



United States
Environmental Protection
Agency

Office of
the Comptroller
Washington, DC 20460

January 1989



Summary of the 1990 Budget

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NOTE: The charts on the following pages include the 1989 Current Estimate and the 1990 President's Budget. Unless otherwise noted, all comparisons between 1990 and 1989 budget levels in the narrative refer to the 1989 Current Estimate and 1990 President's Budget. (The "Current Estimate" is the Agency's current plan for using its resources.)

Additionally, references to workyears refer to total workyears rather than only "permanent" workyears.

Overview of the 1990 Budget

The 1990 President's Budget for the Environmental Protection Agency will provide the Agency with the resources needed to successfully achieve the statutory objectives with which it is entrusted, and to pursue the mission of protecting human health and the environment.

The Agency's 1990 Budget represents a request for approximately **15,130 workyears** and **\$4.9 billion**. The request includes **12,004 workyears** and **\$1.83 billion** for our operating programs, **3,035 workyears** and **\$1.75 billion** for the Superfund program, and **91 workyears** and **\$100 million** for the Leaking Underground Storage Tank (LUST) program. Additionally, the request provides **\$1.2 billion** for the Construction Grants program.

The 1990 Budget Request provides support for implementing new requirements while continuing support for ongoing programs. The Agency will concentrate its energy on aggressively expanding the long-term research program. This policy will allow EPA to concentrate on preventing pollution at its source, as opposed to traditional programs that have concentrated almost solely on cleanup efforts. The Agency is also proposing to charge at market value for the rights to produce chlorofluorocarbons and related substances that deplete the ozone layer. Our request continues the expansion of the Agency's enforcement activities and maintains the strong State-Federal partnership that is crucial to achieving our environmental goals. The Superfund

Response program continues to receive high priority in 1990. Our commitment to the LUST program is reflected by doubling the resources available for this vital program in 1990.

HIGHLIGHTS

State and Local Grants:

The President's 1990 Budget Request allocates \$344.4 million to support State and local environmental programs, an increase of \$26.3 million over the 1989 budget level. The request will substantially increase funding for the Section 106 State Water Quality grants program to help States fund implementation of State nonpoint source management plans, the Section 404 wetlands program, and State groundwater programs (for Wellhead Protection and Agchemical Management) while providing increased funding for Indian Tribes' water quality programs. Additionally, a significant increase in public water system grants will help build State capability to implement the Safe Drinking Water Act Amendments. Resources will also support air pollution grants to States as provided by Section 105 of the Clean Air Act. Grants will help States continue their efforts to implement and enforce clean air standards, reduce exposure to toxic air pollutants, and review new sources of air pollution.

Research and Development:

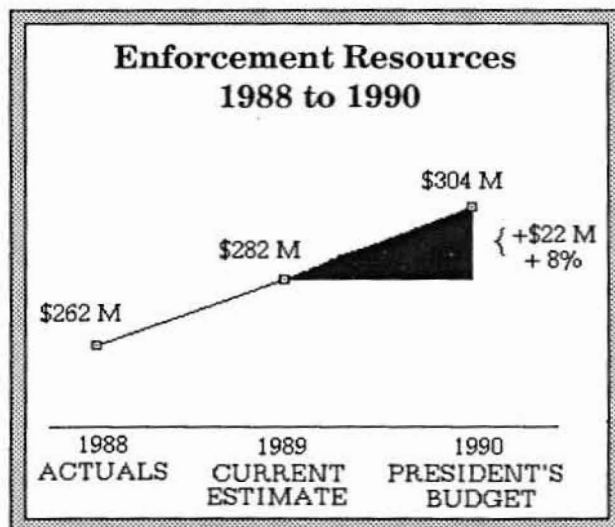
The 1990 President's Budget Request provides a total of 1,873 workyears and

\$421.5 million for our research and development program. This represents an increase of 21 workyears and \$33.6 million over the 1989 level.

The major increases will enhance global climate change research, strengthen our long-term research capabilities, rebuild our scientific infrastructure, and support media program needs. The Agency requests a total of \$14 million, an increase of \$10 million, for global climate change research. These funds will support a new Federal interagency Global Climate Change Research Program. The Agency also requests an increase of \$28 million to strengthen our long-term research capabilities which will help the Agency identify and address future environmental concerns. The Agency will continue to upgrade our existing research capabilities with an increase of \$10 million for infrastructure needs. Finally, media research program needs will be increased \$6 million.

Enforcement:

The President's 1990 request will provide an 8 percent increase to the Agency's total enforcement resources.



Within the Agency's request, the Superfund program will receive an increase of 88 workyears and \$6.9 million over the 1989 budget. These resources provide support for case referrals for settlement or litigation to the Department of Justice. The Agency will execute new interagency agreements and support ongoing agreements for remedial response at sites owned or operated by other agencies.

Our Civil and Criminal Enforcement programs will be strengthened with a budget request of 440 workyears and \$26.2 million. This will strengthen our ability to litigate civil cases. It will also strengthen our Criminal Investigations Program to provide a more effective national deterrent to those who willfully violate environmental laws and regulations.

Superfund:

The President's 1990 Budget Request for Superfund, consisting of 3,035 workyears and \$1,750.0 million, represents a significant commitment by the Agency to meet its responsibilities to protect human health and the environment from uncontrolled releases of hazardous substances. This commitment includes our interaction with other Federal agencies and States to implement the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

The Agency is requesting 1,281 workyears and \$1,350.6 million for the site response program. The primary emphasis in this program remains on meeting the SARA remedial action schedule. This will be accomplished through supporting new remedial designs, new constructions,

completing administrative and litigation enforcement actions, and initiating engineering studies at sites for eventual remedial action.

Leaking Underground Storage Tank (LUST) Program:

Under the President's 1990 Budget, the LUST program requests 91 workyears and \$100 million, doubling the dollar resources over the 1989 level. Ninety percent of these dollars will fund cooperative agreements with the States for responding to leaks from underground petroleum storage tanks.

Construction Grants:

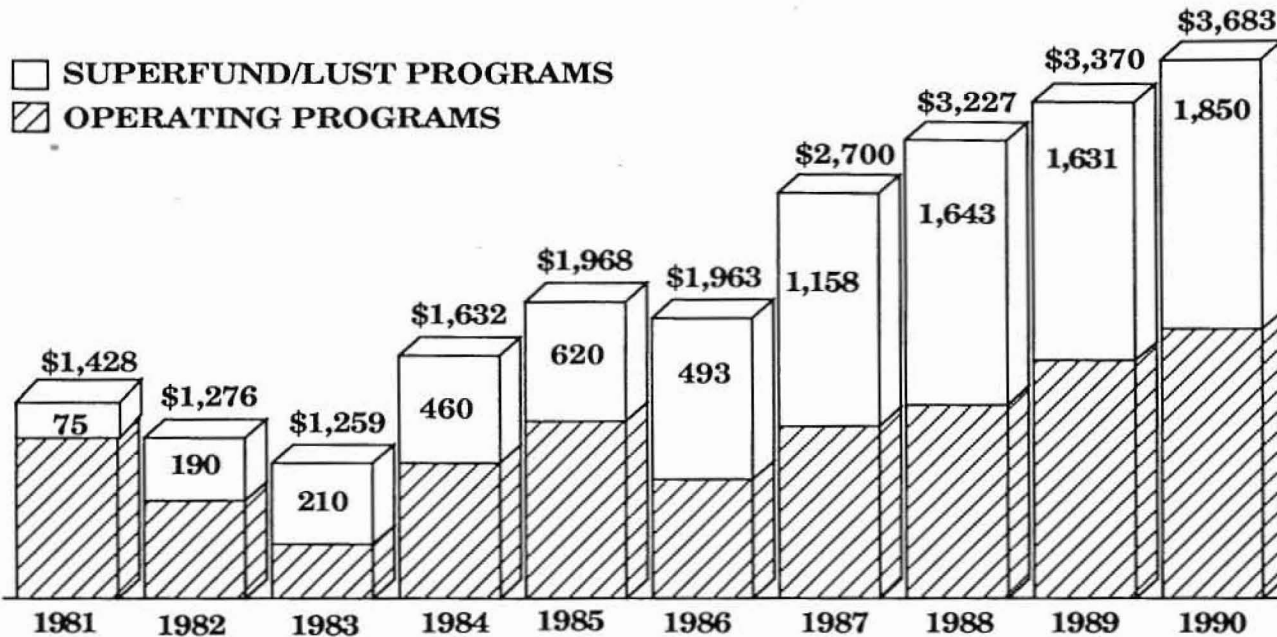
For 1990, the Agency requests a total of \$1.2 billion for the Construction Grants program, of which \$800 million will be for

State Revolving Funds (SRFs) and \$400 million for construction grants. The request supports a \$12 billion phaseout of the Construction Grants program with Federal funding continuing through 1993.

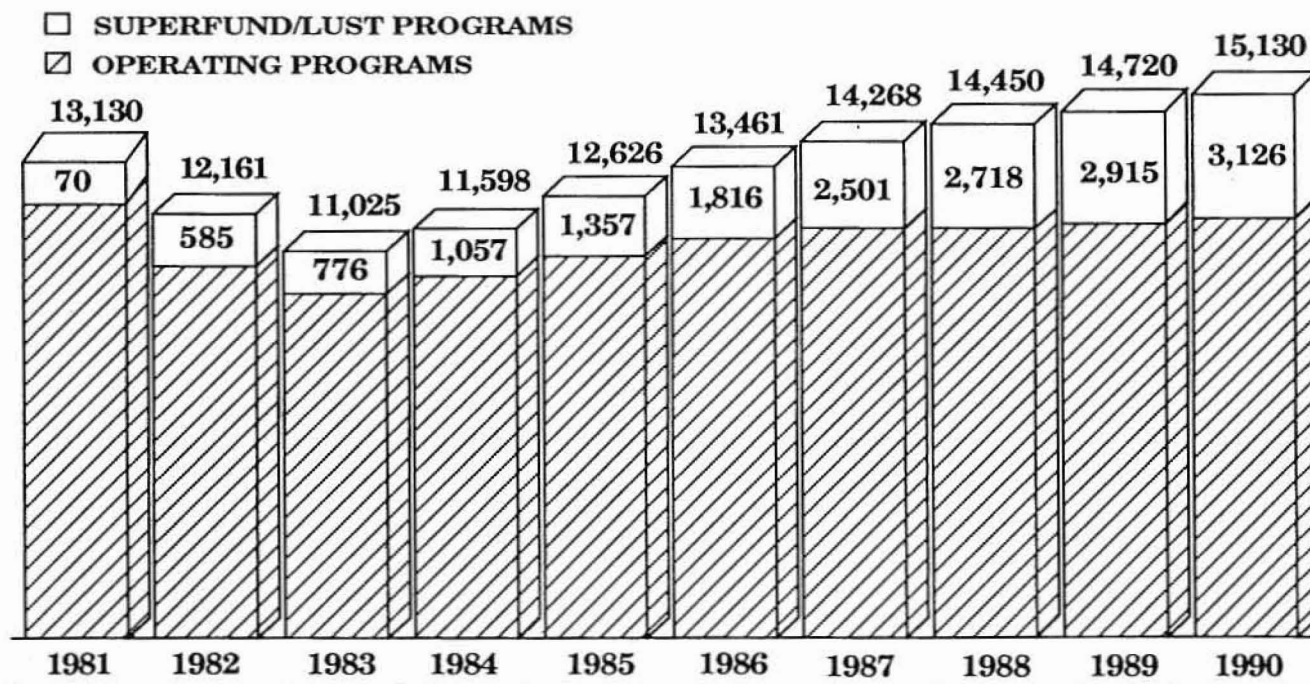
Summary:

The President's 1990 Budget Request for the Environmental Protection Agency provides the Agency with the necessary resources to address the nation's most critical environmental problems. It gives support to our new programs and priorities such as long-term research, global climate, and protecting critical water habitats. It also ensures a stable base for the Agency's operating programs. This year's budget once again reflects the Administration's strong commitment to protect the environment.

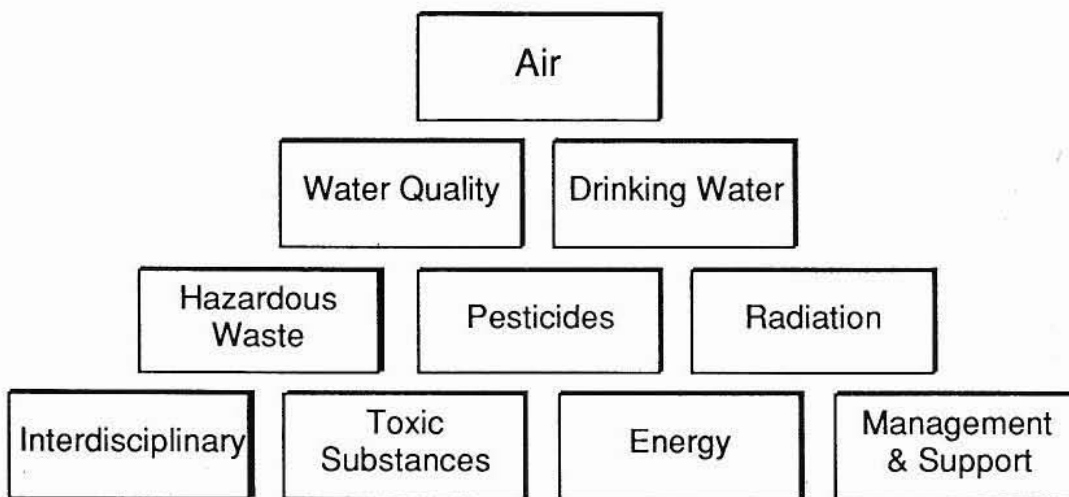
In 1990, The Agency's Budget For Superfund, LUST, And The Operating Programs Will Total Almost \$3.7 Billion



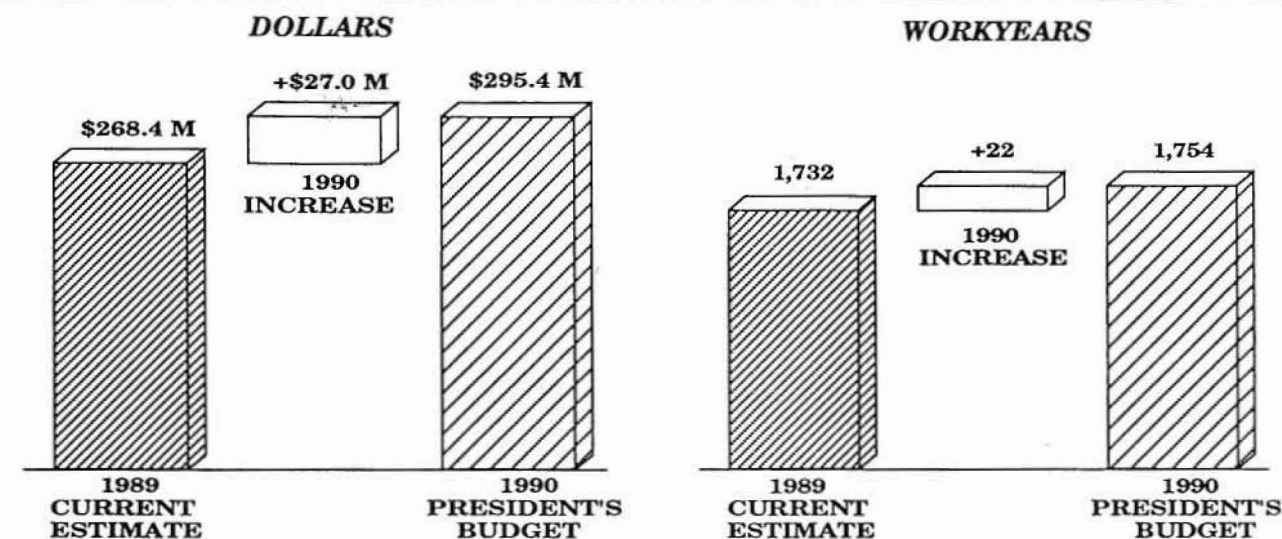
The Agency's Workyear Ceiling Will Increase by 3% in 1990



THE OPERATING PROGRAMS



BUDGET SUMMARY



HIGHLIGHTS

Air Quality Planning and Standards:

In 1990, EPA will provide 195 workyears and \$24.8 million, an increase of 2 workyears and \$5.5 million from 1989 to help achieve the ozone and particulate matter (PM₁₀) National Ambient Air Quality Standards (NAAQS). The air program will also continue implementing the comprehensive toxic pollutant control strategy, begun in 1985, by promulgating additional federal regulations and providing increased support for State efforts to regulate and manage toxic pollutants. In 1990 additional resources will support efforts to upgrade programs for volatile organic compounds monitoring, emissions inventories, and regional ozone models.

