

STRIKING
A
BALANCE:
DEVELOPMENT
AND THE
ENVIRONMENT



UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

STRIKING A BALANCE: DEVELOPMENT AND THE ENVIRONMENT

America's foreign assistance program helps bring the benefits of economic and social development to people in more than 90 nations in the developing world, in Central and Eastern Europe, and the newly independent countries of the former Soviet Union. How to manage wisely, and conserve, the Earth's natural resources — essential in carrying out this program — is an increasingly vital question, with no quick or simple answers.

Why does the United States carry out programs and projects to conserve natural resources in other countries? Basically, because we want to help protect the globe's life-support systems that sustain us all, and because it is clearly in the self-interest of Americans to safeguard the environmental heritage of those generations who will succeed us.

Environmental degradation is a growing threat to all nations, including the United States. Tropical forest destruction in Latin America, Asia and Africa ultimately affects the whole planet. So does industrial pollution in Eastern Europe. The potential for global climate change, the deteriorating quality of air and water, the need to preserve the Earth's natural biological base — all Americans have a clear stake in these issues.

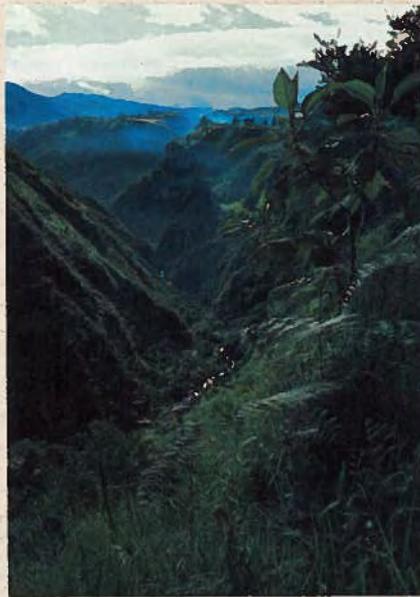
The U.S. Agency for International Development (USAID) is a recognized leader in addressing

urgent environmental problems in developing nations and other countries it assists. It works with other bilateral and multilateral donors as well, in a concerted effort to help those countries which may not have sufficient human, institutional or financial resources to cope with these problems on their own.

USAID has long supported traditional environmental activities, like forest management and soil conservation. Nowadays, the Agency is also increasingly a catalyst for seeking solutions to global environmental problems. It does this not only through specific projects, but also by means of such innovative tools as debt-for-nature swaps and policy reform.

The Agency has increased its total funding for environmental efforts by more than

\$150 million over the last five years. Its current annual funding level for these efforts exceeds \$400 million, plus another \$150 million for energy efficiency and conservation and renewable energy, and additional significant amounts for sustainable agriculture activities — all described in the pages that follow. These figures do not include larger USAID funding for population assistance, for economic reform and stabilization, and for a variety of other poverty alleviation programs aimed at reducing the pressures that lead to environmental degradation.



World Wildlife Fund / P. Gertler

THE PROBLEM

There is every reason for anxiety. The explosion of human population and activity threatens this planet's continuing ability to sustain life. Progress in this decade in managing population growth will determine whether ultimate world population size may stabilize at 10 billion, at 15 billion, or somewhere in between. Large increases

in very poor populations are occurring in regions of the developing world already experiencing environmental stress, including large areas of tropical forests and fragile coastal ecosystems. This population growth creates tremendous pressure to respond to immediate and basic needs, which results in very significant long-term costs.

Demands increase for food and energy. Land and soil are being degraded and

made unproductive at accelerated rates. About 17 million hectares (42 million acres) of tropical forests and woodlands are lost each year — largely caused by land clearing for agricultural and livestock production.

People continue to migrate from the countryside to rapidly growing cities, most plagued by problems of industrial pollution and solid waste and sewage disposal. These all contribute to environmental degradation and adversely affect human health and productivity, thereby reducing prospects for economic growth.

Air pollution in many urban centers has reached critical levels. In Budapest, Hungary, for example, where a one-hour winter walk on the street does the walker as much harm as smoking a pack of cigarettes, "air booths" now provide people with fresh air for a fee. One in 17 deaths in Hungary is related to air pollution. In Poland,

over 75 percent of water sources are unsafe to drink. Industrial discharge has rendered the Oder and Vistula river water so corrosive that it cannot even be used for industrial purposes.

Rising concentrations of greenhouse gases from human activities threaten to cause global warming. A warmer climate would change temperature and precipitation patterns. This could have an enormous effect on agriculture and natural ecosystems throughout the world.

USAID AND THE ENVIRONMENT

Sound economic development depends on maintaining a quality environment and on the conservation and wise management of natural resources. The use of natural resources, generally determined by population size, affluence and available technology, must be balanced with resource conservation. This balance, called sustainable development, is at the heart of USAID's program.

