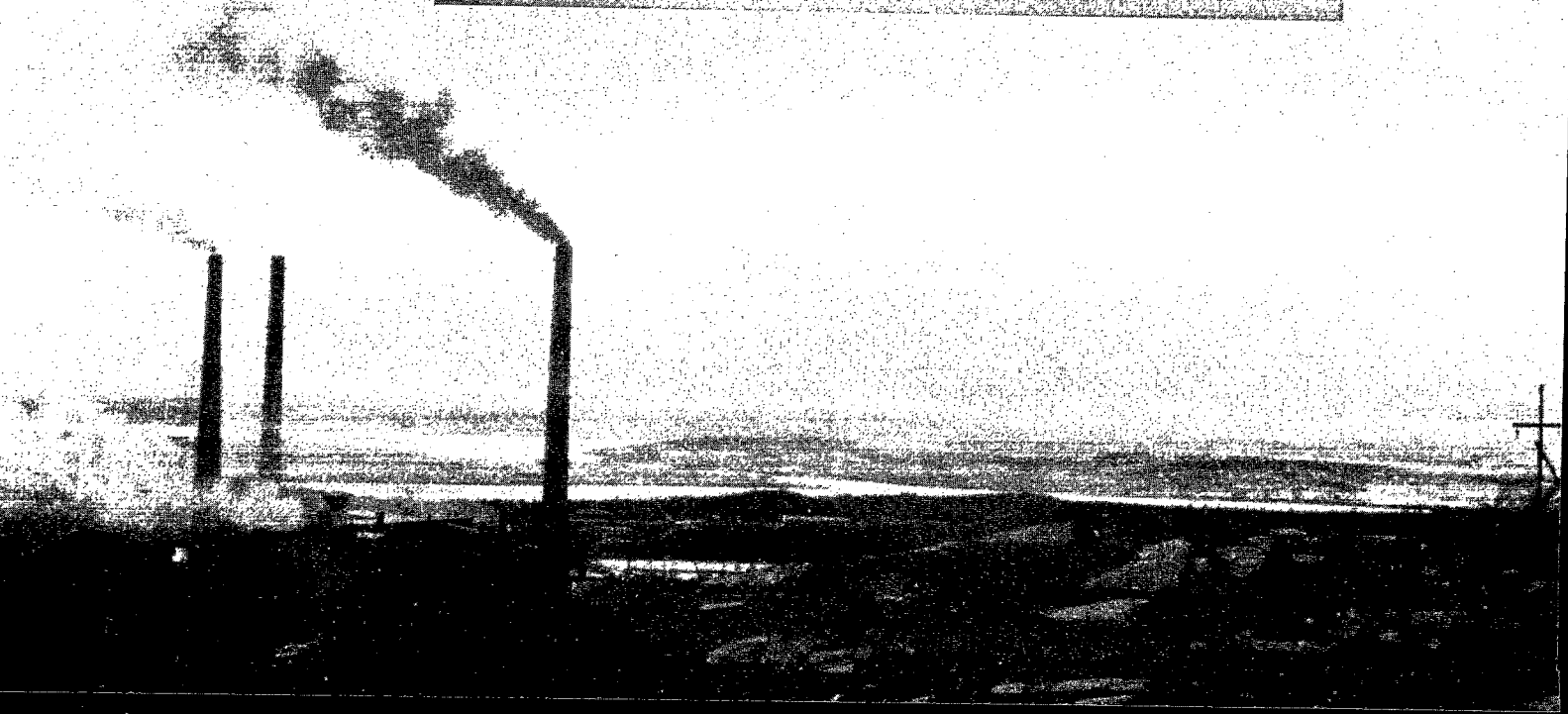




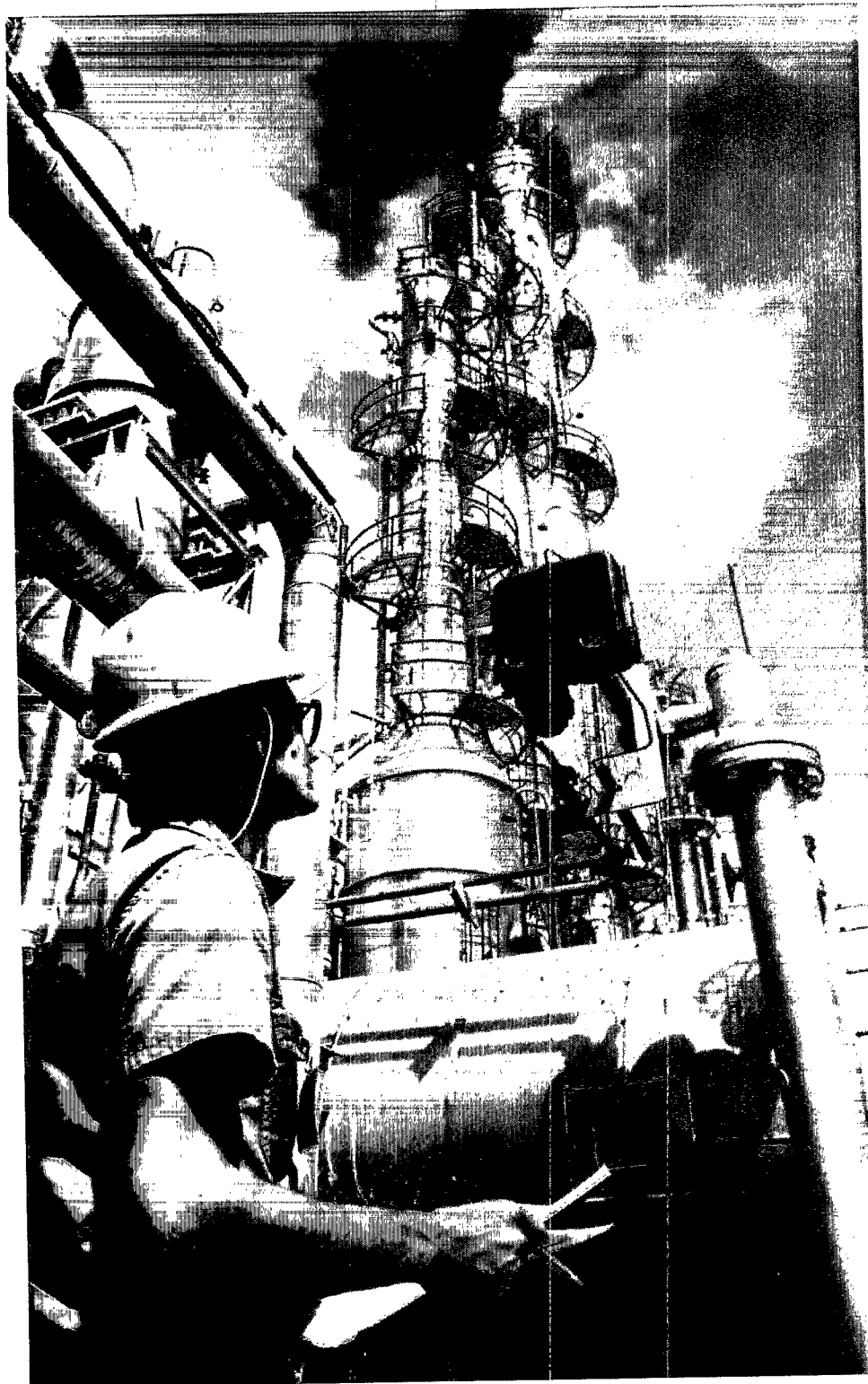
# EPA's International Technology Programs