State Grants:

Grants to State and local governments are provided under Section 105 of the Clean Air Act. In 1990 the air program will distribute \$99.7 million, to support

State air pollution programs. The grant program will help States continue their efforts to implement the post-1987 ozone/carbon monoxide policy, meet the NAAQS for PM₁₀, reduce exposure to air toxics, and review new pollution sources. States will also continue carrying out core activities including source surveillance and compliance efforts, monitoring networks, and quality assurance programs.

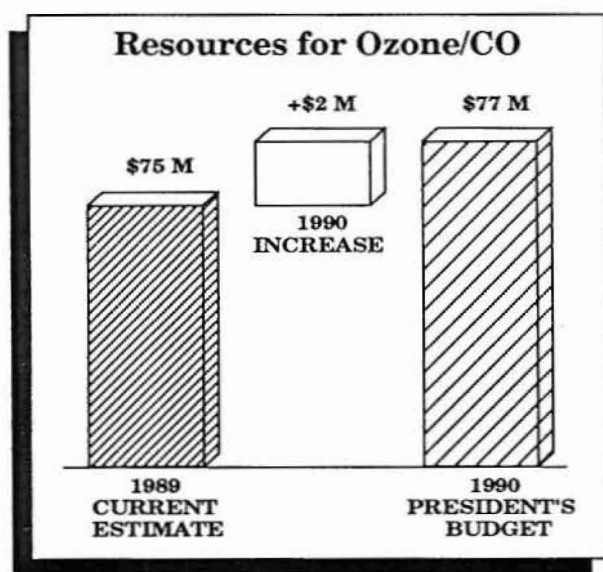
Regional Monitoring and Air Quality Management:

The Agency has allocated 375 workyears and \$17.4 million, an increase of 2 workyears and \$0.8 million over 1989. Additional resources will support increased Regional guidance to States that are reviewing and revising their ozone and PM₁₀ SIPs. Increased resources also support State efforts to implement the post-1987 ozone/carbon monoxide policy. As in 1989, Regions will develop emission inventories, operate Regional ozone

transport models, and expand the air quality data system. They will continue providing effective and timely policy guidance and technical consultation to States. Efforts will emphasize: improving environmental quality, particularly within the non-attainment areas; revising SIPs for updated NAAQS; and controlling air toxics.

Mobile Sources:

The 1990 request for mobile source air pollution control and fuel economy totals 293 workyears and \$31.2 million, which represents an increase of 2 workyears and \$4.7 million over 1989. The increase supports testing and demonstrating alternative fuels as well as implementing fuel volatility and refueling emissions regulations. The standards program in 1990 will continue to emphasize controlling ozone precursors and air toxics.



Mobile and Stationary Source Enforcement:

Mobile source enforcement totals 114 workyears and \$9.5 million, representing an increase of 9 workyears and \$1.9 mil-

lion. The 1990 initiatives for the mobile source enforcement program include enforcing fuel volatility rules and establishing a heavy duty vehicle enforcement program. In addition, the Mobile Source Enforcement program will continue to support State and local programs to prevent tampering and fuel switching.

The request for Stationary Source Enforcement is 312 workyears and \$18.4 million, \$2.0 million over 1989. In 1990, the stationary program will continue efforts in NAAQS attainment and reduce toxic emissions. Additional resources support increased asbestos inspections and PM₁₀ SIP reviews.

Stratospheric Ozone, Global Warming, Indoor Air Quality, and Acid Deposition:

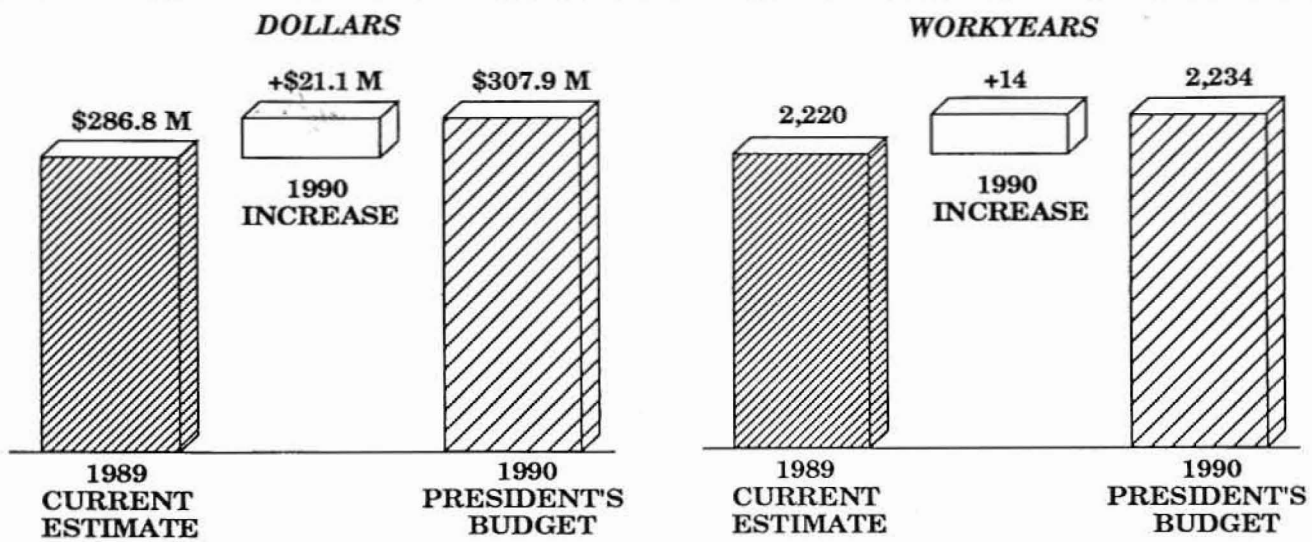
In 1990, the air program will allocate 36 workyears and \$10.1 million to continue efforts to implement the Montreal Protocol, to control domestic and international production and consumption of chlorofluorocarbons (CFCs), and to develop policy guidance on indoor air and acid rain. Further, the program will continue cooperating with other federal agencies on stratospheric ozone depletion and global climate change programs. In addition, the Office is proposing to charge market value for the rights to produce CFCs and related ozone-depleting substances.

Air Research:

The 1990 request for research is 425 workyears and \$84.2 million, an increase of 3 workyears and \$15.1 million. The additional resources will be used to enhance the global climate change research program; to measure and study the formation of acid aerosol air pollutants; and to

provide equipment for a new clinical research facility in Chapel Hill, North Carolina. The new facility will strengthen the Agency's capability to provide data on the effects of inhaled air pollutants on human health. The 1990 program will also support research on indoor air pollution, stratospheric ozone depletion, air toxics, and regional modeling of air pollutants including ozone.

WATER QUALITY



HIGHLIGHTS

Resource increases are targeted primarily toward increasing state capacity through the funding of state grants, and expanded programs for protecting critical habitats as directed by the amended Clean Water Act (CWA).

Critical Habitats:

The EPA programs that address pollution problems in our national estuaries, near coastal waters, wetlands, oceans, the Great Lakes, and Chesapeake Bay, as well as EPA's nonpoint source pollution control program, are at the center of the Agency's efforts to protect critical habitats vital to the nation's environmental and economic health. The 1990 President's Budget includes \$71.8 million and 432 workyears for these programs, an increase of \$9.3 million and 44 workyears over 1989.

The National Estuary program, established under Section 320 of the CWA, will expand to include a total of 16 estuaries in

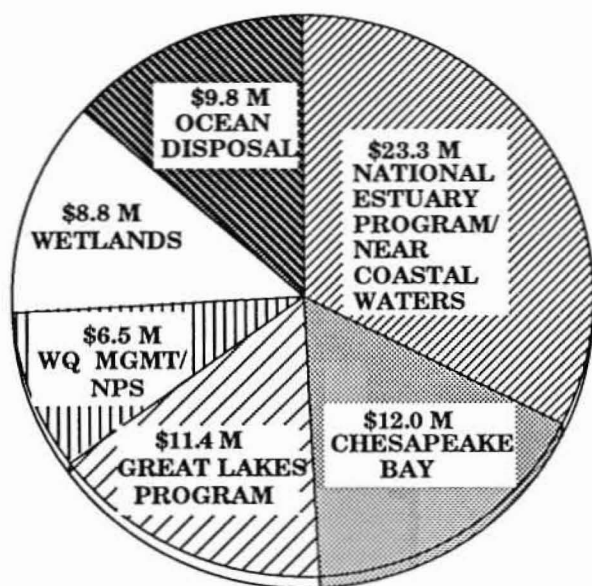
1990. EPA will continue the programs already underway in Albemarle/Pamlico Sounds, Buzzards Bay, Delaware Bay, Delaware Inland Bays, Galveston Bay, Long Island Sound, Narragansett Bay, New York/New Jersey Harbor, Puget Sound, San Francisco Bay, Santa Monica Bay, and Sarasota Bay. At the same time, EPA will select and initiate four new estuary projects on the basis of national significance, with priority consideration given to project sites referenced in the CWA. These four projects will expand the geographic coverage of the program, support the further development of project expertise at the regional and State levels, and apply and test remedial approaches developed in the earlier estuary projects.

In 1990, EPA will continue to work with the National Oceanic and Atmospheric Administration (NOAA) and the States to expand the ongoing near coastal waters (NCW) assessment. This will include organizing NCW assessment data

for use in ongoing EPA permitting and other regulatory or management programs, and beginning an assessment of innovative nonpoint source control programs by the States and EPA Regions. Also, EPA will expand the Gulf of Mexico Initiative to include a monitoring and data collection program. This program will be used in evaluating the environmental health of the Gulf and as a basis for establishing policy and regulatory options for managing Gulf pollution problems.

Protecting the nation's remaining wetlands resources has become a high priority goal for EPA. The Agency's wetlands program will continue to expand in 1990 to reflect the pressing need for increased wetlands protection.

1990 Wetlands Resources



Loss of wetlands has a major impact on our environment in terms of species decline and increased rate and severity of flooding. Additional resources in 1990 will be directed toward increased State assumptions of wetlands protection activities under Section 404 of the CWA and expanded efforts to develop and implement anticipatory approaches to wetlands pro-

tection, especially advanced identification activities. Resources will also support an expanded, more aggressive enforcement and compliance monitoring program. At the same time EPA will continue to work with the Corps of Engineers and other Federal agencies to issue policy and procedures to clarify regulatory requirements of the Section 404 program, including administrative penalty authority, completion of the EPA wetlands delineation manual, and Bottomland Hardwood guidance.

Increased resources in the Ocean Disposal program will be directed primarily toward a more intensive Agency role in developing Environmental Impact Statements (EISs) to evaluate ocean disposal sites for dredged material disposal, as well as disposal site management and monitoring to ensure compliance with ocean dumping criteria. Additional funds will also be used to accelerate the New York Bight Restoration Plan to meet the December 1990 completion deadline, and to continue the New York Mud Dump Site alternative study. In 1990, the Nonpoint Source (NPS) program will concentrate on helping States protect and restore selected watersheds from NPS pollution, with priority being given to high quality and high value waters such as estuaries, wetlands, and ground waters. An increase in workyears will support development of a national outreach program to educate the public and local governments on NPS controls.

The Great Lakes Program will continue to focus on the monitoring, assessment, and control of toxic pollutants as directed in the Great Lakes Water Quality Agreement with Canada and Section 118 of the amended CWA. In 1990, resources will be directed toward final outfitting of the replacement research vessel with

modular laboratories for carrying out toxic sample preparation and analysis. Also, continued implementation of the Chesapeake Bay program will proceed in accordance with Section 117 of the CWA, the revised Chesapeake Bay Agreement, and the Chesapeake Bay Restoration and Protection Plan. Program activities will focus on water quality monitoring and analysis, implementation of nonpoint source controls, and expansion of the Baywide toxics control strategy to include monitoring for pesticides.

Section 106 State Grants:

The amended CWA places a substantial new workload on the States while at the same time phasing out funding from Construction Grant set-asides. With this in mind, EPA is actively studying the feasibility of establishing privatization and technology transfer efforts capable of generating sufficient funds to meet State needs in surface water and drinking water programs. At the same time, to strengthen the existing foundation of State environmental programs, some increased Federal funding is appropriate. Therefore, EPA will direct increases in 1990 toward the Section 106 State Water Quality grants program to help States increase capacity and address the decline in Federal set-aside funding. These resources will help fund implementation of State nonpoint source management plans, State assumption of the Section 404 wetlands program, and Tribal activities mandated by the amended CWA. The 1990 budget includes \$83.2 million for Section 106 State grants, a \$16.1 million increase over 1989.

