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**Global
Environment
Facility**

1999 Annual Report
Volume 1

**safeguarding
the earth**

FILE COPY

THE PURPOSE OF THE GLOBAL ENVIRONMENT FACILITY

The Global Environment Facility was established to forge international cooperation and finance actions to address four critical threats to the global environment: biodiversity loss, climate change, degradation of international waters, and ozone depletion. Related work to stem the pervasive problem of land degradation is also eligible for GEF funding.

Launched in 1991 as an experimental facility, GEF was restructured after the Earth Summit in Rio de Janeiro to serve the environmental interests of people in all parts of the world. In 1994, 34 nations pledged \$2 billion to protect the global environment and promote sustainable development. In 1998, 36 nations agreed to commit \$2.75 billion more to support this mission.

More than a thousand leaders from governments, international institutions, and non-governmental organizations met in New Delhi in 1998 for the first GEF Assembly. The Assembly adopted The New Delhi Statement (excerpted here), highlighting GEF's unique role and calling upon it to "accelerate its operations."

*The GEF is the multilateral funding mechanism
dedicated to promoting global environmental protection
within a framework of sustainable development
by providing new and additional grant and concessional funding...
its beneficiaries are all people of the globe,
and the need for the GEF is even greater as we enter the new millennium...*

ABOUT THIS REPORT

Safeguarding the Earth reports on the accomplishments of the Global Environment Facility through June 30, 1999, and highlights new GEF initiatives leading into the 21st century.

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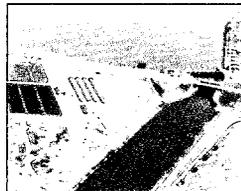
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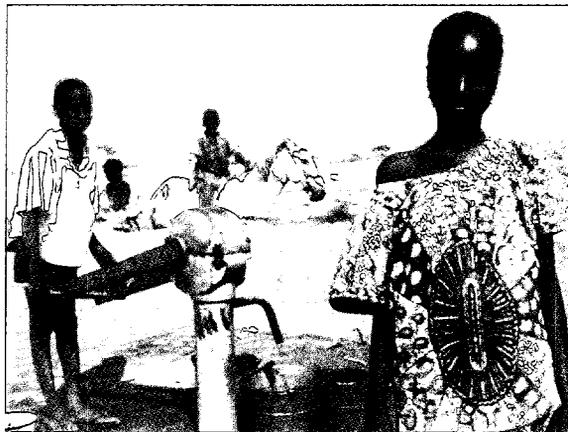


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Safeguarding the Earth



While people around the world have marked a new millennium, Earth itself is, of course, several billions of years old. ■ Do we really need to be concerned about the future of a planet with staying power of this order of magnitude? Most definitely. As Earth goes, so go the more than six billion people and countless other species on board. ■ Consider the potential risks associated with just one pressing problem, global climate change. ■ According to the Intergovernmental Panel on Climate Change, unless emissions of greenhouse gases are stabilized, the probable rise in carbon dioxide concentrations in the atmosphere late in this century could mean:

- *Increased stress on water resources in arid and semi-arid land areas in Africa, the Middle East, and Southern Europe*
- *Decreased agricultural production in Africa and Latin America*
- *An increase in vector-borne diseases, such as malaria, in tropical countries*
- *Tens of millions of people displaced by rising sea levels in small islands states and low-lying deltas*
- *Major changes in the structure and functioning of critical ecological systems, particularly coral reefs and forests.*

Expanding deserts, a tattered ozone layer, collapsing fisheries, a scarcity of fresh water, and unprecedented levels of plant and animal extinction do not describe the kind of planet we want to leave for future generations.

We can do better, if we all play a part. The Global Environment Facility (GEF) encourages people's participation in safeguarding the global environment through sustainable development measures close to home.

Most nations of the world today are shareholders in the GEF. A total of 166 participate in the GEF, and their input is also channeled through GEF's 32-member governing Council.

Five years after the GEF took its current form, people working in more than 620 GEF projects and over 140 countries are casting a kind of safety net around some of earth's most precious natural assets and the human communities that depend on them. When co-financing from national governments, international agencies, the private sector, and environmental groups is added to GEF funds, this portfolio is valued at more than \$7 billion.

These resources are small in relation to the size of the problems. Our success to date stems from a number of factors, institutional as well as operational:

- *An ability to translate vision and concepts into viable actions*
- *An emphasis on our role as a catalyst for sustainable development while respecting national priorities*
- *Our role in support of the Conventions that emerged from Rio, the Convention on Biological Diversity and the U.N. Framework Convention on Climate Change, and GEF activities that take into account the objectives of the Convention to Combat Desertification and other global environmental treaties*

THE LOCAL BENEFITS OF GLOBAL ENVIRONMENTAL PARTNERSHIPS

Earlier this year, I listened as a community leader described what a home-grown conservation plan and support from the Global Environment Facility (GEF) have done for the endangered ibex and the low-income people living in mountainous northern Pakistan.