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Courtesy of World Bank.

# EPA's International Technology Programs

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**T**he United States is a world leader in environmental protection, with significant expertise residing in both the public and private sectors. Exchanging this expertise with other nations can help solve pressing environmental problems worldwide while also serving broader U.S. foreign policy, economic and national security objectives.

Highlighting a number of success stories, this publication provides an overview of EPA's international technology activities. The appendix contains a more detailed catalogue of available programs and resources.



## The Importance of International Cooperation

International cooperation is critical to achieving EPA's mission. Air, water and waste pollution crossing our borders with Mexico and Canada can imperil the health, environment, and well-being of people in the United States. Emissions of carbon dioxide and other greenhouse gases threaten to raise temperatures throughout the global atmosphere. Pollution of the oceans and irreversible losses of species and habitats worldwide undermine the resource base critical to our well-being and quality of life and deprive us of commercially valuable and potentially life-saving genetic materials.

EPA's international technology programs — the exchange of technology and expertise through technical assistance, training, information and other forms of technical cooperation — play a critical role in this effort. Exchanging environmental management, regulatory and technological expertise with other nations can help solve environmental problems worldwide, including the global and regional threats that directly affect health and the environment in the United States. Sharing the burden of environmental regulation and research, as well as benefitting from scientific and technological breakthroughs in other countries, can reduce the cost of environmental protection in the United States.

In addition to environmental benefits, EPA's international technology programs can enhance world wide demand for environmental technologies and expertise, thus creating commercial opportunities for U.S. business and industry. Cooperation on technical issues can improve relations with our foreign counterparts. Reduced environmental pressures overseas can contribute to political and economic stability worldwide, thereby enhancing U.S. national security interests.

### **Phasing Out Ozone-Depleting Chemicals in Developing Countries**

The multi-billion dollar U.S. investment in protecting the stratospheric ozone layer could be completely undone by unabated emissions of ozone-depleting chemicals in developing countries. EPA is therefore working with developing countries under the U.S. Clean Air Act — bilaterally and through the Montreal Protocol Multilateral Fund — to reduce their production and use of these chemicals. EPA's work with Colombia, for example, has helped cut that country's use of ozone-depleting chemicals in the mobile air conditioning sector by 28 metric tons a year — 20 percent of Colombia's overall use in that sector.

## **PROGRAMS IN ACTION**

EPA's international technology programs include: technology cooperation, technical assistance and training, information exchange, technology demonstrations, leveraging of financial assistance, and cooperative research and development.

### **Technology Cooperation**

"Technology transfer" is the traditional term used for the dissemination of pollution prevention and control equipment and expertise. In 1992, at the Earth Summit in Rio de Janeiro, the international community endorsed the concept of "technology cooperation" as an important component of the worldwide effort to achieve sustainable development. Going beyond the traditional emphasis on government-to-government cooperation, the term puts more emphasis on the role of the private sector and public-private partnerships.



Fully embracing this concept, EPA is enlisting the expertise, resources and creativity of the private sector on behalf of environmental objectives worldwide. The primary purpose of the U.S. Technology for International Environmental Solutions (U.S. TIES) program, for example, funded from 1994 to 1996, has been to match pressing environmental problems overseas with the suppliers of proven and cost-effective environmental technologies in the United States. U.S. TIES funding has already led to millions of dollars in environmental sales for American companies.

## Technical Assistance and Training

EPA's international technical assistance and training programs are carried out on both a programmatic and needs-driven basis. Longer-term programs focus on the strengthening of the necessary environmental institutional and human resource capabilities (i.e.,

the establishment of environmental protection laws, organizations and regulations and the human resource capabilities needed to implement them). In cooperation with the U.S. Agency for International Development (U.S. AID), this Agency is working with the Governments of Central and Eastern Europe and Russia and Ukraine in applying risk assessment and economic analysis to environmental problems.

Using a facilitated, train-the-trainer approach, EPA's international environmental training modules cover such environmental issues or management techniques as environmental economics; risk assessment; chemical emergency preparedness and accident prevention; environmental compliance and enforcement; environmental impact assessment; and solid waste management planning. Initially developed for use in Central and Eastern Europe, the modules have also been successfully applied in Africa, Asia, Latin America and the Middle East.



Shorter-term assistance programs focus on more specific environmental problems. Under the Agency's Environmental Action Team program, for example, EPA provided short-term technical assistance to the Royal Thai Government in assessing and mitigating severe health and environmental threats posed by a lignite power plant in the Mae Moh Valley. Coordinated closely with other U.S. public and private sector groups, this assistance not only helped solve a pressing environmental problem in Thailand, but also led to the sale of almost \$200 million in U.S. air pollution monitoring and control equipment.

### Information Exchange

With over 25 years of experience, EPA is widely recognized as a leading source of environmental information. Exchanging this information — that is, sharing U.S. information as well as benefitting from information generated abroad — is a cost-effective way for reducing environmental risks worldwide

### The Global Market for Environmental Technology

Environmental Business International (EBI) estimates the current global market for environmental goods and services at \$408 billion, with growth rates between 7 and 17 percent in developing countries and somewhat slower growth rates in more developed countries. The U.S. market accounts for approximately \$170 billion of that total, with the domestic market expected to grow to more than \$210 billion by the turn of the century.

while lowering the cost of environmental protection in the United States. The Agency's international information programs focus on both the kind of information needed (for example, information on environmental conditions and regulations or the performance and cost of technologies) and the mechanisms for delivering the information (from low-tech newsletters and workshops to on-line computer technologies).

