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STUDY BY THE STAFF OF THE U.S.

General Accounting Office

Environmental Protection: Agenda For The 1980's

Pollution of the Nation's air, land, and water resources has been a major concern in the United States for many years. Since the 1970's, environmental legislation has substantially enlarged and strengthened the regulatory and subsidy parts of Federal environmental policy. Periods of high inflation and unemployment, however, have prompted questions on whether environmental protection 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 environmental protection activities and discusses the perspective used in organizing GAO audit efforts.



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FOREWORD

Environmental pollution affects the daily lives of all Americans in some form or manner. Excessive pollutants introduced into the environment have an adverse impact on environmental quality, on human health, and on other factors important to human life. The United States has made major efforts to control pollution since the early 1970s and has realized some significant accomplishments. But there have also been shortcomings--certain environmental problems continue to persist and grow worse while new ones continually appear. Recent environmental disasters involving such things as hazardous waste dumps, pesticide contamination, dying lakes, and radiation releases have made the public increasingly aware of the major health hazards associated with pollution of our natural resources.

This staff study has been prepared as part of our continuing reassessment of areas of national concern and interest and identifies environmental protection problems and issues most in need of attention. This study will influence the scope and direction of our audit efforts involving pollution control programs and activities. The discussions may also be helpful to others in obtaining a better understanding of the critical environmental issues facing the Congress and the Nation.

Questions on the content of this study should be directed to Sam A. Madonia, Planning Director/Environment, on (202) 275-5165.

A handwritten signature in cursive script that reads "Henry Echwege".

Director, Community and Economic
Development Division

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ABBREVIATIONS

CEQ	Council on Environmental Quality
CRS	Congressional Research Service
EDA	Economic Development Administration
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FmHA	Farmers Home Administration
GAO	General Accounting Office
HUD	Department of Housing and Urban Development
NEPA	National Environmental Policy Act
PCB's	Polychlorinated biphenyls
RCRA	Resource Conservation and Recovery Act
SIP	State implementation plan
TSCA	Toxic Substances Control Act

CHAPTER 1

ENVIRONMENTAL PROTECTION OVERVIEW

Environmental protection encompasses issues and problems relating to the management of our natural environment by placing limits on the amount of pollution that can be tolerated without endangering the health and welfare of human beings and the ecological systems in which we live.

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, smog and other air pollution problems that characterize our major cities, poisonous pesticides, toxic substances, unsafe drinking water, hazardous wastes, radiation, congestion, and noise. All of these pollutants detract from our quality of life to some degree, but more importantly, they can have significant adverse effects on human health.

According to the Council on Environmental Quality (CEQ), pollution control and environmental quality expenditures of about \$735 billion will be required over the next decade by taxpayers, consumers, industry, and municipalities. In fiscal year 1981, the Federal Government spent about \$12 billion for environmental programs to protect the environment and conserve the Nation's natural resources.

The dominant Federal agency responsible for implementing environmental protection legislation and programs is the Environmental Protection Agency (EPA), which administers regulatory and financial assistance programs. EPA's fiscal year 1981 funding totaled about \$3.7 billion. In addition, CEQ provides overall advice and guidance to the President on environmental matters and issues regulations to Federal agencies for implementing the National Environmental Policy Act (NEPA).

ISSUES NEEDING ATTENTION

We have identified eight environmental protection issues deserving attention which are discussed in chapters 2 through 9. Several issues must be addressed on an individual program-by-program basis. The first six issues--dealing with hazardous waste, water pollution, construction grants, air pollution, pesticides, and drinking water--reflect this approach. In addition, we identified issues which cut across the many environmental programs. The last two issues--dealing with regulatory strategies and Environmental Impact Statements--reflect this broad-based approach. We have categorized our reviews among the eight issues according to the major thrust of the review, recognizing that a particular effort could overlap and touch on more

than one issue. The issues needing attention are as follows:

1. Have Federal and State programs been effective in reducing the environmental and health dangers posed by hazardous and solid wastes?
2. Are water pollution control activities and programs being carried out in the most effective manner?
3. Is adequate fiscal and management integrity of the construction grants program possible with existing controls and resources?
4. How well has the Clean Air Act worked and what will be the effect of changes to the act?
5. How can the regulation of dangerous pesticides and chemicals be improved?
6. Are the Nation's drinking water supplies safe?
7. Are environmental protection regulatory strategies effective and has the proper balance been struck with other national priorities?
8. Has the environmental impact statement process provided an effective framework for addressing the Nation's environmental problems?

Our strategy for selecting the major environmental issues included consideration of several important factors:

--Past experience: We evaluated our prior work in the environmental area over the past 4 years. These evaluations have disclosed serious problems with EPA's management of pollution control programs. Our past experience has demonstrated that we must address both (1) the public health and public protection issues related to pollution control programs and (2) the economy and efficiency issues related to the billions of dollars in grants provided to State and local governments for environmental protection.

--Administration initiatives: We considered the recent efforts of the administration to change the focus of Federal involvement in environmental programs. The new environmental philosophy is predicated on less regulation and on more flexibility for industry to meet environmental goals while maintaining economic stability. We also considered the administration's emphasis on transferring more authority and responsibility to the States for managing environmental programs.

--Congressional needs: We gave special attention to the concerns of the Congress and to providing oversight committees with timely evaluations of environmental issues under deliberation. In this regard, the Clean Air Act and the Federal Water Pollution Control Act will be undergoing reauthorization over the next several months.

LONG-TERM TRENDS

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 legislation enacted by the 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.

Recently, however, the Congress and the administration have begun to reevaluate the Federal role in environmental protection activities. Major reductions in some Federal programs have been proposed. But as cutbacks in some areas are being effected, other activities are experiencing increased Federal involvement and funding. The controlling of hazardous waste received renewed emphasis in 1980 with the passage of the \$1.6 billion "Superfund" law. The administration is continuing to highlight hazardous waste as perhaps the most critical environmental problem in the United States.

Because environmental protection is not an exact science, it will continue in the future to be affected by a variety of outside factors--including both economic and political. During the remainder of the 1980's and beyond, the environmental movement in the United States will become highly controversial and will be heavily influenced by such factors as the socioeconomic impact of environmental regulations and the need to find alternative approaches to regulation. In addition, as our knowledge base widens, the Nation will become increasingly concerned with broader, global environmental protection issues. These long-term trends are highlighted in the following discussion.

Economic impact of environmental regulations

The Nation has embarked upon an ambitious regulatory and financial assistance 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. However, decisionmakers are raising significant questions 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 problem coupled with a period of high inflation and unemployment has led to a general reexamination of our pollution control goals and strategies.

We have a growing belief in the United States that there is a definite lack of flexibility in much of the environmental legislation and that economic considerations are not adequately presented. It is far easier to calculate the costs of pollution abatement than the benefits. 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 esthetic factors that resist quantifying. Therefore, it is largely unknown whether the costs of complying with environmental protection standards and requirements will exceed benefits. In the future, proposed environmental regulations will be subjected to close scrutiny to determine their impact on taxpayers, consumers, industry, States, and cities.

Alternative approaches to environmental regulation

The strategy to control environmental pollution has centered on national, uniform technology-based standards. For example, if pollution control technology 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.

This approach has resulted in major battles with industry on one side, environmentalists on the other side, and Government somewhere in the middle. Much of EPA's resources have gone into defending the Agency against scores of lawsuits, brought both by environmentalists seeking sterner enforcement and by companies seeking relief from what they regard as arbitrary interpretations of the statutes.

In the future, attention needs to be given to identifying innovative and alternative regulatory strategies which may be more effective and equitable. To overcome problems with current regulatory strategies, efforts are underway to replace them with economic incentives, such as imposing emission and effluent fees on polluters, assessing charges for failure to meet abatement schedules, and creating air pollution "rights" which can be traded and sold by industry.