“Before the GEF project, influential people used to hunt the ibex and other animals,” recalled Farman Baig, vice chairman of the Khyber Imamabad development organization. “Then restrictions on animal hunting and tree felling were instituted, and the people thought that the area would become a national park and they would not benefit from it.”

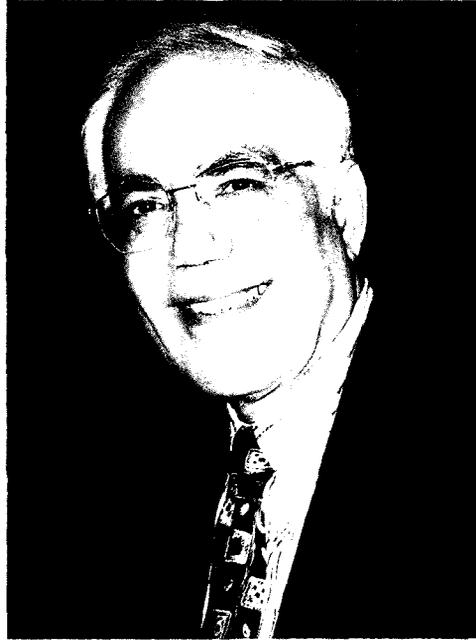
Instead, the people took charge. A newly formed conservation committee gave voice to local people as well as forestry and wildlife experts. Together, they wrote a district conservation plan, which not only controlled hunting, but channeled most of the revenues to a village conservation fund that has already been tapped to bring clean drinking water from a glacier.

Today villagers learn wildlife management from a guide their peers helped produce, and schoolchildren study about the rich collection of more than 300 animals and 1,000 plants that help make their homeland unique.

“We are now capable of carrying this conservation project forward on a permanent basis,” said Baig. “We can also provide assistance to others, in light of our own experience.”

As impressed as I was by the community in question, I was also struck at how well so many partners had backstopped their efforts. Among them: the governments of Pakistan and the United Kingdom, the Aga Khan Rural Support Programme, IUCN-The World Conservation Union, World Wildlife Fund-The Netherlands, the European Union, the International Fund for Agricultural Development, and the GEF’s implementing agency in this instance, the United Nations Development Programme (UNDP).

Mohamed T. El-Ashry



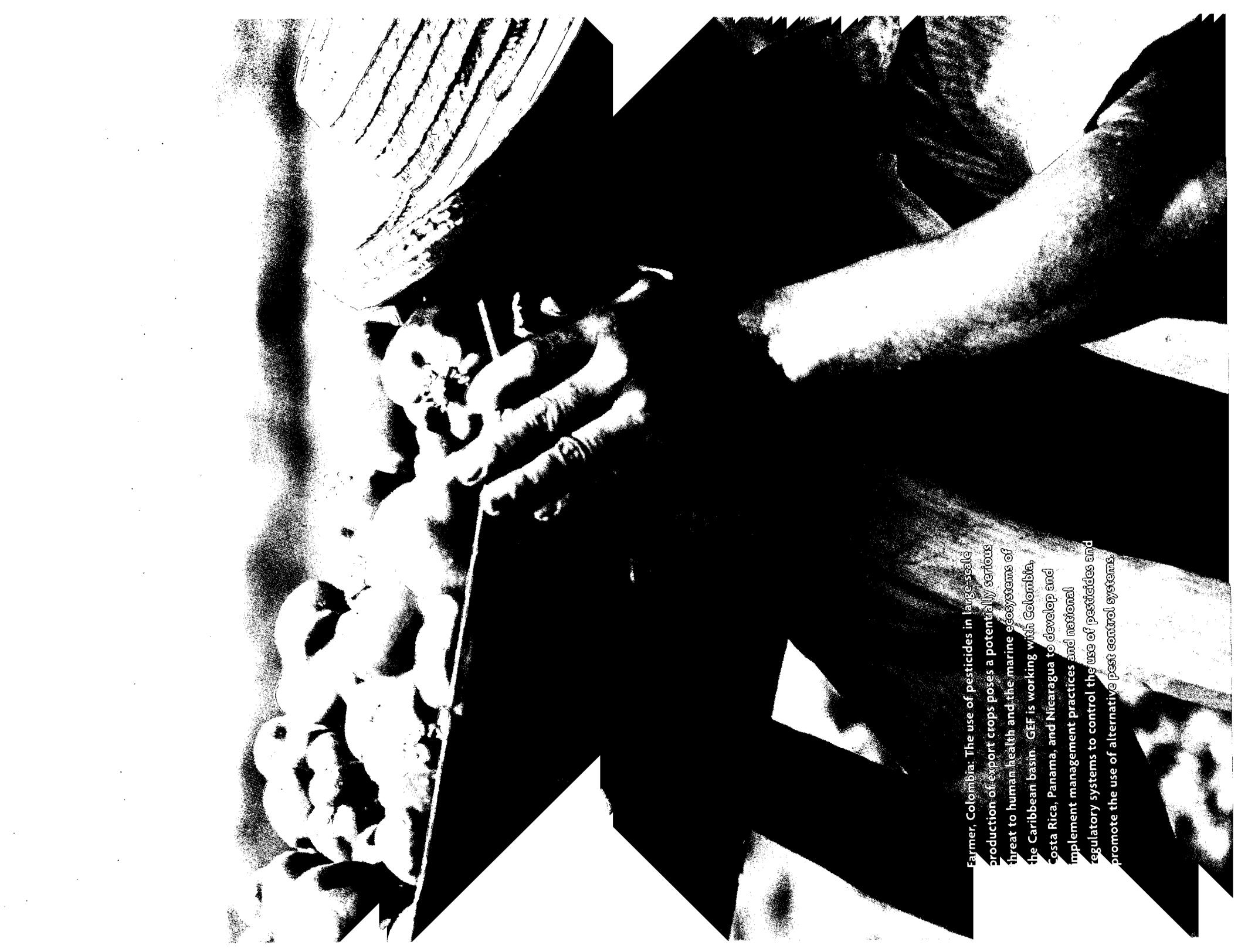
For more examples, see the section on Tangible Partnerships.