EPA offers Technical Information Packages (TIPs) on environmental issues of most concern to developing countries and economies in transition. These mini-resource libraries cover issues such as safe drinking water, mining waste management, environmental impact assessments, rural wastewater systems, and pesticide waste disposal. EPA and the U.S. Information Agency circulated the TIPs to information centers throughout the world. EPA is now updating and digitizing the TIPs to make the information available through the Internet.



The Agency also played the leading role in establishing the Regional Environmental Center for Central and Eastern Europe in Budapest, Hungary. Including business information services and Internet links to 13 countries, the Center is a major source of information for non-governmental organizations, local authorities, national governments, academic institutions and private interests throughout the region. It has also served as a model for application in other parts of the world.

## Technology Demonstrations

EPA's in-country technology demonstrations showcase the performance capabilities of U.S. technologies in real-time, country-specific settings, thereby helping to promote broader application of these technologies worldwide. One of EPA's projects in Poland, for example, is demonstrating the use of sewage sludge (biosolids) in revegetating and detoxifying land contaminated by coal mining and smelter waste. This project not only solves a pressing health and environmental problem in Poland; it also expands our understanding of an innovative approach that could be used in the United States.

Under the Murmansk Initiative, EPA is working with the Governments of Russia and Norway to upgrade and expand a prototype low-level liquid radioactive waste (LLW) processing facility in Murmansk, Russia. Designed to help avoid possible ocean dumping of LLW from the decommissioning of Russia's nuclear submarine fleet, the project includes application of an innovative U.S. technology employing special filtering, containment and processing techniques. With the design phase now complete, construction will begin soon. The U.S. Department of Energy is also exploring the possible transfer to the United States of an innovative Russian technology used at the Murmansk facility.



### **Leveraging of Funds for Environmental Protection in Russia and the Czech Republic**

Through the Agency's environmental capacity-building program in Russia and Czech Republic, EPA has leveraged \$21 million in funding from the U.S. Agency for International Development (U.S. AID) into more than \$620 million for environmental protection in those two countries. The funds are leveraged through the country's own public funds and multilateral development banks, such as the World Bank, as well as through private sector investment.



Other technology demonstrations now underway include drinking water projects in Mexico, China and Ecuador; air pollution control projects in Poland, Russia, Ukraine, China, India and Korea; a waste project in Russia; a site characterization/remediation project in the Czech Republic; and renewable energy projects in Mexico, Chile and Argentina.

### **Leveraging of Financial Assistance**

Identification of, and assistance in securing, the funds needed to deal with a specific environmental problem is an important component of EPA's international technology programs. Multilateral development banks and other international financial institutions have played a particularly important role in this regard. In the early 1990's, for example, EPA worked with Chinese authorities in developing and implementing a plan for capturing and using the methane that escaped from coal mines throughout the country. Methane is a potent greenhouse gas that, if vented to the atmosphere, contributes to the warming of the earth's atmosphere. Captured methane can serve as a valuable source of energy.

The Agency assisted the Chinese Government in winning a \$10 million grant from the Global Environment Facility (GEF), a joint funding program run by the World Bank, the United Nations Environment Program and United Nations Development Program. As a result of this project, China expects to increase its coal-bed methane recovery from mines from an estimated 400 million cubic meters in 1990 to more than 1 billion cubic meters by the year 2000. The project has also led to the creation of a quasi-private corporation in China to facilitate foreign investment in coal-bed methane recovery projects in the future, and a number of U.S. companies have signed contracts with Chinese authorities for follow-on projects.

### **Cooperative Research and Development**

In addition to sharing U.S. expertise with other countries, EPA benefits from joint research programs and from scientific and technological advances achieved in other countries. Cooperative research with Canada, Germany, Sweden, Japan, China, and India has yielded extremely valuable information to the United States at a fraction of the cost of what it would have cost to collect and analyze the data here.

In a cooperative study with China, EPA was able to assess the loss of lung function in children due to their exposure to coarse and fine air-borne particulates. Similarly, EPA and the Government of India have just initiated a three-year research project on the health effects of lead exposure on puberty and adolescent development. With large residential areas adjoining lead smelter sites, lead exposure levels in India are much higher than in the United States. The information drawn from the medical examinations carried

#### **Reducing Lead Risks Internationally**

Lead in air, water, soil and some manufactured products such as gasoline is a major threat to the health of children worldwide.

Focusing on technical assistance, training and information, EPA is working with policy makers around the world to develop and implement lead reduction strategies. In addition to the immediate health benefits of these programs, low-cost, clean-up strategies developed in these countries could eventually find use in the United States.



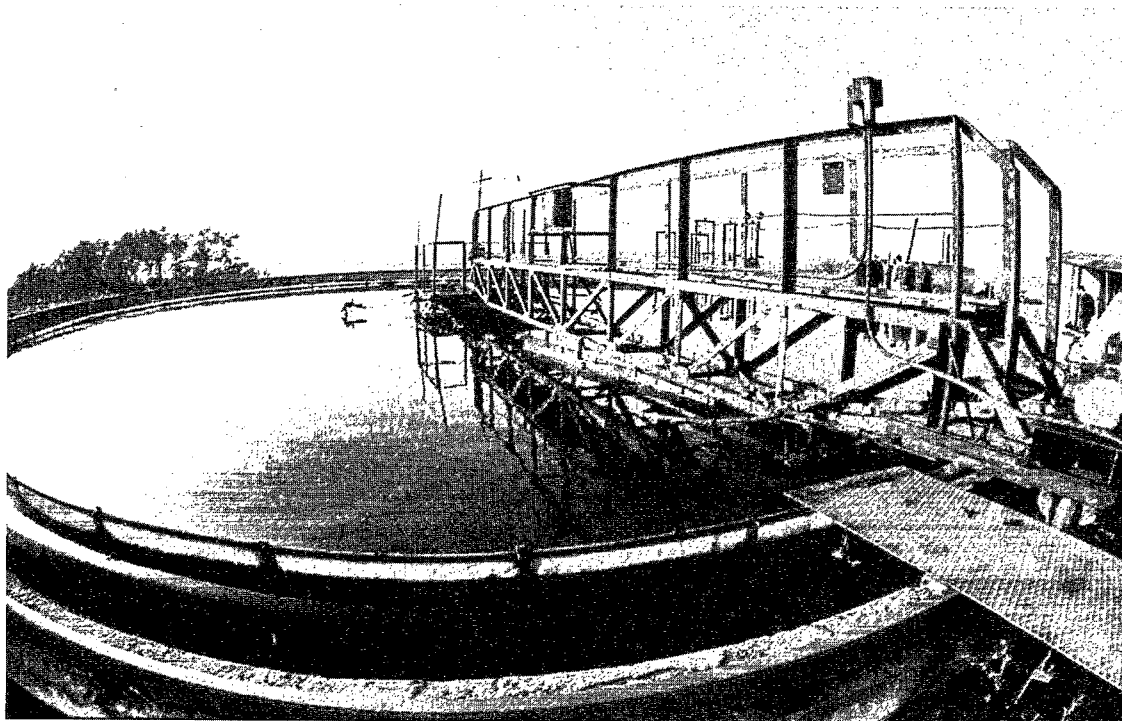
out under the study will improve our understanding on the health effects of lead on children. The results will buttress policy decisions on the regulation of lead-related products and abatement practices not only in India and the United States but ultimately around the world.