Also in 1990, in support of the Agency's coordinated Ground-Water Protection Strategy, which calls for States to take the lead role in protecting ground-water resources, EPA will expand the

portion of Section 106 State grants directed toward implementing strong State ground-water protection programs. This funding will be carefully coordinated with resources and programs in the Office of Ground-Water Protection and the Office of Pesticides and Toxic Substances. The funds will provide substantive assistance to States for addressing the related problems of pesticides in ground-water, well-head protection, and contamination of ground-water by nonpoint sources, hazardous wastes, and leaking underground storage tanks.

Water Quality Point Sources:

In 1990, EPA will provide technical assistance to the States as they design and implement the State Revolving Fund (SRF) program. EPA will review and approve SRF programs, award capitalization grants to States, and oversee implementation of SRFs consistent with the requirements of the CWA. EPA will also continue to administer the Construction Grants program with emphases on cost-effective construction, prompt completion of grant-assisted projects, and effective operation and maintenance of completed facilities.

Base programs for water quality monitoring, permit issuance, effluent guidelines, and standards and regulations will continue with special emphasis on reviewing National Pollutant Discharge Elimination System (NPDES) permits for major facilities discharging into near coastal waters and other critical habitats. Significant resources in the water quality monitoring and permit programs will continue to be directed toward meeting requirements of Section 304(l) of the CWA. Under this section, EPA and the States are developing individual control strategies (ICSs) for reducing toxic discharges to

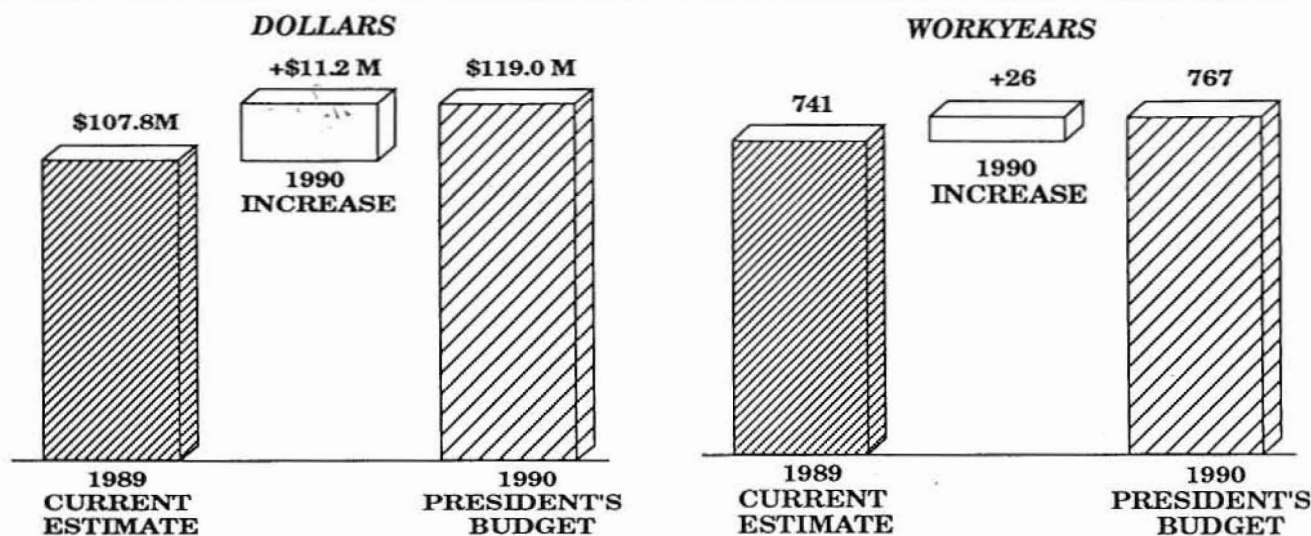
surface waters. Increased resources will go toward analyzing sediment contamination problems and developing sediment criteria, providing assistance to States for using water quality criteria as standards, accelerating the promulgation of sludge technical regulations, and enhancing the data base for tracking permit compliance. The 1990 request includes \$126.6 million and 1,536 workyears for these programs.

Water Quality Research and Development:

The Agency's 1990 budget for water quality research is \$26.3 million sup-

ported by 266 workyears. Increased research will be directed toward determining if constructed wetlands can be used as a practical means for treating wastewaters from small communities and acid mine drainage. EPA will increase research on the development of sediment quality criteria that define safe concentrations of individual chemicals in sediment. In addition, research will develop technical tools and provide guidelines to States on implementing the water quality based approach to pollution control, which will help States to more effectively implement their water quality programs.

DRINKING WATER



HIGHLIGHTS

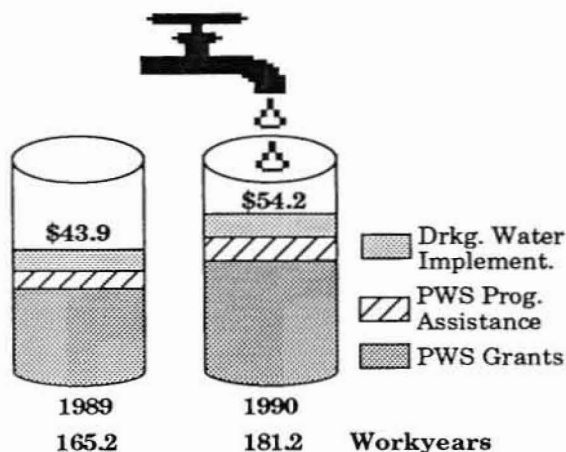
Development of New Drinking Water Standards:

Pesticides and compounds that occur in drinking water as by-products of chemical disinfection will be the 1990 focal points for standard-setting required by the 1986 Safe Drinking Water Act (SDWA) Amendments. A draft Ground-Water Disinfection Treatment National Primary Drinking Water Regulation (NPDWR) and draft Disinfection and By-Product Maximum Contaminant Level Goal (MCLG)/NPDWR will be under development. The program will work to complete standards for 38 Inorganic/Synthetic Organic Chemicals and 30 Chemical/Radionuclides. In 1990, the Drinking Water program will work in conjunction with the Office of Pesticide Programs towards completion of the National Survey of Pesticides in Drinking Water Wells by concluding its sampling and analysis of community water systems.

Mobilization and Public Water Supply (PWS) Implementation:

The Agency requests 181 workyears and \$54.2 million, which represents an increase of 16 workyears and \$10.3 million over 1989. The program will continue to place high priority on improving compliance with the expanding PWS standards in primacy States and in States where EPA must directly implement programs.

MOBILIZATION / PWS IMPLEMENTATION GROWS



Increased resources will enable the Agency to assist States in building the technical capacity to implement the standards and to initiate a major effort to mobilize and educate agencies, organizations, water utility operators and the general public to support the new standards.

Additional resources will also help States to foster system financial self-sufficiency, expand laboratory certification capabilities, implement monitoring and reporting activities for the full range of 83 contaminant standards, and initiate adoption and execution of the lead and surface water treatment rules. EPA will help States provide the increased supervision of system compliance required by the 1986 amendments to minimize the burden on the regulated community.

A new initiative will assist the more than 50,000 small community and non-transient systems to address their SDWA implementation challenges. EPA resources will support "circuit riders" to assess and work out the individual problems of systems, as well as training and individualized "hands-on" assistance to these structurally, financially, and technically disadvantaged systems. The initiative will fund level-of-effort contracts to specialized self-help groups that can most effectively provide these services and demonstration projects to test and evaluate innovative solutions to the challenges facing small systems. The Agency will continue to provide technical assistance to Indian tribes and process 25 primacy applications from Indian tribal authorities.

Enhanced Ground-Water Protection Programs:

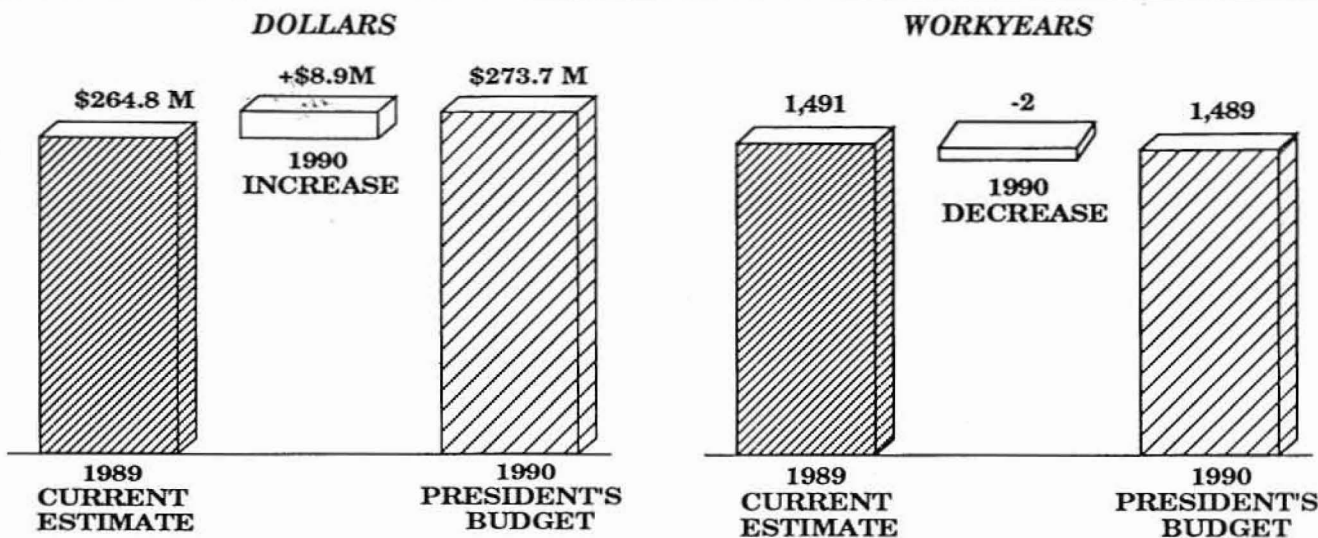
The Agency requests 91 workyears and \$7.8 million, an increase of 10 workyears and \$0.1 million over 1989. In 1990, the Agency will assist States in developing comprehensive ground-water protection strategies that include the full range of activities necessary to address actual and potential sources of contamination of their ground-water resources, such as nonpoint sources, underground injections of toxic waste, and underground storage tanks. In particular, ground-water protection strategies will serve as the foundation for State efforts to address agricultural, especially pesticide, contamination of ground water. Working with the Office of Pesticide Programs, the Office of Ground-Water Protection (OGWP) will assist States in developing pesticide management plans which include prevention measures tailored to area-specific differences in ground-water use, value, and vulnerability.

OGWP will also use additional resources to work with States to develop wellhead protection programs and incorporate these programs into their ground-water protection strategies. The Agency will put into use a minimum data set to assure that ground-water data collected by or on behalf of EPA programs is comparable, compatible, and readily accessible to State and local managers as well as other Federal agencies. EPA is also modernizing STORET and other data management systems to make them available to a larger number of State and local officials in ground-water programs.

Ground-Water and Drinking Water Research:

The 1990 budget request for drinking water research totals 189 workyears and \$23.2 million, which represents a \$1.7 million increase over 1989. Research will produce the data necessary to support regulatory development and revisions mandated by the Safe Drinking Water Act and provide technical assistance on cost-effective approaches States can use in developing and implementing wellhead protection programs. Ground-water research will provide both technical information and improved methods for predicting contaminant movement and transformation. In addition, research on in situ restoration techniques may lead to more cost effective cleanup of aquifers.

HAZARDOUS WASTE



The goal of the Hazardous Waste management program is to ensure that human health and the environment are protected from the risks of hazardous waste through development, implementation and enforcement of sound national waste management practices.

HIGHLIGHTS

Hazardous Waste Regulations and Guidelines:

EPA is requesting \$76.7 million and 368 workyears for hazardous waste regulations and guidelines, a decrease of \$2.3 million and 12 workyears from 1989 levels. A significant segment of EPA's mandated hazardous waste regulations will be in place. An increasing portion of the Agency's technical, regulatory and guidance efforts will turn toward directing Regional and State rule implementation and addressing national solid waste issues. EPA will promulgate corrective ac-

tion requirements at solid waste management units and location standards for hazardous waste facilities. EPA will also continue its ongoing program to ban land disposal of untreated hazardous waste, and will issue technical guidelines to clarify and supplement its completed major rules. Municipal incinerator ash, oil and gas and mining wastes and industrial Subtitle D units comprise a great part of the solid waste universe remaining to be addressed.

State Grants:

The strong technical, regulatory and enforcement relationship between EPA and the States will continue to develop and mature as States develop their UST programs and assume more responsibility for managing the Nation's hazardous waste. Federal grant resources will total \$79.0 million, \$70.0 million for Hazardous Waste and \$9.0 million for UST grants. This increase of \$4.0 million over 1989

levels will support effective State corrective action programs at hazardous waste facilities, compliance monitoring, and enforcement. The Agency will continue to provide guidance and technical assistance to foster State authorization and improve State capabilities in the operation of the Hazardous Waste and UST programs.

Hazardous Waste Enforcement:

EPA is requesting \$43.5 million and 490 workyears for enforcement activities, an increase of \$1.0 million and 6 workyears over 1989 levels. The Agency will expand its monitoring of corrective action at environmentally significant facilities and will start to enforce new regulatory standards such as the land ban and corrective action requirements. The Agency will continue to emphasize compliance monitoring and enforcement against hazardous waste violators and will promote voluntary compliance by, as well as undertake formal enforcement against, UST owners and operators. EPA Regions will support the States in their authorization efforts through enforcement training and technical assistance.