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 becoming felt over increasingly larger distances and have become global in character. Polluted air and water respect no national boundaries.

During the next decade and beyond, increased attention will be placed on much broader environmental problems that may have a devastating effect on the quality of life in the world. For example:

- Acid rain: Precipitation can become acidified when sulfur and nitrogen oxides emitted by fossil-fueled power plants, vehicles, and other manmade or natural sources are chemically changed in the atmosphere and return to Earth as acid compounds. A major controversy has ensued over the potential impacts of acid rain on the environment and public health.
- Greenhouse effect: The buildup of carbon dioxide (a product of fossil fuel combustion) in the atmosphere produces the greenhouse effect: heat that would otherwise radiate into space becomes trapped, producing an increase in global temperatures and many resultant environmental problems. Such a phenomenon could change agricultural production; shift the locations of grasslands, forests, and deserts; and cause changes in oceanic circulation.
- Ozone depletion: 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. Some scientists believe depletion of the ozone layer could lead to a higher incidence of skin cancer and to changes in the Earth's climate.

The long-term trend is clearly toward reducing the environmental regulatory burden on the Nation, particularly on industry. However, it is not clear exactly how the burden will be eased and what types of relaxation in environmental regulations will be permitted.

What is clear is that there is continued strong support for environmental protection programs in the United States, as evidenced by recent public opinion polls. Therefore, the issue is not whether environmental regulations are necessary, but rather:

- What levels of controls are needed?
- How do we balance environmental protection with other equally desirable national goals?
- How do we maximize the impact of the billions of dollars spent on environmental controls?

Thus, we will have to devote future resources not only to evaluating the effectiveness of environmental protection programs,

but more importantly to identifying the economic impact of environmental regulations on the public and private sectors and to evaluating alternative, less costly approaches to regulatory controls. We can help the Congress to improve the economy and efficiency of the various Federal programs.

CHAPTER 2

HAVE FEDERAL AND STATE PROGRAMS BEEN EFFECTIVE IN REDUCING THE ENVIRONMENTAL AND HEALTH DANGERS POSED BY HAZARDOUS AND SOLID WASTES?

MAJOR ISSUES

Annually the United States generates over 350 million metric tons of industrial wastes (including 50 to 60 million tons of hazardous wastes), 130 million metric tons of municipal refuse, 5 million metric tons of sewage sludge, 430 million metric tons of agricultural wastes, and over 3 billion tons of mining waste. The amounts tend to grow with increasing population, consumption, and production and the greater amounts of pollutants being held back from discharge into rivers, lakes, oceans, and the air as a result of increasingly stringent air and water pollution controls. Serious environmental, public health, economic, and administrative problems are associated with the management of these wastes.

Solid wastes, including hazardous wastes, are the residue of industrial production and consumption. They include: (1) sludges resulting from the treatment of municipal sewage, (2) household garbage, (3) automobiles and appliances that have served their useful life, (4) wastes from industrial operations, agriculture, mining, and other mineral- and energy-producing processes, and (5) general litter. According to EPA, only about 10 percent of hazardous wastes are disposed of in an environmentally sound manner.

The levels of recovery, recycling, and other forms of waste utilization have been low in this country compared with potential recovery achieved by some other industrialized nations. EPA estimates that about 8 percent of the municipal solid waste stream was being recovered in 1977--about 7 percent through source separation at the point of generation and 1 percent through mixed waste processing, which is generally based on energy recovery. Several West European countries process 20 to 60 percent of their municipal solid waste for energy recovery. A number of interrelated factors have held back more rapid expansion of resource recovery. For example, the traditional forms of waste disposal, dumping or land-filling, have generally been cheap in this country, at least in terms of direct costs. Environmental damage has been ignored, and compared with many European countries, land has been plentiful. In addition, national policies have encouraged the use of virgin resources.

As land disposal becomes more difficult and resources more costly, however, many U.S. communities are now turning to resource recovery systems, which can greatly reduce the amount of

wastes requiring land disposal while contributing to resource supplies. EPA projects that by 1985, 10 to 15 percent of municipal solid waste may be processed for energy recovery. Wastepaper collection and other recycling programs are also on the increase at present, particularly in the Northeast and California. The most common method of disposing of solid wastes in the United States is by landfill. Wastes are also scattered on land by a process called land farming in order to incorporate them into the surface soil and to reduce their hazardous aspects. Surface impoundments--the storage, treatment, and disposal of liquid and semisolid wastes in lagoons and holding in aeration ponds--is another type of on-land disposal. Liquid wastes can also be injected directly into the ground for ultimate disposal by means of wells.

There is also a growing concern that landfills are polluting our ground waters, and the public is rebelling against the establishment of waste disposal sites. EPA has estimated there are about 250,000 various types of on-land disposal sites in the United States. It has also stated that as many as 51,000 sites may contain hazardous wastes, of which 1,200 to 2,000 could pose potential danger to health and/or the environment. Love Canal and Valley of the Drums are two examples of the damage that can be caused by the improper management of hazardous wastes.

In 1976 the Resource Conservation and Recovery Act (RCRA) was enacted to improve solid waste management in order to protect public health and the environment and conserve valuable material and energy resources. The major objectives of the act are:

- Regulation of the management of hazardous wastes from point of generation through disposal, by EPA or by State programs authorized by EPA.
- Regulation of the disposal on land of all other solid wastes by the States in accordance with minimum Federal criteria.
- Establishment of resource recovery and conservation as the preferred solid waste management approach.

The act requires or authorizes a number of activities directed toward achieving these objectives: Federal regulations and guidelines; financial and technical assistance to State and local governments; research, demonstrations, and studies; and public participation and education.

Various congressional committees have expressed their concern regarding the waste disposal problem. Statements have been made that over the next 10 to 20 years the solid and hazardous waste problem is the single most threatening environmental issue facing the country.

To deal with the cleanup problems posed by closed, abandoned, or inactive sites, the President signed on December 11, 1980, the \$1.6 billion "Superfund" law. Superfund was conceived from the need for a revolving fund that would allow the Federal Government to clean up hazardous waste sites first, then try to recover the costs of such cleanup later from the responsible parties. The legislation enables the Government to move in and protect public health by cleaning up problem sites before, not after, time-consuming litigation.

WHY SELECTED FOR PRIORITY ATTENTION

Strong congressional interest and oversight of the hazardous and solid waste areas will continue well into the future. The amount of hazardous and solid waste being generated is quite large and is increasing each year. Billions of dollars are being spent to collect and dispose of this waste. Initial regulations under RCRA to provide for increased controls over the future generation and disposal of hazardous and solid waste have been promulgated and others are planned. Also, the Superfund legislation is to provide new funding and legal authorities to clean up problem sites resulting from past improper disposal practices. If both pieces of legislation are effectively implemented, they would go a long way toward solving the Nation's waste disposal problem. We should, therefore, continue to give priority attention to evaluating the implementation of the programs provided for under these acts.

GAO REVIEWS

We intend to evaluate (1) how effective and successful Federal and State programs have been in reducing environmental and health dangers posed by solid and hazardous wastes and (2) what alternatives need to be developed or emphasized in the future. The following questions need to be addressed:

1. Are available funds providing cost-effective, economical, and efficient cleanup solutions to the problems caused by past uncontrolled disposal practices and do funding limitations preclude more effective and complete cleanup activity?
2. Have Federal, State, and industry efforts been effective in demonstrating cost and environmental advantages of conservation and recovery programs as opposed to disposal options?
3. Are Federal and State facility permitting, inspections, manifest documentation, monitoring, and enforcement programs providing for effective and proper disposal of hazardous wastes?

Current reviews

- Review of the Hazardous Substance Response Plan.
- Assessment of Federal procedures and controls to clean up two hazardous waste sites.

Recent reports

"Hazardous Waste Disposal Methods: Major Problems With Their Use" (CED-81-21, Nov. 19, 1980).

