeting, planning, facilities management, personnel, information management, external affairs, legal expertise, and policy development. Some of these functions can be combined within one office or section; i.e. budgeting, planning and policy development, or they can be assigned to separate offices. The decision will depend partly on resource availability, and the availability of trained staff in these areas.

The second level of functions are the focal point for any environmental program. They include basic environmental issues such as maintenance of clean drinking water, waste disposal, clean air, and uncontaminated soils. There are several options for organizing the basic environmental functions of the agency. The first is to organize by program; that is, to establish offices for each environmental medium - for example, an air office, a water office, a waste disposal office, a land and soil quality office, etc. Within each of these offices, similar activities may be performed to address the environmental problems of that particular medium. For example, each office may be involved in setting standards, compliance monitoring and enforcement, pollution prevention, risk assessment, and remediation work. Although similar work may be done in each office, the target of that work will vary because each office is responsible for a different medium. Suitable methods for cross-media cooperation are essential to efficient and effective conduct of environmental protection.

An environmental agency may be organized differently however, if a programmatic organization does not meet the agency's or the country's needs. A second option is to organize along functional lines; that is, to establish offices according to the functions that will be performed regardless of environmental medium. Examples of a functional office might include: an office for environmental remediation, an office for standard setting, an office for compliance monitoring, an office for enforcement etc. Within each of these functional offices, each environmental medium may be addressed. For example, in the enforcement office, staff may direct enforcement actions in the water program, the air program, the waste program, and the land and soil program.

The third level of functions are those that an agency may perform in order to address the country's unique environmental needs. For example, a country that has severe deforestation problems may choose to establish an office or function to address this problem. Another country may want to focus on species preservation, or sustainable development. These functions take an agency beyond the "traditional" environmental functions and programs, and allow it to address unique or specialized environmental problems. These functions are not always essential to the creation of the environmental agency itself. They also can be added later, as the

environmental agency matures, or as more resources become available, or as the environmental needs of the country change or evolve. New offices could be created to perform these functions, or they could be placed in existing offices. For example, an agency could create a separate office for pollution prevention, or it could place pollution prevention responsibilities within each media or functional office.

Creating an environmental agency can be costly and will require a great deal of political and public support. For those countries that have several environmental programs being administered throughout the government, it also may not be the optimal approach to environmental protection. Another option to creating a fully-dedicated environmental agency is to create a small, highly visible office that is responsible for coordinating environmental functions within a government. Such an environmental office would largely act as a coordinator. The functions of this office would not duplicate the work of the other agencies that are involved in environmental programs; rather, it would coordinate and oversee those functions. Developing a mission statement and a comprehensive environmental management plan may facilitate this coordinating arrangement. The comprehensive plan may include protocols, lead responsibilities, and specific targets and timelines for actions. It is important that all involved agencies understand and agree to the protocols, so that the coordinating and managing action on environmental problems proceeds smoothly. Good communication is essential with this arrangement.

Developing a coordinating office for environmental programs may be more feasible for those countries that do not have the funding for a full environmental agency and for countries that may not be able to rally enough political and public support for such an agency. Some questions to consider with regard to this option include:

- How many government agencies currently have environmental responsibilities?
- What are the benefits to consolidating these responsibilities into an environmental agency?
- What are the political and budgetary constraints associated with combining all the environmental functions into one agency?
- If a country established an environmental office for coordination purposes only, what would its jurisdiction be? To whom would the office report? Where would the authority lie to resolve disputes between the environmental coordinating office and the other agencies involved? Would the environmental coordinating office set priorities for the other agencies?

To reiterate, each country that undertakes the effort to establish an environmental agency or program will face its own unique set of environmental and institutional problems, will enjoy varying degrees of public support, and will have its own unique resource base from which to build an agency. Evaluating these factors prior to establishing an environmental agency or program is essential to a country for making sound decisions to carry out its environmental mission.