- *Our demonstration of new and renewable energy technologies, specifically for developing countries*
- *Our integrated approaches for land, water, and biodiversity conservation*
- *Our many tangible partnerships with governments, non-governmental organizations, and the private sector*
- *Our institutional arrangement of a streamlined organization that relies on existing, proven organizations for implementing its actions on the ground.*

Sections of this report look at each of these critical facets of the GEF. They also provide a means for contemplating what life on our shared planet can be like in the next century and beyond — if, together, we safeguard the Earth.

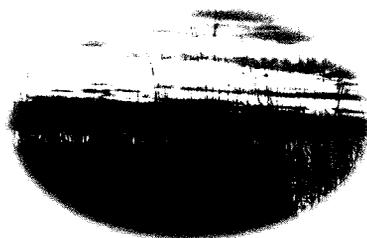
A handwritten signature in black ink, reading "Mohamed T. El-Ashry". The signature is written in a cursive, flowing style.

Mohamed T. El-Ashry, CEO & Chairman



Farmer, Colombia: The use of pesticides in large-scale production of export crops poses a potentially serious threat to human health and the marine ecosystems of the Caribbean basin. GEF is working with Colombia, Costa Rica, Panama, and Nicaragua to develop and implement management practices and national regulatory systems to control the use of pesticides and promote the use of alternative pest control systems.

From Vision to Viable Action



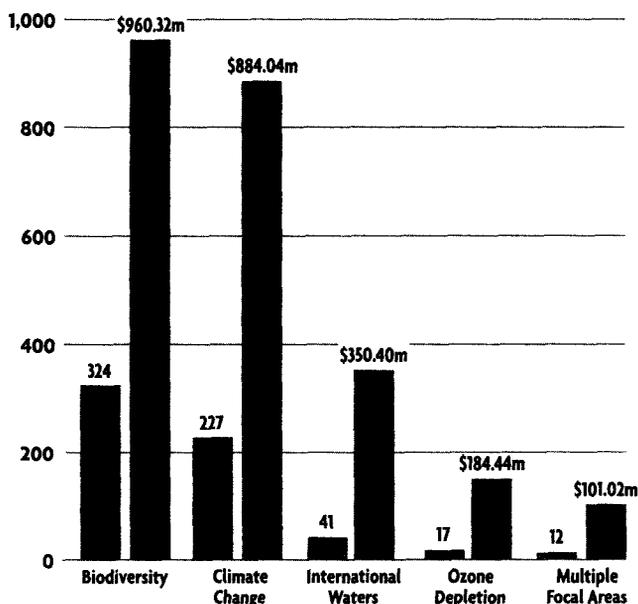
Developing countries and nations transitioning to market economies are increasingly looking to the GEF as their principal partner in global environmental problem solving. Projects in more than 140 countries:

- *Conserve biodiversity, improving farmland, coastal, mountain, marine, and wildlife management to secure better livelihoods for people who use these resources...*
- *Save energy and open doors for renewable energy technologies, extending power to rural communities and reducing reliance on less efficient technologies that cause air pollution and contribute to climate change...*
- *Address over-fishing and the degradation of oceans, coastlines, lakes, wetlands, and rivers caused by the loss of habitats and pollution...*
- *Assist nations in Eastern Europe, Central Asia, and the Russian Federation in phasing out the use of chemicals that deplete the ozone layer.*

"The best argument for the GEF is on the ground — highly relevant and participatory projects that are innovative enough and designed flexibly enough to bring local needs and GEF's global focal areas together."