"Assessment of Grant Expenditures To Fund New Jersey Interagency Toxic Waste Investigations/Prosecutions Programs" (CED-81-50, Jan. 16, 1981).

"Hazardous Waste Sites Pose Investigation, Evaluations, Scientific, and Legal Problems" (CED-81-57, Apr. 24, 1981).

"Solid Waste Disposal Practices:--Open Dumps Not Identified --States Face Funding Problems" (CED-81-131, July 23, 1981).

"Hazardous Waste Facilities With Interim Status May Be Endangering Public Health and the Environment" (CED-81-158, Sept. 28, 1981).

"Information on a Hazardous Waste Facility Containing Chromium Lead Sludge" (CED-82-13, Nov. 9, 1981).

CHAPTER 3

ARE WATER POLLUTION CONTROL ACTIVITIES AND PROGRAMS

BEING CARRIED OUT IN THE MOST EFFECTIVE MANNER?

MAJOR ISSUES

Our Nation's water quality goals are clearly set--by July 1983, they provide that sufficient water quality be attained for protecting fish, shellfish, and wildlife and for recreation (the "fishable/ swimmable" goal) and that by 1985, pollutant discharge into all navigable water be eliminated. These ambitious goals were established by the Water Pollution Control Act of 1972 and reinforced by the Clean Water Act of 1977.

To assist municipalities in meeting the goals, the Congress established various water pollution control programs, including the wastewater treatment construction grants program. The Congress has authorized \$52 billion and appropriated \$38 billion as of fiscal year 1981. A total of \$13 billion remains in the pipeline to be expended after 1981. From these funds, EPA makes grants for 75 to 85 percent of eligible costs of planning, designing, and constructing municipal wastewater treatment and collection facilities. Other moneys have been appropriated for such activities as area-wide planning and for State administration of water pollution programs.

As the 1972 act requires, EPA has transferred to the States many review and approval functions under the construction grant program. The administration has continued to press for more State involvement, but whether the States have the resources and the inclination to effectively carry out these responsibilities remains to be seen.

The national water pollution control effort during the past decade has shown positive results. Improvements have occurred in many waterways, largely due to better control of pollution from industry and municipal wastewater treatment plants. But the Nation is still a great distance away from meeting the goals established by the acts. Few areas in the country are completely free of water quality problems. This overall lack of significant water quality improvement raises serious questions about the program's ability to meet its legislated objectives. Some reasons for this are fairly obvious, and future problems are becoming more evident as our knowledge and understanding increase.

--Nonpoint pollution can have a negative impact on the billions of dollars that are being spent to abate point sources of pollution. But the extent of the nonpoint pollution problem is unknown, data on its effects is inadequate, solutions are not readily available, and funding has been sadly lacking.

- Combined sewer systems remain a major source of water pollution because the overflow during wet weather bypasses the wastewater treatment plant during the periods of high flow. The overflows can also be a source of long-term pollution in the receiving water because discharged solids may settle to the bottom and form sludge deposits.
- Most treatment plants are experiencing significant operation and maintenance problems which cause the plants to violate their discharge permits. Because of these violations, Federal expenditures are being wasted and water quality goals may never be met. The Federal share for a construction grant will be reduced from 75 percent to 55 percent of project cost in 1984, and this will promote increased attention at the local level to proper operation of plants.
- Rehabilitation and replacement of thousands of aging waste treatment plants is a major concern. Communities are not setting aside funds to replace plants when they reach the end of their useful life.
- Industrial dischargers are not complying with their permit conditions and are not constructing required abatement facilities.

Because treatment plants continually fail to meet their discharge permits, the Nation's water quality goals will not be met. But it is much more difficult to relate permit violations to water quality in a specific body of water, principally because the permit may not contain properly determined pollutant levels.

The cost of wastewater treatment projects has been a subject of increasing concern in the Congress. EPA now estimates that it will cost \$120 billion for the construction and repair of municipal wastewater treatment facilities and sewers between 1980 and 2000. These construction cost estimates are so large that they raise serious questions of how they can ever be funded. For fiscal years 1982 through 1985 the Congress has authorized a \$2.4 billion annual appropriation. The hope of funding the entire \$120 billion is even dimmer in view of the administration's desire to restrict eligibility by eliminating all sewage treatment projects except secondary and advanced treatment projects and interceptor sewers.

Faced with this cost situation, EPA and the Congress have been considering ways in which costs can be kept down through modification of policies on building treatment plants which go beyond the legally mandated secondary treatment level. Also promising is the potential of using alternative and innovative technologies (which are funded at 85 percent), such as land treatment instead of conventional treatment plants.

Whether projects selected by the States for funding are those which most significantly improve water quality or public health is a question which should be addressed. EPA relies on State priority needs determinations and does not question these decisions, although we noted many examples of projects which result in only marginal improvement in water quality.

WHY SELECTED FOR PRIORITY ATTENTION

Although progress has been made in the United States to clean up the Nation's waters, the mandated water quality goals may not be met. And there is the very strong potential that future funding levels will be far below historical levels. But the program and activities now in place must continue to operate as effectively as possible so that the water quality progress that has been achieved will not be reversed. With reduced Federal support clearly on the horizon, we need to direct our efforts to making sure that the Clean Water Act programs and activities are carried out in the most effective manner.

GAO REVIEWS

Our objective is to provide the Congress with vital information on whether the Nation's clean water program is being administered in the most effective manner so that water quality is being improved. Our work will address the following questions:

1. Have Federal and State efforts to administer the municipal and industrial permit programs been successful?
2. Have States with delegated responsibilities to administer the water program been effectively carrying out their missions?
3. Is adequate technology available and being used to remove pollutants in the Nation's water?
4. What progress has been made to improve water quality as a result of the expenditure of Federal funds?

Current reviews

- Assessment of EPA's enforcement of municipal and industrial permits.
- Adequacy of the facilities planning process for constructing wastewater treatment plants.

Recent reports

"Many Water Quality Standard Violations May Not Be Significant Enough To Justify Costly Preventive Actions" (CED-80-86, July 2, 1980).

"Information on Questions About the Brush Creek (PA) Sewage Project" (CED-80-112, Aug. 8, 1980).

"Costly Wastewater Treatment Plants Fail To Perform as Expected" (CED-81-9, Nov. 14, 1980).

"Chicago's Tunnel and Reservoir Plan--Costs Continue To Rise and Completion of Phase I Is Unlikely" (CED-81-51, Jan. 21, 1981).

"EPA Actions Against the Hopewell, Virginia, Wastewater Treatment Facility" (CED-81-47, Mar. 3, 1981).

"Better Monitoring Techniques Are Needed To Assess the Quality of Rivers and Streams" (CED-81-30, Apr. 30, 1981).

"Billions Could Be Saved Through Waivers for Coastal Wastewater Treatment Plants" (CED-81-68, May 22, 1981).

"Wyoming Wastewater Treatment Facility Proves Unsuccessful" (CED-81-94, June 15, 1981).

"Environmental, Economic, and Political Issues Impede Potomac River Cleanup Efforts" (GGD-82-7, Jan. 6, 1982).

"A New Approach Is Needed for the Federal Industrial Wastewater Pretreatment Program" (CED-82-37, Feb. 19, 1982).

CHAPTER 4

IS ADEQUATE FISCAL AND MANAGEMENT INTEGRITY OF

THE CONSTRUCTION GRANTS PROGRAM POSSIBLE

WITH EXISTING CONTROLS AND RESOURCES?

MAJOR ISSUES

EPA's wastewater treatment construction grants program is the Nation's largest public works program and is by far EPA's largest program activity. Since 1972, the Congress has appropriated \$38 billion and projected needs to year 2000 are estimated at \$120 billion. As of May 1981, over 11,500 projects were active with nearly 5,000 projects costing \$22 billion in the construction phase. Also, about \$13 billion that has been appropriated is available for construction grant projects now in the pipeline.