Hazardous Waste Implementation:

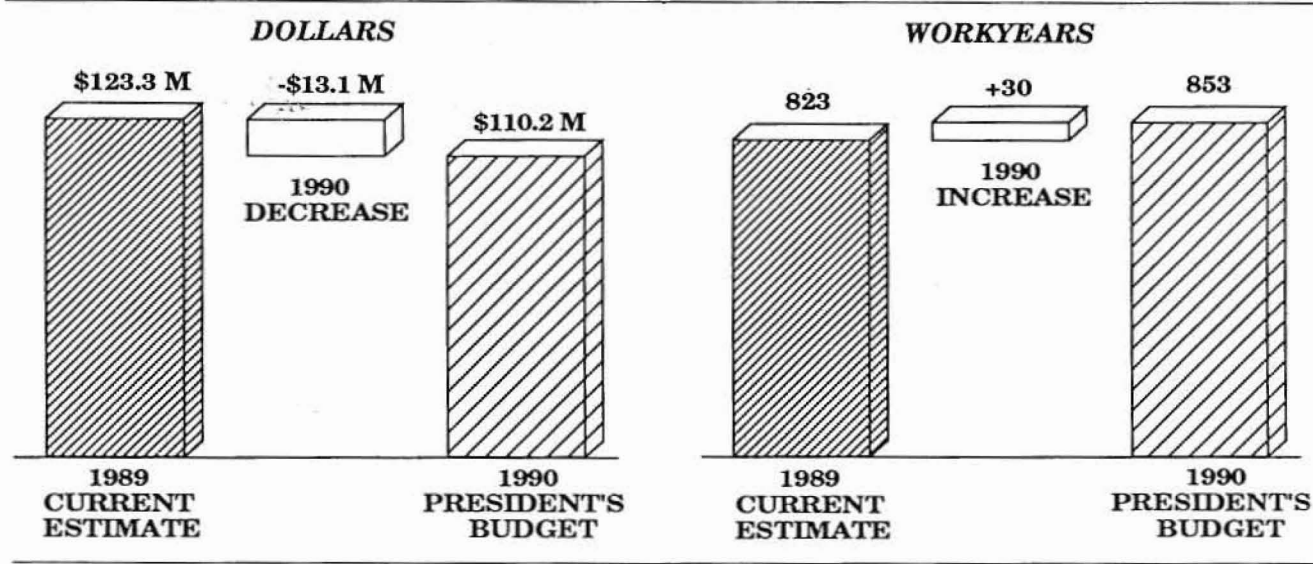
Hazardous Waste Implementation activities will receive \$27.0 million and 380 workyears, increases of \$2.8 million and 5 workyears over 1989 levels. Major efforts will include meeting the incinerator permitting deadline, and processing increasing numbers of hazardous waste

permit modifications and appeals. The Agency will also continue to permit environmentally significant storage and treatment facilities. The Regions will provide technical assistance and guidance to States for development of State solid waste management programs. The Agency will also assist States and local governments in their implementation and enforcement of the chemical emergency planning and community preparedness programs under Title III, the Emergency Planning and Community Right-to-Know Act of 1986.

Hazardous Waste Research:

The Agency requests \$42.3 million and 219 workyears for the Hazardous Waste Research program, a decrease of \$3.1 million and 4 workyears from 1989. This reduction reflects the elimination of an external research center, a phasedown of research support for developing land disposal regulations and the termination of some dioxin-specific research. In 1990, research efforts will focus on pollution prevention, evaluation of innovative technologies for disposing and destroying municipal waste, and chemical accident prevention and mitigation. Areas of continued research will include studies of ground water contaminant behavior, evaluation of municipal waste incinerator emission controls, and engineering studies to improve design, installation, corrective action, and detection methods for underground storage tanks.

PESTICIDES



HIGHLIGHTS

The 1990 Pesticides program request emphasizes a regional initiative, totalling \$12.4 million, to assist the states in three important areas:

Enhanced Ground Water Protection:

The Agency requests 13 workyears and \$6.35 million to build Regional and State capabilities to encourage site-specific management plans focusing on protection of ground water from pesticides. State agriculture departments, which are not traditional participants in pollution control programs, need to link with State water, health and environmental agencies to devise appropriate management strategies for ground-water protection. Regions will be required to oversee and coordinate state efforts, negotiate and monitor state demonstration projects, and provide technical assistance and outreach programs to the states and the public. The Office of Pesticide Pro-

grams will coordinate with the Office of Water regional staff and Water Quality grant programs to develop comprehensive ground-water protection strategies.

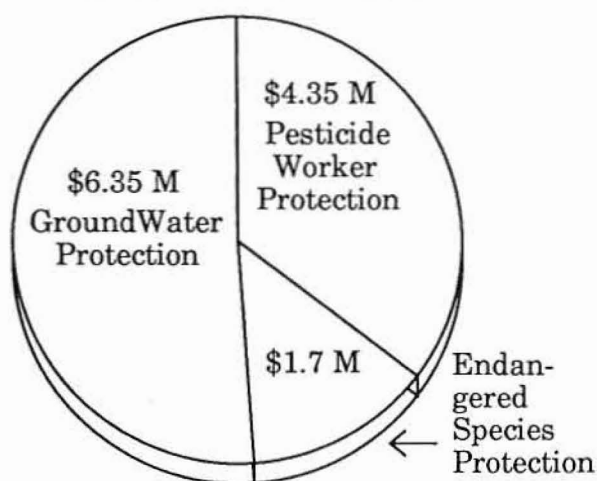
Pesticide Worker Protection:

The Agency requests 13 workyears and \$4.35 million to support the Pesticide Worker Protection initiative, which will provide measures to reduce worker exposure to pesticides and increase worker training in application of pesticides. Implementation of worker protection standards and related product label changes necessitate extensive communications and training, and enforcement efforts. The complexity of reaching so many entities and individuals requires a decentralized program. Training materials and technical assistance will be directed at the local level, tailored to local crops, practices and state programs.

Endangered Species Protection:

The Agency requests 4 workyears and \$1.7 million to support a program focusing on pesticides management and the Endangered Species Act of 1973. States will develop programs which should begin implementation for the 1990 growing season, requiring cooperation among Agency headquarters, Regional offices and the states. State agriculture departments will coordinate with their counterparts in fish and wildlife services, as well as regional offices, to devise the best approach to protect endangered species from harmful pesticides.

Pesticides Regional Initiative
Total = \$12.4 Million



Disposal of Cancelled/Suspended Pesticides:

The Agency is requesting \$15.0 million for 1990 to cover storage costs of pesticides cancelled in previous years, as required by statute. Disposal of ethylene dibromide (EDB) will be completed in 1989. The remaining pesticide stocks of Dinoseb and 2,4,5,T/Silvex are being

stored and will be disposed of once proper disposal procedures and locale are identified.

Continued Emphasis on Existing Pesticides:

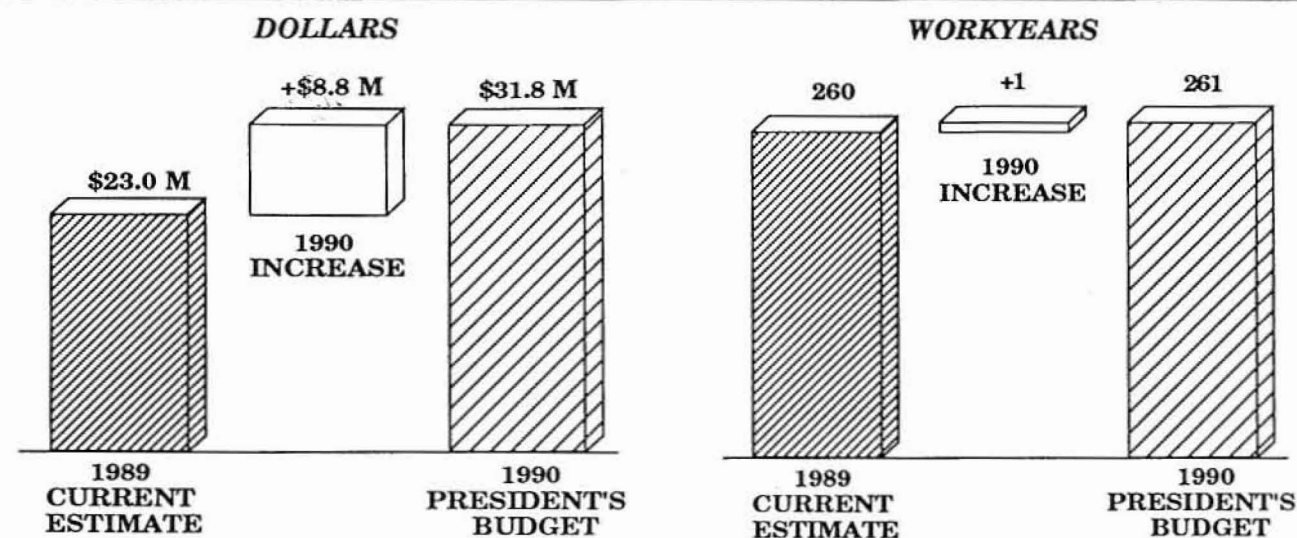
The Agency requests 314 workyears and \$29.3 million to continue its efforts on existing chemicals under the Generic Chemical Review program. This represents an increase of \$1.4 million. In 1990, the Agency will continue to place emphasis on the second round reviews and special reviews of existing pesticides, and increase efforts to fulfill requirements of legislation regarding reregistration activities.

Research and Development:

The Agency requests 111 workyears and \$14.3 million for the Pesticides Research and Development Program, representing an increase of \$0.8 million over 1989. Increased resources will support new biotechnology research, including examination of gene exchange potential, when a genetically engineered organism is released into the environment, and development of new methods for identifying and monitoring biological pesticide agents.

The Agency's pesticides research program will continue to improve abilities to assess risks to human health and the environment from pesticides products through development and validation of test methods for Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) studies, health research on biological markers, dosimetry and extrapolation, engineering and ecological research, and exposure monitoring.

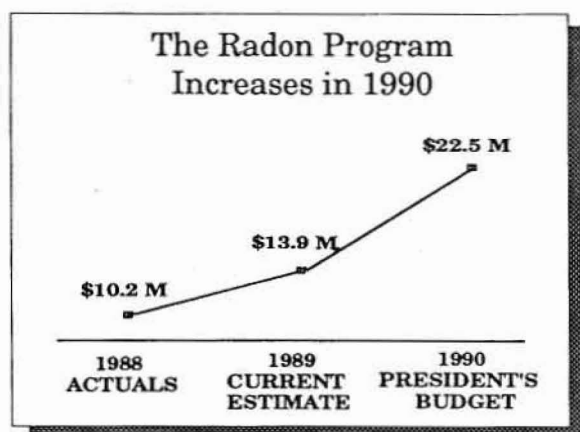
RADIATION



HIGHLIGHTS

The Radiation program will continue its monitoring program, participate in emergency preparedness and response activities, and support standards development as called for in the Clean Air Act and the Atomic Energy Act. In 1990, additional resources will support the start-up costs associated with implementing the new Indoor Radon Abatement Act.

Radon Legislation:



In 1990 the Agency is requesting 63 workyears and \$22.5 million, an increase of \$8.6 million. Resources will support initial efforts to implement the Indoor Radon Abatement Act. In 1990, \$8.0 million will be used to initiate the three-year radon grant program. The radon program will provide ongoing support for mitigation and prevention programs; contractor proficiency training courses; national, state, and school surveys; and public information guides.

Radiation Standards and Implementation:

In 1990, as in 1989, Radiation Standards and Implementation totals 109 workyears and \$8.6 million. The radiation program will continue to develop, promulgate, and implement standards, regulations, and guidelines to minimize radiation exposure. In particular, the Agency will develop high and low level waste standards and continue work on residual radioactivity.

Regional Offices:

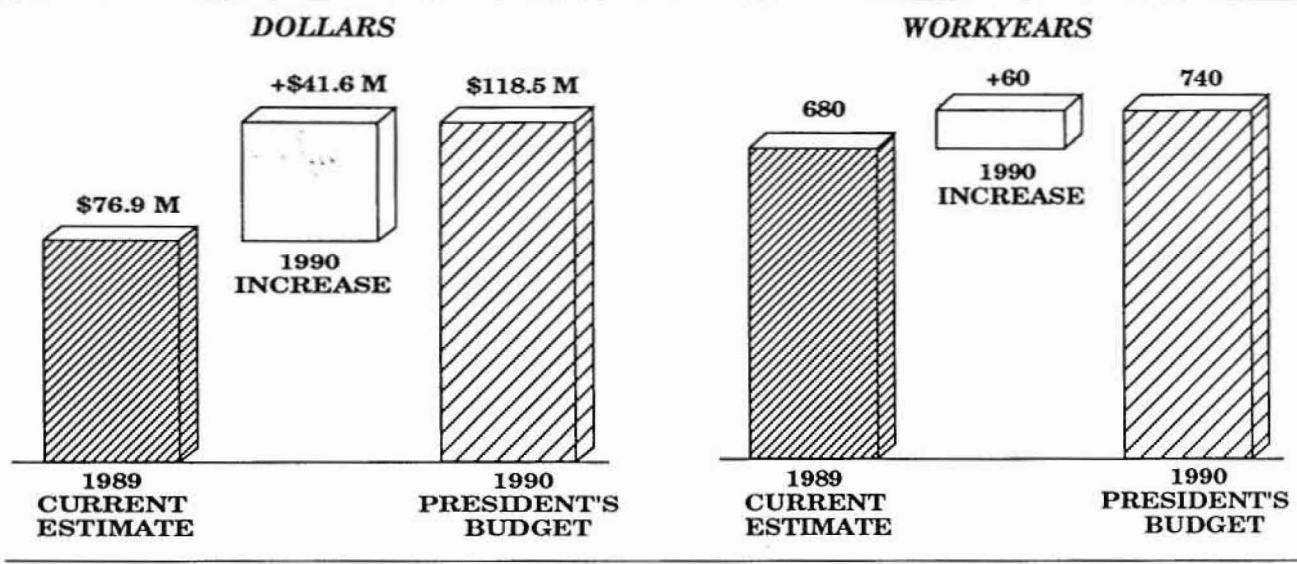
The program has allocated 24 workyears and \$1.0 million to Regional offices to support radon training centers and provide ongoing assessment and mitigation of radiation-contaminated sites. The program will also provide technical assistance to States for emergency response planning and for characterizing and identifying hazardous radioactive waste sites.

Radiation Research:

The 1990 request for radiation research is 23 workyears and \$4.2 million, an increase of \$0.7 million. The research program will continue to provide the Office of Radiation Programs, State and local

governments and other officials with the scientific data needed to determine exposure to radioactive materials in the environment, and to determine cost-effective techniques for mitigating exposure to indoor radon.

Included in the 1990 request are 18 workyears and \$3.9 million, an increase of \$0.5 million over 1989, to support the radon mitigation program. The resources will be used to demonstrate techniques in existing homes; to evaluate preventive measures in homes under construction; and to expand research on mitigation techniques in schools. The request also includes 61 reimbursable workyears to provide monitoring support to the Department of Energy at the Nevada Test Site.



HIGHLIGHTS

Interdisciplinary Research:

The Interdisciplinary research program consists of several research programs that benefit all media. These include quality assurance management, technical information and liaison, scientific assessments, reducing uncertainty in risk assessment, exploratory research, and new initiatives in infrastructure improvements and long-term research. The 1990 interdisciplinary research request includes 170 workyears and \$77.7 million, an increase of 36 workyears and \$37.3 million over 1989.

