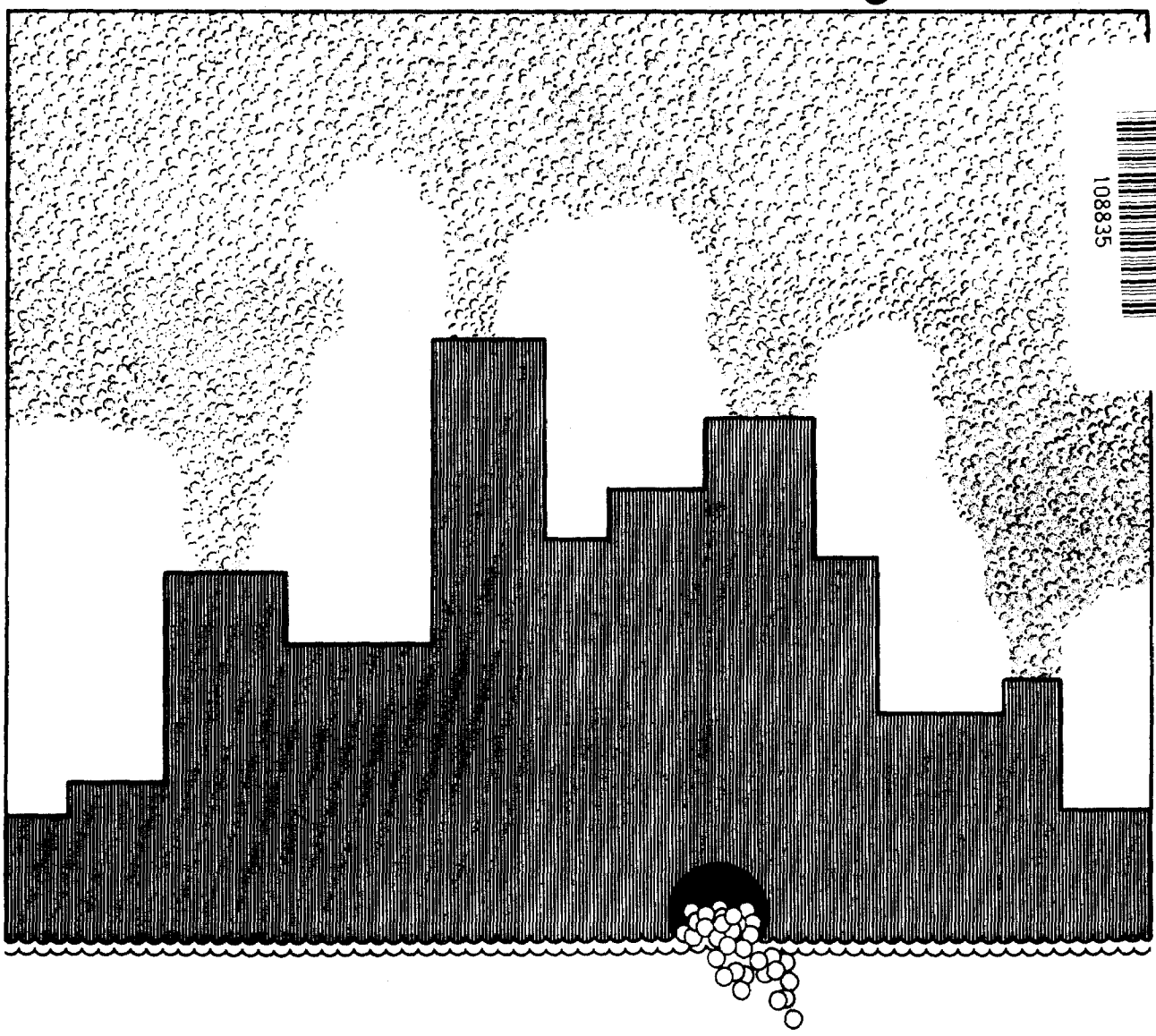
STUDY BY THE STAFF OF THE U.S.

General Accounting Office

Environmental Protection Issues Facing The Nation



In recent years the need to protect human health and the environment from pollution has become clearly evident. The Federal Government has responded to this need by enacting far-reaching legislation which could cost an estimated half a ***trillion*** dollars over the next decade. Questions have been raised on whether the environmental goals are too costly to achieve or whether the right balance has been struck between environmental objectives and energy, economic, and social goals.

This study examines current and emerging issues relating to Federal involvement in the environmental protection area and represents the perspective used in organizing GAO audit efforts.

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FOREWORD

Environmental pollution affects everyone in some form or manner. Excessive pollutants introduced into the environment have an adverse effect on environmental quality, on human health, and on other factors important to human life.

The United States each year absorbs billions of tons of natural resources and turns out goods and services which we either consume or reinvest for future production. As the economy is producing these goods and services that contribute to our standard of living, it is simultaneously producing other things--polluted rivers and streams, the smog that characterizes our major cities, poisonous pesticides, toxic substances, unsafe drinking water, hazardous wastes, radiation, congestion, noise, encroachment on our wilderness areas--all of which detract from our quality of life.

As part of our continuing reassessment of critical national issues, and as an aid in focusing our own objectives, we have tried to identify the environmental program areas most in need of attention. This study describes and identifies what we believe are the major environmental issues facing the Congress and the Nation. Each issue is tied into a series of goals representing crucial elements of the national environmental program. The issues and goals represent the perspective we used to plan our future auditing activities.

It is hoped that others will find this study helpful in planning their own activities and that a better understanding of environmental issues will result.

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Contents

ABBREVIATIONS

CEQ	Council on Environmental Quality
DOD	Department of Defense
EDA	Economic Development Administration
EPA	Environmental Protection Agency
FmHA	Farmers Home Administration
GAO	General Accounting Office
OTA	Office of Technology Assessment

CHAPTER 1

OVERVIEW OF THE ENVIRONMENTAL PROTECTION AREA

Pollution in its various forms has been an environmental concern in the United States for many years. Federal policy has gradually evolved to deal with pollution on a national basis, culminating in comprehensive pieces of legislation enacted by the U.S. Congress during the 1970's. This legislation substantially enlarged and strengthened the regulatory and subsidy parts of Federal environmental policy and committed the Nation to ambitious goals for a clean environment. The Council on Environmental Quality (CEQ) estimates that if carried out, current laws will require estimated expenditures of up to $645 billion over the next decade by taxpayers, consumers, industrial firms, and municipalities.

The Nation has embarked upon an ambitious program to clean up our environment. The success or failure of this effort will depend to a large extent on how well Federal, State, and local governments are implementing environmental protection programs. But decisionmakers seem to be unsure as to whether environmental goals are too costly to achieve and whether the right balance has been struck between environmental quality objectives and energy, economic and social goals. The energy crisis coupled with a period of inflation and unemployment has led to a general reexamination of our pollution control goals and strategies.

In fiscal year 1979, 19 Federal agencies and departments expect to have outlays of $12.3 billion for environmental programs. The Environmental Protection Agency (EPA) accounts for about half of these outlays. Although covering a wide range of activities, Federal environmental programs are classified in three broad categories: pollution control and abatement; understanding, describing, and predicting the environment (research on the effects of pollutants on the environment); and environmental protection and enhancement activities.

PERSPECTIVE ON ENVIRONMENTAL PROTECTION

If the environment's capacity to absorb or assimilate wastes were unlimited, there would be no pollution problem. However, the natural environment which acts as a "sink" for waste material, whether of natural or man-made origin, does have limited capacity for self-cleansing. Further, because the environment is not owned by anyone and is controlled by no one, it is overused and abused.

Actions, therefore, must be taken by Federal, State, and local governments to manage the environment by placing limits on the amount of pollution--air, water, land, and noise--that can be tolerated without endangering the health and welfare of human beings and the ecological systems in which we live.

The key to effectively managing the environment is to know how much pollution the environment can assimilate, what abatement or control actions need to be taken at minimum cost--both economically and socially--and how these actions will interact with developing the Nation's natural resources and continuing our general prosperity. Unfortunately, these things are generally not clearly known because the research, monitoring, and analytical efforts to provide precise information have been lacking.

Therefore, the strategy to control air, water, and noise pollution has centered on national uniform technology based standards. In other words, if pollution control equipment is available, then it will be used regardless of cost and regardless of whether it is needed to achieve environmental quality objectives. This strategy is not considered cost-effective, efficient, or equitable and is being resisted by industry, States, and municipalities on the basis that costs outweigh benefits. In the future, attention needs to be given to identifying alternative regulatory strategies and cost/benefit analyses.

The strategy developed to control chemicals that may be harmful to humans and the environment requires manufacturers to test chemicals for toxicity before manufacturing or using them. The problem with this strategy is that it takes years of health effects research to determine the toxicity of chemicals on laboratory animals. There is also the problem of proving that chemicals toxic to animals are also toxic to humans. But the cause-health effects relationship of certain chemicals have been generally agreed upon by scientists. In the future, a lot more attention needs to be given to controlling toxic chemicals.

The two dominant Federal agencies responsible for implementing environmental protection legislation and programs are the Council on Environmental Quality which has oversight responsibilities to provide policy guidance to Federal agencies in implementing the National Environmental Policy Act and EPA which is responsible for implementing environmental protection regulatory and financial assistance programs.

Other principal Federal agencies who have environmental responsibilities include:

--Department of Agriculture

--Department of Commerce (National Oceanic and Atmospheric Administration)

--Department of Defense

--Department of Health, Education, and Welfare

--Department of Housing and Urban Development

--Department of the Interior

--Department of Justice

--Department of Labor: Occupational Safety and Health Administration

--Department of State

--Department of Transportation

--Department of Energy

--Nuclear Regulatory Commission

Recent Trends and Outlook

The Congress, during the last several years, recognized the need to protect human health and the environment from pollution and enacted tough Federal laws--the National Environmental Policy Act, the Clean Air Act, the Noise Control Act, the Clean Water Act, the Marine Protection, Research and Sanctuaries Act, the Safe Drinking Water Act, the Resource Conservation and Recovery Act, and the Toxic Substances Control Act with far-reaching consequences that would be felt for years to come.

As a result of this legislation, considerable improvement in air and water quality has or will take place in the near future as Government and industry spend huge sums of money on pollution control equipment.

But now that our cleanup efforts have proceeded about as far as our present technology can justify in the light of escalating costs, the battles have begun with industry on one side, environmentalists on the other side, and Government somewhere in the middle. Much of EPA's staffing

resources have gone into defending the Agency against more than a thousand suits, brought both by environmentalists seeking sterner enforcement and by companies seeking relief from what they regard as arbitrary interpretations of the statutes.

Another problem is that of the growing mass of environmental regulations that plague industry and communities. The problem is perceived in the fact that the Congress, starting in 1970, tackled pollution areas one by one, passing the Clean Air Act in 1970, the Federal Water Pollution Control Act Amendments in 1972, and others in succession, culminating in the Toxic Substances Control Act and the Resource Conservation and Recovery Act in 1976.

The statutes and resultant regulations, which now fill several 5-foot shelves, often overlap confusingly in their impacts, both physical and fiscal. The problem of fragmented environmental regulation bears especially heavily in regard to restrictions to be applied to industrial growth, at a time when industrial pollution generally is still excessive.