While the new amendments to the Clean Water Act have cut back on future construction grant activity--a \$2.4 billion annual authorization for the next 4 years (down from \$3.4 billion in 1981)--the construction grant program remains a major Federal program that needs continued, careful scrutiny. For a variety of reasons we are concerned about the program's fiscal and management integrity. In carrying out the program, EPA practices a limited oversight approach to individual projects. EPA relies on the grantees, many of which are relatively unsophisticated, small communities, to ensure that projects are properly planned, designed, and built. Too often, however, grantees have neither the expertise nor the ability to carry out the projects effectively. Our reports and congressional hearings are full of examples of projects which could have been done more economically and efficiently. These problems result in part from the desire of the Federal Government to obligate the money as fast as possible, with the assumption that grantees will be able to effectively manage the grant activities.

EPA does not ensure that grantees develop and implement workable accounting systems. Smaller communities, in particular, do not have adequate accounting systems and lack both the personnel and resources to develop such systems.

EPA personnel do not verify that payments grantees request are only for allowable costs. Because it practices limited oversight, EPA relies almost totally on post-construction audits to identify and correct a project's financial problems. But very limited resources do not allow the EPA or independent auditors to audit completed projects on time (there is now a 70-year backlog) and in adequate depth.

On the project management side, EPA has an inadequate number of regional staff to monitor the adequacy of the grantee's

construction management for such tasks as awarding the construction contract, determining architect-engineer profits, approving change orders, and inspecting construction. To help deal with its lack of resources, EPA uses the Corps of Engineers under an interagency agreement to carry out construction management activities on most projects.

EPA has also delegated some project management functions to certain States. However, State oversight of the construction grant program has been plagued by resource and funding constraints. State design reviews are limited in scope and have not identified numerous design deficiencies. In addition, monitoring and inspections by State staffs during the construction phase have been inconsistent and in some cases nonexistent.

WHY SELECTED FOR PRIORITY ATTENTION

The huge dollar outlays associated with the construction grants program and EPA's grant management philosophy raise concern over whether the program is being managed most economically and efficiently. Because construction costs continue to rise in periods of high inflation and because the Nation's attention is being directed to possible wasteful Government spending, we will focus on and give priority attention to the question of whether adequate fiscal and management integrity is possible with existing controls and resources.

GAO REVIEWS

We intend to identify opportunities for achieving significant cost savings through EPA or legislative action in the construction grant program and to maintain a continued presence in an area vulnerable to possible abuse and mismanagement. The following questions need to be addressed:

1. Are EPA's financial management controls capable of protecting the Federal investment in construction of municipal wastewater treatment projects?
2. Is EPA's construction management system adequate to ensure that wastewater treatment projects are being constructed at the least cost and most efficiently?

Current reviews

- Effectiveness of the municipal wastewater treatment plant on-site inspection program.
- Assessment of the controls over repayment of industrial cost recovery fees collected by cities.
- Assessment of the adequacy of EPA's financial management system for the construction grant program.

--Review of San Francisco's wastewater treatment program.

Recent reports

"User Charge Revenues for Wastewater Plants--Insufficient To Cover Operation and Maintenance" (CED-82-1, Dec. 2, 1981).

"Use of Federal Grant Funds for a Sewage Treatment Project in Portage County, Ohio" (CED-82-19, Dec. 16, 1981).

CHAPTER 5

HOW WELL HAS THE CLEAN AIR ACT WORKED AND

WHAT WILL BE THE EFFECT OF CHANGES TO THE ACT?

MAJOR ISSUES

Air pollution, a byproduct of the industrial age, is not a recent phenomenon. While President Theodore Roosevelt is credited as the first to urge air pollution-related legislation in 1900, it was not until 1948, in reaction to numerous reports of illnesses and deaths attributed to the foul air in industrial cities, that Government officials began expressing concern about air pollution's effect on public health.

We have made progress since the dark days of the 1940's. The Council on Environmental Quality Annual Report, dated December 1980, suggests that overall, the Nation's air quality is improving. Yet the report also notes that serious problems still exist from stationary and mobile sources in many areas, particularly the most densely populated.

Air pollution warnings are announced on numerous days of the year in many of our major cities. On these days, individuals most susceptible to air pollution-caused illnesses--infants, the elderly, and those with heart and lung problems--are cautioned to stay indoors. Ironically, studies have found that these people may not be as well protected from polluted air when indoors as has been presumed. Recent research has shown that various harmful pollutants, such as formaldehyde and nitrogen dioxide emitted from common household items like gas stoves and furniture padding, have been found in indoor air. Government energy conservation programs which encourage "buttoning-up" of buildings may be compounding the problem by reducing ventilation.

Automobile emission requirements have also been the cause of much controversy, particularly in light of demand for more energy efficient automobiles. Questions have been raised concerning the effect of emission requirements on the automobile industry. Currently there are a number of overlapping emission compliance enforcement programs which are costly and could have a profound impact on industry. In addition, questions have been raised as to the effectiveness and safety of catalytic converters, the health effects of diesel engine exhaust, as well as the feasibility of a policy allowing emission averaging by fleet. Also, while many States and localities have generally supported transportation control measures (including inspection and maintenance programs), serious questions have been raised as to their feasibility, economy, and effectiveness.

Clean air controls

While Federal air pollution legislation dates back to 1955, it was the Clean Air Act of 1967 that authorized the first comprehensive program for dealing with air pollution. Amendments in 1970 and 1977 have significantly expanded the scope of the original law. The Clean Air Act of 1970 empowered EPA to

- establish and enforce national ambient air quality standards,
- set emission standards for new stationary pollution sources and for mobile sources, and
- approve State implementation plans specifying how the national standards will be achieved and maintained.

EPA has established two sets of standards for air pollutants: "primary" standards to protect public health and "secondary" standards to protect public welfare; e.g. wildlife, visibility, and personal comfort. Primary and secondary standards have been established for seven pollutants--sulfur oxides, total suspended particulates, carbon monoxide, photochemical oxidants, hydrocarbons, nitrogen oxides, and lead. EPA is authorized to establish standards for additional pollutants when necessary.

In 1977 the Congress was persuaded that tougher legislative measures were needed and revised the act. The 1977 law

- required EPA to designate those areas not meeting air quality standards as nonattainment areas, subject to stricter restrictions on both new and existing emission sources;
- imposed limitations on growth in areas where air quality is better than the national air standards require;
- adopted an emission offset policy, whereby those seeking to construct new emitting sources in nonattainment areas must secure offsetting emission reductions from other sources; and
- set 1982 deadlines for the attainment of national air quality standards (or 1987 for some mobile pollutants).

Also, a unique control strategy--the "bubble concept"--was proposed by EPA in January 1979. The concept allows plants to reduce controls where costs are high in exchange for an equivalent increase in control where abatement is less expensive. Thus a company can increase emissions from one source in a region, or even in an individual plant, provided the increased emissions are offset by decreases from other sources in the region or plant.

Finally, the Steel Stretch-out Bill was enacted on July 17, 1981. This act amended the Clean Air Act to allow compliance extensions for steelmaking facilities on a case-by-case basis. The extensions of time are to provide the opportunity for the steel industry to invest additional capital in modernizing facilities for improved productivity and efficiency.

EPA funding for air quality programs in fiscal year 1981 was about \$246 million.

Criticism of the act

According to the Congressional Research Service, many of the difficulties encountered in meeting the act's requirements were sparked by pressing national concerns not directly related to air pollution: the energy crisis, inflation, unemployment, and diminishing markets for U.S. products. Industry argues that the statutory structure of the Clean Air Act aggravates these problems by

--channeling billions of dollars into nonproductive pollution control equipment,

--leading to the use of energy-intensive pollution control technology, and

--placing constraints on the siting of new pollution sources.