Of this increase, 14 workyears and \$28.3 million are to strengthen our long-term research. This initiative includes funds for ecological trend research to identify, collect, and analyze environmental monitoring data and to report on the current status, changes, and trends in the nation's ecosystems. This research will be conducted in conjunction with other Fed-

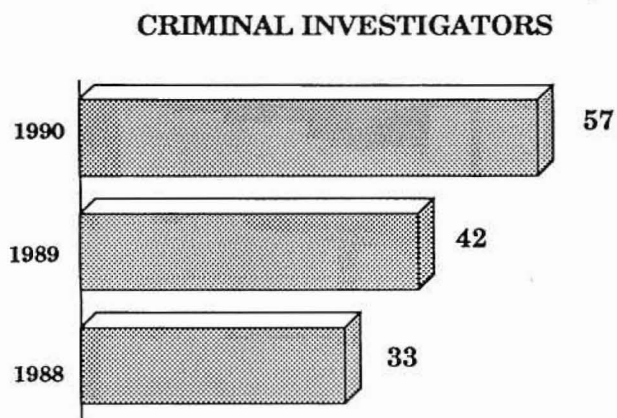
eral agencies and focused by a new national ecological research and environmental statistics initiative. This long-term research initiative also includes additional funding for the Exploratory Research Grants Program.

Another initiative includes a \$4 million increase for the procurement of scientific equipment to upgrade the Agency's aging scientific research equipment. High-quality analytical research requires sophisticated state-of-the-art equipment. Since 1988, the Agency has been working to upgrade its scientific infrastructure.

Civil and Criminal Enforcement:

In 1990, the Agency will strengthen its Civil and Criminal Enforcement Programs. The 1990 Budget request includes 440 workyears and \$26.2 million for legal support provided by the Office of Enforcement and Compliance Monitoring (OECM), an increase of 24 workyears and

\$3.1 million from 1989. Part of this increase will fund litigation support to insure that civil environmental cases are well prepared for court. Improved civil cases should encourage higher levels of compliance in the future.

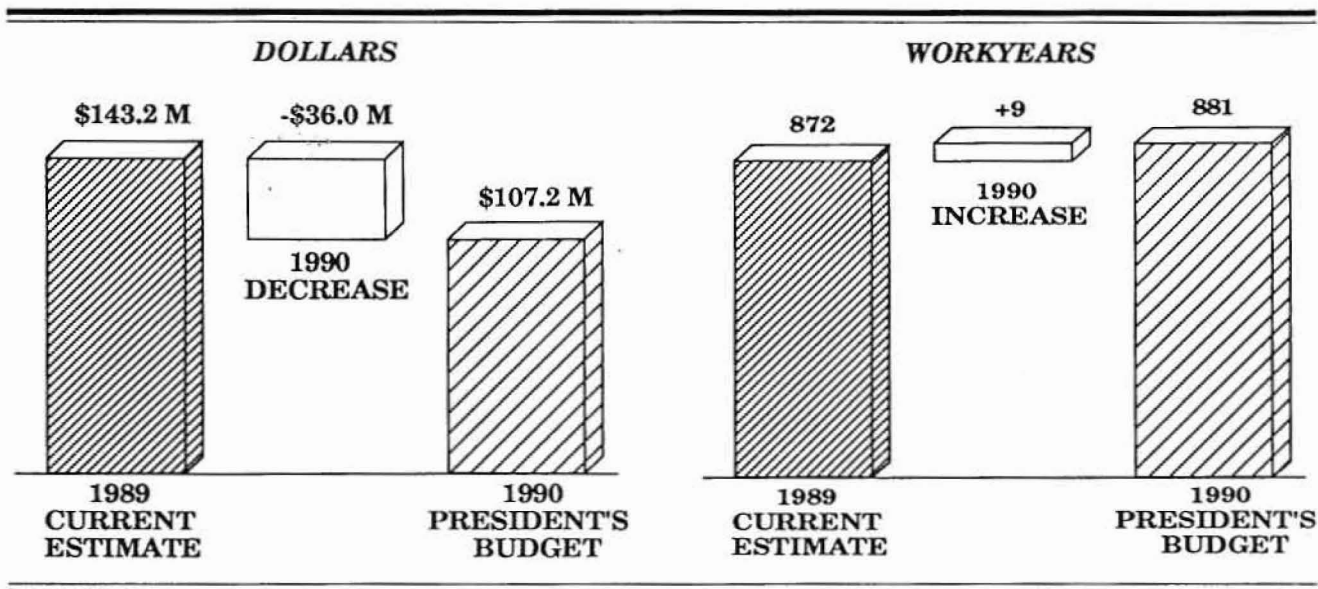


Most of OECM's increase will support additional criminal investigators, legal support, and technical support for the Criminal Enforcement Program. This increase will allow the Agency to provide a more effective national deterrent to those who willfully violate environmental laws and regulations.

Federal Facility and Indian Land Compliance:

EPA will maintain liaison with other Federal agencies and Indian Tribes and will continue to implement environmental programs on Federal and Indian lands. The 1990 budget request includes 115 workyears and \$12.1 million for these activities, an increase of \$1 million from 1989. The program will continue to conduct environmental assessments of Federally funded municipal wastewater treatment projects and to review permits issued to new sources. In addition, the Agency will continue its effort to improve environmental programs on Indian lands.

TOXIC SUBSTANCES



HIGHLIGHTS

The decrease in funding is largely due to the Agency's decision not to request funds provided in 1989 for asbestos abatement loans and grants to schools.

Asbestos in Buildings:

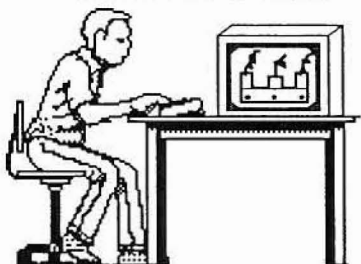
The Agency requests 11 workyears and \$6.4 million for activities related to asbestos abatement, which represents an increase of \$3.0 million over 1989. Implementation of the Asbestos Hazard Emergency Response Act (AHERA) schools program will continue, as will monitoring of the Asbestos Hazard Abatement Act (ASHAA) loan and grant awards from past years. The program will also implement activities to address several key recommendations made in the 1988 Report to Congress on asbestos in public and commercial buildings. Those activities include increasing the infrastructure of accredited personnel, evaluating the AHERA schools program, providing technical assistance to building owners on

thermal insulation, and supporting research, to be jointly funded with the private sector, to investigate exposure levels in buildings following abatement actions. The program will also focus on encouraging States to assume AHERA program responsibilities, including accreditation of asbestos professionals.

Title III Toxic Release Inventory:

In 1990 the Agency will focus additional resources on implementation of the Toxic Release Inventory (TRI) requirements of Title III of the Superfund Amendments and Reauthorization Act of 1986. The request for implementation and enforcement totals 52 workyears and \$16.0 million, which represents an increase of \$3.5 million over 1989. Under the TRI program, EPA collects and makes publicly available annual emissions data from facilities that manufacture, process or use certain toxic chemicals.

The 1990 Budget Stresses TRI Data Quality



The 1990 TRI program will focus on providing quality-assured data to the public and encouraging the development of TRI programs at the state level. Compliance assistance and enforcement efforts will focus on ensuring compliance with reporting requirements as well as the quality of data being reported.

Enforcement and the Regional Toxics Program:

The 1990 budget requests 193 workyears and \$15.0 million for the Toxic Substances Enforcement and Regional Toxics programs, reflecting an increase of \$3.0 million and 10 workyears. These resources will enhance the Agency's ability to manage the risks associated with existing toxic substances. The workyear increase will provide for new regional staff to facilitate regional and state involvement in the development and implementation of national regulatory policies. The additional resources also reflect the Agency's commitment to enhance the Agency's enforcement capabilities and to strengthen the regional and state compliance network, especially in the areas of polychlorinated biphenyls (PCBs) and asbestos.

Reducing Risks from New and Existing Chemicals:

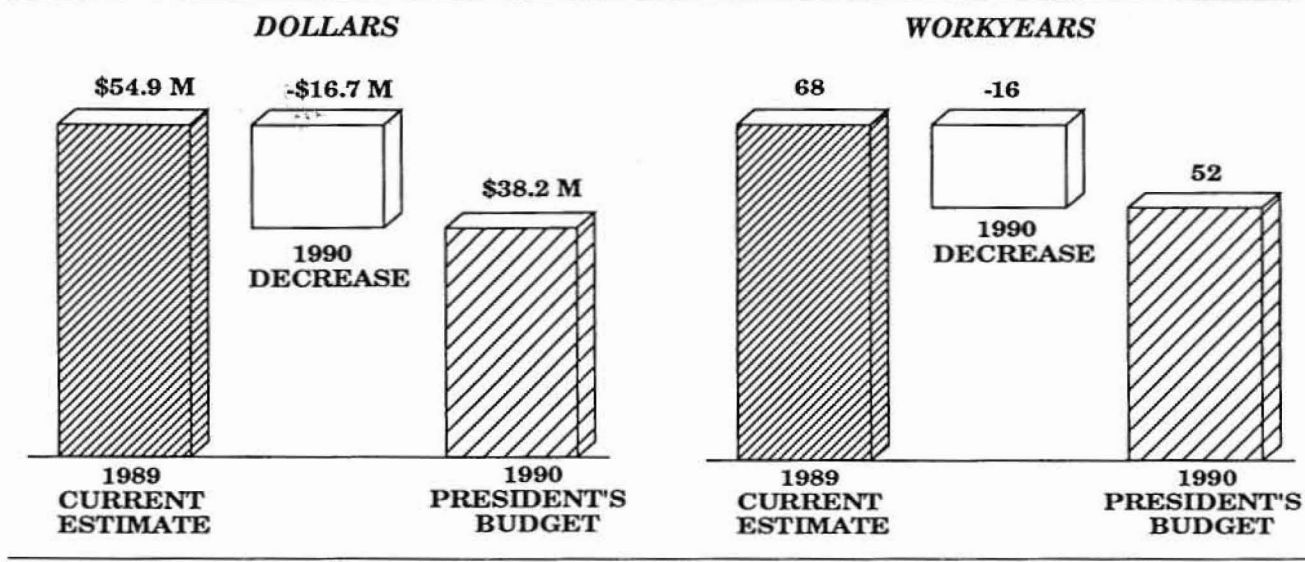
The Agency requests a total of 439 workyears and \$41.8 million for the New

Chemical Review, Existing Chemicals and Chemical Testing programs. The New Chemical Review program implements the preventative philosophy of the Toxic Substances Control Act (TSCA) by reviewing new chemicals for risks before they are manufactured or imported, including new biotechnology product reviews. The Existing Chemicals program will focus on those chemicals for which there is the maximum potential for reducing risks through governmental intervention, including asbestos, PCBs, chlorinated solvents, dioxins and furans, and other chemicals identified through the Toxic Release Inventory and by other Federal programs. Test rules developed under the Chemical Testing program will require industry to conduct studies to fill data gaps on chemicals of concern, especially those data gaps identified for chemicals found at known Superfund sites and those identified through the Title III Toxic Release Inventory.

Research and Development:

The Agency requests 186 workyears and \$28.0 million for the Toxic Substances research program. In 1990, increased research emphasis will be placed on development and evaluation of asbestos abatement, control and monitoring technologies, development of emission monitoring methods for SARA Title III chemicals, and increased health and engineering studies in the field of biotechnology.

The toxic substances research program will continue to provide support to the Office of Toxic Substances by performing research in the areas of test method development and validation, structure activity relationships, engineering and technology, and ecological risk assessment.



HIGHLIGHTS

Acid Rain Research:

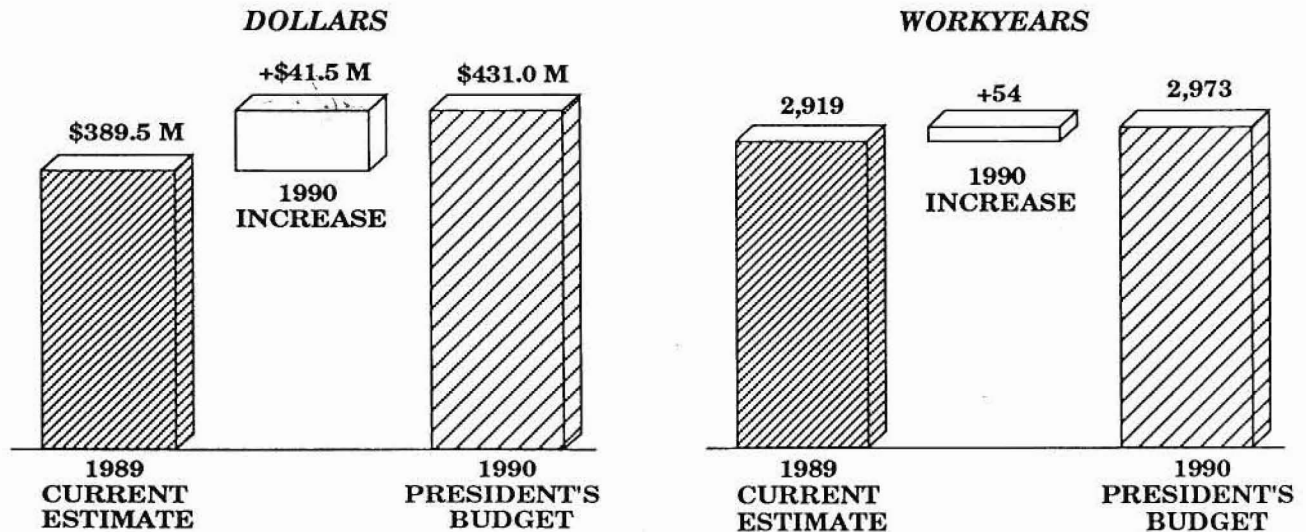
1990 is the final year of the National Acid Precipitation Assessment Program (NAPAP) mandated by the Energy Security Act of 1980. NAPAP's objective is to understand the causes and effects of acid deposition and to provide policy makers with credible, peer reviewed scientific data which can be used to help assess potential controls on air emissions that cause acid deposition. The reduction in acid rain research of 16 workyears and \$16.7 million reflects the completion of projects including aquatic and terrestrial effects research projects; emission projection models; and Regional Acid Deposition Model (RADM) development. The results of this research will be synthesized and integrated into the 1990 NAPAP Final Assessment Report to Congress.

The 33 workyears and \$34.7 million requested in 1990 will be used to enhance the Agency's capability to predict deposi-

tion trends and provide an integrated assessment of the state-of-the-science for the 1990 Assessment. Research will continue to be focused in six major areas. First, air emissions estimates of acid rain precursors will be improved. Second, the advanced version of the Regional Acid Deposition Model (RADM) will be evaluated using field data. RADM is designed to assist policy makers in predicting changes in deposition levels which result from changes in nearby or remote sources. Third, wet and dry deposition of acidic materials will be monitored to enhance data bases for use in effects studies. Fourth, data will be integrated to produce a national scale assessment of damage to aquatic ecosystems. Fifth, forests considered sensitive to acidic pollutants will be studied while available data on forest effects will be integrated for the 1990 Assessment. Finally, the amount of deterioration to materials resulting from exposure to acidic pollutants will be assessed.