EPA is also working with many developed countries in sharing environmental management expertise on new, non-regulatory mechanisms for protecting the environment. Other countries are extremely interested in

our experience with such voluntary, non-regulatory programs as the Common Sense Initiative, Project XL, Energy Star Buildings, Green Lights and Waste Wise. Similarly, as EPA moves away from the medium-by-medium approach of the past toward a more integrated view of the environment, it can learn much from the experience of other countries that have already applied such techniques. Swedish and Dutch authorities, for example, have been implementing multi-media systems of environmental protection for many years.

### **Environmental Protection in the U.S.-Mexico Border Area**

Technology cooperation and assistance plays a key role in protecting and restoring environmental quality in the U.S.-Mexico border area. Examples of EPA's programs in this region include: development of emission inventories for border sister cities; training for the operators of wastewater treatment plants; monitoring of water quality; and the development of pollution prevention manuals for key industrial sectors, such as metal finishing and electronics.



# Selected Programs and Information Resources

## PROGRAMS:

### International Pollution Prevention Partnerships

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Fax: (202) 260-0532

EPA is working through several international initiatives to encourage public and private sector adoption of cleaner production policies, practices and technologies. Regional commitments on pollution prevention include activities under the Summit of the America's Partnership for Pollution Prevention, the Asia-Pacific Economic Cooperation Cleaner Production Initiative, the North American Commission for Environmental Cooperation and several priority bilateral programs. Key activities include guidance to governments on pollution prevention policies, waste minimization in key industry sectors, training and workshops, international information networking and research cooperation. EPA partnerships include cooperative programs under the U.S. Agency for International Development's Environmental Pollution Prevention Project and the U.S.-Asia Environmental Partnership, as well as with the World Bank, World Health Organization and the United Nations Environment Program.

### U.S.-Asia Environmental Partnership (US-AEP)

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International Activities  
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Under the United States-Asia Environmental Partnership, EPA employs Environmental Action Teams, short-term technical assistance, training programs, and fellowships to build environmental capacity in Asia.

Environmental Action Teams undertake short-term assignments in response to specific problems. EPA experts lead the teams, which may include professionals from other federal agencies, international organizations, businesses, and non-profit organizations. Requests for teams must have host government support at local and national levels. The team works with government officials to isolate the causes of the problem and to devise immediate, medium and long-term strategies.

Short-term technical assistance is appropriate in cases where a country requests an EPA expert for a specific and one-time activity. Past activities in this area have included a technical review of a pending solid waste regulation; a visit to a village to conduct an arsenic poisoning health risk assessment; and participation at a World Bank mobile source air pollution workshop.

Training programs are available both off-the-shelf and as hands-on practitioner workshops. An example of the latter is the recently completed multimedia enforcement inspector training that took place in Indonesia. Four EPA experts used a combination of classroom and site instruction to train Indonesia's first 15 enforcement inspectors. Overall, the team visited 40 industrial sites in less than a month. The newly trained inspectors are now using their skills to train others throughout the country as the Environment Ministry opens new regional offices.

Fellowships at EPA are available to applicants with designated funding and a precise programmatic goal. Most fellows are placed in one of EPA's ten regional offices, with their stay limited to one month. Fellowships are most useful when connected to other related activities under US-AEP, such as the Action Teams.

### Montreal Protocol Implementation

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EPA represents the United States on the Executive Committee to the Multilateral Fund for the Implementation of the Montreal Protocol (Fund), established by the Parties to assist developing Parties phase out ozone depleting substances. The goal of the Fund is to enable a global elimination of the major ozone depleting substances by the year 2010. The Fund covers the "incremental costs" associated with information exchange and training, capital costs of conversions, and for a short transition period, incremental operational costs incurred by national governments or industries to achieve global environmental benefits.

Over the five years of its operation, the Multilateral Fund's Executive Committee has approved funding of approximately \$400 million for over 1200 activities in 90 developing countries. This figure includes the development of over 60 country specific phaseout strategies, 50 of which have already been approved by the Executive Committee, as well as conversions at over 200 industrial facilities.

### **Methane Emission Reduction from Coal Mines**

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Methane is emitted when coal is mined and frequently vented to the atmosphere, where it becomes a potent greenhouse gas. In many mines, methane emissions can be profitably reduced through the application of existing technologies for gas recovery and use. Methane recovery can also have other benefits, including improved coal mine safety and productivity, production of a new energy source, and reduced local air pollution through displacement of poor quality coal with coalbed methane.

This EPA program identifies and encourages the development of profitable projects to reduce methane emissions from coal mining in China, Russia, Ukraine, Poland and the Czech Republic. The project is designed to identify profitable opportunities to reduce methane emissions, raise awareness of coal-bed methane as an alternative energy resource currently not being tapped, and remove the barriers to the development of these projects.