There is a definite lack of flexibility in much of the environmental legislation and economic considerations are not adequately presented. It is far easier to calculate the costs of pollution abatement than the benefits. The Council on Environmental Quality estimated that more than half a trillion dollars will be spent by the Nation for pollution control during the period 1977 through 1986. However, it is difficult to place a price tag on clean air and clean water for there are many factors to be considered: health, recreation, land values near recreational sites, and aesthetic factors that resist quantifying. Therefore, it is largely unknown whether the costs of complying with environmental protection standards and requirements will exceed benefits.

To overcome problems with current regulatory strategies, efforts are underway to depart from such strategies based on regulation to one using economic incentives such as imposing emission and effluent fees on polluters, providing subsidies for abating pollution, or assessing charges for failure to meet abatement schedules.

Now that some progress is being made to clean up the most common pollutants, scientists are uncovering whole new families of pollutants harmful to humans and the environment: toxic substances, pesticides, and hazardous wastes.

Roughly, 1,000 new chemicals are produced every year adding to the more than 30,000 chemicals already in U.S. commerce. Many chemicals and compounds are known to cause tumors and cancer. Until recently the Government had not had the authority to find out the quantity or composition of new chemicals that are being used in manufacturing. This had made it almost impossible to regulate the production and use of toxic chemicals.

Chemicals are being studied by scientists to determine whether the release of toxic chemicals into the environment which may end up in our drinking water cause human disease including cancer. A factor that makes the environmentally caused diseases so hard to combat is time lag. Cancers can have incubation periods of 20 to 40 years. Thus, today's environment may be producing diseases that will dominate 30 years from now.

Long Range Outlook

We can anticipate that the most critical environmental protection issues which will confront the United States in the 1980's and beyond will be those of global environmental protection challenges.

As a result of stringent Federal laws passed by the Congress in the last several years, major strides have been made toward improving the quality of the environment in the United States. However, while pollution used to be a regional or local problem, the side effects of new technology are now being felt over increasingly larger distances and have become global in character. We have come to realize that polluted air and water respect no national boundaries.

During the next decade and beyond, the United States will have to concentrate on much broader environmental problems which may have a more devastating effect on the quality of life in the world. For example,

--A corrosive "acid rain " is showering the earth when it rains. This damaging sulfuric acid is a result of coal burning and is pumped into the atmosphere from electric power plants and sent drifting to all corners of the globe. Acid rain is attacking fish life, making lakes sterile, and marring forest production.

--The buildup of carbon dioxide (a product of fossil fuel combustion) in the atmosphere produces the "greenhouse effect": heat becomes trapped producing an increase in global temperatures. This could lead,

in turn to melting of the polar icecaps, producing a rise in the sea level and consequent widespread flooding.

--Fluorocarbons released into the atmosphere from aerosol spray cans may harm the earth's ozone layer which protects the planet from harmful effects of the sun's ultraviolet rays. Scientists say depletion of the ozone layer could lead to a higher incidence of skin cancer and to changes in the earth's climate.

Recently the Environmental Protection Agency, the Food and Drug Administration, and the Consumer Product Safety Commission have jointly taken action to ban the use of fluorocarbon gas in most aerosol spray cans in the United States. However, fluorocarbon emissions are a worldwide problem. Because the United States is responsible for slightly less than one-half of all fluorocarbon emissions, a comprehensive attack on this global problem must be coordinated with the other major fluorocarbon-producing nations.

In upcoming years, the Federal Government--through the direction of the Environmental Protection Agency--will need to take a more active worldwide leadership role in developing preventive measures to forestall such environmental catastrophes. We foresee a continuing need for the General Accounting Office (GAO) through its oversight responsibilities and program evaluations to encourage a coordinated attack on global environmental problems and to evaluate alternative courses of action available.

MAJOR LEGISLATION IMPACTING ON THE AREA

Major legislation enacted by the Congress in the last decade impacting on environmental protection programs are listed below.

--National Environmental Policy Act

--Clean Air Act

--Clean Water Act

--Safe Drinking Water Act

--Federal Insecticide, Fungicide and Rodenticide Act

--Marine Protection Research and Sancturaies Act (Ocean Dumping Act)

--Noise Control Act

--Occupational Safety and Health Act

--Surface Mining and Reclamation Act

--Toxic Substances Control Act

--Resource Conservation and Recovery Act

Major environmental legislation passed by the 95th Congress include significant amendments to the air, water, noise, and pesticides laws.

Pending legislation at the end of the 95th Congress which could have a significant impact on the environmental protection area follow:

Drinking Water: a possible grant program to help communities build treatment facilities to meet new environmental regulations.

Noise: financing scheme to help airlines pay for meeting noise regulations.

Reorganization: attempts to reorganize and consolidate the natural resources agencies.

Solid Waste: possible national mandatory beverage deposits on containers.

Toxic Substances: new program to pay contamination victims.

Oil Spills: would provide a comprehensive system of liability and compensation for oilspill damages and removal costs.

CHAPTER 2

ENVIRONMENTAL PROTECTION ISSUES

Based on an analysis of environmental protection issues and the expected needs of the Congress, we have identified 11 major environmental protection issues meriting attention over the next 18-months.

*1. Are environmental protection regulatory strategies effective?

*2. Are Federal expenditures through contracts, loans, and grants, effectively and efficiently achieving environmental protection objectives?

*3. What are the social and economic effects of environmental protection programs on the public and private sectors?

*4. Are institutional arrangements effective for implementing environmental laws and considering tradeoffs?

*5. Harmful effects from exposure to toxic pollutants--How well are we reducing risks to humans and the environment?

*6. Are research and development programs effective in supporting environmental protection activities?

7. Is implementation of the National Environmental Policy Act effective?

8. Are Federal facilities complying with environmental standards?

9. Is the U.S. promoting worldwide pollution abatement actions?

10. Are efforts being made to recycle, reuse, and conserve natural resources through environmental programs?

11. Are environmental education efforts effective?

* Designated for priority attention.

In selecting these areas of concern, emphasis was placed on addressing current congressional interests and concerns, and anticipating future congressional needs for GAO assistance. After thoroughly considering all the issues identified above, the first six issues deserve priority attention. The rationale for selecting these issues for priority attention is discussed in the following chapters.

In developing the issues for attention our strategy was to identify broad-based issues which cut across the many environmental programs, rather than overly narrow issues which apply only to a single media program--such as water, air, solid waste, or pesticides. We recognize that a particular environmental problem could overlap and touch on several identified issues.

CHAPTER 3

ISSUES MERITING PRIORITY ATTENTION

ARE ENVIRONMENTAL PROTECTION REGULATORY STRATEGIES EFFECTIVE?

The United States is in the process of developing various regulatory strategies to control air, water, and noise pollution; to improve solid and hazardous waste management; to better control and limit the uses of pesticides and toxic substances; and to limit radiation contamination of the environment. As more specifics become known of environmental conditions and the effects of the regulatory strategies attempted to date, there will be a continuing need to reassess the approaches delineated and the steps underway. Because of the dynamic nature of the environment, and the substantial costs incurred by government and industry when regulatory strategies are even slightly altered, priority attention will need to be given to evaluating the effectiveness of these strategies, until all congressionally mandated environmental goals have been achieved.

BACKGROUND AND ISSUE ANALYSIS

The Congress adopted regulatory strategies basically centered around the standard setting-monitoring-enforcement-regulatory process coupled together with uniform effluent and emission limitation requirements; environmentally sound management criteria; and regulations to prescribe the manufacture and use of substances. This process is carried out through a complicated interactive process involving (1) the Congress which establishes policies, goals, objectives, requirements, and the basic structure of the regulatory processes; (2) Federal agencies, which define and implement the regulatory processes; (3) various State and local agencies which also implement the processes, and (4) the Federal and State courts, which review the administration and implementation of the environmental protection laws at the request of opponents and proponents of the various regulatory decisions being made.

EPA is the Federal agency primarily responsible for implementing air, water, and noise pollution control laws; solid and hazardous waste management requirements; and pesticides and toxic substances controls. It also has overall responsibilities to protect the health and welfare of man and the environment from adverse effects due to radiation exposure. However, virtually every Federal agency has activities that impact on and involve environmental requirements and considerations.

Basically the regulatory processes followed by EPA for controlling pollution in the air, water, and noise areas involve:

--deciding the levels of environmental quality desired,

--setting environmental quality standards,

--deciding on the abatement actions or methods of achieving the standards,

--monitoring compliance with the standards and abatement schedules, and

--taking enforcement action against violators.

Implementing the regulatory process is not an easy task. First, millions of Americans are affected by environmental degradation individually and are concerned about the levels of environmental quality that would be desirable. Only the governmental processes provide the organizations for deciding on what quality levels are desired and reaching agreements on the costs citizens are willing to pay for the cleanup.

Secondly, a sound scientific research information base on the effects of pollutants on man and the environment is needed to establish reasonable environmental protection standards and requirements if they are to be effective in implementing environmental protection legislation. The Federal regulatory effort to date, however, has lacked such an adequate information base and the standards and requirements were frequently set on the basis of limited information on environmental trends and conditions; value judgements; social decisions; technology; and political considerations.

With regard to the regulatory approach in the solid waste area, the Congress under the Resource Conservation and Recovery Act of 1976 mandated national action, spearheaded by EPA against solid waste management and disposal practices that lead to environmental and public health hazards. EPA and the agencies are also to promote resource recovery and conservation as alternative waste management options. Financial and technical assistance is to be provided to the State and local governments for the planning and development of comprehensive solid waste management programs, the regulation of hazardous wastes from point of generation through disposal, and resource recovery and conservation activities.

The pesticides program operated by EPA requires establishment of tolerances for pesticide residues on food crops. While EPA is the agency responsible for establishing the tolerance levels on food, the Food and Drug Administration is responsible for implementing these limits and insuring that the actual residues do not exceed the tolerances. EPA is to strike a balance between necessary pest control and protection of the public health. Through a premarket review of data on the safety and effects of pesticide products, the Agency issues individual registrations to manufacturers based upon a finding that the product will perform as claimed on the label, and will not pose "unreasonable adverse effects" to man or the environment. Pesticides not meeting that standard must be cancelled, or in cases of an imminent hazard to the public, suspended.

Similarly, in the toxic substances area, EPA is to make sure that adequate information and authority exists and is used to control unreasonable chemical risks to human health and the environment. Information on the health and environmental effects of toxic chemical substances is to be developed and provided to EPA by those who manufacture and process chemicals and chemical mixtures. Based on this information, EPA is to control the manufacture, processing, distribution, use, and disposal of chemical substances and mixtures so as to minimize unreasonable risks caused by toxic materials. As in the case of pesticides, environmental, economic, and social impacts of its actions are to be considered in EPA's assessments of "unreasonable risk."

Once the regulatory approach and the requirements are set, the method of achieving the levels of protection becomes critical. For various reasons, the Federal strategy is to establish uniform pollution control requirements based upon control technology. This strategy is occasionally economically inefficient and in some cases environmentally counterproductive.