LIMB Control Technology Research:

In 1990, 19 workyears and \$3.5 million will be provided for LIMB research. The LIMB (Limestone Injection Multi-stage Burner) research program develops and evaluates emission control technologies that will remove sulfur oxides (SO_x) and nitrogen oxides (NO_x) from the flue gases of coal-fired boilers. Combustion testing of a tangentially-fired LIMB technology at Yorktown, VA will be completed in 1990. Commercial demonstration of this LIMB technology is being funded jointly by the Federal government and industry.



HIGHLIGHTS

Office of Policy, Planning and Evaluation:

The budget provides 315 workyears and \$38.8 million to support the Agency's policy analysis, planning and evaluation efforts. This represents an increase of 2 workyears and \$0.1 million from 1989. Working closely with EPA programs, other agencies and international organizations, the office will have lead responsibility for important aspects of the global climate change program. In addition, a new pollution prevention program will begin to explore the possibilities of waste minimization, reuse, and recycling as part of an Agency-wide effort to provide alternatives to traditional "end of the pipe" strategies. The Office will continue to support risk communication, management and assessment, perform studies for evaluating the economic impact of EPA's regulations, develop environmental indicators, provide statistical services and continue the operation of planning and management tracking systems.

Office of General Counsel:

The budget for legal services supports a total of 219 workyears and \$12.6 million to provide legal advice and assistance to both Headquarters and Regional managers. This represents an increase of 2 workyears which will provide additional legal support for air programs and procurement review. The program will continue to assure legal consistency in policies and decision-making throughout the Agency. In addition, this program defends the Agency in all litigation taken against it.

Office of External Affairs:

The budget provides 130 workyears and \$8.2 million for the Office of External Affairs. This represents an increase of 2 workyears from 1989. This office provides Agency outreach functions such as Congressional, legislative, and community relations programs.

Office of Inspector General:

The budget provides 243 workyears and \$21.4 million to support the Office of the Inspector General. This is an increase of 16 workyears and \$5.2 million over 1989. The Inspector General will increase the number of Construction Grant audits and will start audits of States' Revolving Fund Plans. The Inspector General will also continue its fraud prevention program as well as internal audit and investigative efforts. In addition, due to recently enacted legislation, the Office of the Inspector General now has a separate appropriation account.

Office of Administration and Resource Management:

The budget provides 1,465 workyears and \$76.3 million for Headquarters and Regional components of the Office of Administration and Resources Management. This represents an increase of 33 workyears and \$8.4 million over 1989. The Office of Administration and Resources Management will continue to build on progress already achieved in assuring a strong system of financial internal controls, expanding and improving contract and grant administration, integrating financial management systems in accordance with Circular A-127, placing greater emphasis on achieving significant produc-

tivity improvements, focusing attention on the public/private partnership initiative, and ensuring quality administrative support to Agency programs. The office will also support data sharing and integration with states through the State/EPA data management program.

Support Services:

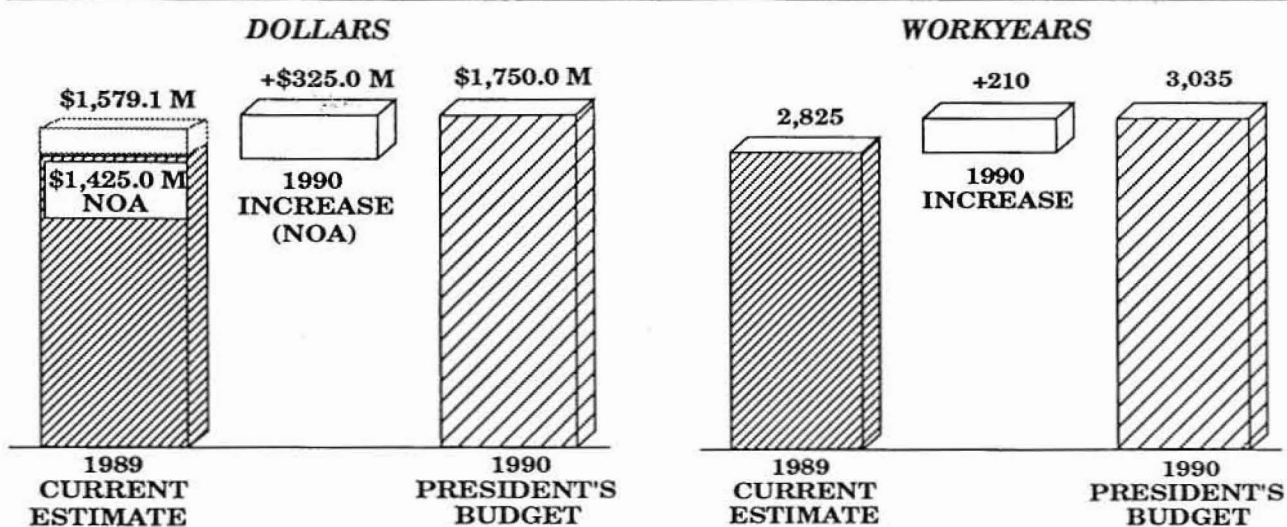
The budget contains \$225.9 million for support services, an increase of \$33.5 million over 1989. These increases will provide additional Agency computing capacity and general support services such as automated data processing, rent, utilities, maintenance, postage and supplies to all Agency programs. The account also provides support services for Agency laboratories.

Building and Facilities:

The budget contains \$8.0 million for buildings and facilities. Repair and improvements funds will be used to address critical repairs related to employee health and safety, required alterations, and maintenance and energy conservation efforts. The Agency will also emphasize projects supporting EPA's compliance with environmental regulations. The Agency plans to provide more support for day-care facilities.

SUPERFUND

SUPERFUND



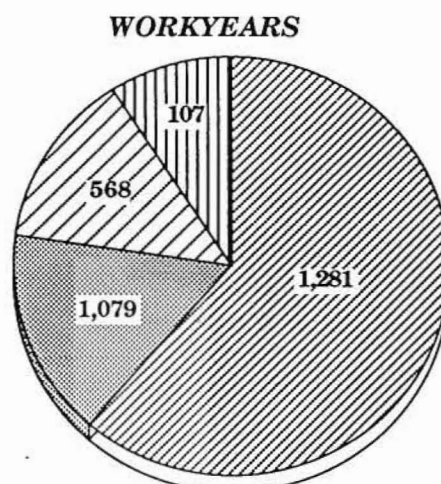
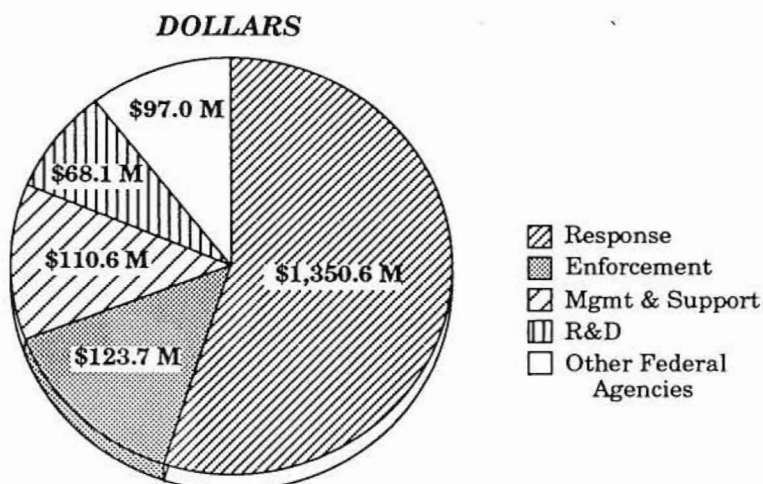
NOA = New Obligational Authority

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, charges the Agency with the responsibility for protecting human health and the environment by providing emergency response to hazardous substances released into the environment and the remediation of uncontrolled hazardous waste disposal sites. Superfund activities are financed by excise taxes on petroleum and certain chemical feedstocks, a corporate environmental tax, response cost recoveries, fines and penalties, and general revenues.

In carrying out its mandate, the EPA will provide direct Federal site response or will initiate enforcement actions to compel potentially responsible parties (PRPs) to conduct response actions. When direct Federal action occurs, the EPA will seek to recover the response costs from those found responsible.

While the Agency has the primary responsibility for implementing the program, CERCLA, as amended, and Executive Order 12580 provide a mandate for the Agency to work closely with a variety of other Federal agencies and the States to carry out the Act. Close cooperation among various Agency offices, the States, and other Federal agencies with specific program responsibilities is required to effectively integrate the various program responsibilities established in the Act.

The 1990 President's Budget for Superfund represents a continued commitment on the part of the Agency to meet its responsibilities to protect human health and the environment from uncontrolled releases of hazardous substances and reflects the Agency's commitment to meet the SARA mandatory schedules for remedial action starts. The Agency's strategy is to increase its emphasis on enforcement while maintaining a strong response capability. The budget provides



the Agency with **\$1,750.0 million** in new budget authority supported by **3,035 workyears**. This represents an increase in new budget authority of \$325.0 million and 210 workyears. In addition, our total program in 1989 will include \$154.1 million in prior year funds, bringing the total operating program to \$1,579.1 million.

HIGHLIGHTS

Response Actions:

The Agency is requesting \$1,350.6 million supported by 1,281 total workyears for site response. This represents an increase of \$162.4 million and 60 total workyears over 1989 levels.

This funding will support the 75 new remedial designs and 41 new constructions which the EPA plans to begin in 1990. The total response program managed by the Agency is significantly higher as PRPs and other Federal agencies begin to play an expanded role in site response. In addition, the Agency plans to complete administrative and litigation enforcement actions requiring oversight of responsible party remedial activities. PRPs are expected to initiate 65 new designs and 50 new constructions in 1990. This is a total of 140 new designs and 91 new constructions representing a 10 percent increase

in designs and a 68 percent increase in constructions over 1989 levels.

The Agency also intends to initiate engineering studies at 55 sites for eventual remedial action. PRPs are expected to start engineering investigations at an additional 50 sites. By the end of 1990, planning work will have been initiated at nearly 1,000 National Priorities List (NPL) sites, over 90% of the current NPL.

Emergency Response:

The Agency, as part of its response activities, will continue to focus its removal actions on "classical emergencies" or time critical responses where there is no PRP, State, or local response alternative. A lack of action on the Agency's part in these situations could result in substantial harm to the public health and/or the environment. Continued emphasis will be placed on greater State and local participation in all areas of emergency response.

Enforcement Activities:

The Agency is requesting \$123.7 million, supported by 1,079 workyears, for enforcement activities. This represents an increase of \$6.9 million and 88 workyears over 1989 levels. Increases provide support for 83 case referrals for settlement or

litigation to the Department of Justice, compelling PRPs to undertake response action. This represents a 22 percent increase for cases over 1989 planned activity levels.

In 1990, the Agency will develop 80 cost recovery cases, representing an 18 percent increase over 1989 activity levels. In addition, the Agency expects to execute 68 new and support 46 ongoing inter-agency agreements with the other Federal agencies for remedial response at sites owned or operated by those agencies.

Other Federal Agencies:

The EPA is requesting \$96.9 million for other Federal agencies, an increase of \$2.5 million from 1989. Consistent with the Agency's emphasis on strengthening its enforcement efforts, the Department of Justice will receive greater resources to ensure adequate support of its larger caseload. In addition, almost 69 percent of the interagency budget is targeted to support the significantly expanded health authorities under SARA. These activities are primarily conducted by the Department of Health and Human Services.

Research and Development:

The Agency requests 107 workyears and \$68.1 million for the Superfund research program, representing an increase of 4 workyears and a decrease of \$5.0 million. The reduction in funding occurs because of the availability of carryover funds of \$5.0 million for 1989 for University Research Centers. The Centers were selected in 1988 but will not receive their initial funding until 1989.

The Superfund research program will continue to support the Agency, States, and industry in resolving technical problems which inhibit the effective implemen-

tation of removal and remedial actions at Superfund sites. The research program also supports the commercialization of alternative treatment technologies for use in response actions through full scale demonstrations under the Superfund Innovative Technology Evaluation (SITE) program. In 1990, research efforts will focus primarily on evaluating, demonstrating, and commercializing advanced field monitoring methods to provide real-time monitoring data at Superfund sites and developing expert systems for providing decision makers information on response action technologies. Additional technical support will also be provided to Regions and States in areas such as ground water modeling, remote sensing, and sampling methods.

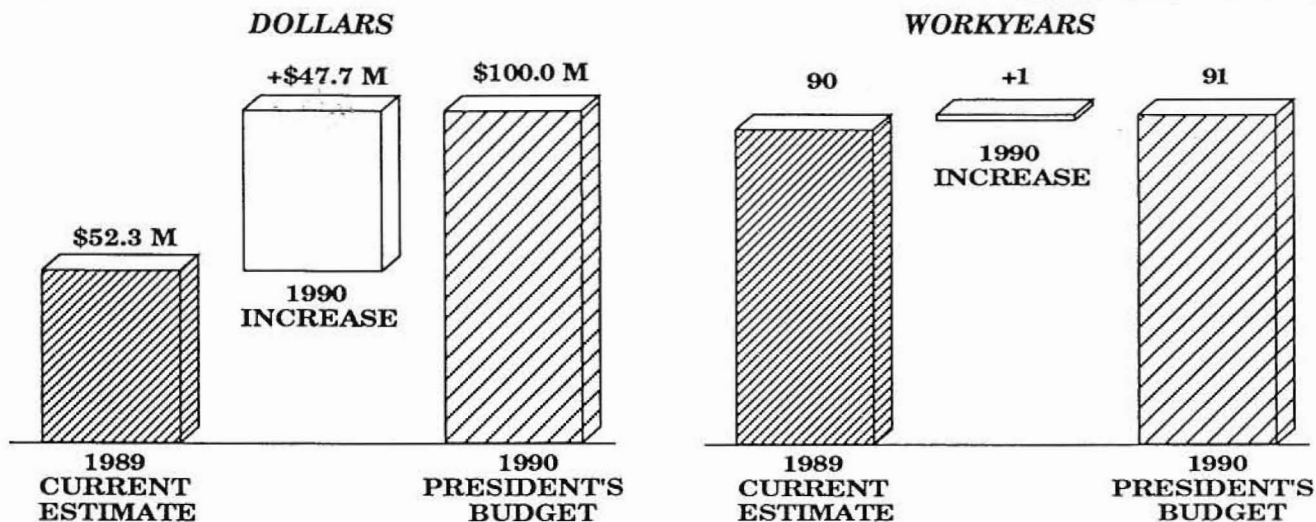
Management and Support:

A total of 568 workyears and \$110.6 million is requested for administrative and management services to support the Superfund program. The Agency will emphasize the award and monitoring of an increasing number of Superfund contracts and grants, recruitment for Superfund employees, development of property management procedures for Superfund contracts, and meeting the program's demand for new and revised information systems. The Agency will also continue to implement improvements in financial documentation procedures for cost recovery cases.