USAID seeks to incorporate environmental concerns into all of its development programs. Its environmental strategy for the 1990s focuses on the following long-term constraints to development worldwide:

- ◆ loss or degradation of tropical forests and other critical habitats for biological diversity;
- ◆ urban and industrial pollution;
- ◆ degradation and depletion of water and coastal resources;
- ◆ environmentally unsound energy production and use; and,
- ◆ unsustainable agricultural practices.

USAID emphasizes three approaches to dealing with these problems. First, it encourages and supports efforts of developing and other aid-recipient countries to adopt policies that are both economically and environmentally sound. Second, it helps strengthen the capacity of environmental institutions by providing training and technical assistance and by encouraging grassroots efforts to protect the environment. Lastly, USAID helps



USAID

The explosion of human population and activity threatens the planet's continuing ability to sustain life.

countries determine an appropriate role for both the private and public sectors in protecting the environment, particularly encouraging innovative private sector responses.

Cooperation and collaboration with many parties are essential if developing and other aid-recipient countries are to tackle effectively the wide array of environmental and developmental problems facing them. Thus, USAID is working with U.S. private industry to transfer appropriate environmental and energy technologies that meet specific needs in the developing world, in Eastern Europe and in the newly independent states of the former Soviet Union. It assists private industries in those countries to improve their efficiency, thereby reducing waste and strengthening these industries' capacities to use appropriate and environmentally sound technologies.

USAID also works closely with U.S. and local non-governmental organizations, other U.S. government agencies (such as the U.S. Department of Agriculture Forest Service, the Peace Corps and the Environmental Protection Agency), international organizations and other donor countries.

USAID / N. Long



The United States-Asia Environmental Partnership will provide training opportunities to build professional skills.

United States-Asia Environmental Partnership: Mutual Benefits

The United States-Asia Environmental Partnership (US-AEP) was announced by President Bush in January 1992. It is an unprecedented coalition of U.S. and Asian businesses, governments and community groups working together to enhance Asia's environment. The partnership's goal is to help improve the quality of life in Asian and Pacific countries and territories. To accomplish this, it makes use of the environment and energy experience and products of U.S. business and non-governmental organizations.

The US-AEP focuses the efforts of more than 20 U.S. government agencies, U.S. businesses and non-governmental organizations on development, environment and trade initiatives.

The partnership concentrates on:

- ◆ **Environmental Fellowships and Training** — to build professional skills through competitive grants and training opportunities for Asian and American managers and scholars to analyze and bring immediate attention to the most pressing problems and promising opportunities.
- ◆ **Technology Cooperation** — to foster technology transfer opportunities through trade and investment activities and Asian and U.S. business exchanges.

U.S. Environmental Business Centers will be established in the region to support U.S. and Asian trade and investment linkages.

- ◆ **Environmental Infrastructure** — to provide cleaner air, water and energy through environmental infrastructure projects. These include water supply and wastewater treatment, improved emission controls, solid and toxic waste management and production of lead-free fuels.
- ◆ **Regional Biodiversity Conservation Network** — to support Asian efforts to preserve, analyze and use the region's unique and valuable natural forest and marine habitats and the plants and animals living within them. Local communities will benefit economically today while conserving genetic materials for medicines, crop improvements and other new products for future generations.

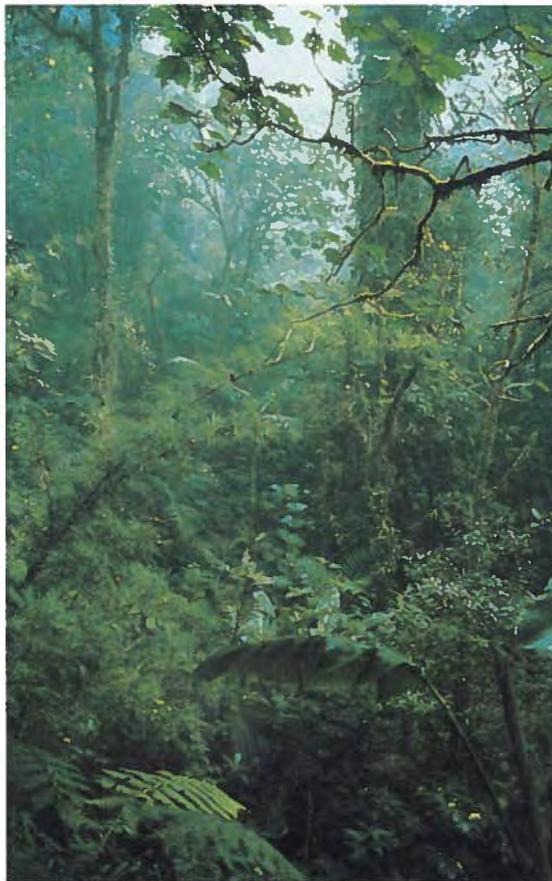
All Asian and Pacific countries and territories invited by President Bush to take part in this U.S.-Asia Environmental Partnership have welcomed this innovative and cooperative approach to seeking solutions to the globe's most urgent environmental challenges.