Furthermore, Federal and State Governments face monumental tasks in monitoring and taking necessary enforcement actions against the literally thousands of pollution sources in the various pollution media. Because enforcement actions play an important role in pollution control policy, it may be wiser and cheaper for a discharger to appeal an environmental protection standard or requirement which is not based on sound scientific information than to install pollution control equipment. With limited investigative resources, procedural and legal safeguards, and an overcrowded court system, enforcement efforts by the regulatory agencies and the State and local governments is difficult in the face of significant resistance.

Additionally, as environmental controls become more effective the problem of disposing of residual wastes such as sewage sludge, stack gas scrubber wastes, and hazardous wastes increases monumentally. Federal or State regulatory, inspection, and enforcement programs are required in every State and EPA's program implementation generally has not progressed as rapidly as envisioned by the Congress.

ALTERNATIVE STRATEGIES

Are there alternative strategies to achieve air, water, and noise pollution control goals; better solid and hazardous waste management; and improved controls over pesticides and toxic substances uses? Several have been proposed--primarily by economists. The more prevalent alternative strategy to regulatory controls is the use of effluent or emission fees. When properly used, effluent or emission charges may help secure economically efficient pollution cleanup. For example, a uniform fee--say 10 cents for each pound of sulfur emitted into the air by a firm may lead firms to reduce sulfur emissions just to the point where the costs of removing an additional pound of sulfur equals 10 cents. Fees, accordingly, appear to offer the advantage of decentralizing cleanup decisions (which reduces Government's administrative costs and controls) in a way that minimizes the cleanup costs to society.

In contrast, the regulatory approach requires EPA to promulgate extensive rules governing the behavior of all waste resources, thus centralizing the burden of decision-making. Furthermore, desires for administrative simplicity and equality of treatment tend to produce inefficient regulations that require all polluters to reduce their emissions or effluents by the same extent, regardless of abatement costs. The result can substantially increase the cost of achieving a given level of pollution control perhaps many millions of dollars on a nationwide basis.

Why then have environmental programs predominantly resorted to the regulatory approach? One reason is that fees entail some uncertainty about the level of cleanup that will be achieved unless polluters' reaction to a fee schedule can be exactly predicted in advance. Proponents of fees argue that this uncertainty can be dealt with by subsequently adjusting the initial fee upwards or downwards, as appropriate. But if polluters know that the initial fee may be in force for only a short time, their immediate response will not be representative of their long-term behavior. Furthermore, if polluters make significant capital investments in response to an initial fee, their responses to later changes in the fee schedule will be distorted in possibly wasteful ways.

In contrast, regulation appears to promise greater certainty on the level of quality to be achieved. Moreover, in the earlier period of environmental enthusiasm, between 1968 and 1972, considerations of costs were less persuasive than getting the job done. The political gains to be had from cracking down on polluters contributed to the almost universal choice in the Congress of the regulatory approach. Moreover, fee schemes depend on the assumption that polluters will act to minimize their economic costs, an assumption that may be at odds with reality in many instances. For example, the managers of municipal waste treatment plants need not respond to economic incentives; and large firms with significant market power may prefer merely to pay the fee, rather than make the effort to reduce pollution.

Fee schemes on the other hand, may make administration and enforcement more effective and less costly. Fee schemes provide a continuing incentive to control emissions and effluents, while typical regulatory sanctions encourage the polluter to postpone as long as possible, the day on which he must choose between compliance and suffering a sanction.

It is unlikely the Congress will substitute fee systems for the regulatory approach in the near future. In the long run though, in some areas, a fee system may be the most viable, cost-effective, administratively efficient alternative to achieve and maintain the high levels of environmental quality the American people expect.

Another strategy to achieve pollution control is to establish regional requirements and standards with some sort of centralized regional management focusing on the most cost-effective methods of achieving air and water quality standards. For example, a public river basin authority, operating its own large-scale wastewater treatment plant or plants, could charge polluters varying fees to treat wastes or vary the treatment level based on the needs of a particular area. Such an authority could also undertake measures to directly alter conditions in the river, such as programming water releases to maintain minimum flows, or adding oxygen directly to a river to support the ecological balance.

ISSUES FOR CONSIDERATION

There is a need to determine whether changes in pollution control laws, program implementation, and basic strategies are needed to achieve desired levels of environmental quality as effectively and efficiently as possible. To accomplish this, certain issues should be examined concerning:

--the reasonableness of environmental quality standards,

--the reasons Federal agencies are having problems in implementing programs,

--possible solutions including alternatives to solve the problems, and

--Federal coordinating procedures to effectively implement environmental programs and to prevent overlapping and duplication of effort.

REPORTS ISSUED

Reports issued after January 1, 1977, addressing this issue are listed below:

Reports	Date
Secondary Treatment of Municipal Wastewater in the St Louis Area--Minimal Impact Expected	CED-78-76 5/12/78
National Water Quality Goals Cannot Be Attained Without More Attention to Pollution From Diffused or "Nonpoint" Sources	CED-78-6 12/20/77
Progress Made by Federal Agencies in Implementing the Noise Control Act of 1972	CED-78-5 11/07/77
The Concorde--Results of a Supersonic Aircraft's Entry Into the United States	CED-78-131 9/15/77
Pollution From Cars on the Road--Problems in Monitoring Emission Controls	CED-77-25 2/04/77
Convincing the Public to Buy the More Fuel Efficient Cars: An Urgent Natural Need	CED-77-107 8/10/77
Sixteen Air and Water Pollution Issues Facing the Nation	CED-78-148 10/11/78
Noise Pollution--Federal Program to Control It Has Been Slow and Ineffective	CED-77-42 3/07/77
Problems and Progress in Regulating Ocean Dumping of Sewage Sludge and Industrial Wastes	CED-77-18 1/21/77

Analysis of Supersonic Aircraft Notice of Rulemaking and Related Documents	CED-78-52 1/31/78
Waste Disposal Practices--A Threat to Health and the Nation's Water Supply	CED-78-120 6/16/78
More Effective Action By The Environmental Protection Agency Needed To Enforce Industrial Compliance With Water Pollution Control Discharge Permits	CED-78-182 10/17/78
Potential Effects of a National Mandatory Deposit on Beverage Containers	PAD-78-19 12/07/77
Special Pesticide Registration by the Environmental Protection Agency Should Be Improved	CED-78-9 1/09/78
Notifying Foreign Countries of Pesticide Suspensions and Cancellations	CED-78-103 4/20/78
Ways the Department of Defense Can Improve Oil Recycling	LCD-77-307 9/28/77
Improving Military Solid Management; Economic and Environmental Benefits	LCD-76-345 6/02/77
Sewage Sludge--How Do We Cope With It?	CED-78-152 9/25/78
The Environmental Protection Agency Needs Congressional Guidance and Support to Guard the Public in a Period of Radiation Proliferation	CED-78-27 1/20/78
Improvements Needed In Controlling Major Air Pollution Sources	CED-78-165 1/02/79
Better Enforcement Of Car Emissions Standards--A Way To Improve Air Quality	CED-78-180 1/23/79

CURRENT ASSIGNMENTS

Review of EPA's Air Monitoring Activities

Review of EPA's Unleaded Fuels and Tampering Program

Review of Combined Sewer Overflow Problems

Problems and Progress in Regulating Ocean Dumping of Sewage Sludge and Industrial Wastes

Evaluation of Federal efforts in the area of indoor air pollution

Review of Implementation of the Safe Drinking Water Act

Review of Water Quality Standards and Mathematical Models

Review of Federal Programs to Regulate the Import and Export of Pesticides and Pesticide Residues on Imported Food

ARE FEDERAL EXPENDITURES THROUGH CONTRACTS, LOANS, AND GRANTS EFFECTIVELY AND EFFICIENTLY ACHIEVING ENVIRONMENTAL PROTECTION OBJECTIVES?

EPA, Farmers Home Administration, (FmHA) Soil Conservation Service; the Economic Development Administration, (EDA) the Department of Commerce; the Department of Housing and Urban Development; the Department of Transportation; and the Small Business Administration administer grants, contracts and loans to assist States, municipalities, and businesses in controlling pollution. EPA by far has the predominant role. Because of the huge sums of money being spent on pollution control, priority attention needs to be given to how well these funds are being managed and whether intended results are being achieved.

BACKGROUND AND ISSUE ANALYSIS

EPA administers a wide variety of contracts and grants for the abatement and control of pollution including grants, loans, and contracts to:

--municipalities to construct wastewater treatment facilities ($4.2 billion was appropriated for fiscal year 1979);

--regional agencies for areawide planning ($32 million)

--States to develop ways to clean up lakes, to administer air, noise, and water pollution control programs, to implement State drinking water programs, to develop solid waste management programs to train and certify pesticide applicators, to enforce pesticide programs, and to conduct manpower and training programs for the various media ($306 million); and

--universities and private firms for research and development ($220 million).

The construction grants wastewater treatment program is by far EPA's largest program activity. It is also the Nation's largest public works program.

The Federal Water Pollution Control Act Amendments of 1972 established a national goal of eliminating the discharge of pollutants into navigable water by 1985 and an interim goal of providing sufficient water quality for protecting fish, shellfish, wildlife, and for recreation by 1983.

To assist municipalities in meeting these goals, the Congress gave EPA the contract authority to obligate $18 billion to municipalities during fiscal years 1973-77 to help them construct wastewater treatment facilities. Public laws in 1976 and 1977 provided additional construction grant funds totaling $1.48 billion. The Clean Water Act of 1977 authorized $24.5 billion through 1982 and the Congress appropriated $4.3 billion in 1979. From these funds, EPA through its construction grant program, makes grants of 75 percent of eligible costs of designing and constructing municipal wastewater treatment and collection facilities.

There has been a push from the Congress and the administration to obligate this money as fast as possible. EPA, however, does not have adequate management controls over the grant program, or the staffing capability to properly administer this costly program. Part of the problem is the financing structure of the grant program and staffing capabilities of EPA and State agencies to administer the dramatic increases in the construction grant program. Additionally, the Congress in 1972 substantially revised the Federal Water Pollution Control Act and imposed new complex requirements on the award of grants.

However, staffing has not kept pace with the program's rapid expansion. In fiscal year 1968 EPA obligated $191 million and had 320 construction grants program employees, and in 1975, it obligated $4 billion but had only 595 employees--more than a 20-fold increase in obligations but less than a 2-fold increase in employees. In 1978, the program had about 900 employees.

To help deal with the staff shortage problem, EPA has recently entered into an agreement with the Corps of Engineers to manage the construction phase of many projects. EPA will purchase 600 work years from the Corps at a cost of $24.4 million, principally to provide full time on-site inspections at projects costing $50 million or more.

The 1977 Clean Water Act gives the States new program responsibility and some additional resources. Historically, however, the States have not always demonstrated the capability to assume more program responsibility. Ultimately, the responsibility for the design and construction of waste treatment facilities is placed in that unit of government which often has the least technical expertise and financial input--the municipality.

EPA awards grants directly to municipalities subject to grant regulations and conditions and to State and EPA approval. Municipalities in turn rely on architect and engineering firms to:

--select the treatment process,

--design the treatment facility,

--supervise construction, and

--represent the municipality before EPA and State officials.

Some architect and engineering firms are reluctant to try new or improved treatment processes or methods that may be less costly because of their basic conservative nature and because many States will recommend only the most developed technologies for Federal funding. The Clean Water Act of 1977 emphasizes innovative and alternative technologies and provides financial incentives to encourage their use.