Inspector General:

Recently enacted legislation establishes a separate Inspector General (IG) appropriation. Superfund will transfer from Management and Support \$10.3 million and 68 workyears to the IG appropriation, an increase of \$3.4 million and 15 workyears over 1989 operating levels. These resources support an increase in Superfund audits and investigations.

LEAKING UNDERGROUND STORAGE TANKS



The goal of the Leaking Underground Storage Tank (LUST) Trust Fund program is to assure timely and appropriate response to leaking underground petroleum tanks. The Agency's strategy is to encourage the development of comprehensive and permanent LUST programs in all the States and Territories. Under financial responsibility regulations, owners and operators have the primary responsibility for responding to leaks. The States will provide enforcement and oversight to ensure that owner and operator responses are appropriately conducted. The States will also conduct responses at abandoned sites and where owners and operators are unwilling or unable.

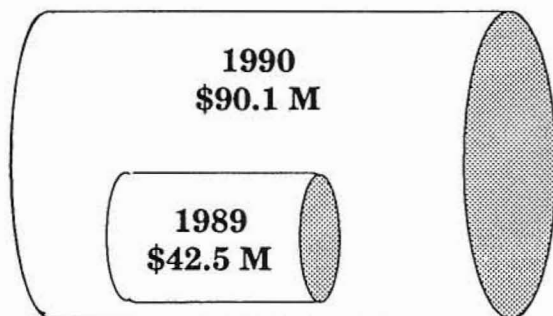
HIGHLIGHTS

State Programs:

The States will receive \$90.1 million through cooperative agreements, an increase of \$47.6 million over 1989 levels.

There are approximately 2 million underground storage tanks in the U.S., of which between 10% and 40% are expected to be leaking. The most efficient and effective method of addressing these threats to human health and the environment is through the States. The States are better equipped to tailor the LUST program to their own circumstances and needs. Therefore, the Agency will encourage the States to build strong and independent LUST programs. EPA will assess each State program's capabilities and work with each State to continually improve performance. The Agency will act as a clearinghouse to disseminate innovative solutions developed by individual States to other States facing similar problems. The Agency will encourage the creation of independent permanent State funding sources, recognizing that Federal resources will fund only a small portion of the needed response and enforcement activities.

Leaking Underground Storage Tanks Cooperative Agreements



Enforcement:

Leak detection and closure requirements are expected to significantly increase the number of leaks reported. Therefore, voluntary compliance by a high percentage of owners and operators is key to successful implementation of the program. The States will provide oversight and technical assistance to owners and operators performing response actions at their own sites. Formal enforcement ac-

tions will be used to compel response actions by recalcitrant owners and operators. When States actually perform response actions, they will seek recovery of appropriate costs from owners and operators.

Response:

States have inventoried thousands of leaking tanks which are now awaiting response. A significant portion of the increased cooperative agreement resources will fund State responses at abandoned sites and at sites where the owners and operators are unwilling or unable to conduct responses. When the LUST Trust Fund is used, response costs will be sought from all recalcitrant owners and operators. The Agency will disseminate technical information on remedial technologies, as well as assist States in developing the capabilities to manage a response program.

CONSTRUCTION GRANTS

CONSTRUCTION GRANTS

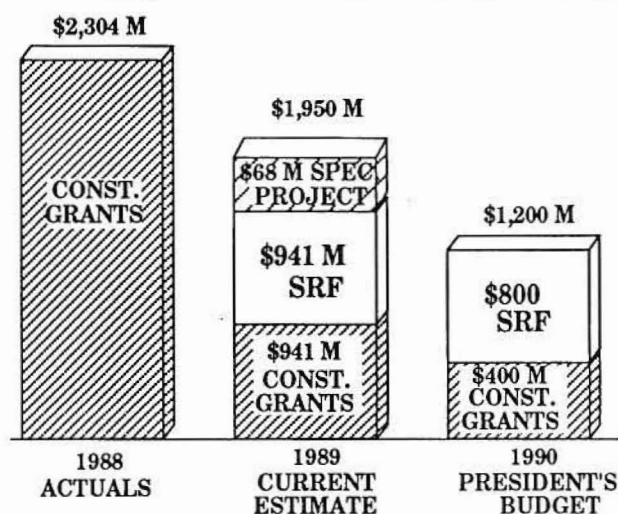
The Administration continues to support a \$12 billion phaseout (1986-93 funding) of the Construction Grants program. This overall funding level provides the Federal resources needed to meet the highest priority facility needs and capitalize State revolving funds. For 1990, the Agency requests new funding of **\$1.2 billion** for the Construction Grants Appropriation, of which **\$800 million** will be for **State revolving funds** and **\$400 million** for construction grants.

HIGHLIGHTS

Transition to State Revolving Funds (SRFs):

The transition to SRF programs, begun during 1988, will be essentially complete by 1990. By the end of 1989, it is expected that 40 States will have received SRF capitalization grants totalling approximately \$1.5 billion. During 1990, the Agency projects 51 SRF capitalization grant awards totalling \$1.0 billion.

These Federal funds, the required 20 percent State match, and any additional resources dedicated to the fund will provide financial support to communities in the form of loans and other non-grant assistance. In order to increase the amount of assistance provided, some States will be developing aggressive leveraging programs. By expanding the capital in the SRF, leveraging can enable States to provide assistance for a far greater amount of their remaining facility needs.



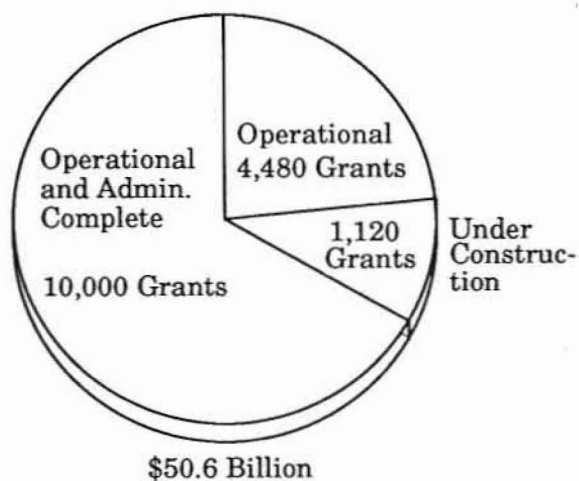
Financially sound SRFs will provide an ongoing source of funding support for wastewater treatment facility construction after Federal funding ends. In addition, once a State's municipal wastewater treatment needs are satisfied, SRFs may be used to support implementation of Nonpoint Source management plans and National Estuary Program comprehensive conservation management plans.

Protecting Existing Federal Investment:

EPA has obligated over \$50 billion for wastewater treatment facility construc-

tion since 1972 under the Clean Water Act. These funds have been used for 15,600 grants to support construction of wastewater treatment facilities, 5,600 of which are either still under construction or are awaiting administrative completion. Protecting this infrastructure investment to ensure maximum water quality benefits is a high priority for the Agency.

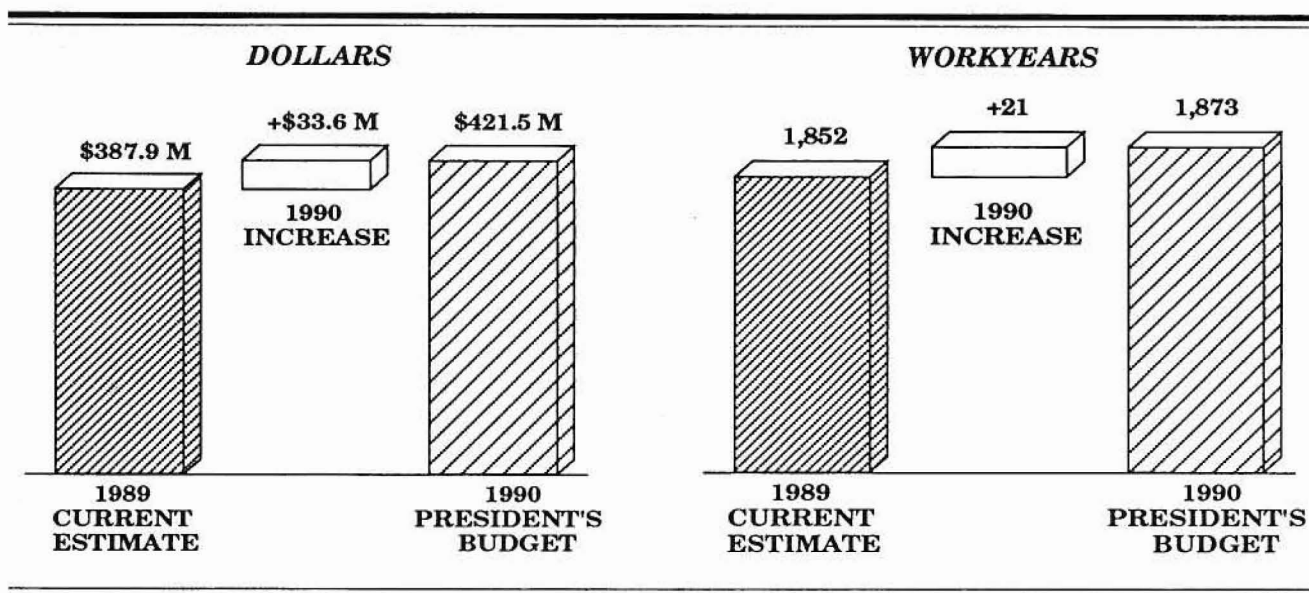
The Construction Grants Program
Protects Our Existing Investment



EPA will continue to focus significant efforts toward ensuring effective construction and timely completion of on-going wastewater treatment facilities. Also, the Agency will emphasize effective financial/technical operation and maintenance practices for publicly-owned treatment works supported by the 15,600 construction grants awarded since 1972. Finally, funds available for the National Small Flows Clearinghouse will be used to transfer the Agency's technical information on wastewater treatment facility construction and management to State and local program personnel.

RESEARCH AND DEVELOPMENT

RESEARCH & DEVELOPMENT



The goals of EPA's Research and Development Program are to:

- provide scientific data for decision makers to select cost-effective and environmentally safe means of achieving environmental results;
- provide scientific data to support the Agency's statutory and regulatory responsibilities; and
- advance the state of knowledge on environmental problems not yet understood.

HIGHLIGHTS

Strengthening Long-term Research:

Since EPA's inception, its research and development program has been focused on shorter-term regulatory demands. Consequently, the Agency's capa-

bilities to address emerging environmental concerns, such as global climate change, have become limited. While shorter-term research has been essential in support of the Agency's mission, the Agency must be capable of anticipating emerging environmental problems which requires a longer-term perspective. Therefore, in 1990, the Agency proposes to strengthen its long-term research program with an increase of \$28.3 million. This increase includes \$10.3 million for exploratory research grants to the scientific community and \$18.0 million for an ecological research program. This latter area will be made up of an ecological monitoring and trends program (\$7.8 million) and a national ecological research and environmental statistics initiative (\$10.2 million). This new initiative will involve EPA working with other agencies and groups to conduct core ecological research and to collect and analyze environmental statistics.

Rebuilding Scientific Infrastructure:

To provide quality scientific analysis of today's complex environmental problems requires state-of-the-art equipment and an ability to rapidly shift with advances in technology. As regulatory programs require more sensitive levels of detection (e.g. parts per billion) and the number of regulated pollutants increases, scientific analysis requires more sophisticated analytical tools. Since 1988, EPA has been addressing the problems of aging scientific equipment and inadequate research facilities. In 1990, \$12.0 million is requested to further rebuild the scientific infrastructure of the Agency. Part of this increase will equip three new laboratories - Chapel Hill, NC; Gulf Breeze, FL; and Newport, OR. The remaining funds will be used to upgrade scientific research equipment for the Agency's research laboratories.

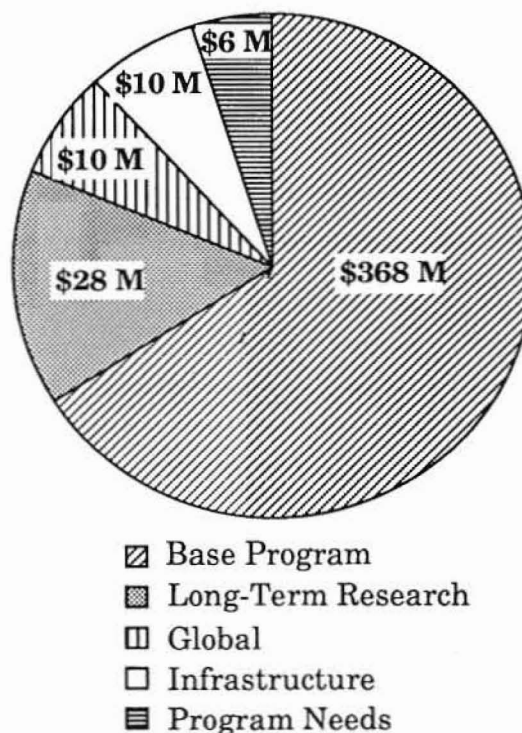
Addressing Global Climate Change:

Assessing the potential impacts of global climate change will be one of the most significant environmental issues of the 1990's. EPA and other Federal agencies are working together to develop an integrated research program to address this complex issue. In 1990, the Agency requests 21 workyears and \$14.1 million for global climate change research. This additional 16 workyears and \$9.9 million over 1989 will significantly enhance research on the regional effects of global climate change including impacts on key ecosystems. Other priority research will be initiated on regional scale atmospheric modeling and improving emission estimates for greenhouse gases (methane and nitrous oxide). Research from domestic and international sources will be integrated to develop a national strategy for assessing global climate change impacts.

Achieving Environmental Program Results:

EPA research traditionally provides the basic information to characterize environmental problems and help assess potential solutions to them. In 1990, this function continues as EPA addresses new media program concerns with an increase of 4 workyears and \$6.4 million above the 1989 level. This increase includes initiatives on: techniques to measure and study the formation of acid aerosol air pollutants and regional ozone modeling; constructed wetlands as a low cost wastewater treatment option; pollutants in bottom sediments; and technical assistance to states involved in protecting wellheads. Additional research will also address growing public concerns on how to adequately regulate biotechnology and ensure adequacy of asbestos cleanup actions. Finally, a research program will be initiated to evaluate innovative technologies for disposal and destruction of municipal wastes.

1990 Research Budget



1990 Research and Development Resources:

Funding for EPA's Research and Development Program is provided through four major appropriations. The following table summarizes the 1990 President's Budget for EPA's Research and Development Program by each of these appropriations and by the eleven agency program areas.