TROPICAL FORESTS AND BIOLOGICAL DIVERSITY

Tropical forests, which contain more than half of the world's animals and plants, are crucial for sustaining human life and livelihood. Their biological resources provide food, fuel, building materials, lifesaving pharmaceuticals and genetic resources for the development of new and disease-resistant crops. They also serve as a vital storage place for carbon — deforestation through burning releases tremendous amounts of carbon dioxide into the atmosphere.

Yet, as population and economic pressures grow, the world's tropical forests — and the flora and fauna within them — are vanishing at an alarming rate, the fastest in history. More than half have been lost since the turn of the century.

Tropical forests are crucial for sustaining human life and livelihood.



World Wildlife Fund / D. Vayo

The Agency currently provides over \$100 million a year for tropical forestry programs and another \$60 million for biological diversity conservation. In recognition of the latter's importance to economic development, USAID's funding for biodiversity programs has increased more than fivefold over the last five years.

USAID recognizes that people in developing countries need to derive benefits from tropical forests to justify maintaining them.

So its programs in natural forest management, buffer zone management and forest policy reform are aimed at stopping deforestation and protecting biodiversity, while promoting the sustainable use of both timber and non-timber forest products.

The Agency works with The Nature Conservancy in *Latin America and the Caribbean* to convert "paper parks," i.e., parks in name only, to fully protected and operational areas in the hemisphere's most imperiled tropical ecosystems. Its "Parks in Peril" project is designed to integrate these protected areas into the economic and cultural lives of local communities and to create long-term funding mechanisms to sustain these parks in perpetuity.

In the *Philippines*, USAID supports government policies to improve natural forest management and the ability of forest products industries to minimize waste and increase product value. Policy reforms — in timber pricing, trade liberalization, logging bans, land tenure and forest management — address the fundamental causes of forest mismanagement.

Over 85 percent of *India's* original forested land is denuded as a result of increased demand, driven by population pressures, for agricultural land and fuelwood. Working to conserve the remaining forests and expand forested areas, USAID, the World Bank and the Indian government jointly launched in 1985 a project to support tree-planting efforts by farmers and communities. Indian farmers have planted more than half a billion seedlings, under this project, on over 325,000 hectares (800,000 acres). This effort has

significantly expanded private farm forestry and helps India meet its needs for industrial wood products.

USAID has been an early and active supporter of innovative conservation mechanisms, like debt-for-nature swaps. These swaps provide funds to develop and protect parks and other natural areas. In its largest debt-for-nature swap, USAID recently provided funds to the World Wildlife Fund to purchase commercial *Philippine* debt and set up a trust fund and foundation to support local non-governmental organizations' programs in wildlife protection efforts, tree nurseries and planting, and training of park rangers.

Aspirin, cyclosporin and many other important drugs now synthesized, including drugs for cancer and for malaria, were first discovered in wild plant species. But, at present deforestation rates, many of the world's remaining plant species may become extinct over the next three decades. These include many plants whose properties have not yet been researched but that could become important sources of new medicines or genetic material needed to improve agricultural productivity.

Agency activities in biological diversity focus on defining national conservation priorities; environmental education; efforts to strengthen relevant legislation, policies and institutions; and habitat management to protect individual endangered species. In *Madagascar*, USAID works with the World Bank, conservation organizations and local non-governmental organizations to protect the country's unique biological diversity through, for example, a project promoting ecologically sustainable tourism, that provides local people with a steady source of employment.

USAID, the National Institutes of Health and the National Science Foundation have joined forces in a new program to help strengthen global efforts to protect both biological and cultural diversity. The program will draw upon the botanic knowledge of indigenous peoples to help identify promising leads for local plants from which may be derived drugs against cancer, heart disease and

Niger: Toward Local Control Over Natural Forest Management

USAID's successful experience in the Guesselbodi Forest in *Niger* has become a model for natural forest management for sustainable economic growth. Ten years ago, farmers had slashed and burned more than half of the forest in Guesselbodi to create arable land. USAID helped introduce a series of small-scale, low-cost measures to encourage regeneration of natural forest to provide sustainable yields of wood and forage. Nearly 14,000 hectares (35,000 acres) were improved — an increase from only 2,000 hectares (5,000 acres) three years ago.

In large part as a result of the project's success, Niger's government issued a decree in May 1990 giving villages use and management rights to natural forests within their vicinity — a major step forward in the process of decentralizing control over natural resources and empowering local residents to manage them.