Additional References

Organization and Functions

EPA Directive 1100; Organization and Functions Manual; Office of Administration and Resources Management; Management & Organization Division

Risk Assessment

Setting Environmental Priorities: The Debate About Risk. EPA Journal, Volume 17 Number 2; 21K-1007; March/April 1991; Office of Communications and Public Affairs

Management

Office of Administration and Resources Management Strategic Plan, Fiscal Years 1991-1995; EPA; November 1990

Environmental Management
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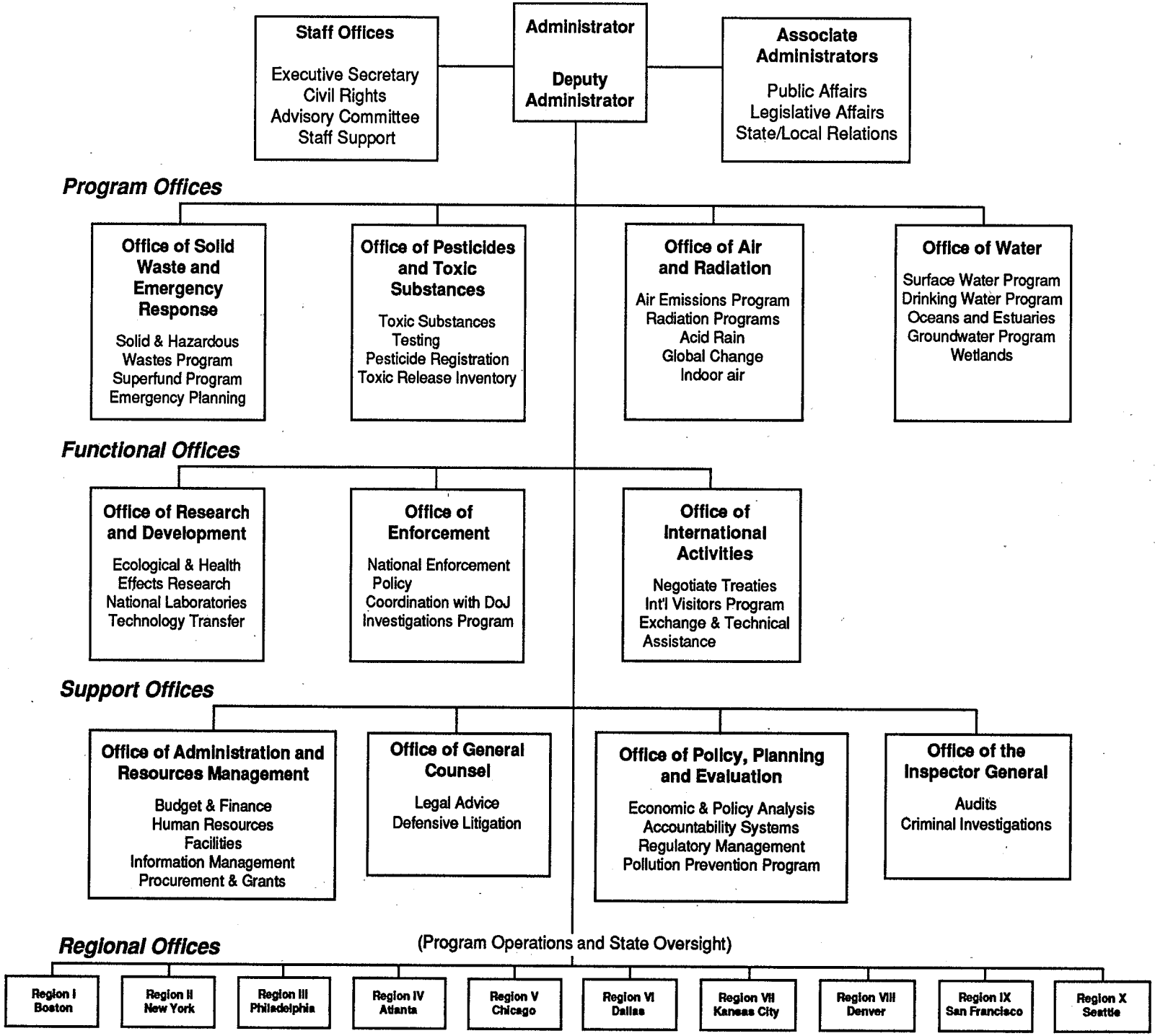
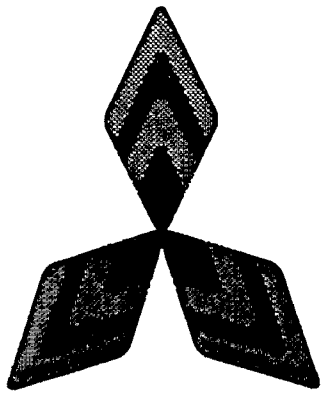
An EPA helicopter crew samples water during the National Lake Survey to assess the effects of acid rain.

Organization of the U.S. Environmental Protection Agency with Functional Notes





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