### **Methane Emission Reduction from Large Ruminant Livestock**

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Prevention Division/  
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Fax: (202) 233-9569

By promoting better use of available technologies coupled with sound management practices, this EPA program achieves large reductions of methane emissions per unit of meat or milk produced. Livestock producers benefit from reducing methane emissions because methane produced by their animals represents a loss of dietary energy. Converting feed into animal products more efficiently also results in greater profit for farmers from savings in feed per unit of production. Projects are mainly focused on dairy cattle improvement. Initially, scientists and development workers from the U.S. convene with their counterparts in developing countries to carefully analyze potential dietary improvements and design specific projects. Once a project design is completed, reviewed and approved by all participants, it is marketed to prospective donors. Programs such as the U.S. Initiative on Joint Implementation offer opportunities for funding these types of projects. Livestock improvement projects are currently underway in India and Zimbabwe and activities are being planned for Ukraine, Tanzania, Bangladesh, Nepal, Indonesia, and Brazil.

### **U.S. Initiative on Joint Implementation (USIJI)**

Contact: Elmer Holt,  
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[www.ji.org/usiji/usiji.htm](http://www.ji.org/usiji/usiji.htm)

The United States Initiative on Joint Implementation (USIJI) is a voluntary pilot program contributing to the international knowledge base of joint implementation through projects designed to reduce or sequester greenhouse gas emissions in different geographic regions. Introduced in negotiations leading up to the 1992 Earth Summit, the concept of joint implementation was formally adopted in the text of the U.N. Framework Convention on Climate Change. Two or more countries can work together in implementing cooperative development projects, thereby reducing emissions at a lower cost than would be possible if each country acted alone. USIJI will provide public recognition and selected technical assistance to approved projects.

### **U.S. Country Studies Program**

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[www.gcrl.org/CSP/webpage.html](http://www.gcrl.org/CSP/webpage.html)

The U.S. Country Studies Program provides financial and technical assistance to developing and transition countries in carrying out national studies on climate change. Regional and sectoral oversight for this program is provided by the U.S. Country Studies Management Team, in which EPA participates. Fifty-five countries currently participate in the program. These countries are developing inventories of their anthropogenic emissions of greenhouse gases, assessing their vulnerabilities to climate change, evaluating response strategies for mitigating and adapting to climate change, formulating national climate change action plans, and performing technology assessments. A new phase of the program, Support for National Action Plans (SNAP), provides technical and financial support for preparation of national action plans, in-depth evaluations of climate change technology needs and opportunities to promote technology diffusion.

## PROGRAMS

### Caribbean Environment & Development Institute

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The Caribbean Environment and Development Institute (CEDI) is a non-profit organization dedicated to fostering public-private sector cooperation on environmental management, for the purpose of promoting the sustainable development of the Wider Caribbean Region. Under a cooperative agreement with EPA and in cooperation with public and private sector experts in Puerto Rico, CEDI has undertaken projects to: promote improved solid waste management and inter-island recycling with Antigua; develop low-cost, low-maintenance alternative technologies for drinking water treatment in small communities in Trinidad; and demonstrate industrial pollution prevention techniques in the Dominican Republic. CEDI has also promoted the hemispheric Partnership for Pollution Prevention, one of the principal components of the 1994 Summit of the Americas Action Plan. For example, hosted by the Government of the Commonwealth of Puerto Rico, CEDI and the Pan American Health Organization and Organization of American States, co-sponsored a meeting a Technical Experts in November 1995. The meeting brought together representatives from 25 government agencies, international and regional organizations, private associations from 20 countries in the Americas to plan the implementation of this Partnership. For additional information, please contact:

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Caribbean Environment &  
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### U.S./GAZPROM Working Group

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The U.S.-Gazprom Working Group is a cooperative public-private initiative with the Environmental Protection Agency, the Department of Energy, the Russian natural gas transmission and production company, RAO Gazprom, and U.S. equipment and services providers to improve the efficiency and environmental soundness of the Russian natural gas sector. By improving the production and transmission of natural gas systems in Russia, emissions of methane (a potent greenhouse gas) can be significantly reduced. Reductions of local air pollutants such as nitrogen oxides and carbon monoxide as well as groundwater or soil contamination associated with natural gas production can also be achieved. The group strives to achieve these goals through U.S.-Russian commercial cooperation.

Activities include demonstration projects on valve sealing and pipeline corrosion control, a Conference on Natural Gas Pipeline Standards and Project Finance in September 1995, and U.S. study tour in April 1995 for Gazprom technical experts on technologies used in the U.S. to reduce emissions of methane from U.S. natural gas systems. Upcoming activities include demonstration projects on pipeline coating, geographic information systems used to prioritize transmission pipeline maintenance, and improved removal of hydrogen sulfide from pipeline natural gas. EPA is also working with Gazprom on a joint leak measurement program at Gazprom compressor stations and on a Joint Report on Opportunities to Reduce Methane Emissions in the Russian Natural Gas Sector.

### U.S. Technology for International Environmental Solutions

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The U.S. Technology for International Environmental Solutions (U.S. TIES) initiative is an inter-agency technology diffusion program designed to enlist greater participation of the U.S. private sector in achieving U.S. environmental objectives overseas. Led by EPA, the public-private partnership uses international technical assistance and training, information exchange and technology demonstrations to match pressing environmental problems abroad with the suppliers of proven and cost-effective technologies in the United States. By enlisting the cooperation of other Federal agencies and the U.S. private sector in disseminating U.S. environmental technologies and expertise overseas, the U.S. TIES initiative reduces environmental problems at the global, regional, and national levels.

## **Air Pollution Training Institute**

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Leader, Education &  
Outreach Group  
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Research Triangle Park,  
NC 27711  
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The Air Pollution Training Institute (APTI), a component of the Education and Outreach Group, provides instructional materials, technical assistance and training in support of U.S. regulatory air pollution abatement programs. The Institute offers courses ranging from two to five days and workshops at sites across the US as well as via satellite. In addition, APTI also has various self-study courses for training in the home or in the place of employment. Foreign countries which meet certain requirements may request status as a Training Resource Center and be eligible to receive selected courses and materials. APTI courses include such topics as:

- Principles and Practice of Air Pollution Control
- Introduction to Air Toxics
- Control of Particulate Emissions
- Control of Gaseous Emissions
- Motor Vehicle Emission Control
- Combustion Evaluation
- Air Pollution Field Enforcement
- Advanced Inspection Techniques