AIDS, as well as other diseases uniquely afflicting developing countries. An innovative aspect of the program will be to ensure that part of the profits derived from any successful drugs are returned to the country where the compounds were first found, for use in protecting the cultures and ecosystems from which the plants and compounds were originally derived.



Tropical forests contain many plant species that have been important sources of new medicines, such as drugs for cancer and malaria.

Missouri Botanical Garden

Maya Biosphere Reserve: Meeting Guatemala's Economic Needs Through Sound Natural Resource Management

With USAID assistance, the 1.6 million-hectare (four million-acre) Maya Biosphere Reserve — one of the richest repositories of animal and plant species in the Americas — was created in 1990 in one of the poorest and most isolated regions in *Guatemala*. Outside of the reserve, forests in this area are expected to virtually disappear within 30 years as a result of swelling populations, slash-and-burn agriculture and timber overcutting.

The project's aim is to improve natural resource management in the reserve area by curbing current destructive practices and finding viable economic alternatives for residents. The reserve contains valuable tropical hardwoods and is an important source of gum extracts (chicle), ornamental plants, allspice, rattan and other natural forest products. If managed and harvested for sustainable yields, such alternative products can provide the local population with environmentally sound ways to improve their standard of living.

Tikal, one of the most important Mayan archaeological sites and a major regional tourist attraction, is a part of this reserve. The project encourages environmentally sound tourism to take advantage of the biological and archeological riches present. USAID also supports an anthropological study of ancient Mayan farming practices at the site, to determine their possible usefulness today.

USAID is helping protect endangered species such as the African elephant and the mountain gorilla through long-term wildlife and habitat management.



Dusty Wissmath / African Wildlife Foundation



World Wildlife Fund / R. Weyerhaeuser

In *Belize*, USAID and the New York Botanical Garden collaborate to promote the use of centuries-old traditional medicines and healing practices by community health workers. They work,

similarly, with *Ecuador's* Quichua and Shuar indigenous people and with local economists to identify and value plants and other non-timber forest products in the area. By showing that the harvest and sustainable use of non-timber forest products can provide more income than returns derived from deforestation, these studies promote wise use and conservation of the forests as well as help preserve an endangered cultural heritage.

USAID also works with countries to help protect individual endangered species through activities centered on the long-term management of wildlife and their

associated habitats. It recently provided funds, for example, for African elephant conservation, with an emphasis both on regional activities as well as on projects in *Tanzania, Cameroon, Niger, Zimbabwe, Botswana, Zambia and Kenya*. African elephant conservation also is emphasized in USAID's work with the staff of the *Tanzania* Wildlife Department. This project promotes wildlife conservation and management training techniques to develop land-use management plans for the country's protected areas, including Mikumi National Park — home to one of the largest elephant populations in Africa.

The Agency also trained local teachers and park guides in *Rwanda's* Volcanoes National Park, home of the endangered mountain gorilla, and helps monitor declining populations of the many species of migratory birds that breed in North America but winter south of the border.

USAID works closely with public and private organizations in strengthening the management capacity of forestry institutions, including community-based organizations and local and national institutions. It works, for example, with the World Wildlife Fund, The Nature Conservancy and World Resources Institute in a highly regarded program supporting a wide range of biodiversity projects in countries such as *Bolivia, The Gambia, Ecuador, Belize, Nepal, Thailand, Papua New Guinea and India*.

URBAN AND INDUSTRIAL POLLUTION

Within the next 30 years, more than 60 percent of the world's population is expected to live in cities, as people continue to migrate to urban areas in search of employment and a better life. Cities in the developing world are ill-equipped to manage this growth. Despite increased investments in the basic facilities that countries need to function, delivery of needed services has actually declined since the 1970s. In fact, during the last decade, urban population without water supply grew by some 31 million, and those without sanitation increased by 85 million.

The provision of other urban services is similarly lagging. In the developing world, 30 percent to 50 percent of solid wastes remain uncollected. Treatment of industrial waste is rare. Most industries dispose of their untreated, and often toxic, waste in the nearest body of water. In New Delhi, for example, 19 million liters (five million gallons) of water contaminated with DDT is dumped into the Jamuna River daily.

Rapid growth of urban areas without needed essential services, such as sewage treatment, has an unfortunate byproduct — widespread environmental degradation that threatens both human health and economic growth. To address these serious environmental problems, USAID has mounted a concentrated effort to tackle urban and industrial pollution in the megacities, in the newly industrialized countries of Asia and in the heavily industrialized cities of Eastern Europe.

The Agency currently provides over \$100 million for pollution control programs. These emphasize the need to address threats to low-income urban families — such as inadequate water, sanitation and solid waste management. The Agency works with U.S. private industry to provide technical assistance and training in industrial pollution prevention and control.