Environmental groups counter that the act has clearly improved the Nation's air. In addition, capital costs of pollution control equipment are miniscule as a share of capital investments, and clean air policy allows increments for growth which are large enough in all but pristine, national parks areas.

In general, critics argue that standards are too strict and could be relaxed without jeopardizing public health. Control costs would then be significantly lower, freeing scarce capital for plant modernization and new construction. Supporters say that industry is blaming air pollution control requirements for other problems, such as lost markets, mismanagement, and obsolete production technology.

Proposals for changing the act

EPA's early, unofficial position called for potentially far-reaching changes, such as giving State and local governments far greater discretion and authority in setting primary ambient air standards and in administering programs and making secondary standards optional.

In August 1981, in lieu of submitting specific legislative amendments, the administration provided what it called a framework for continuing work with the Congress by proposing certain basic principles, including that

- the Nation should continue its steady progress toward cleaner air and
- statutes and regulations should be reasonable and should be related to the economic and physical realities of the particular areas involved.

In releasing the list, the administration seemed to moderate its earlier positions. However, the principles did indicate that the administration plans to use the Clean Air Act as a forum for balancing environmental needs with other national priorities.

WHY SELECTED FOR PRIORITY ATTENTION

The Congress is once again in the process of reexamining the impact of the Clean Air Act. The need to reauthorize the act provides an opportunity for the Congress to evaluate widespread dissatisfaction with several statutory requirements and consider revisions. The debate is expected to be long and heated with final legislation resulting in reauthorization not expected before 1983. Potential changes to the act being discussed range from fine tuning to gutting major aspects of the law. While uncertainties surrounding the final shape of the act make it difficult to accurately develop a final audit approach, the trends of criticism outlined above can provide us with an overall sense of direction. Therefore, we will be able to provide assistance to the Congress by evaluating those parts of the act we expect to be reauthorized. We will also be able to undertake assignments in certain controversial areas where the Congress has indicated a strong interest.

GAO REVIEWS

Our objective is to increase congressional and public awareness as to how well the Clean Air Act works and to assist the Congress on reauthorization matters by evaluating the effectiveness of those parts of the act which we expect to be reauthorized. Our work will address the following questions:

1. What progress has been made in achieving the objectives of the Clean Air Act?
2. How well have EPA and the States enforced air pollution control requirements?
3. What has been the cost of implementing the requirements of the Clean Air Act?

Current reviews

- Review of EPA's ability to accurately gather and report air quality data.
- Acid precipitation: time to act?

Recent reports

"Indoor Air Pollution: An Emerging Health Problem" (CED-80-111, Sept. 24, 1980).

"Clean Air Act: Summary of GAO Reports (October 1977 Through January 1981) and Ongoing Reviews" (CED-81-84, Apr. 1, 1981).

"The Debate Over Acid Precipitation:--Opposing Views--Status of Research" (EMD-81-131, Sept. 11, 1981).

"A Market Approach to Air Pollution Control Could Reduce Compliance Costs Without Jeopardizing Clean Air Goals" (PAD-82-15 and 82-15A, Mar. 23, 1982).

CHAPTER 6

HOW CAN THE REGULATION OF DANGEROUS PESTICIDES AND CHEMICALS BE IMPROVED?

MAJOR ISSUES

The toxic chemical and pesticide control problem is immense considering the possible number of chemicals, exposure routes to humans, and adverse health and environmental effects of both individual chemicals and combinations. An estimated two million chemical compounds exist in our environment. Some of these have proven adverse effects associated with their use, while most lack information on possible toxicological effects. Despite this, chemicals are finding their way into the food we eat, the water we drink, and the air we breathe.

Of special concern is evidence linking chemical exposure to two significant health problems--cancer and birth defects. One of four people is expected to have cancer, and the rates of new cancer and cancer deaths are increasing. It is generally believed that most cancers are related to at least one environmental factor. Less is known about causes of birth defects. However, on the basis of animal laboratory studies, chemicals could account for some birth defects that cannot currently be attributed to other causes.

The Congress has recognized the major problems associated with chemical control and has enacted over two dozen laws. Among these are the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which is intended to regulate pesticides, and the Toxic Substances Control Act (TSCA), which is designed to regulate a wide variety of chemicals that are not controlled under other Federal statutes. Both laws were enacted to protect the environment from "unreasonable risks" and both require that regulatory decisionmaking consider economic impact. These two laws provide the principal direction for audit activities under this issue.

Federal Insecticide, Fungicide, and Rodenticide Act

Under FIFRA, a pesticide can generally not be sold, shipped, or delivered unless EPA has registered it. The act further provides that EPA can unconditionally register a pesticide only if it determines, among other things, that the pesticide will perform its intended function without causing "* * *" any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide."

A large amount of potentially harmful chemicals is subject to FIFRA controls. For example, the United States uses about 1 billion pounds of pesticides annually to control insects, diseases,

rodents, weeds, bacteria, and other pests that attack our food and fiber supplies and threaten our health and welfare. Although pesticides are beneficial to agricultural production, public health, sanitation, and protection of natural resources, they are a mixed blessing. If used improperly or without sufficient knowledge of their side effects, pesticides, like other chemicals, can poison; cause cancer, birth defects, and other crippling afflictions; and harm wildlife and our environment.

Toxic Substances Control Act

TSCA gave EPA the broad mandate to protect public health and the environment by gathering information on chemicals, identifying harmful substances, and controlling those chemicals whose risks outweigh their benefits. TSCA, enacted in 1976, is not the first Federal law addressing problems associated with chemical use but was designed to fill gaps in the existing laws. Its primary purpose is to control chemicals before they are released into the environment rather than after.

The regulatory scope of TSCA is huge, with more than 55,000 chemicals currently manufactured in or imported into the United States. In 1978, the production of the top 50 inorganic and organic chemicals approximated 350 billion pounds and 172 billion pounds, respectively. Similar to pesticides, these chemicals have both benefits and drawbacks. Incidents involving their toxic effects emerged in the 1960's and 1970's as major health and environmental problems. For example:

- The fire retardant tris, used in sleepwear and other clothing, was found to be carcinogenic and mutagenic and could be absorbed through the skin.
- Asbestos, which was used in fireproofing buildings, has become a widespread environmental contaminant for large segments of our society, causing malignancies of the lungs and other organs.

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EPA funds for pesticide and toxic substances programs in fiscal year 1981 were \$70 million and \$103 million, respectively.

WHY SELECTED FOR PRIORITY ATTENTION

This issue is an important component of our environmental program plan for a number of reasons. First, it deals with health and environmental issues which potentially can affect the lives of millions of people and additionally affect the manner in which industry does business. For example, EPA's suspension of the herbicide 2,4,5-T, suspected of causing cancer and birth defects, is estimated to have a 2-year economic impact of \$89.2 million.

Second, our past work within the pesticide and toxic substances areas indicates that there continue to be complex problems and obstacles hindering effective control of these chemicals. Finally, the Congress' past interest in pesticides and toxic substances, as recognized by passage of FIFRA and TSCA, requires continued oversight by GAO.

GAO REVIEWS

We plan to identify what actions EPA should take to more effectively control harmful pesticides and chemicals. In line with the philosophies of both TSCA and FIFRA, we will include consideration of the economic impact of toxic chemical and pesticide regulation. The following questions need to be addressed:

1. Do EPA programs assure that the public is protected against unreasonable risks from harmful pesticides and chemicals?
2. Do EPA programs create unnecessary regulatory burdens on affected industries?
3. How well does EPA balance public protection concerns with the economic concerns of those being regulated?

Current review

--How effectively has the Federal Government reduced the asbestos hazards in school buildings?

Recent reports

"Need for a Normal Risk/Benefit Review of the Pesticide Chlordane" (CED-80-116, Aug. 5, 1980).

"Need for Comprehensive Pesticide Use Data" (CED-80-145, Sept. 30, 1980).