## **Environmental Management Training Modules and Training Centers**

Contact: Orlando Gonzalez,  
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The International Environmental Management Training Program seeks to strengthen the environmental management capabilities of developing countries and countries undergoing economic restructuring. Serving as facilitators in the delivery of these modules to foreign audiences, EPA employees prepare foreign facilitators to carry on this training without further EPA assistance. Initially developed for use in Central and Eastern Europe and Russia and the New Independent States, the modules have now been adapted and successfully applied in other parts of the world, including Asia, Latin America, Africa and the Middle East. The modules also serve as core elements of the training programs offered by the Environmental Management Training Centers (EMTCs) and Centers for Environmental Training and Information (CETI) which EPA helped establish across Central and Eastern Europe and Russia. Current offerings include:

- Introductory Courses:
  - Principles of Environmental Policy
  - Principles of Pollution Prevention
  - Principles of Environmental Compliance and Enforcement
  - Principles of Environmental Impact Assessment
  - Principles Of Solid Waste Management Planning
  - Principles of Hazardous Waste Site Ranking
  - Principles of Government Contracting
  - Managing in an Environmental Organization
- Communications:
  - Public Outreach
- Technical Courses:
  - Economics of Environmental Decision-Making
  - Environmental Audit
  - Evaluation of Revenue Raising Mechanisms to Fund Environmental Investments
  - Risk Assessment
  - Chemical Emergency Preparedness and Prevention
  - Hazardous Materials Emergency Response

## **United States Environmental Training Institute**

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Office of International Activities  
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EPA launched the U.S. Environmental Training Institute (USETI) to link providers of U.S. environmental technologies and management strategies with professionals from industrializing countries in need of appropriate, effective solutions. By providing comprehensive environmental management training and continuous opportunities for information exchange, USETI seeks to form long-term, productive relationships between industrializing countries and the U.S. private sector, U.S. Government, international agencies and non-governmental organizations in order to generate positive, sustainable, environmental change throughout the world.

USETI has sponsored over 75 training programs for nearly 1400 government and private sector professional worldwide. USETI alumni represent over 44 countries in regions such as Asia, Mexico, Eastern Europe, Latin America and the Caribbean. USETI provides targeted, short-term training programs in a variety of environmental topic areas including wastewater treatment technologies, municipal solid waste management, and cleaner production processes and technologies to name a few. There is no tuition charged for USETI training courses. The USETI Catalogue of Courses is available at U.S. Embassies and USAID Missions abroad or by contacting USETI directly at:

USETI  
1000 Thomas Jefferson Street,  
NW, Suite 308  
Washington, DC 20007  
Tel: (202) 338-3400  
Fax: (202) 333-4782

## PROGRAMS

### **EPA Assistance Programs in Central and Eastern Europe and the NIS**

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EPA's approach to environmental cooperation in Central and Eastern Europe and the New Independent States (NIS) recognizes the need to help alleviate some acute problems in the near term, while addressing the long-term need to develop management capacity and more effective environmental institutions through provision of training and technical assistance.

Institution-building activities strengthen public and non-governmental institutions by providing information on legislative/regulatory frameworks, various environmental assessment tools, and pollution mitigation and prevention policies.

Demonstration projects address high priority environmental issues in key geographic areas or "hot spots" where large populations are at risk from exposure to numerous pollutants, or where unique natural resources are threatened. Such projects demonstrate innovative, cost-effective, and appropriate technologies and/or focus on pollution or environmental problems common to the region.

### **Regional Central American Environmental Project (PROARCA, i.e.: Proyecto Ambiental Regional Centroamericano)**

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The Proyecto Ambiental Regional Centroamericano (PROARCA) is funded and managed by the U.S. Agency for International Development's Central America Regional Office (USAID/G-CAP) in Guatemala City. The purpose of this project is to support the Central America Commission on Environment and Development (CCAD, e.g.: Comision Centroamericano de Ambiente y Desarrollo) with the development of a regional model for sustainable development. EPA has entered into a four-year cooperative agreement with the U.S. Agency for International Development to provide technical assistance to strengthen legislative and regulatory regimes, which is one of the three goals of PROARCA. Other goals are protecting biodiversity and improving coastal zone management.

### **United States EPA - PAHO Risk Assessment and Risk Management Training for Latin America**

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U.S. EPA and the Pan American Health Organization (PAHO) cooperate in a training program on the assessment and management of environmental risks to public health. A five-person team from EPA and the PAHO Center for Health and the Environment (PAHO-ECO) have developed a five-day seminar that introduces the methodology and criteria for risk assessment; provides guidance in establishing priorities and norms for environmental health; discusses risk assessment and management strategies; and identifies local needs for future risk management capacity-building projects. The team has presented this training course five times since 1993; three times for regional audiences in Central America & the Caribbean islands, the Southern Cone of South America, and the Northern Andean Region, and twice for national audiences in Mexico and Brazil. The team has trained 197 environmental experts from a variety of agencies and technical disciplines. The course materials developed especially for this training have been revised to include the preparation of new local instructors to present this course, in a low-cost and sustainable fashion.

### **US-Mexico Environmental Border Cooperation**

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Many of EPA's technical assistance programs with Mexico are focused on protecting health and environmental quality in the border area. Binational working groups under the 1983 La Paz agreement and the new Border XXI plan bring together technical experts from both countries to exchange information and develop joint action programs related to air, water, hazardous and solid waste, enforcement, pollution prevention, emergency response, and information management. In addition, the U.S. Department of Health and Human Services and the Interior support working groups on environmental health and natural resources. Specific activities currently underway include: development of emissions inventories for border sister cities, training for operators of wastewater treatment plants, water quality monitoring, development of pollution prevention manuals for key industrial sectors such as metal finishing and electronics etc. (For a detailed listing of activities conducted by each work group see the Border XXI, released for public comment in June 1996).

## INFOTERRA

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EPA serves as the U.S. national focal point for the United Nations Environment Program (UNEP) INFOTERRA program, which serves as an international liaison between those who are seeking environmental information and those who have the knowledge and expertise. The INFOTERRA network consists of over 170 member countries, with a National Focal Point (NFP) in each country responding to specific requests for environmental information. Using e-mail, fax, phone, letters and other vehicles, INFOTERRA provides documents, bibliographies or referrals to experts. In addition, the NFPs register environmental experts in each country for inclusion in the INFOTERRA International Directory of Sources. The following are examples of additional functions available through INFOTERRA/USA:

- Distribution of non-technical EPA publications
- Access to EPA, international and commercial data bases
- Referral of international clients to U.S. experts
- Provision of EPA and other government agency reports
- Access to EPA library and INFOTERRA International Network

## The Regional Training Center for Central and Eastern Europe

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Tel: (202) 260-9451  
Fax (202) 260-4470

Located in Budapest, Hungary, the Regional Environmental Center (REC) for Central and Eastern Europe (CEE) addresses major environmental problems in the region by engaging non-governmental organizations, local authorities, national governments, academic institutions and the private sector. The Center's programs include NGO grant making, worldwide environmental information exchange and Internet linkages to 13 CEE countries (including its 5 local offices), initiatives to assess and share regional experiences in addressing crucial environmental issues, and business information and services. The REC performs market surveys and provides consultation services for a fee. Currently, the Business Information Service, working with the Foreign Commercial Service and the Commerce Department, is performing a survey in Central and Eastern Europe to identify environmental technologies most needed in the region, and in assessing where the US has the competitive edge.