In selected urban areas where industrial accidents could have serious environmental effects,

USAID promotes the design of local accident mitigation and prevention programs. Representatives of the private sector, government and community organizations are cooperating in developing environmental disaster response plans.

Stronger, more effective local governments are essential to improved management of urban environmental concerns. Local and municipal governments interact directly with industries, issuing permits to businesses and managing water, sewage, solid waste and other services. USAID helps strengthen the ability of local governments to administer environmental programs by providing training and technical assistance. It helps a number of developing countries, for instance, to improve solid waste management systems and adopt environmentally sound waste management practices.

USAID's program with the World Environment Center (WEC) enlists the expertise of technical experts from U.S. private businesses in solving problems like industrial, air and water pollution, as well as hazardous waste disposal and treatment in Asia, Europe and the Near East. For

Environment Centers: A U.S.-Japan Initiative

The United States and Japan recently decided to collaborate in addressing environmental issues in the developing world. Accordingly, these two countries have agreed to create a network of national Environment Centers to help manage and conserve the globe's natural resources. Centers are tentatively planned in regions where the natural resource base is most threatened by human activities — Latin America (2), Africa and Southeast Asia/South Pacific.

The centers will promote environmentally sound development by supporting community-level actions to protect the environment and conserve natural resources; study and catalogue these resources; develop sustainable methods and practices to use resources wisely; and encourage appropriate government policies. The program will emphasize local community participation in identifying the issues and developing solutions.

Eastern Europe: Addressing Urban Pollution Issues

In Eastern Europe, industrialization under centrally planned governments has had serious environmental consequences. Over half of *Hungary's* ground water is polluted by sewage, agricultural chemicals, animal wastes and industrial discharges. Life expectancy in Eastern Europe's industrialized regions is, on average, eight years less than in non-industrialized areas. The loss of human productivity represents a serious loss of economic potential. Over half of the population in Poland, for instance, suffers from pollution-related illnesses.

USAID has mounted a major program designed to redress the serious economic, health and ecological damage caused by unchecked urban and industrial pollution. The Agency and other donors have launched a major regional environmental effort to clean up the Danube River. Through the World Environment Center, USAID also helps privately owned Eastern European businesses to minimize waste and pollution by improving their production processes. Another highly successful regional effort, in energy efficiency, has resulted in substantial savings and reduced air pollution.

The Regional Environmental Center in Budapest, *Hungary*, jointly supported by USAID and the U.S. Environmental Protection Agency, is raising public awareness and improving the capabilities of non-governmental organizations throughout the region. The center helps educate the public on issues like pesticide disposal, lead in drinking water and energy conservation in the home. In addition, it has developed environmental education materials and set up a speakers bureau to bring environmental professionals to university campuses in the region.

USAID, the World Bank and the European Community have jointly sponsored environmental strategy studies and action plans in *Czechoslovakia*, *Romania*, *Bulgaria* and the *Baltic Republics*. These action plans provide the foundation for donor assistance, government priority investments and World Bank-led policy reforms.

In Krakow, *Poland*, an Agency project promotes private investment in energy industries and increased efficiency of energy production and use. An air quality monitoring network for Krakow is being developed that will provide information for emergency and long-term emission control strategies.

example, with USAID support, WEC cooperates with *India's* Labor Ministry to set up a training institute to improve worker safety in chemical and other industries, and with the Federation of *Thai* Industries on pollution prevention.

Also in *Thailand*, as a result of two USAID-supported studies — one evaluating health risks associated with urban environmental problems in Bangkok and a second on improved economic policies for environmental protection — the Thai government has reduced lead emissions in Bangkok by providing price incentives to shift consumption to unleaded gasoline.

A major USAID activity — totaling over \$2 billion in assistance since 1978 — has been supporting the construction and operation of wastewater plants serving 22 million residents of Cairo and other *Egyptian* cities. In Alexandria, for instance, USAID has focused on building sewage treatment facilities and sewage mains to alleviate chronic and unhealthy flooding of homes and streets. The Agency is now shifting its emphasis to institutional support and training and to improved operation, maintenance and cost recovery of existing treatment systems.



World Wildlife Fund / R. Liroff

COASTAL ZONES AND OTHER WATER RESOURCES

Coastal areas, which already contain more than 85 percent of the world's people, are projected to have the greatest population growth over the next 20 years. Coastal zones are vital centers of tourism and transportation, as well as industry, fishing and agriculture. In fact, economic development in many countries depends largely on how coastal areas are used and managed. Yet these fragile, biologically productive areas are being rapidly degraded. USAID helps strengthen the ability of developing countries to carry out integrated coastal resource management programs, that is, to address the environmental, social, cultural and institutional factors involved in conserving and using coastal resources for economic development.