"EPA Is Slow To Carry Out Its Responsibility To Control Harmful Chemicals" (CED-81-1, Oct. 28, 1980).

"Further Federal Action Needed To Detect and Control Environmental Contamination of Food" (CED-81-19, Dec. 31, 1980).

"Stronger Enforcement Needed Against Misuse of Pesticides" (CED-82-5, Oct. 15, 1981).

"EPA Slow in Controlling PCBs" (CED-82-21, Dec. 30, 1981).

CHAPTER 7

ARE THE NATION'S DRINKING WATER SUPPLIES SAFE?

MAJOR ISSUES

Drinking water contamination is emerging as one of the most serious health and environmental problems facing our Nation during the 1980's. Waterborne disease from bacteria and viruses in drinking water continue to plague users. From 1970 through 1979, about 270 waterborne disease outbreaks occurred, resulting in 54,900 reported illnesses. Some experts believe that 10 times as many outbreaks occur but go unreported. In recent years, new menaces in the forms of chemicals and toxic wastes have been discovered in water supplies in virtually every section of this country. In an alarming number of cases, these contaminants are suspected of causing cancer, birth defects, and other serious health effects in humans. Even more disturbing is that we know little about the effects that many of these pollutants may have on human health.

While Federal efforts to control the quality of drinking water date back to 1914, the Safe Drinking Water Act of 1974 represents the first national commitment to safeguard public water supplies. The act empowered EPA to

- establish primary drinking water regulations containing standards for protecting public health,
- establish regulations to control the underground injection of chemicals and other wastes to protect ground water sources, and
- delegate enforcement responsibility for both sets of regulations to States adopting programs meeting Federal requirements.

Interim primary drinking water regulations setting numerical drinking water standards and water system sampling requirements for such things as bacteria, became effective in June 1977. In 1979 EPA established a standard for carcinogenic compounds formed when chlorine is added to water as a disinfectant. As of March 1982, 49 States and territories had been delegated primary responsibility for enforcing the drinking water standards. EPA has assumed responsibility for enforcing the regulations in the eight States and territories unable and unwilling to assume primary responsibility.

In June 1980, EPA finalized regulations to control the underground injection of waste by establishing minimum safety standards for five types of underground injection--industrial and municipal wastes, oil and gas drilling wells, mineral mining and energy operations, hazardous waste wells in and below drinking water sources, and all other injection wells. States desiring primary

enforcement for the underground injection control regulations must have their programs approved by EPA no later than April 1982. About 40 States have indicated they intend to apply for primary enforcement responsibility.

The cost of improving the quality of our drinking water will not be cheap. EPA estimates that about 13,600 of the 65,000 systems providing year-round water in this country cannot, without improving their facilities, meet one or more of the drinking water standards and that as much as \$1.3 billion may be needed during the 1980-83 period to bring these systems into compliance. Most of these systems are small, serving less than 2,500 people. This \$1.3 billion figure could increase significantly as EPA establishes standards and/or treatment techniques to deal with the numerous organic chemicals. Adding to the problem is the fact that Federal funds for water system construction and improvement are being reduced substantially. The fiscal year 1982 budget proposed for Agriculture's Farmers Home Administration's water and waste loan program--the traditional source of Federal funds for small municipalities--is \$300 million. This is less than half of the program's approved funding level of \$750 million in fiscal year 1981. EPA estimates that about \$172 million will be needed to correct faulty wells and to construct and operate others according to the underground injection control regulations.

Ground water is the principal source of drinking water for over 50 percent of the people in this country, and its contamination by hazardous substances has been steadily increasing. In the last 3 years, hundreds of public and private wells serving millions of people have been closed because of severe contamination. Because of its slow movement, contaminated ground water may take centuries, if ever, to cleanse itself. Yet, this Nation continues to lack a strategy that would coordinate the various efforts to protect our ground water sources from contamination. EPA's emphasis on established drinking water regulations has relegated ground water protection to a secondary level.

A growing concern is the health protection of water users served by private wells and those served by systems not required to comply with the standards--that is, systems with less than 15 service connections or serving less than 25 people. Congressional hearings during the summer of 1980 focused on the fact that these users suffer from the same contamination problems as larger systems but that Federal and State efforts to protect their health are nonexistent or very limited.

Another concern involves the ability of EPA to operate drinking water and underground injection control programs in States which are unable or unwilling to assume primacy. EPA currently enjoys the luxury of having 49 primacy States and territories enforcing the primary drinking water regulations and will have a similar number assuming responsibility for the underground injection control regulations. However, because assuming and retaining

primacy is a voluntary action, States can either drop primacy or significantly reduce the scope of their programs. Should this happen, it is very doubtful that EPA would have the capability to effectively administer the programs.

WHY SELECTED FOR PRIORITY ATTENTION

During the 1982 congressional session, the Safe Drinking Water Act will be up for reauthorization. It is expected that the drinking water contamination problem and EPA and State efforts to effectively deal with it will come under close congressional scrutiny during the upcoming months. As a result, our reports evaluating the adequacy and effectiveness of Federal and State efforts to control drinking water contamination problems would be very useful to both the Congress and general public.

GAO REVIEWS

Our objective will be to assess the adequacy and effectiveness of Federal, State, and local efforts to assure that all water users are provided with water that is safe to drink.

Our work will address the following questions:

1. Are public water supply systems capable of meeting Federal drinking water standards within the resources currently available to them?
2. Is drinking water quality being monitored and enforced by State and Federal agencies?
3. Are water consumers not covered by the Safe Drinking Water Act adequately protected against unsafe drinking water?
4. Are ground water supplies adequately protected?

Recent reports

"EPA Needs To Improve the Navajo Indian Safe Drinking Water Program" (CED-80-124, Sept. 10, 1980).

"Adequacy of EPA Resources and Authority To Carry Out Drinking Water Program Activities" (CED-81-58, Apr. 23, 1981).

"States' Compliance Lacking in Meeting Safe Drinking Water Regulations" (CED-82-43, Mar. 3, 1982).

CHAPTER 8

ARE ENVIRONMENTAL PROTECTION REGULATORY STRATEGIES EFFECTIVE AND HAS THE PROPER BALANCE BEEN STRUCK WITH OTHER NATIONAL PRIORITIES?

MAJOR ISSUES

Most environmental programs are narrowly focused on a specific set of problems related to a single media--such as air or water. The preceding chapters address these individual program issues. This chapter is designed to cut across environmental media lines and address broad-based, multimedia issues such as pollution control strategies and the socioeconomic impacts of environmental programs.

Pollution control strategies

The United States has adopted environmental regulatory strategies basically centered around the standard setting-monitoring-enforcement regulatory process coupled with uniform effluent and emission limitation requirements. These uniform pollution control requirements have been established based upon available control technology. This strategy is often economically inefficient and in some cases environmentally counterproductive.

Several alternative strategies to achieve pollution control goals 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. 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.

Apart from alternatives to the regulatory strategy, opportunities seem to exist for more flexibility in how some of the current environmental regulations are implemented. For example, EPA has allowed air polluting firms to locate in areas that have not attained clean air standards, provided the firms install the most modern control equipment and arrange for pollution offsets from other sources in the area for the amount of new pollution to be added. This policy considers the importance of economic growth, but evidence exists that more could be done to promote the principle. Controlled trading of pollution offsets and more flexibility by allowing firms to reduce pollution only at sources where it is least costly (provided overall reductions are made) are approaches being tried in certain areas. Widespread use of such flexibility may result in significant cost savings.

Institutional arrangements

Almost every committee of both the House and Senate exercises some role in environmental policymaking. This multiplicity of relevant committees can delay decisionmaking. About 20 committees have major environmental responsibilities. (See app. II for a listing of committee jurisdictions.) Because of splintered and narrow committee responsibilities, most environmental legislation is deliberated on in a fragmented fashion. As a result, most legislation is enacted along separate pollution lines--such as air, water, 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 drinking water problem because of seepage from landfilled sludge into underground water,
- a water pollution problem from runoff during wet weather into rivers and streams, or
- an air pollution problem if the sludge is burned.