## Electronic Information on Remediation of Soil and Ground Water

Contact: Walter W. Kovalick, Jr.,  
Technology Innovation  
Office  
Tel: (703) 603-9910  
Fax: (703) 603-9135  
U.S. EPA/NCEPI,  
P.O. Box 42419,  
Cincinnati, OH 45242-2419  
Tel: (513) 489-8190  
Fax: (513) 489-8695

### Clean-up Information (CLU-IN) Homepage

The "CLU-IN" homepage on the World Wide Web provides information about innovative treatment technologies for hazardous waste site remediation. It describes programs, organizations, publications, and other tools related to innovative technology use. The information is accessible on-line, or in computer files or data bases. The CLU-IN Bulletin Board (BBS) also is available via modem by calling (301) 589-8366 (8 data bits, 1 stop bit, no parity, VT-100 or ANSI). Voice help is available by calling (301) 589-8368.

Vendor FACTS System  
The Vendor Field Analytical and Characterization Technologies System (Vendor FACTS), is an electronic data base which provides information on 80 technologies provided by 71 U.S. companies who offer innovative technologies that measure or monitor hazardous contaminants at contaminated sites. Technologies address air, water, and soil sampling and analysis, and include cone penetrometers, fiber optic sensors, portable gas chromatography and mass spectrometry, ground penetrating radar,

and immunoassay. This database can be downloaded from CLU-IN or obtained free from U.S.EPA/NCEPI.

### VISITT System

The Vendor Information System for Innovative Treatment Technologies (VISITT) is an electronic data base that contains information provided by companies that offer innovative technologies for cleanup of soil and ground water contaminated by hazardous and petroleum waste. Technologies include soil vapor extraction, thermal desorption, and bioremediation. VISITT 4.0 has data on 325 technologies offered by 204 companies, most based in the U.S. This database can be downloaded from CLU-IN or obtained free from U.S.EPA/NCEPI.

### Bioremediation in the Field Search System (BFSS).

BFSS is an electronic data base of information on over 400 waste sites across the U.S. where bioremediation is being tested or implemented, or has been completed. BFSS allows users to search the database electronically, view data on specific types of bioremediation sites, and print reports of selected information. BFSS is available for downloading from CLU-IN or free from U.S.EPA/NCEPI.



## RESOURCES

### Environmental Software Programs

Contact: Jon Grand  
EPA Region 5  
Tel: (312) 353-8270  
Fax: (312) 353-3433

Developed through a cooperative agreement with Purdue University, this high quality and interactive software covers a wide range of environmental topics. There are tutorials, examples of regulatory programs, expert systems and risk assessment programs. The software has been used for risk evaluation in the field, public outreach, environmental education and training new employees; it has become an active tool in the mission of environmental practitioners. All 43 PC-based programs are public domain software and may be copied and given (not sold) to other interested users. Six of the programs (\*) have been translated into Spanish.

#### Water

Groundwater Education System

Surface Water Education System

Water Efficient Landscape Planner\*

Residential Water Conservation Techniques\*

Wetlands Education System

National Primary Drinking Water Regulations

UIC Class V Injection Wells

Wellhead Protection

Fish Contamination and Fish Consumption Advisories

Private Water (Well) Systems Education System\*

#### Wastewater

Alternatives for Unsewered Communities

Wastewater Treatment and Disposal with Septic Systems

Compliance Maintenance Annual Report (CMAR 2.0)

#### Sustainable Agriculture

Agricultural Pollution Prevention

Best Management Practices for Soil Erosion

Soil and Geologic Site Evaluation

Petroleum Storage Practices on the Farm

Pesticide Usage Guidelines

Fertilizer Storage and Handling Practices on the Farm\*

Livestock Yards Management

Livestock Waste Management

Milking Center Wastewater Management

Pesticide Storage and Handling Practices on the Farm\*

#### Solid Waste and Toxics

Lead in the Environment

The Lead Contamination Information System

RCRA Corrective Action Programs

Municipal Solid Waste Fact book(W)

RCRA Boiler & Industrial Furnace Waste Disposal

#### Air and Radiation

Indoor Air Quality

Residential Energy Efficiency(W)

Stratospheric Ozone Depletion

#### Habitat and Miscellaneous

Environmental Assessment Resource Guide(W)

Wetlands Education System

Electronic Wetlands Herbarium(W)

Pollution Prevention

Comparative Risk Assessment

Heart to Heart (Personal Health & Diet)

(W)= Program requires Windows (TM) 3.1 or better.

### International Cleaner Production Information Clearinghouse (ICPIC)

Contact: Miles Morse,  
Office of Research  
and Development  
Tel: (202) 260-3161  
Fax: (202) 260-4524

The International Cleaner Production Information Clearinghouse (ICPIC) is a computerized information exchange system of the United Nations Environment Program (UNEP) Cleaner Production Program, based on U.S. EPA's Pollution Prevention Information Exchange System (PIES). ICPIC is designed to transfer technical policy, program, legislative, and financial expertise on cleaner production.

## National Small Flows Clearinghouse

Contact: Peter Casey,  
Program Coordinator  
West Virginia University/  
P.O. Box 6064  
Morgantown, WV 26506-  
6064  
Tel: (304) 293-4191  
Fax: (304) 293-3161

The National Small Flows Clearinghouse (NSFC) collects, classifies, and distributes information on innovative alternative wastewater treatment technologies for rural residents and small communities. The NSFC produces two quarterly newsletters and a refereed journal, offers more than 250 informational products, operates a technical assistance and referral information line, and maintains a computer bulletin board system called the Wastewater Treatment Information Exchange. An information packet that more fully describes the program is available at no cost.