EPA was authorized in October 1976 to guarantee loans to States or municipalities which are unable to obtain loans at reasonable interest rates to finance the non-Federal share of construction costs of grant eligible waste treatment projects. Such EPA guaranteed loans are made by the Federal Financing Bank.

The (FmHA) makes grants and loans to finance the construction and improvement of water and waste disposal systems that serve rural communities. Since the grant program began in 1966 through fiscal year 1977, FmHA has awarded 6,939 grants totaling $992 million. The loan program began in 1940 and through fiscal year 1977, FmHA had participated in 16,662 loans valued at $4 billion. Authorized program levels for fiscal year 1978 are $345 million for grants and $750 million for loans.

The (EDA) provides funds to help restore the economic health of communities with high unemployment and low family income. The 1965 Public Works and Economic Development Act authorized EDA to award grants and direct loans to assist in the construction of public facilities, including those for water and sewer systems. During fiscal year 1976, EDA funded 125 sewage or water supply projects at a cost of $79 million. EDA has made grants of $6 billion for State and local work projects, including waste treatment facility projects in addition to those funded by EPA, in high unemployment areas.

The Department of Housing and Urban Development provides both entitlement and discretionary funds to metropolitan and nonmetropolitan areas in the form of community development block grants. These block grants can be used for various purposes, including construction of sewage collection systems. In fiscal year 1977, $240 million were targeted for water and sewer facilities.

The Clean Water Act of 1977 added an important new program to help control nonpoint source pollution. The Soil Conservation Service of the Department of Agriculture must establish a 5 to 10 year program with owners or operators having control of rural land for the purpose of installing and maintaining measures incorporating best management practices to control nonpoint pollution. The act authorizes $200 million for fiscal year 1979 and $400 million for fiscal year 1980.

Although the construction grants program has received a great deal of our audit attention, other EPA grant and contract programs have become more significant over the years, in terms of dollars and EPA's ability to effectively manage them. For example, over 70 percent of the noise program is contracted out. States are receiving substantial grant funds to carry out an extensive drinking water enforcement program. We have noted problems in the contracting area such as possible unnecessary research and development contracts, the significant amounts of costs questioned by EPA or independent auditors, the inability of the audit function to complete final audits on time causing grantees to incur unnecessary expenses, and EPA's voluminous contracting of various administrative activities.

ISSUES FOR CONSIDERATION

There is a need to determine whether (1) Federal grant, loan and contract funds for environmental protection are being used in an effective, efficient, and economical manner, and (2) Federal agencies are effectively coordinating their financial assistance programs to achieve optimum impact and benefits from Federal expenditures.

To accomplish this, certain issues should be examined concerning:

--less costly or more efficient ways to design, construct, and operate wastewater collection and treatment systems and drinking water treatment plants,

--alternative uses of Federal funds to promote new and innovative ways to solve pollution problems,

--adequate Federal programs to fund sewer collection and interceptor systems, and water supply systems, and

--effective coordination and integration of Federal financial assistance programs for environmental protection.

REPORTS ISSUED

The following reports were issued after January 1, 1977.

Reports	Date
Questions Continue As to Prices in Contracting for Architectural Engineering Services Under the Environmental Protection Agency Construction Grants Program	CED-78-94 6/06/78
Metropolitan Chicago's Combined Water Clean-up and Flood Control Programs	PSAD-78-94 5/24/78
Alleged Deficiencies Concerning an Environmental Protection Agency Contract for the Testing of Human Fetuses for Pesticide Residues	CED-78-112 5/09/78
Environmental Protection Agency's Construction Grant Program--Stronger Financial Controls Needed	CED-78-24 4/03/78
Accountability for Costs Insured By The Environmental Protection Agency in Providing Radiological Monitoring Services to the Energy Research and Development Administration	EMD-77-70 9/27/77
Multibillion Dollar Construction Grant Program: Are Controls Over Federal Funds Adequate?	CED-77-113 9/12/77
Continuing Needs for Improved Operation and Maintenance of Municipal Waste Treatment Plants	CED-77-46 4/11/77
Suffolk County Sewer Project Long Island, New York: Reasons for Cost Increases and Other Matters	CED-77-45 3/22/77
National Commission on Water Quality Contracting and Reporting Procedures	CED-77-33 3/02/77

Overview of the Environmental Protection Agency's Construction Grant Program, Subcommittee on Investigation and Review, House Committee on Public Works and Transportation (Testimony)	7/11/78
Community Managed Septic Systems--A Viable Alternative To Sewage Treatment Plants	CED-78-168 11/03/78
Reuse of Municipal Wastewater And Development Of New Technology--Emphasis And Direction Needed	CED-78-177 11/13/78

CURRENT ASSIGNMENTS

Survey of alternative methods to overcome wastewater treatment facility operations and maintenance and operator training problems

Survey of audit and inspection controls over EPA grants and contracts

WHAT ARE THE SOCIAL AND ECONOMIC EFFECTS OF ENVIRONMENTAL PROTECTION PROGRAMS ON THE PUBLIC AND PRIVATE SECTORS?

Current pollution control laws have created substantial economic impacts on individual industries and groups of people which in turn have had economic and social impacts on communities. It is estimated that such laws will require expenditures of more than $600 billion over the next decade. The severity of the impacts will depend on such factors as the state of the economy, the development of low cost abatement technologies, the stringency of the abatement requirements, and the flexibility that the Federal and State environmental protection agencies have in implementing environmental laws. If national standards and rapid timetables are rigorously enforced for all polluters, the costs and adverse impacts could be very high. If, on the other hand, enforcement is too lax, and none of the standards and deadlines are met, the overall quality of life will be adversely effected. The most successful implementation of environmental laws is one that has the flexibility to take into consideration overall costs and benefits of various environmental programs and to select the alternative or alternatives that provide the greatest improvement in the overall quality of life.

Environmental programs are also likely to result in quite significant positive and negative social impacts. Potential social benefits of pollution control would include improved health, increased recreational opportunities, and improved aesthetics. Potential negative impacts would include too rapid and haphazard development of areas (urban and suburban sprawl) causing excessive cost and resulting in overpopulation of environmentally sensitive areas or loss of prime farm lands. It can result in a complete change in the socio-economic character of an area (i.e., forcing older residents out in favor of younger or higher income groups).

BACKGROUND AND ISSUE ANALYSIS

Environmental programs and regulations have profound effects on the citizens of this Nation and its industry. For the majority of people these impacts are positive because environmental programs seek to reduce pollution damages to health, wildlife, vegetation, materials, and recreation. For example, air pollution has been linked to many diseases, especially respiratory and heart ailments, which cost billions of dollars annually in health care, lost earning, and other costs.

Federal policy has gradually developed to deal with pollution on a national basis, culminating in comprehensive pieces of legislation enacted by the U.S. Congress during the 1970's. This legislation substantially enlarged and strengthened the regulatory and subsidy parts of Federal environmental policy and committed the Nation to ambitious goals for a clean environment.

Decisionmakers now, however, seem to be unsure as to whether the right balance has been struck between environmental quality objectives and economic and social goals. The last few years of inflation, unemployment, and energy shortages have led to a general reexamination of our pollution control goals and strategies.

The cost of cleaning up the environment is not cheap. Each American must pay for environmental improvement through higher taxes and costs for goods and services. For example, the Department of Commerce estimates that the petroleum industry in the United States spent approximately $1.3 billion to curb air, water, and solid waste pollution in 1976. These costs are usually passed onto the customer.

Total pollution abatement expenditures, according to the Council on Environmental Quality, will amount to an estimated $645 billion during the period 1977-86. Of this total, $248 and $292 billion will be spent on air and water pollution, respectively. In 1978, the United States spent an estimated $47.6 billion on improving the environment, or $187 per capita. Industry pays approximately 48 percent of this figure, whereas the Government pays approximately 34 percent, and the consumer directly pays 18 percent. Although the total amount of pollution abatement expenditures could be argued as reasonable when calculated on a per capita basis, some geographical areas pay more than others and in some cases the payments are so great that the controls are not wanted by intended beneficiaries.

Currently, there is a trend towards constructing very expensive advanced waste treatment facilities. Communities are being required to provide such treatment without reasonable assurances that the treatment will significantly improve water quality. Advanced waste treatment may cost as much as five times more than secondary treatment. The costs incurred by communities, which is in the billions, should be based on sound scientific knowledge so that the gains to be obtained from advanced waste treatment are justified both economically and socially.

This burden on the homeowner is a major concern of local governments--especially smaller communities which have legal

as well as economic limitations on the amount of money they can borrow. Some communities see a reduction of community services as the only way to provide funds needed to comply with environmental requirements, and many feel that the requirements--such as for secondary treatment of municipal sewage--are excessive and rigid. The recent taxpayer's revolt as exemplified by "Proposition 13" in California, may result in fewer funds for such things as environmental controls.

A healthy economy and a clean environment are national goals which must compliment each other. EPA has concluded that from an overall standpoint, current environmental programs and policies are not inconsistent with a strong, viable economy and that--in the private sector--compliance with environmental regulations results in an economic gain rather than a loss. An EPA consultant reported that environmental spending by industry and Government in total provides over a million jobs. Studies of the construction grants program to build wastewater treatment facilities, for example, show that each $1 billion of expenditures creates 20,000 construction jobs and another 30,000 to 60,000 indirect jobs to support the construction work.

However, specific industrial and regional sectors of the economy can be significantly impacted by environmental programs even though the effect on the total economy is not great. According to CEQ statistics, 118 plants employing 21,900 people closed during the period January 1971 to December 1977, allegedly due to pollution abatement costs, and the number is expected to increase. However, such plants are typically old, inefficient, and marginally profitable; environmental regulations merely accelerated closures. Furthermore, many people who are laid off are hired back by the same or different companies within the industry. Still, the problem of plant closures should not be overlooked because there is some geographical concentration of plants which have closed--many are located in old, industrial towns which already suffer from high unemployment--and certain industries, such as electroplating, are affected more than others.

To minimize the impact of environmental programs on the economy, EPA performs economic analyses of the impact of significant EPA actions and modifies its guidelines and standards appropriately. EPA also monitors plant closings and lay-offs allegedly caused by environmental regulations through its Economic Dislocation Early Warning System and notifies the Department of Labor, Small Business Administration, Economic Development Administration of potential and actual plant closings.

Economic review groups--such as Council on Wage and Price Stability; Council on Economic Advisors, and Regulatory Analysis Review Group--have pointed out the perceived economic effects of environmental regulations. In October 1978 the President created the Regulatory Council, chaired by the Administrator, EPA, to monitor Government regulations to avoid overlap, duplication, and inflationary impacts.

Industry disagrees with EPA that environmental protection regulations do not have an adverse economic impact on Americans. Industry claims that pollution abatement expenditures displace investments intended to expand productive capacity and contribute to heavy demands on the money market which keeps interest rates high.

Industry is also concerned that environmental regulations require large expenditures for unproductive equipment which precludes plant relocation, expansion, and modernization; higher profits; and more jobs. For example, industry spokesmen think that the Clean Water Act's approach of technology based standards--having all plants in the same industry meet the same requirements--is too rigid and is counter-productive. They say that some waters have higher assimilative capacities than others--which they do, especially marine waters and fast-flowing rivers--and therefore, industrial wastes do not require uniform high treatment levels. Many industry officials question the use of scrubber to cleanup the pollution from power plants. They believe the cost of these controls to be inflationary, and excessively costly in relation to the benefits to be gained.