USAID also is active in the conservation of wetlands. The Agency's wildlife conservation and park management project in the Tortuguero region on the northern Caribbean coast of *Costa Rica* helps to protect one of the world's most important green sea turtle nursery grounds and coastal wetland habitats. In the *Philippines*, where 70 percent to 90 percent of coastal wetlands have been destroyed or severely degraded, USAID helps analyze some 136 wetland areas to develop conservation and management plans.

Through the Agency's competitive grants research program, activities have addressed mangrove forests and their importance for offshore fisheries, including a study on the effect of oil dispersants on coral and mangroves.

USAID helped establish and manage the Hol Chan Marine Reserve in *Belize*. The first reserve created on the 630-kilometer (400-mile)-long Belize Barrier Reef, the most extensive and complex coral reef system in the Atlantic, it now serves as a model for comprehensive, multiple-use management. USAID has a new project to help strengthen the ability of the *Organization of Eastern Caribbean States* to promote environmental policies and activities. Local communities will be



World Wildlife Fund / J. Brokaw

Economic development in many countries depends largely on how coastal areas are used and managed.

extensively involved in problem analysis, resource allocation and land-use planning decisions.

In the South Pacific, USAID works to help strengthen coastal and marine resources conservation in *Papua New Guinea, Tuvalu, Tonga, the Cook Islands and Kiribati* while increasing income opportunities for island communities. USAID assists these governments in preserving fragile atoll and lagoon environments. USAID's water resources management programs, including coastal zones, wetlands and agricultural irrigation, currently total about \$100 million.

Integrated Coastal Zone Management: New Policies, New Actions

USAID works with the University of Rhode Island on three pilot coastal zone management programs, each already a success story in natural resource conservation. The pilot program in *Thailand* focused largely on maintaining and protecting the environmental quality of Phuket province, which, with its beautiful white beaches and coral reefs, is one of the country's most important tourist attractions.

With the help of the local community, Phuket's coastal problems were analyzed and a strategy developed to protect reef beauty and productivity for the benefit of fishermen and tourists. The project actively involved local user groups, including volunteer diving groups and businesses, to help increase awareness of the need for preventing anchor damage and otherwise protecting the coral reefs. The Thai government subsequently adopted an action plan for the region, providing for reef protection, land use planning, and solid waste and wastewater treatment. *Ecuador's* government, assisted by the USAID project, adopted in 1990 a national coastal resources management program. One feature of this program is a "debt swap," proceeds of which are funding environmental education for schoolchildren and the general public. USAID and *Sri Lanka* jointly prepared a plan, now being carried out, to respond to the legislature's recent passage of a natural coastal zone management act.

Global Climate Change

Emissions resulting from industrialization, rapid deforestation and inefficient energy production and use are substantially increasing concentrations of "greenhouse" gases, including carbon dioxide, methane, nitrous oxide and chlorofluorocarbons (CFCs), in the atmosphere. These gases trap the sun's heat in the atmosphere, thereby increasing the "greenhouse effect" and threatening to change the world's climate through temperature increases, altered rainfall patterns and rising sea levels.

While the magnitude and impact of potential climate changes are not yet clear, their potential threat has led to several early responses by USAID and other members of the international development community. USAID's response to potential global climate change consists largely of projects in forestry, energy efficiency and sustainable agriculture. Possibly as much as 30 percent of all carbon dioxide emissions, for instance, result from the burning of tropical forests in such areas as Brazil, Indonesia and Central Africa. Agency programs to cope with these and other sources of emissions (outlined in greater detail elsewhere in this publication) make use of known technologies in the form of research; training; know-how; improved policies, institutions, public awareness and mobilization of private resources; and more efficient means of organizing existing factors of production.

USAID recently adopted a strategy aimed at mitigating the threat of global climate change in selected key developing countries and regions, including *Indonesia, the Philippines, India, Central America, the Congo Basin, Mexico, Brazil and Poland.*

The combustion of fossil fuels is a major source of greenhouse gas emissions in Latin America. The Agency supports programs in both *Brazil and Mexico* to promote alternative energy sources and energy efficiency. A variety of technology transfer and training activities are directed toward key policy-makers and industry leaders of those two countries as a way to bring about significant change. USAID is also helping to survey the forest area in the *Congo Basin* to determine the extent of burning in tropical forest and savannah regions and to develop, thereafter, an effective environmental action plan for the basin.

USAID's Global Energy Efficiency Initiative is targeted at improving energy efficiency, e.g., more efficient lighting, heating, cooling, construction, etc., in developing and other aid-recipient countries. A comprehensive study of the impact of energy efficiency on global climate change has been completed, and projects are being developed for several countries in Asia and Eastern and Central Europe. In *Poland*, for example, low-cost, quick-impact energy efficiency measures will be undertaken in selected industrial plants and refineries.