Since 1970, executive branch institutions for the development and implementation of Federal environmental policy have undergone remarkable changes. New organizations such as CEQ and EPA have been created. Existing agencies have been reorganized to deal with new environmental responsibilities. The enactment of the National Environmental Policy Act has markedly influenced the organization of executive branch agencies. The dramatic changes in Federal environmental institutions have had an impact on the formulation and implementation of environmental policy. (See app. I for a listing of relevant Federal agencies.) Given numerous Federal agencies involved in environmental activities, coordination within the executive branch is a constant and troublesome problem.

State and local governments have, in recent years, become increasingly involved in the protection of the environment. In most environmental areas EPA has delegated to the States authority to independently manage all or parts of their own environmental programs. Judging from the current administration's plans for significantly more delegation, States, in the future, will be expected to assume even more authority and responsibility for environmental programs. State governments are very concerned about the increasing number of Federal environmental programs they are being asked to implement without adequate Federal financial assistance and with undue Federal involvement causing duplication and overlap.

Trade-offs with other national priorities

The cost of cleaning up the environment is not cheap. The Council on Environmental Quality estimates that the Nation spent \$37 billion in 1979 to comply with Federal environmental protection regulations. Between 1979 and 1988 the Council estimates that \$735 billion will be incurred for all pollution control capital and operating costs.

While cost estimates of environmental requirements have usually been available, estimates of the benefits or even after-the-fact calculations of benefits received have generally not been available. Analysis of benefits as well as costs has recently been given high priority under Executive Order 12291, which requires agencies to consider both the cost and benefits of proposed regulations. Only through comparison of benefits as well as costs can decisionmakers adequately judge the true merits of environmental requirements and on a broader scale balance those requirements with other national priorities, such as increased productivity, a healthy economy, and adequate energy resources.

From a purely economic viewpoint, EPA has in the past concluded that environmental regulations result in an economic gain rather than a loss. Industry believes, however, 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.

These issues should be addressed to determine whether modifications to the existing regulatory systems are needed. Many observers are becoming convinced 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.

WHY SELECTED FOR PRIORITY ATTENTION

The structure of Federal, State, and local governments and their respective roles have an important impact on the formulation and implementation of environmental laws. In addition, the selection of control strategies plays an important role in determining how well and how economically the Nation controls pollution. Finally, there is increasing concern over the cost of environmental control efforts and whether the proper balance has been struck with the benefits received and other national priorities.

As more specifics become known about environmental conditions, there is a continuing need to assess the effectiveness and efficiency of institutional arrangements and control strategies aimed at controlling pollution. In addition, there is a need for an independent assessment of whether the economic effects, as well as other national priorities, are adequately considered in planning

for and implementing environmental programs. These issues seem particularly well suited to a cross-media or multimedia evaluation approach which not only looks at common problems within each media, but also addresses the collective and interactive effects of the various environmental programs.

GAO REVIEWS

We plan to conduct a series of reviews which will cut across media lines and provide the Congress with evaluations on the effectiveness of organizational structures and control strategies in addressing environmental problems. Our work will address the following questions:

1. Has the existing standard setting-monitoring-enforcement regulatory process been effective in achieving environmental goals and objectives?
2. Do innovative alternatives to the regulatory approach exist which might be more effective and efficient?
3. Should Federal environmental laws and programs be implemented on a single-purpose media approach or on a multimedia, integrated basis?
4. Have the proper organizations, authorities, and resources been established at Federal, State, and local governments to ensure the achievement of environmental goals and objectives?
5. How are the social and economic benefits of environmental programs identified and how are these factors weighed against costs and other competing national priorities.

Current reviews

- Assessment of EPA programs for delegating additional responsibility to States for administering environmental laws.
- Progress of U.S.-Canadian efforts in controlling pollution of the Great Lakes from all sources.
- Survey of the National Oceanic and Atmospheric Administration's coordination of ocean pollution research and monitoring activities.
- Assessment of environmental programs in metropolitan areas.
- Assessment of Department of State and International Joint Commission Great Lakes Water Quality Agreement support activities.
- Review of program impacts of 1982 budget cuts at EPA.

Recent reports

"Review of the Environmental Protection Agency's Efforts To Detect and Prevent Fraud and Abuse" (CED-80-100, May 29, 1980).

"EPA Should Help Small Communities Cope With Federal Pollution Control Requirements" (CED-80-92, May 30, 1980).

"Federal-State Environmental Programs--The State Perspective" (CED-80-106 and CED-80-106A, Aug. 22, 1980).

"Promising Changes Improve EPA's Extramural Research; More Changes Needed" (CED-81-6, Oct. 28, 1980).

"The Council on Environmental Quality: A Tool in Shaping National Policy" (CED-81-66, March 19, 1981).

"Procurement Practices at the Council on Environmental Quality" (PLRD-81-24, Apr. 24, 1981).

"Millions of Dollars Could Be Saved by Implementing GAO Recommendations On Environmental Protection Agency Programs" (CED-81-92, May 5, 1981).

"The Environmental Protection Agency Needs To Better Control Its Growing Paperwork Burden on the Public" (GGD-81-40, May 15, 1981).

"EPA's New Research Controls: Problems Remain" (CED-81-124, July 14, 1981).

"Coal And Nuclear Wastes--Both Potential Contributors to Environmental and Health Problems" (EMD-81-132, Sept. 21, 1981).

"EPA's Use of Management Support Services" (CED-82-36, Mar. 9, 1982).

CHAPTER 9

HAS THE ENVIRONMENTAL IMPACT STATEMENT PROCESS PROVIDED AN EFFECTIVE FRAMEWORK FOR ADDRESSING THE NATION'S ENVIRONMENTAL PROBLEMS?

MAJOR ISSUES

The National Environmental Policy Act of 1969 (NEPA) was enacted on January 1, 1970, and is considered to be landmark legislation which "set the Nation on a new course of environmental management." The most significant "action-forcing" mechanism for NEPA is the requirement for preparation of Environmental Impact Statements (EIS's) for all major Federal actions significantly affecting the quality of human environment. The act also established the Council on Environmental Quality which has limited regulatory functions for ensuring that the environmental reporting requirements set forth in NEPA are followed by Federal agencies.

CEQ issued NEPA implementing regulations on November 29, 1978, with an effective date of July 30, 1979. These regulations, for the first time, required Federal agency compliance with NEPA's provisions. (Prior to the regulations, CEQ issued guidelines which agencies did not consistently follow.) These regulations were developed primarily to improve the EIS process through decreased paperwork, reduced delays, and improved environmental decision-making. Overall, the new regulations are designed to standardize and consolidate agencies' NEPA efforts, thereby reducing the procedural uncertainty in reaching substantive decisions.

While the preparation of the EIS has heightened environmental consciousness and increased public participation, questions remain as to how effective the EIS has been as a decisionmaking tool. The EIS process has been criticized as scientifically inadequate and as too burdensome. However, recent studies show that the EIS is improving Federal agency decisionmaking even though the scientific content has limitations. The studies also suggest that closer adherence to the new CEQ regulations will improve scientific quality and result in better decisions, although the two should not be directly equated.

The CEQ regulations have received unusually favorable comment in the early reviews conducted by the administration's Task Force on Regulatory Relief. Also, the incoming CEQ Chairman has supported the new regulations in public statements and testimony.