These are issues that should be addressed to determine whether modifications to the existing regulatory systems are needed. Because our pollution control legislation has stressed that everyone clean up the same amount with little regard to efficiency considerations, much of the analysis needed to address these issues, unfortunately, has been left undone. Many observers are becoming convinced that we cannot afford to delay these analyses any longer; that we have to make sure that every dollar we spend on improving environmental quality is being spent in the most effective way; and that the benefits we get are at least worth the amount that we are spending. Our economy cannot afford to spend resources where they do no good--there are too many other needs that have to be met.

ISSUES FOR CONSIDERATION

There is a need to: (1) identify and determine whether environmental protection rules and regulations have a major adverse economic and social impact on consumers and private

industry; (2) evaluate Federal efforts to minimize these impacts; and (3) propose appropriate alternatives.

To accomplish this, certain issues should be examined concerning:

--changes in local governments and industry decisions as a result of economic impacts of environmental protection regulations,

--whether social and economic costs clearly outweigh environmental benefits,

--alternatives that could possibly be used to mitigate adverse social and economic impacts, and

--the social and economic impact of air and water pollution control laws and regulations on selected communities.

REPORTS ISSUED

The following reports were issued after January 1, 1977.

Reports	Date
Suffolk County Sewer Project Long Island, New York: Reasons for Cost Increases and Other Matters	CED-77-45 03/22/77
Implementation of Industrial Cost Recovery and User Charge Systems	CED-78-102 04/11/78
Intervention by Council on Wage and Price Stability, Council of Economic Advisors, and the Regulatory Analysis Review Group in EPA and OSHA Rulemaking	GGD-78-116 10/04/78
Impact of Cost of Waste Treatment Projects on Users	CED-79-35 2/13/79
Water Quality Management Planning Is Not Comprehensive And May Not Be Effective For Many Years	CED-78-167 12-11-78

CURRENT ASSIGNMENTS

Socio-economic impacts of pollution control laws and Federal regulations on small cities and towns

ARE INSTITUTIONAL ARRANGEMENTS EFFECTIVE FOR IMPLEMENTING ENVIRONMENTAL LAWS AND CONSIDERING TRADEOFFS?

The structure of Federal, State, and local governments has an impact on the formulation and implementation of environmental laws. The most visible impact on governmental structures has been the outpouring of new environmental protection legislation during the last decade. These laws have essentially been enacted to control specific pollutants--air, water, pesticides, toxic substances, noise, radiation, and hazardous wastes--without fully considering the interaction among these pollutants or the effect these laws have on other national priorities. Further, there has been serious concern expressed over the ability of Federal, State, and local governments to effectively implement all of these laws with the staffing resources available.

BACKGROUND AND ISSUE ANALYSIS

The Congress and the Executive Branch of Government are not organizationally structured to balance tradeoffs between environmental goals and other national priorities or to comprehensively address pollution problems as a whole. Nor do the institutional arrangements established between Federal, State, and local governments provide for the necessary coordination and financial support to effectively implement pollution control laws, to solve pollution problems in the most efficient and economical manner, and to avoid overlap and duplication of efforts.

Congressional organization and environmental policy

Because of the numerous overlaps among committees and the fragmented jurisdiction over environmental matters, the congressional committee structure does not provide for:

--effective consideration of tradeoffs between environmental objectives and other national priorities, such as full employment, a strong economy, and energy self-sufficiency, and

--addressing the multimedia pollution problems as a whole, i.e., the relationship between air, water, and land pollution.

The work of the Congress in formulating environmental policy can be divided into three areas: the formulation and approval of legislation; the conduct of oversight hearings

and investigations; and the review and approval of appropriations. In the environmental field the legislative function has been the most important congressional activity. The relevant congressional committees have not hesitated to rewrite proposed legislation submitted to them by the Executive Branch.

The work in the Congress is accomplished almost entirely by committees. It is a rare occurrence for a committee decision to be overturned by the full House or Senate. Almost every committee of both the House and Senate exercise some role in environmental policymaking. This multiplicity of relevant committees can delay or stalemate decisionmaking.

At least 22 congressional committees have environmental responsibilities, as shown on the chart in Appendix I. Thus some of the work of hearing testimony and drafting bills is duplicated. Within each house there may also be duplication. To take the most significant example, the substantive committees responsible for formulating legislation and reviewing the progress and problems of the agencies administering the programs have little influence over the appropriations subcommittees which give money for the same legislation and agencies. Looking at another aspect of the problem, EPA activities are the responsibility of about 54 different committees and subcommittees in the two houses of the Congress.

Thus, in the Congress, most environmental legislation is deliberated on in a fragmented, uncoordinated fashion. As a result, most legislation is enacted along separate pollution medias--air, noise, water, solid waste, resource recovery, pesticides, hazardous wastes, and toxic substances which do not address the multimedia pollution problem. For example, cleaning up wastewater causes a sludge disposal problem which in turn can cause:

--an ocean pollution problem from ocean dumping,

--a land contamination problem from landfill,

--a drinking water problem because of seepage from landfilled sludge into underground water resources, and

--a water pollution problem from runoff during wet weather into rivers and streams.

In addition, the congressional committee framework does not provide for effective consideration of tradeoffs between environmental objectives and other national energy, economic, and social goals.

The Executive Branch institutional arrangements

Since 1970, the institutions for the development and implementation of Federal environmental policy have undergone remarkable change. Particularly within the Executive Branch, new organizations such as CEQ and EPA have been created. Existing agencies such as the Departments of the Interior and Transportation have been reorganized to deal with new environmental responsibilities. The enactment of the National Environmental Policy Act of 1969 has markedly influenced the organizations of Executive Branch agencies. The dramatic changes in Federal environmental institutions has had an impact on the formulation and implementation of environmental policy. The most visible impact has been the outpouring of new legislative proposals from the Executive Branch.

Given the numerous Federal agencies involved in environmental activities, coordination within the Executive Branch is a constant and troublesome problem. Much effort is expended in trying to resolve conflicts among agencies and attempting to harness the collective power of the Federal Government to work for common ends taking into consideration other national objectives such as full employment, a strong economy, and energy self-sufficiency.

The departments and agencies shown in Appendix II are responsible for proposing and implementing substantive environmental laws. In contrast to EPA, the other implementing agencies have functions that are not always identified with concern for the environment. In fact, their missions are sometimes in direct contrast with environmental quality, such as the need to use more coal--our most abundant source of energy--which causes a sulfur oxide air pollution problem.

EPA was created to integrate pollution control activities into a coordinated and comprehensive program. The new agency consolidated some nine programs from five different agencies and departments. EPA's mission is to protect health and the environment against pollution and consequently it does not always adequately consider the impact of its regulatory decisions on other Federal policies and programs.

EPA's implementation of these statutes has often been criticized and fraught with controversy. Some critics charge that EPA has been too stringent, others that it has been too lenient--sometimes with respect to the same decisions. Critics have proposed a number of controls, including legislative veto, to ensure that EPA's rules and regulations conform to certain values and priorities.

None of these issues are cut and dry; single resolutions to the problem do not exist. Since they involve valid concerns, the Congress has probed the issues and has engaged in various efforts to resolve them. In a number of cases, a problem originates not from EPA per se, but from the requirement of the statute itself; for example, auto emission levels are set in the Clean Air Act. In some cases EPA's actions have been dictated by the Court's interpretation of statutes. In such cases, the Congress can, and sometimes has, amended the statute, as when the auto emissions deadline was extended.

But in many instances, the critics' attentions are focused on EPA's interpretations of the statutes and on its use of discretionary powers. Options of the Congress in overseeing and controlling these activities include: "sunset laws" requiring reauthorization of EPA programs; requiring EPA to prepare more environmental impact statements; giving other agencies a voice in EPA actions; and giving Congress veto power over proposed administrative regulations. Consideration has also been given to reorganizing the Executive Branch--for example, creating a new Department of Natural Resources. Under the proposal, EPA could be folded in, but would more likely remain an independent agency.

The Role of the Courts

The Federal court system has played an extraordinarily active role in shaping Federal environmental law and in revising the methods by which Federal agencies deal with environmental issues. However, the role which the Federal court system has undertaken or had forced upon it has caused many observers to object both to specific decisions and to the entire notion of using the courts to decide environmental questions. Since environmental protection is a highly technical subject, observers question whether it is proper for a body, such as the court, lacking expertise on the subject, to have such an impact. Alternatives have been offered for providing assistance to courts in resolving scientific and technical matters--such as a science court, environmental court, and advisory commissions.

State and Local Roles

State and local governments have, in recent years, become increasingly involved in the protection of the environment. This involvement is frequently manifested through the development of Federal programs whose goals bear directly or indirectly on the quality of the environment. The growing diversity of these programs and their separate management structures have caused an interest in greater coordination among environmental programs and the development of an integrated system of environmental planning and management. This is particularly true in State government, where much of the responsibility for the implementation of environmental programs and policies is now lodged.

State governments are also very concerned about the increasing number of Federal environmental pollution programs that they are being required to implement without adequate Federal financial assistance and with undue Federal involvement causing duplication and overlap. One factor which has led to increased Federal involvement in environmental affairs has been that pollution problems are not confined by any local, State, or even regional political boundaries. Thus, the primary responsibility for controlling pollution should, and in fact, does lie with the Federal Government.

Further, Federal environmental law has outpaced the development of State and local laws and institutions. Pollution control traditionally had been State and local responsibilities. Many States managed significant air and water pollution control programs long before the Federal Government began playing a very active role in the 1970's. Particularly in these States, but to some degree in nearly all States, there has been a reluctance to accept Federal authority, especially when it appeared to be of such a massive nature that it overshadowed the efforts of the States. States believe that the Federal Government should provide national direction to be followed by State and local governments within the framework of national laws. But this should be done without undue Federal control and duplication of effort.

The impact of Federal pollution control legislation has had a particularly heavy impact at the local level. In the water program alone, a variety of local and regional special purpose organizations, such as sanitary districts and planning agencies, have been created to build and manage large waste treatment facilities or to identify and plan for controlling a variety of water pollution problems. Too often, however, these organizations do not have the necessary

authority or funding to adequately address the problems or to implement control measures.

ISSUES FOR CONSIDERATION

There is a need to determine (1) the effectiveness of Federal, State, and local institutional arrangements in selected multimedia pollution control areas, and (2) the adequacy of Federal, State, and local resources and capabilities to implement environmental protection laws and regulations.

To accomplish this, certain issues should be examined concerning more effective alternative institutional arrangements which will:

--promote effective coordination of Federal programs to ensure that tradeoffs between environmental protection goals and other competing national interests are fully considered,

--ensure that pollution problems are looked at in a comprehensive manner,

--provide adequate staffing resources to implement environmental protection laws, and

--establish proper relationships with States to avoid overlap, conflicts, and duplication of effort.

REPORTS ISSUED

Reports issued since January 1, 1977, addressing this issue follow.