President's 1990 Budget for Research and Development by Appropriation

(Dollars in Millions)

Appropriation	1990 Total Dollars	Change From 1989
Salaries & Expenses	117.2	+5.9
Research & Development	235.0	+32.5
Superfund	68.5	-4.8
<u>LUST Trust Fund</u>	<u>0.8</u>	<u>0.0</u>
TOTAL	421.5	+ 33.6

The structure of the Research and Development Program also tracks with the Agency's regulatory programs. Research is provided to support each of the media programs as follows:

President's 1990 Budget for Research and Development by Media

(Dollars in Millions)

Research Program	1990 Total Dollars	Change From 1989
Air	84.2	+ 15.1
Radiation	4.2	+ 0.7
Water Quality	26.3	+ 2.1
Drinking Water	23.3	+ 1.7
Pesticides	14.3	+ 0.8
Toxic Substances	28.0	0.0
Energy/Acid Deposition	38.2	- 16.7
Hazardous Waste	42.3	- 3.1
Superfund/LUST	69.3	- 4.8
Interdisciplinary	77.7	+ 37.3
<u>Management & Support</u>	<u>13.7</u>	<u>+ 0.5</u>
TOTAL	421.5	+ 33.6

A summary of research and development activities for each Agency media program is described below with major changes for 1990.

Air Research:

Research will increase \$15.1 million (22%) to support three major initiatives. First, the global climate change research program will be significantly enhanced. Second, a research program to study the formation of acid aerosol air pollutants and to evaluate low cost measurement techniques will be initiated. Finally, equipment for a new clinical research facility in Chapel Hill, North Carolina will be provided to strengthen the Agency's capability to study human health effects from inhaled air pollutants. The 1990 program will also support research on stratospheric ozone depletion, regional modeling of air pollutants including ozone, air toxics, and indoor air pollution.

Radiation Research:

Research will increase \$0.7 million (18%) for research on techniques for reducing exposure to indoor radon in schools. The impact of structural differences between homes and schools on the effectiveness of previously examined radon reduction methods will be evaluated. Mitigation demonstrations in existing homes and evaluation of preventive measures for homes under construction will also be conducted.

Water Quality Research:

Research will increase \$2.1 million (9%) to support two initiatives. First, research into sediment quality criteria will be expanded. Second, research will be initiated to develop criteria for determining whether constructed wetlands are a prac-

tical solution for treating wastewaters from small communities and acid mine drainage. Research will also continue to support the mandates of the Clean Water Act Amendments of 1987.

Drinking Water Research:

Research will increase \$1.7 million (8%) to expand a cost-effective approach for States to use in developing and implementing a wellhead protection program. The 1990 program will also emphasize in situ restoration techniques which may lead to more cost-effective cleanups of contaminated aquifers and research to support the mandates of the Safe Drinking Water Act of 1986.

Pesticides Research:

Research will increase \$0.8 million (6%) to support new biotechnology research. This includes examining the dispersal, effect, and survival of genetically engineered organisms in the environment and developing new methods for identifying and monitoring biological pesticide agents. The 1990 research program will continue to support the Office of Pesticide Programs by developing and validating test methods for FIFRA studies, conducting health research on biomarkers, and research on exposure monitoring.

Toxic Substances Research:

Research funding will remain relatively stable from 1989. However, increased emphasis will be placed on three areas. These are development and evaluation of asbestos abatement, control, and monitoring technologies; development of emission estimation techniques and monitoring methods for SARA Title III chemicals; and increased health and engineering studies in the field of biotechnology.

The 1990 research program will continue to support the Office of Toxic Substances in test method development, structure activity relationships, biomarkers, exposure monitoring, environmental engineering, and ecological risk assessment.

Energy/Acid Rain Research:

Research will decrease \$16.7 million (-30%) reflecting the completion of some acid rain research. This reduction includes aquatic and terrestrial effects research projects, emission projection models, and development of the Regional Acid Deposition Model (RADM). The 1990 acid rain program will focus on synthesizing and integrating the results of the ten year research program for the 1990 Final Assessment Report to Congress by the National Acid Precipitation Assessment Program (NAPAP). In addition, the LIMB (Limestone Injection Multistage Burner) research program will develop and evaluate retrofit emission control technologies designed to remove sulfur oxides (SO_x) and nitrogen oxides (NO_x) from the flue gases of coal-fired boilers.

Hazardous Waste Research:

Research will decrease \$3.1 million (-8%) reflecting the termination of funding for an external research center, the phase-down of support for developing land disposal regulations, and the completion of some dioxin-specific research. Increased research will focus on pollution prevention, evaluation of innovative technologies for disposing and destroying municipal waste, and chemical accident prevention and mitigation. Research will continue on: contaminant behavior in ground water; municipal waste combustor emission controls; and engineering design, installation, corrective action, and detection

methods for underground storage tanks.

Hazardous Substances Research:

Research will decrease \$4.8 million (-7%) reflecting the availability of \$5 million in carryover funds for the 1989 Budget. These funds are for the establishment of five (5) University Research Centers selected in late 1988 which will not receive their initial funding until early 1989.

In 1990, the Superfund research program will also support the Agency, States, and industry in resolving technical problems which inhibit the effective implementation of removal and remedial actions at Superfund sites. The research program also supports the commercialization of alternative treatment technologies for use in cleanup actions through full scale demonstrations under the Superfund Innovative Technology Evaluation (SITE) program. In 1990, additional resources will be devoted to evaluating naturally occurring or improved microorganisms (biosystems) for their ability to degrade hazardous substances. Increased research will also focus on evaluating advanced field monitoring methods to provide real-time monitoring data at Superfund sites. Expert systems for providing information on cleanup technologies will be developed. Additional technical support to Regions and States for ground water modeling, sampling, testing techniques and data interpretation will also be provided.

Leaking Underground Storage Tanks (LUST) Research:

Research funding will be maintained at the 1989 level. This research program provides technical support to EPA's Office of Underground Storage Tanks, EPA Regions, States, and local agencies respon-

sible for the implementation of the LUST Trust Fund Program. Technical support will focus on providing scientific expertise on low cost approaches for assessing site contamination and evaluating remedial technologies.

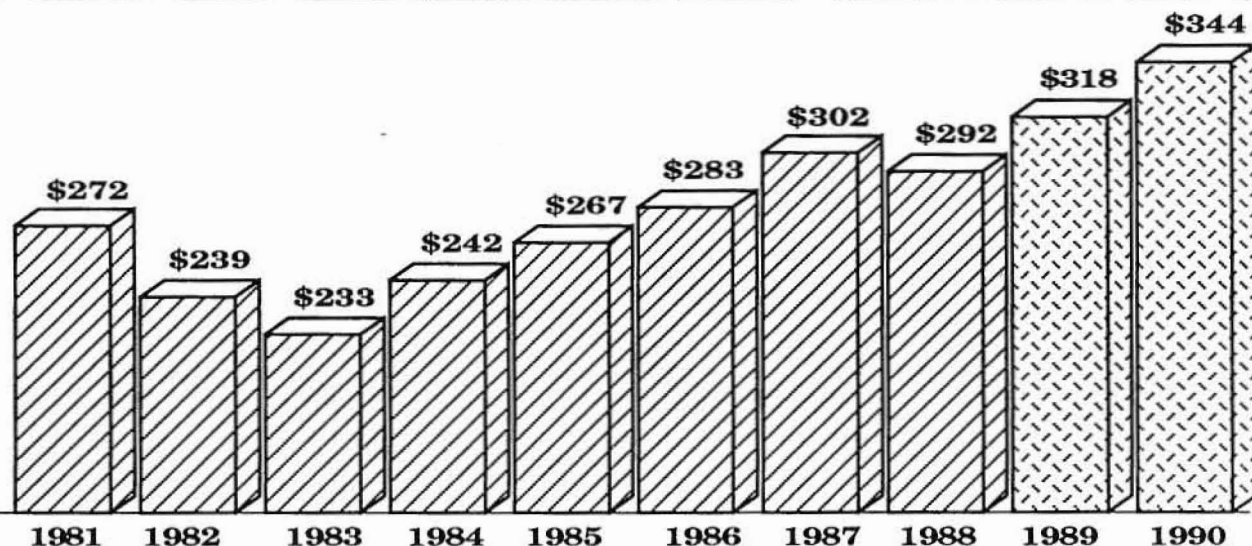
Interdisciplinary Research:

Intermedia research will increase \$37.3 million (92%) for two major initiatives - long-term research and infrastructure improvements. The long-term research initiative includes increasing the Exploratory Grants Program by \$10.3 million to support more investigator-initiated environmental research studies by

researchers outside the Agency. This also includes a new national ecological research and environmental statistics initiative to help coordinate environmental research statistics and foster more basic ecological research. This long-term initiative includes research into long range impacts of environmental changes on our ecological systems. Finally, the infrastructure initiative will further upgrade scientific equipment for research laboratories. The 1990 interdisciplinary budget will continue to support research in quality assurance management, scientific assessments, and reducing uncertainties in risk assessment.

STATE AND LOCAL GRANTS

STATE AND LOCAL GRANTS



Recognizing the important role these grant programs play in maintaining and improving environmental quality in the States, the request for 1990 continues to maintain the commitment for these essential programs while addressing necessary fiscal constraints throughout the Federal Government.

Addressing Critical Areas of Concern:

In order to provide sufficient support for major environmental problems in the States, the President's Budget Request increases funding for the Section 106 State Water Quality grants program. These additional resources will assist States in implementing the Section 404 wetlands program, the Nonpoint Source program, and Groundwater Protection programs, while supporting implementation of Indian Tribal activities mandated by the

amended Clean Water Act. A significant increase in Public Water System grants will help build State capability to implement the Safe Drinking Water Act.

Maintaining the State-Federal Partnership:

The President's Budget Request recognizes the need to maintain and, where appropriate, improve the partnership that has developed and matured over the years. The funding levels proposed for 1990 recognize that the continued support of the States is necessary if we are to meet our statutory environmental goals and also address the pressing national need to control Federal expenditures.

The following chart shows State and local grants by program area:

STATE AND LOCAL GRANTS

(DOLLARS IN THOUSANDS)

	<u>1989 CURRENT ESTIMATE</u>	<u>1990 PRESIDENT'S BUDGET</u>	<u>1990-1989 DIFFERENCE</u>
<u>AIR</u>			
SECTION 105	\$101,500.0	\$99,700.0	-1,800.0
<u>WATER QUALITY</u>			
SECTION 106	67,100.0	83,200.0	+16,100.0
CLEAN LAKES	12,500.0	2,000.0	-10,500.0
<u>DRINKING WATER</u>			
PUBLIC WATER SYSTEM			
PROGRAM GRANTS	33,450.0	40,450.0	+7,000.0
UNDERGROUND INJECTION			
CONTROL PROGRAM	10,500.0	10,500.0	0.0
SPECIAL STUDIES	3,000.0	1,000.0	-2,000.0
<u>HAZARDOUS WASTE</u>			
H.W. FINANCIAL			
ASSISTANCE	66,020.0	70,000.0	+3,980.0
UNDERGROUND STORAGE			
TANKS	9,000.0	9,000.0	0.0
<u>PESTICIDES</u>			
PESTICIDES ENFORCEMENT			
GRANTS	8,803.4	12,803.4	+4,000.0
PESTICIDES PROGRAM			
IMPLEMENTATION	4,000.0	12,500.0	+8,500.0
<u>TOXIC SUBSTANCES</u>			
TOXIC SUBSTANCES			
ENFORCEMENT GRANTS	2,200.0	3,200.0	+1,000.0
TOTAL	\$318,073.4	\$344,353.4	+\$26,280.0

APPENDIX: BUDGET TABLES

ENVIRONMENTAL PROTECTION AGENCY SUMMARY OF AGENCY RESOURCES BY MEDIA

(DOLLARS IN THOUSANDS)

<u>MEDIA</u>	<u>FY 1989 CURRENT ESTIMATE</u>	<u>FY 1990 BUDGET ESTIMATE</u>	<u>1990-1989 DIFFERENCE TOTAL DOLLARS</u>
AIR	\$268,431.7	\$295,464.2	+\$27,032.5
WATER QUALITY	286,771.1	307,902.3	+21,131.2
DRINKING WATER	107,802.9	118,954.6	+11,151.7
HAZARDOUS WASTE	264,772.8	273,703.3	+8,930.5
PESTICIDES	123,347.4	110,224.6	-13,122.8
RADIATION	23,025.0	31,822.9	+8,797.9
INTERDISCIPLINARY	76,894.0	118,494.4	+41,600.4
TOXIC SUBSTANCES	143,219.1	107,225.2	-35,993.9
ENERGY	54,903.2	38,207.7	-16,695.5
MANAGEMENT & SUPPORT	389,472.6	431,000.8	+41,528.2
 SUBTOTAL OPERATING PROGRAMS	 1,738,639.8	 1,833,000.0	 +94,360.2
 HAZARDOUS SUBSTANCE RESPONSE TRUST FUND	 1,579,093.2	 1,750,000.0	 +170,906.8
 LEAKING UNDERGROUND STORAGE TANK TRUST FUND	 52,325.9	 100,000.0	 +47,674.1
 CONSTRUCTION GRANTS	 1,950,000.0	 1,200,000.0	 -750,000.0
 GRAND TOTAL	 \$5,320,058.9	 \$4,883,000.0	 -\$437,058.9

ENVIRONMENTAL PROTECTION AGENCY SUMMARY OF AGENCY RESOURCES BY MEDIA

(WORKYEARS)

<u>MEDIA</u>	<u>FY 1989 CURRENT ESTIMATE</u>	<u>FY 1990 BUDGET ESTIMATE</u>	<u>1989-1988 DIFFERENCE TOTAL WORKYEARS</u>
AIR	1,731.9	1,753.9	+22.0
WATER QUALITY	2,219.5	2,234.0	+14.5
DRINKING WATER	741.1	766.7	+25.6
HAZARDOUS WASTE	1,491.0	1,489.0	-2.0
PESTICIDES	822.8	853.3	+30.5
RADIATION	260.2	261.2	+1.0
INTERDISCIPLINARY	679.9	740.0	+60.1
TOXIC SUBSTANCES	871.6	880.6	+9.0
ENERGY	68.6	52.4	-16.2
MANAGEMENT & SUPPORT	2,918.7	2,972.9	+54.2
 SUBTOTAL OPERATING PROGRAMS	 11,805.3	 12,004.0	 +198.7
 HAZARDOUS SUBSTANCE RESPONSE TRUST FUND	 2,824.7	 3,035.0	 +210.3
 LEAKING UNDERGROUND STORAGE TANK TRUST FUND	 90.0	 91.3	 +1.3
 GRAND TOTAL	 14,720.0	 15,130.3	 +410.3