ENVIRONMENTAL IMPACTS OF ENERGY USE

Developing countries typically lack sufficient capital to meet their rapidly growing energy needs from environmentally sound sources. Older facilities often are inefficient and generally lack pollution control devices. Thus, many current energy development programs contribute to environmental degradation.

USAID, working with developing country power supply agencies, takes a comprehensive approach to these problems. In cooperation with multilateral development organizations, the private sector and other donors, the Agency supports efforts to increase energy efficiency, expand energy supplies (including renewable energy) and enhance the role of private power generation. USAID's efforts this year total over \$150 million.

The Agency has helped a number of countries develop legislation to facilitate private power generation. Major national energy conservation programs are now under way in *Egypt, the Philippines and Morocco.* USAID seeks creative approaches to improve power sector investment planning and encourage the application of cleaner technologies. It also supports a wide range of training programs to help build the professional private work force needed for cost-effective, reliable and environmentally sound energy systems.

One USAID project seeks ways to generate commercially competitive electricity and liquid fuels from the residues of common agricultural crops, such as sugar cane and rice husks, as well as wood wastes of forest product industries. In *Costa Rica*, for example, the private El Viejo sugar company now sells its excess electrical power generated from such residues to the national utility. USAID supports similar sugar cane activities in *Thailand, Malawi, Swaziland, Guatemala, Jamaica, the Philippines and Brazil.* Other USAID renewable resource activities involve flowing water, geothermal, solar and wind resources. The Agency conducts pre-investment studies in many develop-



Winrock International

Commercially competitive energy can be generated from residues of common agricultural crops such as sugar cane.

ing countries and recently supported a review of successful applications in the developing world of U.S.-manufactured renewable energy technology. USAID also assists developing countries in understanding the environmental effects of increased coal use and seeks novel solutions to finance efficient and environmentally sound technologies.

Enterprise for the Americas Initiative

The Enterprise for the Americas Initiative was introduced by President Bush in June 1990. It promotes economic growth in Latin America and the Caribbean through increased trade and investment. The initiative has an innovative debt reduction feature which provides support for environmental projects. Each country that reduces its food aid debt to the United States can pay the interest on the debt that remains in local currency. These local currency payments, in turn, will be used to support grassroots environmental projects, to be jointly agreed upon by the United States and each debtor country. This not only helps provide support for local conservation and management of natural resources, but also helps strengthen the role of local non-governmental organizations and the public in establishing priorities, awarding grants and taking part in decisions affecting their environment.

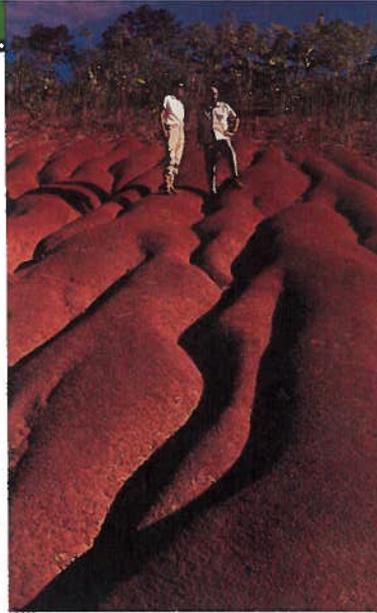
SUSTAINABLE AGRICULTURE

Agriculture is a critical component of the economy in almost all developing countries, providing food, fuel, employment and income for most of the people. Unfortunately, unsound and short-sighted agricultural practices often have led to reduced productivity and environmental degradation. Destruction of forests and inappropriate use of crop and range lands contribute to soil erosion. Pesticide and fertilizer overuse adds to pollution of surface and ground water.

Improved farm practices can significantly enhance economic growth prospects. USAID has taken steps to incorporate natural resource and environmental concerns throughout its agricultural programs, including efforts to support or restore sustainable farming systems that can respond to changing economic and climatic conditions. A key objective is to assist countries in conserving their natural resources — including soils, crops, water, fish, livestock and forests — while meeting the food and income needs of their people. Agency projects promote the successful management of such natural resources, aiming to maintain and improve, over time, their productive capacity.

In *Indonesia*, for example, USAID has worked to increase farm production and decrease soil erosion in two critical watersheds. Several viable alternatives to traditional upland farming practices already have been employed in planting almost 10,000 hectares (25,000 acres) — with good potential for achieving both production and conservation goals. A decade ago, many farmers in *Mali's* upper valley area produced only two to three

**Unsound
agricultural
practices
contribute to
environmental
degradation.**



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crop varieties for local consumption. Today, by contrast, with USAID help, farmers produce a wide array of crops, using new resource management options and techniques — mineral and organic fertilizers, rotation cropping, planting fallow lands with forage legumes and using harvest residues to fertilize the soil. Last year, farmers treated more than half the millet crop and nearly 40 percent of the maize crop with manure, a farm byproduct often wasted in the past.