Reports	Date
Total Cost Resulting From Two Major Oil Spills	CED-77-71 6/01/77
Tankers and Oil Transfer Operations on the Delaware River and Bay	CED-77-124 8/23/77
Coast Guard Response to Oil Spills-- Trying To Do Too Much With Too Little Opportunities to Fully Integrate	CED-78-111 5/16/78
Integrating Environmental R&D Into Developing Energy Technologies	EMD-78-43 4/06/78

Benefits Derived From the Outer Continental Shelf Environmental Studies Program Are Questionable	CED-78-93 6/01/78
Before Licensing Floating Nuclear Power Plants, Many Answers Are Needed	EMD-78-36 9/13/78
How To Dispose Of Hazardous Waste--A Serious Question That Needs To Be Resolved	CED-79-13 12/19/78
Water Quality Management Planning Is Not Comprehensive And May Not Be Effective For Many Years	CED-78-167 12/11/78

CURRENT ASSIGNMENTS

Co-disposal of solid waste and sewage sludge--a viable alternative

Review of the capability of States to implement Federal environmental programs

Review of the use of scientific and technical information in regulatory decisionmaking

Review of effectiveness of water quality monitoring program

Environmental implications of replacing fossil and nuclear technologies with solar technologies

Assessment of the effectiveness and reliability of NRC and DOE programs for environmental monitoring at nuclear facilities

Survey of resource reports filed with Bureau of Land Management by various Federal agencies

HARMFUL EFFECTS FROM EXPOSURE TO TOXIC POLLUTANTS--HOW WELL ARE WE REDUCING RISKS TO HUMANS AND THE ENVIRONMENT?

A Federal agency task force on Environmental Cancer and Heart and Lung Disease reported in August 1978 that the environment we have created may now be a major cause of death in the United States. Of the approximately 100,000 known chemicals of potential toxicity, only about 6,000 have been laboratory tested for carcinogenicity. It is estimated that 10 to 16 percent of the chemicals tested provide some evidence of animal carcinogenicity.

These observations are somewhat disturbing considering that centralized Federal efforts to rid the environment of toxic pollutants have been underway for almost a decade. The creation of CEQ and EPA was supposed to have signaled the beginning of an era in which environmental matters would receive the attention of the highest levels in Government. But has it?

Some of the Federal Government's efforts in environmental protection have achieved a large measure of success in controlling so-called "conventional pollutants" such as biochemical oxygen demand, suspended solids, and particulates. Other efforts have resulted in failures or compromises. Priority attention must be given to evaluating the effectiveness of Government activities aimed at protecting its citizens and the environment from the harmful effects of exposure to toxic substances and other harmful pollutants.

Chemicals are the major source of harmful and dangerous pollution. Many chemicals do a great deal of good and little harm, but some are among the most toxic and persistent substances ever introduced into our environment. How successful EPA, CEQ, and other Federal and State agencies are in reducing, preventing, and eliminating dangerous levels of pollution and toxicity is a matter which warrants priority attention for the foreseeable future.

BACKGROUND AND ISSUE ANALYSIS

EPA, the primary Federal agency for environmental matters, is organized on a media basis, i.e., pesticides, air, water, etc. A description of the toxic and hazardous elements of the various media follows.

Toxic Substances and Pesticides

Chemicals are all around us--in our air, our water and our food and in the things we touch. Chemicals play an important role in protecting, prolonging, and enhancing our lives. However, major toxic disasters during the past few years--the Kepone incident, the Love Canal and the discovery that PCBs, vinyl chloride, and fluorocarbons are hazardous to human health--emphasize the problems dealing with toxic substances and harmful pesticides.

Toxic substances

There are more than 30,000 chemicals and 2 million mixtures, formulations, and blends in U.S. commerce. Another 1,000 or so chemicals are introduced annually. Each year some chemicals once thought innocuous are found to be toxic to man and the environment under certain conditions. Some are sufficiently hazardous to cause widespread environmental concern.

Once a new chemical or compound has been introduced in commerce it becomes virtually anonymous as one of the thousands of chemicals to which man and the environment are exposed daily. This makes problem chemicals which cause insidious adverse effects such as cancer or species mutations almost impossible to identify. For example, cancer, the incidence of which has been steadily rising in recent years, may result from a one-time exposure to a specific chemical. However, the adverse effects of cancer may not be apparent for 20-30 years, long after exposure to the chemical may have ceased.

Not only is the toxic chemical difficult if not impossible to identify, but because of its long latency period total human exposure and the resulting cancers could be enormous. The problem of identifying toxic chemicals is further hampered by a multitude of factors such as:

--variations in human susceptibility,

--length of exposure, and

--interaction of nontoxic chemicals with one another to form new toxic substances.

The difficulty in identifying carcinogenic chemicals is vividly illustrated in the vinyl chloride case. Vinyl chloride, a chemical that was once considered innocuous, is a gas used in the manufacture of polvinyl chloride (the most commonly used clear plastic) and in pesticides and cosmetics

as an inert propellent in aerosal containers. Manufacture of vinyl chloride began in 1939; by 1974 production exceeded 7 billion pounds annually.

During 1974 chemical manufacturers discovered that a number of their vinyl chloride workers were suffering from angiosarcoma, an extremely rare form of liver cancer. Researchers had conducted studies which showed the vinyl chloride caused similar cancers in rodents. Thus, after 35 years this chemical was identified as being toxic. Action was taken to ban the gas from pesticide and cosmetic aerosols and to set standards restricting the concentration of vinyl chloride in workplaces. The full extent of vinyl chloride cancer is not yet known because many vinyl chloride workers and other exposed individuals such as cosmetologists have not yet exceeded the latency period and other exposed individuals have not been identified.

The magnitude of the cancer hazard was put into perspective by an American Cancer Society estimate that 25 percent of all Americans will develop cancer. Perhaps even more astounding is the estimate of the Secretary of Health, Education, and Welfare that 80 to 90 percent of all cancers result from environmental exposure to chemicals and other toxic substances. Presumably, a large percentage of these cancers could be prevented if carcinogenic chemicals were identified and either banned or used under conditions which would not result in worker or general population exposure.

Pesticides

Pesticides are widely used chemicals. About 1 billion pounds are used domestically each year--55 percent for Agriculture; 30 percent for industrial, institutional, and governmental use; and 15 percent for home and garden use. About 40,000 pesticide products are registered with EPA. They include insecticides, rodenticides, herbicides, fungicides, and disinfectants made from one or more of about 1,800 chemicals.

Pesticides can poison people, animals, and the environment if used improperly or if used without sufficient knowledge of their side effects. Pesticides can contaminate water, air, or soil and can accumulate in man, animals, and the environment. In addition, persistent pesticides can create potential future hazards to man and wildlife because residues can build up in the food chain and cause widespread environmental contamination.

EPA has recognized the health implications of excessive pesticide use. Balancing health, environmental and budgetary

considerations EPA has set the following activities among its highest priority for the next several years:

--Review benefits and risks of compounds identified as posing potentially unreasonable adverse effects, reach final risk/benefit determinations and reduce public health impact, if necessary, by restricting or removing pesticides from the market for some or all uses.

--Process new registration applications to bring new products and uses onto the market in an efficient, effective manner.

--Review pesticide chemicals and prepare standards.

--Assess basis for and validity of toxicological data underlying specific residue tolerances in conjunction with the development of pesticide chemical standards and adjust tolerances as necessary.

Air Quality

Studies show that there are direct relationships between exposure to polluted air and evidence of emphysema, bronchitis, asthma and lung cancer. In London and New York City polluted air--trapped for several days at ground level by static atmospheric conditions--caused death and serious illness, especially among infants, the elderly and people with weakened heart or lungs. Dirty air irritates eyes, throats, and lungs. It rusts metal, erodes stone, rots fiber, discolors paint, and soils cloth. It severly damages trees, crops, and shrubs.

According to CEQ, the Nation's air quality is improving. There are indications that most large cities can meet established standards for "criteria" pollutants. However, the fight against air pollution is far from over. Rapid conversion to use of coal can worsen air pollution. Additionally, an overall increase in burning of fossil fuels will likely increase toxic levels of carbon dioxide in air.

Water Quality

We all have a personal stake in assuring that our Nation's water is of a high quality. Safe water is necessary for drinking, supporting fish and other aquatic life, farming, recreation, and industry. It is commonly known that much of the drinking water used in this country is of inferior quality and may impose health hazards to those who use it. Recently there is a growing concern about cancer-causing agents in drinking water.

The seriousness of this problem was recently highlighted by the head of the National Cancer Institute who stated:

--Chemicals which have been shown to cause cancers in animal studies are commonly found in drinking water in small amounts.

--Some known human carcinogens have been found in drinking water.

--Exposure to even very small amounts of carcinogenic chemicals poses some risk and repeated exposure amplifies the risk.

--Cancers induced by exposure to small amounts of chemicals may not be manifested for 20 or more years.

Solid Waste

On the basis of surveys of 14 industry groups, EPA estimates that industrial waste generated in 1977 totaled about 344 million metric tons. About 10 percent of this may fall in the "hazardous waste" category--wastes requiring special safeguards in handling and disposal because of the substantial danger they pose to health and the environment. Industrial waste generation is growing at a rate of about 3 percent annually. More stringent controls on discharge of pollutants to the air and water is a primary factor in the overall increase in hazardous wastes disposal.

Generation of municipal solid waste (residential and commerial refuse) is also increasing. It is estimated that about 130 million metric tons of such waste were generated in 1976. The projected figure for 1985 is 180 million metric tons. Municipal wastewater treatment sludge, is currently being generated at the rate of roughly 5 million tons (dry weight) per year by the Nation's 18,000 municipal wastewater treatment plants. This amount will probably double in the next 8 to 10 years as communities upgrade wastewater treatment to meet pollution control standards.

Hazardous Wastes

EPA reportedly has on file over 400 cases of acute or chronic injuries to health, environmental pollution, and economic losses resulting from improper hazardous waste management. EPA believes that based on the haphazard way in which most of these cases have come to light, the majority of such cases have gone unreported. Damages resulting from land disposal of hazardous wastes have occurred through six major routes: ground water contamination via leachate;

surface water contamination via runoff; air pollution via open burning, evaporation, sublimation, and wind erosion; poisoning via direct contact; poisoning via the food chain; and fire and explosions.

Of the cases related to hazardous waste disposal that have been documented by EPA, the majority are related to ground-water contamination. A study by EPA to investigate the presence of ground-water contamination resulting from subsurface migration of hazardous constituents of land-disposed industrial wastes was completed in 1977. Of the 50 sites sampled, 43 showed migration of heavy metals and/or organic chemicals into ground-water. It is estimated that up to 90 percent of industrial hazardous waste is being disposed of by the same methods that have produced the damages documented to date.

Radiation

Individual exposures to ionizing radiation result from naturally-occurring sources, from mining and manufacturing processes, from medical applications of radiation and radioactive materials, and from a variety of other sources in the environment and the work place. Currently an estimated 20,000 serious health effects--cancers and serious genetic defects--are caused annually by natural, medical, and occupational radiation exposure.