## O<sub>3</sub> Partnerships Program

Contact: Gary McNeil,  
Director  
O<sub>3</sub> Partnerships Program  
Office of Air and Radiation  
Tel: (202) 233-9173  
Fax: (202) 233-9637

The O<sub>3</sub> Partnerships Program, part of EPA's Stratospheric Protection Division, works with developing country governments and industry countries in reducing their use of ozone-depleting chemicals (ODS). The program has four key goals: (1) focus assistance on the priorities of the national government officials responsible for implementing the Montreal Protocol on Substances that Deplete the Ozone Layer, and on the requirements of each industrial enterprise selected by the government to receive assistance, (2) achieve measurable, cost-effective reductions in ODS use, (3) reduce ODS use through sustained efforts in the context of comprehensive strategies for each industrial application, and (4) foster relationships among EPA, the host government and other agencies to assure the success of the program. The Program's work in a country begins with the needs of the government. Based on these needs, the Program tailors its services to help develop individual projects and industry-wide comprehensive plans to reduce ODS emissions in specific applications, such as foam-blowing or solvent cleaning. Often the Program can help companies locate appropriate vendors of ozone-safe technologies. In most instances, EPA can also work directly with ODS-firms in the country.

## Pollution Prevention Information Clearinghouse (PPIC)

Contact: Beth Anderson,  
Pollution Prevention  
Division  
or Documents,  
Reference and Referral  
Tel: (202) 260-1023  
Fax: (202) 260-0178

The Pollution Prevention Information Clearinghouse (PPIC) is dedicated to reducing or eliminating industrial pollutants through technology transfer, education, and public awareness. The Clearinghouse is a free, nonregulatory service of the U.S. EPA, and provides the following services: telephone reference and referral, document distribution for selected EPA documents and a special collection available for interlibrary loan.

## Technical Guidance Documents

Contact:  
Dr. James E. Smith, Jr.,  
Senior Environmental  
Engineer  
EPA Center for Environ-  
mental Research Information  
Cincinnati, OH 45268  
Tel: (513) 569-7355  
Fax: (513) 569-7585

The purpose of these documents, prepared by EPA experts in consultation with the international scientific community and end use customers, is to provide brief and easy-to-read information on a range of different environmental issues, including:

- Metal Processing Wastes
- Tannery Wastes
- Waste Oils
- Spent Solvents
- Lead-Acid Batteries
- Seafood Processing
- Design and Operation of Common Effluent Treatment Plants
- Design and Operation of Hazardous Waste Treatment Centers

## RESOURCES

### Technical Information Packages

Contact: Mark Kasman,  
Office of  
International Activities  
Tel: (202) 260-0424  
Fax: (202) 260-4470

EPA offers a set of Technical Information Packages (TIPs) on environmental issues of most concern to developing countries and economies in transition. Consolidating some of the Agency's best information into mini-resource libraries, each TIP begins with a cover brochure providing an overview of the particular issue along with a list of EPA experts, a more extensive bibliography, and information on accessing existing databases and training opportunities. Accompanying the cover brochure are some of the most important source document provided more detailed information on environmental and health effects, relevant standards and regulations, and appropriate technologies and management options.

TIPs has been placed in 120 countries. A Directory of TIPs is available to locate the sets placed around the world. Each full set of TIPs weighs 250 pounds. A limited number of sets are available for placement in information centers overseas. These sets will only be donated to information series willing to accept the full series, provide wide access, and able to pay for the shipment. EPA is currently converting TIPS to a compact disk format.

EPA has prepared TIPs on:

- Ensuring Safe Drinking Water
- Water Quality
- Mining Waste Management
- Risk Assessment
- Pesticide Waste Disposal
- Pesticide Usage Guidelines
- Air Quality Management Pollution Prevention
- Small Community Wastewater Systems
- Hazardous Waste Management
- EPA Information Sources
- Solid Waste Disposal
- Environmental Impact Assessments
- Environmental Management

### Country and Region-Specific Programs

EPA's bilateral and regional work is a critical component of its international technology programs. Below are the EPA contact points for specific countries and regions.

#### Australia/New Zealand

Program Manager:  
George Patrick  
Tel: (202) 260-4886  
Fax: (202) 260-8512

#### Canada

Program Manager:  
Pete Christich  
Tel: (202) 260-4893  
Fax: (202) 260-8512

#### Caribbean Islands/Central America

Program Manager:  
Paul Almeida  
Tel: (202) 260-6653  
Fax: (202) 401-0140

#### Central and Eastern Europe

Program Manager:  
Anna Phillips  
Tel: (202) 260-6341  
Fax: (202) 260-4506

Program Manager:  
Dan Thompson  
Tel: (202) 260-5224  
Fax: (202) 260-4506

#### China/Hong Kong/Taiwan

Program Manager:  
Jentai Yang  
Tel: (202) 260-6508  
Fax: (202) 260-0053

Program Manager:  
Marianne Bailey  
Tel: (202) 260-5237  
Fax: (202) 260-4470

#### Egypt

Program Manager:  
Dave Strother  
Tel: (202) 260-6513  
Fax: (202) 260-8512

#### India

Program Manager:  
George Patrick  
Tel: (202) 260-4886  
Fax: (202) 260-8512

#### Japan

Program Manager:  
David H. Strother  
Tel: (202) 260-6513  
Fax: (202) 260-8512

#### Korea

Program Manager:  
Jentai Yang  
Tel: (202) 260-6508  
Fax: (202) 260-0053

#### Mexico

Program Manager:  
Pam Teel  
Tel: (202) 260-4896  
Fax: (202) 401-0140

Program Manager:  
Patrick Whelan  
Tel: (202) 260-0769  
Fax: (202) 401-0140

#### Russia/New Independent States

Program Manager:  
Bill Freeman  
Tel: (202) 260-3508  
Fax: (202) 260-4470

#### South Africa

Program Manager:  
Marsha Coleman-Adebayo  
Tel: (202) 260-3826  
Fax: (202) 260-8512

#### South America

Program Manager:  
Cam Hill-Macon  
Tel: (202) 260-6009  
Fax: (202) 260-4470

#### Southeast Asia

Program Manager:  
Mark Kasman  
Tel: (202) 260-0424  
Fax: (202) 260-4470

#### Western Europe

Program Manager:  
Kelly Jacobs Mudd  
Tel: (202) 260-6506  
Fax: (202) 260-8512

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World Bank photos on pages 1, 3, 4 and 7.