One of the continuing questions concerning NEPA is how well NEPA is enforced. The Congressional Research Service (CRS) stated in a recent issue brief that some "argue that NEPA falls short of its potential, and perhaps its goals, because it fails explicitly to impose upon Federal agencies a legally enforceable directive to

enhance and refrain degrading the environment." Neither NEPA nor the CEQ regulations contain any enforcement criteria. While Federal agencies can refer environmental questions to CEQ, the courts are the usual mediators of environmental disputes, especially those initiated by the private sector. Assumably the courts will not be used except in the extreme environmentally harmful cases. Therefore, actual enforcement of environmentally sound practices cannot be assured.

Questions have also been raised as to how well NEPA has been applied at the policy and programmatic levels of government. CRS notes in its issue brief that effective application of NEPA at the policy/program level should especially discharge one purpose that NEPA has served: to channel public controversy so that a decision can be reached. CRS, however, further states that the political and policy formulation process will be difficult to change and that if these impact statements are to be "legally sufficient," the agencies' supplemental procedures must establish clear, predictable relationships between assessments on national policies and those on projects' specific impacts.

One of the principal means the CEQ regulations initiated to produce better environmental decisions is through the record-of-decision process. A record of decision is a concise public record which states the decision; identifies alternatives considered, including which alternative was environmentally preferable; states whether all practicable means to avoid or minimize environmental harm have been adopted and if not, why they were not adopted; and a description of the monitoring and enforcement program adopted to ensure that proper mitigation is undertaken. The record of decision is designed to establish a uniform approach for a process which in the past was left to the discretion of Federal officials.

WHY SELECTED FOR PRIORITY ATTENTION

Congressional oversight of the streamlined NEPA process outlined in CEQ's regulations can be expected during the 1982 session. With budget restraints, agencies may look to further streamlining of the NEPA process through categorical exclusions (classification of actions which do not individually or cumulatively have a significant effect on human environment and for which, therefore, an EIS is not required), hoping to ease environmental regulation. Already individual agencies, such as the Department of the Interior, are conducting reviews on revamping and streamlining the agency's NEPA process within the guidelines specified in CEQ's regulation.

GAO REVIEWS

Our objective is to increase congressional and public awareness of the limitations of NEPA and its EIS provisions in preserving the environment and outlining what changes are necessary to make it a viable process. The following questions need to be addressed:

1. Are CEQ and individual agencies' procedures resulting in consistent and effective environmental decisionmaking?
2. What has been the impact on the environmental review process of efforts to streamline the EIS procedures?

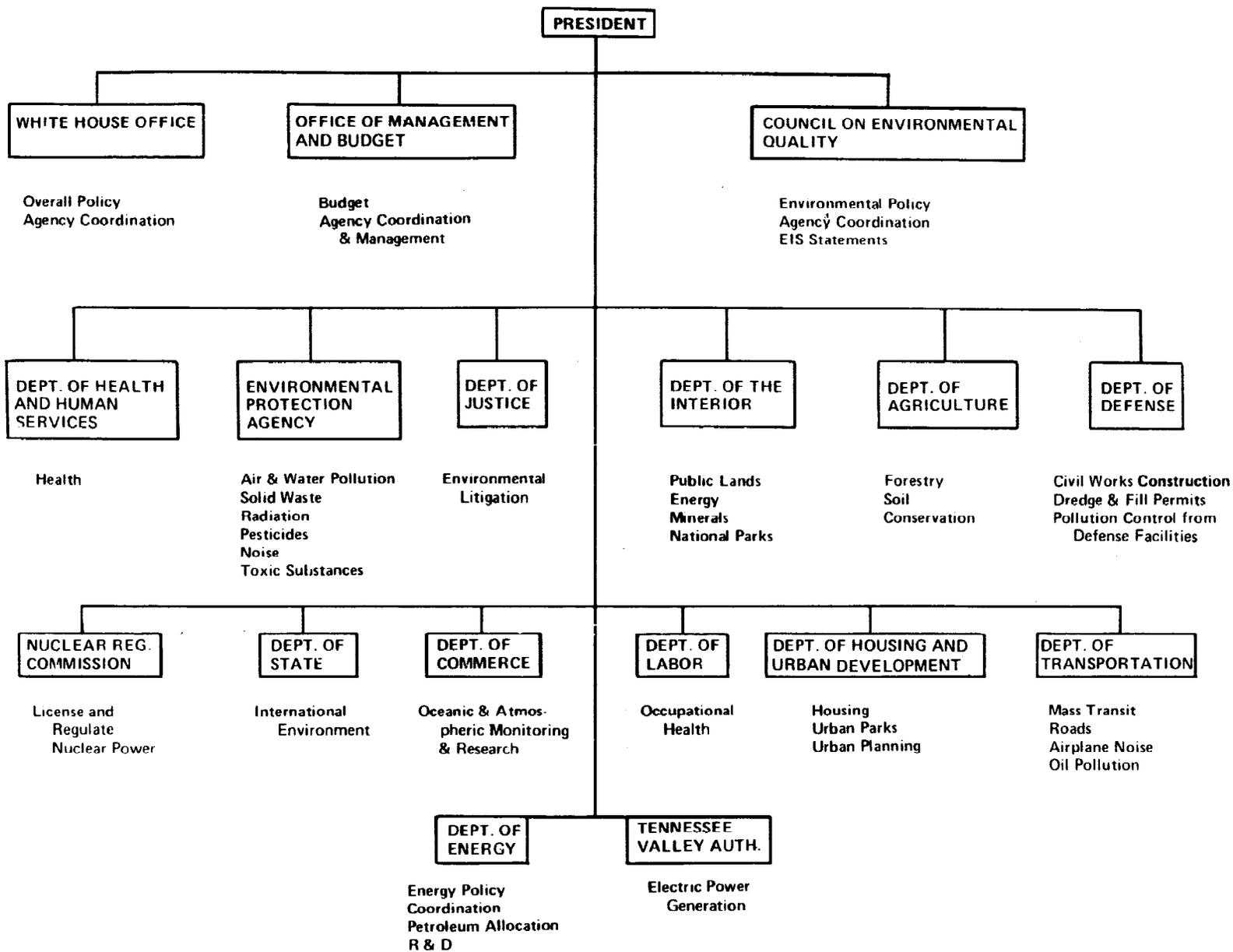
Recent reports

"The Environmental Impact Statement--It Seldom Causes Long Project Delays but Could Be More Useful If Prepared Earlier" (CED-77-99, Aug. 9, 1977).

"Environmental Reviews Done by Communities: Are They Needed? Are They Adequate? Department of Housing and Urban Development" (CED-77-123, Sept. 1, 1977).

"Congressional Guidance Needed on the Environmental Protection Agency's Responsibilities for Preparing Environmental Impact Statements" (CED-78-104, Sept. 13, 1977).

MAJOR EXECUTIVE BRANCH AGENCIES WITH ENVIRONMENTAL RESPONSIBILITIES



SENATE AND HOUSE COMMITTEE JURISDICTIONSSENATE

Committee on Agriculture, Nutrition and Forestry	Pesticides
Committee on Appropriations	Appropriations
Committee on Budget	Budget
Committee on Commerce, Science, and Transportation	Oceans Research & development Radiation Toxics
Committee on Energy and Natural Resources	Synthetic fuels Conservation oversight Energy budget Mines Oil shale Outer continental shelf Strip mining
Committee on Environment and Public Works	Air Drinking water Noise Nuclear energy Ocean dumping Outer continental shelf Research and development Solid waste Toxics Water
Committee on Foreign Relations	International environment
Committee on Governmental Affairs	Interagency subject area
Committee on Labor and Human Resources	Public health
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	Synthetic fuels Conservation oversight Energy budget Mines Oil shale Outer continental shelf Radiation (Nuclear Regulatory Commission oversight) Strip mining
Committee on Energy and Commerce	Air Drinking water Noise Radiation Solid waste Toxics
Committee on Merchant Marine and Fisheries	Ocean dumping
Committee on Public Works and Transportation	Noise Water pollution Water resources
Committee on Science and Technology	Research and development
Committee on Small Business	Impact of environmental regulations on small business

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