Most of the potential health effects from natural exposures result from unavoidable radiation and radioactive materials in air, water, foods, and land. However, an estimated 100 to 500 possible health effects per year resulting from exposures to naturally-occurring radioactive materials due to industrial processes can be avoided through various control measures. Improved medical practices in the use of x-rays could avoid an additional 3,000 health effects each year and at a reported significant savings in the cost of medical care.

ISSUES FOR CONSIDERATION

There is a need to determine whether Federal efforts are successfully identifying and removing from the environment toxic substances and other dangerous pollutants which pose unreasonable risks to human health and the environment.

In order to accomplish this, there should be an assessment of whether:

-- Federal toxic substances and pesticides programs are being effectively implemented to protect humans and the environment against unreasonable exposure to poisonous chemicals and pesticides, and

--populations living in certain high risk areas (such as near chemical and pesticide plants) are exposed to harmful levels of toxic substances.

REPORTS ISSUED

The following reports have been issued since May 1977.

Reports	Date
Waste Disposal Practices--A Threat to Health and the Nation's Water Supply	CED-78-120 6/16/78
Efforts by the Environmental Protection Agency to Protect the Public from Environmental Nonionizing Radiation Exposures	CED-78-79 3/29/78
Unnecessary and Harmful Levels of Domestic Sewage Chlorination Should Be Stopped	CED-77-108 8/30/77
Nonionizing Radiation Exposures Involving Public Health and Environmental Protection	CED-77-95 7/06/77
Potential Harmful Effects of Sewage Sludge Disposal on Agricultural Land	CED-77-78 5/23/77
Use Of Agent Orange In Vietnam	CED-78-158 8/16/78
Hazardous Waste Management Programs Will Not Be Effective: Greater Efforts Are Needed	CED-79-14 1/23/79

CURRENT ASSIGNMENTS

Review of potential dangers from pesticide use in the home

Review of selected pesticide regulatory programs

Review of the long-term effects of exposure to Agent Orange in Vietnam

Survey of disposal practices for pathologic and infectious wastes

ARE RESEARCH AND DEVELOPMENT PROGRAMS EFFECTIVE IN SUPPORTING ENVIRONMENTAL PROTECTION ACTIVITIES?

Research and development is an essential element of the attack on environmental pollution. Sound scientific data gathered through research and development is necessary to support efforts to develop effective pollution control strategies and reasonable environmental standards. The Congress has expressed interest and concern about environmental research and development, and prior GAO work as well as studies by other organizations, have identified issues and problems in this area.

Priority attention should be given to evaluating research and development activities which provide the data for decisionmaking in promulgating environmental regulations and improving environmental quality.

BACKGROUND AND ISSUE ANALYSIS

Environmental Standards and Regulations Are Not Always Based on Sound Research and Development

Standards and regulations are needed to protect environmental quality. However, the Federal Government has often been embroiled in controversy because of its regulatory strategies.

Industry complains about the adverse economic impacts of some environmental regulations. On the other hand, environmentalists complain that some of the same requirements are too lenient and allow continued environmental deterioration. In many cases, a sound scientific base for regulatory action is not available for support of either position.

Prior GAO reviews and studies by other organizations, including EPA have shown that environmental standards and regulations are not always based on sound research and development and that improvements are needed in the correlation of the research and development effort and the regulatory process.

In a June 1978 report to the President and the Congress on the planning and management of EPA research and development, EPA admitted that it lacked (1) a coherent research strategy which related program objectives and priority to research activities, and (2) a responsive research program to support regulatory needs.

In January 1974 GAO reported pursuant to special statute that EPA needed to improve its research and development strategy and make its research and development program more responsive to the operating program on controlling water pollution. In December 1975 GAO reported that much more research was needed on the health and ecological effects of air pollutants to support adequately and/or modify present national air quality standards and motor vehicle emission standards, and to identify and set standards for other pollutants.

Environmental Research And Development Needs To Focus More On Reducing The Cost Of Protecting And Cleaning Up The Environment

The decisions to provide a reasonable balance of social and economic goals and environmental quality must be supported by hard scientific data developed through research and development. Industry claims that much of its environmental research and development money is spent defensively to protect its interests. Means must be found to move industry into a cooperative role rather than an adversary position. One step would be to provide a more sound research base for developing environmental standards and regulations, keeping the economic interests of industry and the general public in mind.

In a January 1974 report, GAO recommended that EPA place greater emphasis on developing and demonstrating new processes and techniques to minimize the cost of municipal water pollution control. In an August 1976 report on the EPA environmental research outlook, the Office of Technology Assessment (OTA) reported that EPA's first 5-year environmental research and development plan did not pay sufficient attention to social, economic, and institutional patterns which affect technical solutions to environmental problems. OTA recommended that EPA include in its research and development planning more systematic and sustained socio-economic research efforts.

Environmental Research And Development Needs More Effective Coordination And Technology Transfer

Many Federal agencies, States and local governments, industry, colleges and universities, and other profit and nonprofit institutions are engaged in environmental research and development. The magnitude of the research and development effort required to combat pollution, the number of organizations involved, and the amount of money required and

expended, point to the need for an effective coordination effort as well as an adequate means of transferring technology among the various organizations.

During fiscal year 1978, the Federal Government expenditures for environmental research amounted to about $1.8 billion by more than a dozen agencies.

Federal research and development efforts are supplemented by scientific and technical research in industry, colleges and universities, States and local governments, and elsewhere. EPA is the focal point for environmental issues, including research and development, in the United States, and is the primary organizational entity in the Federal Government for the control of environmental pollution. EPA has been given authority for the conduct of research and development programs, including research support for environmental aspects of energy development, in the annual appropriations acts and 11 specific acts passed by the Congress. EPA's Office of Research and Development functions as the principal scientific component of EPA with the mission of producing scientific data and technical tools on which the Agency can base sound national environmental policy and develop effective pollution control strategies and reasonable environmental standards. This office also supports EPA's involvement in international organizations with mutual research and development concerns. EPA's fiscal year 1978 appropriation for research and development was $321 million and is likely to be nearer to $400 million annually for the next 2-years.

EPA, however, may never have the financial resources to perform or sponsor all the research needed to support its responsibilities, in which billions of dollars and the quality of life are at stake. However, if protecting the environment is accorded a status commensurate with the impacts of environmental problems on public health and welfare, it is necessary to marshall more of the national research and development effort than can be handled by EPA alone. Environmental research and development should be pursued, coordinated, and the technology transferred among Government, industry, academic and other nonprofit institutions, and the general public. Such coordination could and should evolve into a national strategy for environmental research and development.

In a March 1977 report, the National Research Council recommended that a Federal-level research, development, and demonstration strategy be developed that would include (1) designation of the appropriate roles of all participating Federal agencies and existing coordinating committees, and

(2) delineation of the relationships between Federal and non-Federal research and development.

A comprehensive national strategy could include the above elements but could also be expanded to require (1) determination of the research needed to accomplish established and potential national environmental goals (2) evaluations of the scientific strengths and limitations of potential participants in the research effort, and (3) development of a strategy for acquiring the needed research based on the needs for research and the capabilities of all potential participants, including EPA. Once a strategy has been determined, EPA and other participants should establish appropriate research programs to implement it.

In addition to coordination needed among the various organizations involved in environmental research and development, coordination is needed between environmental research and development in other areas such as energy and water quantity. Although much of the Federal research effort is directed at water quality, the cleaning of our Nation's water would make more water available to meet competing demands for its use.

Coordination is also needed among the various environmental fields such as air, water, and noise pollution as well as radiation, pesticides, and toxic substances. Such coordination is necessary in order to prevent improvements in one area from causing problems in other areas--such as improvements in solid waste disposal increasing water pollution.

Environmental Research and Development Activities Need to Include More Long-Range and Anticipatory Research

The Congress has expressed a special concern about long-term anticipatory environmental research and believes that EPA, in addition to performing research and development to alleviate present environmental problems and respond to sudden and unanticipated environmental crises, should be responsive to longer-range concerns. EPA's research and development plans have been found to include little commitment to long-range research, especially environmental management research.

In August 1976 OTA reported that EPA's 5-year plan did not indicate a clearly defined commitment to long-range environmental research. The report showed that EPA's focus

on the short-term prevented it from exercising national leadership in environmental research, and also made it difficult to conduct useful policy analyses addressing long-range environmental concerns. According to OTA, some of the questions that need to be addressed through long-range environmental research and development are:

--Can control technologies reduce pollution fast enough to keep pace with economic growth?

--Can major shifts in economic activities, such as new industries, be made compatible with environmental quality?

--What balance can be struck between research on pollution affecting people today and those that could affect future generations through genetic mutations or gradual changes in the environment?

Federal Environmental Research and Development Efforts Need To Be More Effective, Efficient, and Economical

Prior GAO reports and studies by other organizations have shown that improvements are needed in the effectiveness, efficiency, and economy of Federal environmental research and development efforts. GAO has reported on the need for better management and control over scientific equipment and ways to achieve full utilization of EPA research and development laboratories. In addition, EPA and other organizations have reported on problems associated with uneven research quality, utilization of skilled research and development personnel, administrative support for research and development activities, and management of contracts for extramural research and development.

ISSUES FOR CONSIDERATION

Some of the more important matters which should be considered in addressing environmental protection research and development issues include whether:

--environmental research activities adequately support standards and regulations for controlling harmful pollution;

--research activities pay sufficient attention to reducing the cost of protecting and cleaning up the environment;

--effective coordination exists to foster technology transfer and to prevent overlapping and duplicating environmental research efforts among the many Federal, State, and private entities conducting environmental research;

--environmental research activities have a sufficient long range or anticipatory outlook so that potential environmental problems may be identified and actions taken to resolve them before they become "the current crisis"; and

--environmental research activities are conducted in the most effective, efficient, and economical manner.

REPORTS ISSUED

The following reports, completed after January 1, 1977, addressed environmental research and development.

Reports	Date
Actions Taken or Planned by the Environmental Protection Agency to Implement Recommendations in Two Contractor Reports on the Development and Use of Innovative Technology in Municipal Wastewater Investment	CED-78-69 3/07/78
Reuse of Municipal Wastewater and Development of New Technology--Emphasis and Direction Needed	CED-78-177 11/13/78

CURRENT ASSIGNMENTS

Evaluation of the supporting infrastructure provided for EPA in-house research activities

Evaluation of the management of EPA's extramural research efforts

CHAPTER 4

OTHER ISSUES

In addition to the six issues designated for priority attention in chapter 3, five other issues need to be considered. Brief descriptions of these issues are set forth below.

IS IMPLEMENTATION OF THE NATIONAL ENVIRONMENTAL POLICY ACT EFFECTIVE?

Implementation has not been fully effective. All too often, environmental impact statements are not completed in time to be used effectively in the decisionmaking process. As a result, major decisions are made to start designing or constructing public works projects without adequate knowledge of their environmental effects. This tends to relegate environmental impact statement preparation to a perfunctory task of little real value rather than an aid in agency decisionmaking.

The Act requires Federal agencies to disclose and consider environmental impacts together with economic and technical factors before taking action. Specifically, the Act requires impact statements on "* * * every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment * * *." The determination of "major" and "significant" is to be made by the Federal agencies themselves. The impact statement assures the Congress that an agency has considered environmental factors and has documented their importance well before major Federal action is taken.

In preparing impact statements, agencies are required to consider:

--the environmental impact of the proposed action.