Another important element of the Agency's longtime work in sustainable agriculture has been developing systems that contribute to conservation of soil, water and forests while providing useful

timber and non-timber products for on-farm consumption as well as for markets.

Pest management programs have been for decades an important component of how USAID encourages sustainable agriculture. More than 5,400 students from 46 developing countries have received training ranging from integrated pest management to the diagnosis and treatment of pesticide poisoning. Quality control programs are now supported in 57 laboratories in 30 countries.

USAID recently published integrated pest management guidelines for its field missions and encourages the breeding of pest-resistant plant species and replacing the traditional application of pesticides with an environmentally safer mix of natural pesticides, biological controls and crop rotation practices, combined with minimal use of pesticides. USAID also has been working with private sector groups and other organizations to remove safely and dispose of surplus pesticide stocks in a number of countries.

For example, both the Center for Tropical Research and Education in *Costa Rica* and the Pan-American Agricultural School in *Honduras* are USAID-supported centers of excellence in pest management training and research. USAID support of *Indonesia's* policy of reducing financial subsidies on pesticides resulted in a dramatic decline in pesticide use and money savings for farmers, with no decline in rice production.

USAID also collaborates with the U.S. National Research Council in areas relevant to sustainable agriculture — integrated soil and pest management and getting a better grasp on how social, economic, political and institutional factors affect farm production. A major challenge is to develop farm technologies that can provide adequate food and income for the world's growing population and still be environmentally sound. USAID has a strong record of leadership in integrating sustainable agriculture in its economic development programs to help ensure that the world's food needs are met today and for generations to come.

USAID and the Global Environment Facility

In March 1991, the U.S. government pledged to support the Global Environment Facility (GEF), a three-year pilot facility created to address four global environmental issues: conservation of biodiversity; limitation of greenhouse gas emissions; reduction of pollution in international waterways; and protection of the ozone layer. Housed in the World Bank, the GEF is jointly managed by the World Bank, the United Nations Environment Program and the United Nations Development Program. Overall funding for the GEF is estimated to be about \$1.3 billion over three years. Funding has been pledged by 24 countries, including nine from the developing world.

The United States will provide \$150 million in parallel financing over three years to support USAID projects coordinated with GEF and recently announced its intention to provide an additional \$50 million directly to the GEF. To date, five USAID projects have been submitted for GEF consideration. The goals of these projects are to work with local communities to conserve threatened biodiversity and to develop innovative methods for preventing pollution of international waterways.

LOOKING TOWARD THE FUTURE

The United States must urgently address the enormous environmental problems facing developing countries, whose economic growth is largely based on the use of natural resources — water, soil, forests and the wide array of species they harbor — which are under severe pressure and rapidly being depleted or polluted. The international community increasingly recognizes that development that ignores environmental consequences cannot be sustained over the long term.

Most corrective actions must be carried out by the developing countries themselves, using their own human and financial resources. However, donors can assist in finding solutions and supporting appropriate policy changes. USAID has been in the forefront of that process for years, pioneering new approaches that address both environmental concerns and development objectives. USAID staff, serving in over 80 countries, have a thorough understanding of the local culture, conditions and concerns. Thus, the Agency is well placed to carry out this important task. Because of that advantage, a number of successful USAID projects have become models replicated by other organizations.

USAID recognizes that action on many fronts is needed to reconcile the development and environmental concerns of those countries it assists. These actions go considerably beyond programs labeled “environmental.” They include, for instance, USAID’s population programs that help developing countries achieve population growth rates consistent with sustainable development. They also include a range of programs in other sectors designed to reduce poverty, to create jobs and otherwise reduce the economic pressures and disincentives that contribute to degradation of the globe’s life-sustaining environment.

All the potential capital of all of the developed countries of the world will not by itself solve the planet’s environmental problems. At least as important as outside capital to saving the world’s environmental heritage are:

- ◆ an increased environmental awareness on the part of all countries, developed and developing alike;
- ◆ greater popular participation in decision-making on the environment, particularly at the local government level;
- ◆ essential governmental reforms and a more accurate accounting of the real economic and human costs of resource depletion and environmental degradation; and,
- ◆ further human and institutional capacity-building and strengthening.

The U.S. foreign assistance program is an important part of America’s continuing leadership in helping other nations cope with the world’s environmental crisis. The U.S. Agency for International Development is committed to increased efforts to ensure that the Earth’s bounty will be conserved for generations to come.



USAID / Carolyn Watson

Conservation and wise management of the Earth’s natural resources are investments in our children’s future.

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