--any adverse environmental effects which cannot be avoided, should the proposal be implemented.

--alternatives to the proposed action.

--the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity.

--any irreversible and irretrievable commitments of resources involved in the proposed action.

The Act allows each agency to determine its own procedures for implementing the requirements, does not specifically prohibit Federal agencies from taking whatever action they believe is best, and provides no penalties for disregarding its terms. In essence it says: Look before your leap.

GAO has issued three reports since January 1, 1977.

Reports	Date
Congressional Guidance Needed On The Environmental Protection Agency's Responsibilities For Preparing Environmental Impact Statements	CED-78-104 9/13/78
Environmental Reviews Done By Communities: Are They Needed? Are They Adequate? Department of Housing and Urban Development.	CED-77-123 9/01/77
The Environmental Impact Statement--It Seldom Causes Long Project Delays But Could Be More Useful If Prepared Earlier	CED-77-99 8/09/77

ARE FEDERAL FACILITIES COMPLYING WITH ENVIRONMENTAL STANDARDS?

Executive Order 11752 dated December 17, 1973, states that the Federal Government shall provide leadership in the nationwide effort to protect and enhance the quality of our air, water, and land resources through compliance with applicable standards for prevention, control, and abatement of environmental pollution in full cooperation with State and local governments. It requires the head of each Federal agency:

--to ensure that facilities under his jurisdiction are designed, constructed, operated, and maintained to comply with Federal and State water quality standards, and

--to present a plan each year to the Director of the Office of Management and Budget for improvements necessary to meet Federal, State, interstate, and local water quality standards and effluent limitations.

On October 13, 1978, the President reemphasized the U.S. commitment by issuing Executive Order 12088 requiring Government agencies to ensure that Federal facilities comply with all Federal, State, and local pollution control standards.

The Department of Defense (DOD) which has about 560 major Army, Navy, and Air Force installations in the United States, is the most significantly affected by this requirement. However, DOD installations create only about 2 to 5 percent of pollution in the United States. GAO has conducted various reviews at DOD where environmental protection was designed as a secondary issue and recently issued An Assessment of DOD's Pollution Control Progress and Future Cost, January 26, 1979, LCD-79-303.

IS THE U.S. PROMOTING WORLDWIDE POLLUTION ABATEMENT ACTIONS?

Awareness of the effects industrialization and economic development have on the environment is increasing throughout the world. Many developing countries have expressed concern about the environmental effects which accompany industrial development. While development and use of the Earth's natural resources improve the quality of life, it also causes environmental damage. Thus, it is increasingly important that all Nations cooperate in protecting the environment and using the Earth's resources as wisely as possible.

The United States has taken steps to protect the environment by working with other countries. For example, bilateral agreements in the environmental field have been developed with several countries, including Canada, Japan, Mexico, the European Communities, Russia, and the Federal Republic of Germany.

Currently, GAO has one ongoing review dealing with the import-export of pesticides and the Environmental Protection Agency's notification of importing countries about possible adverse effects caused by some imported pesticides.

ARE EFFORTS BEING MADE TO RECYCLE, REUSE, AND CONSERVE NATURAL RESOURCES THROUGH ENVIRONMENTAL PROGRAMS?

To date, efforts to recycle, reuse, or otherwise conserve our natural resources through environmental programs have been virtually nonexistent or ineffective. The primary reasons for this are that such efforts (1) have not been encouraged and (2) have generally been perceived by the American public in a negative manner--especially, recycling our most precious resource: water.

The Nation's rapid march toward industralization and urbanization, as well as ever increasing dependence on technology, have seriously depleted our natural resources. In addition, the development of the United States while

providing a better standard of living has also created environmental problems as well; air and water pollution for example. Environmental protection, one of our highest national priorities, is designed to protect and conserve our natural resources for ourselves and our posterity. It is imperative, therefore, that environmental programs foster recycling, reusing and/or conserving as much of our natural resources as possible.

The potential for such an effort is tremendous. Water, metals, minerals, trees, and other natural resources are being depleted or environmentally damaged because of our technological society. Recycling or reuse of wastewater serves as the best example. Wastewater could be reused for industrial purposes, irrigation, land reclamation or recreational purposes. However, recycling or reuse of water has always been viewed as undesirable by the American public. Recent severe droughts throughout the United States may necessitate a change in this attitude though.

ARE ENVIRONMENTAL EDUCATION EFFORTS EFFECTIVE?

Educating the public on the importance of environmental protection effort is vital if the Nation is to meet its goal to clean up the environment. To date, attempts to achieve this goal have resulted in more and more regulations and increased restrictions and little environmental education. These attempts will not be completely effective unless the public is educated as to the very real need to protect the environment for ourselves and future generations. In fact, without an environmental education program, such attempts may be counterproductive because they inflame the public's resentment toward the Federal Government and its intrusion into the lives of U.S. citizens.

To educate the public on the problems of environmental quality and ecological balance, the Environmental Education Act was enacted on October 31, 1970. The Office of Environmental Education in the Office of Education, HEW, operates the program. Basically education efforts to date have been in the form of grants to support research, demonstration, and pilot projects.

Activities included in such projects include:

--developing new and improved curriculum materials;

--initiating and maintaining environmental education in elementary and secondary schools;

--disseminating curriculum materials and other information for use in education programs;

--supporting training programs for teachers, education personnel, public servants, private industry personnel, and Government employees;

--supporting community education programs and plans for outdoor study centers for ecology; and

--preparing and distributing environmental ecological material by mass media.

Education efforts under the program have not been extensive, however, because project funding has been light. Between fiscal year 1971 and 1976, only 560 grants totaling $15.6 million were funded out of $85 million authorized. In fiscal year 1976 only 90 grants were awarded from among 1,154 applications, 300 of which were considered to be in the fundable range.

APPENDIX I

Senate and House Committee Subject Areas

(subject areas overlap but this list gives a general idea)

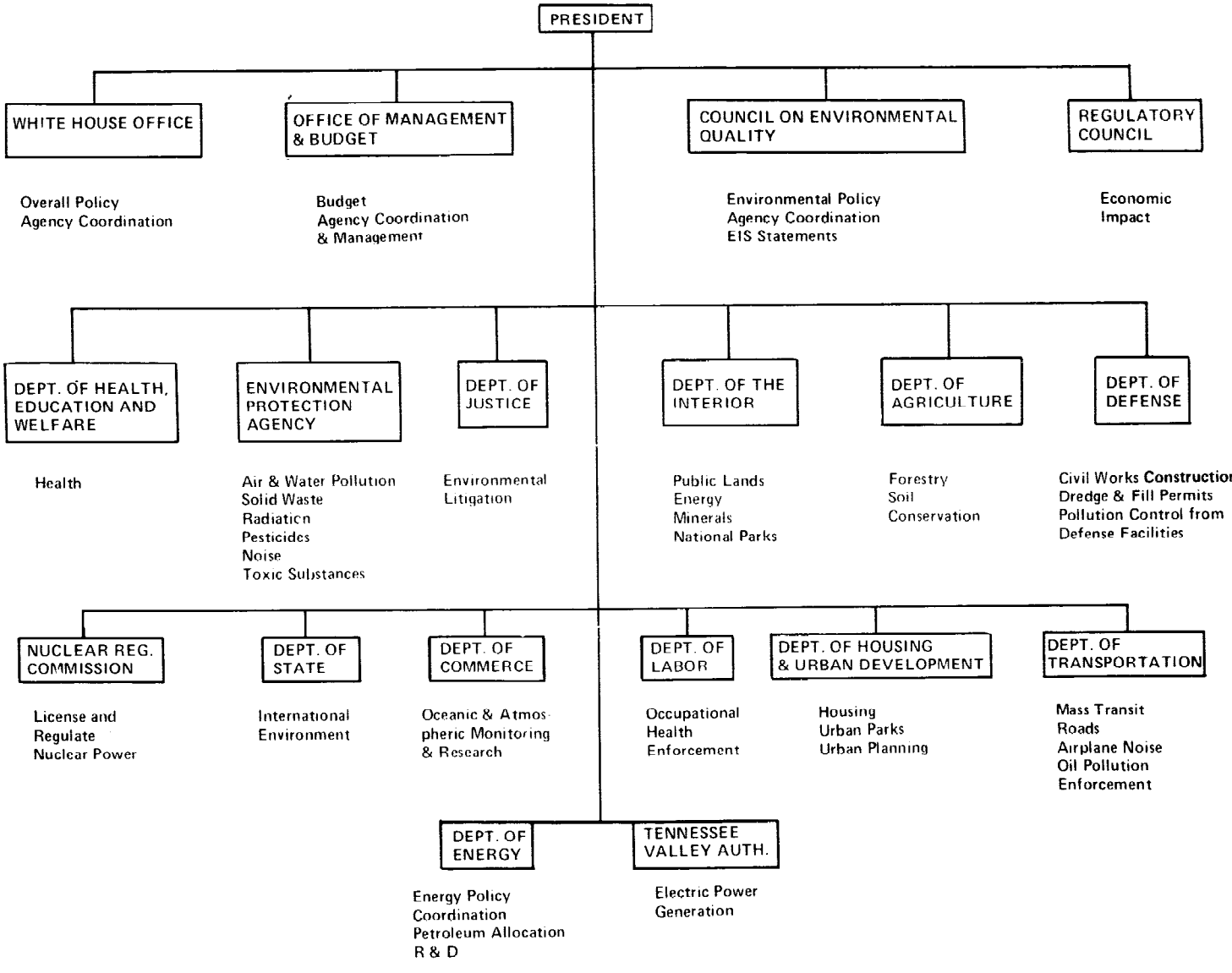
Senate

Committee on Agriculture, Nutrition & Forestry	pesticides
Committee on Appropriations	appropriations
Committee on Budget	budget
Committee on Commerce, Science and Transportation	oceans radiation (R&D) toxics
Committee on Energy & Natural Resources	Alaskan pipeline conservation oversight energy budget mines oil shale outer continental shelf strip mining
Committee on Environment & Public Works	air drinking water noise nuclear energy ocean dumping outer continental shelf R&D solid waste toxics water
Committee on Foreign Relations	international matters
Committee on Governmental Affairs	interagency subject area
Committee on Human Resources	public health DNA

APPENDIX I

Select Committee on Small Business	impact of environmental regulations on small business
House	
Committee on Agriculture	pesticides
Committee on Appropriations	appropriations
Committee on Budget	budget
Committee on Government Operations	interagency subject area
Committee on Interior and Insular Affairs	Alaskan pipeline conservation oversight energy budget mines oil shale outer continental shelf radiation (NRC over-sight) strip mining
Committee on International Relations	international matters
Committee on Interstate & Foreign Commerce	air drinking water noise radiation(transporta-tion & disposal) solid waste toxics
Committee on Merchant Marine & Fisheries	ocean dumping
Committee on Public Works & Transportation	noise nuclear energy water
Committee on Science & Technology	R&D
Committee on Small Business	impact of environmental regulations on small business
Ad Hoc Select Committee on Outer Continental Shelf	outer continental shelf

MAJOR EXECUTIVE BRANCH AGENCIES WITH ENVIRONMENTAL RESPONSIBILITIES



APPENDIX II

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