Delfin J. Ganapin, Jr., former Undersecretary for Environment, The Philippines

Number of Projects and GEF Allocation by Focal Area
(As of June 1999)



During fiscal 1999, the GEF Council approved projects worth \$517.6 million. These funds helped mobilize close to \$1 billion more in co-finance from governments, development institutions, the private sector, and non-governmental organizations.

The average GEF grant during the past year was \$8 million. However, actual grant amounts ranged from tens of thousands of dollars in GEF's small grants program (see *Tangible Partnerships* section) to tens of millions of dollars for capital-intensive renewable energy projects (see *Opening Doors for New Technologies* section).

New Project Sampler

Below you will find a sample of full-size projects approved during the last year. With the exception of “short-term response measures” that take advantage of immediate opportunities to address urgent problems — GEF’s ozone layer protection work (p. 25), for example — all GEF projects currently fall into one or more of three “focal areas” and ten “operational programs.”

For a complete list of new GEF projects, please see p.13. Sample small and medium-size grants can be found in the section on *Tangible Partnerships*. For GEF projects addressing land degradation, see the section *Integrating Land, Water, and Biodiversity Conservation*.

FOCAL AREA: BIODIVERSITY



Arid and Semi-Arid Ecosystems: **Bolivia** lies at the juncture of four major ecological communities, and contains roughly two-fifths of South America’s mammals and birds. Some 17 percent of Bolivia’s land area has been designated for conservation in 18 protected areas. A new \$15 million GEF grant (matched by more than \$30 million in co-finance) will help strengthen this system, in harmony with indigenous communities who maintain one of the world’s largest reservoirs of agricultural and medicinal plants. In the short run, the project will improve the management of the protected areas and establish and capitalize a private trust fund. Its longer term goals include a consensus-based conservation plan and additional means to achieve social and financial, as well as ecological, sustainability. (World Bank)

Coastal, Marine, and Freshwater Ecosystems: This \$10 million project (GEF contribution: \$6 million) is located on and around four biologically rich islands in the province of Maluku in eastern **Indonesia**. Unsustainable logging and mining, destructive fishing practices, illegal trade in protected species (dugongs, parrots, and sea turtles), and inappropriate coastal development are all threats to the region. The project is designed to improve management of Manusela National Park, establish Lolabata-Akitajawe National Park, and expand and manage a system of marine protected areas. It will encourage local community participation by providing development grants linked to environmental actions and reviving traditional natural resource management systems. Community groups, non-governmental organizations, and the private sector will be involved in ecotourism development and protected area planning and management. (World Bank)

Forest Ecosystems: The Guayana Shield — a geological formation that includes all of Guyana, Suriname, and French Guiana, and adjacent portions of Venezuela, Colombia, and Brazil — represents one of the largest stretches of unfragmented tropical forest on earth. An \$18.3 million project (GEF contribution: \$9.5 million) will strengthen management of two globally important and representative sites, Central Suriname Nature Reserve and Sipalwini Nature Reserve in southern **Suriname**. The project will also build Suriname’s constituency for conservation through targeted awareness and education drives, promote livelihood alternatives (including ecotourism), and create long-term funding mechanisms to ensure the financial sustainability of protected areas management. (UNDP)

Mountain Ecosystems: Spanning **Kazakhstan, Kyrgyz Republic, and Uzbekistan**, the Western Tien Shan mountains are home to 3,000 plant species (including 220 medicinal plants and herbs) and many mammals that are threatened or endangered elsewhere — among them, the white-clawed bear, snow leopard, Eurasian eagle-owl, and the Himalayan griffin vulture. Many commercial species of apples, nuts, tulips, and grapes originated here. A \$13.6 million (GEF contribution: \$10.1 million) Central Asian Transboundary Biodiversity project will

Combining solar and hydroelectric power near Toledo, Spain: GEF is supporting construction of a similar grid-connected power plant on the Philippines' island of Mindanao, in partnership with Cagayan de Oro Power & Light and the International Finance Corporation.



help address overgrazing and deforestation pressures by identifying alternative sources of income and strengthening and coordinating national policies, regulations, and institutional arrangements. (World Bank)

FOCAL AREA: CLIMATE CHANGE



Removing Barriers to Energy Efficiency and Conservation: Faced with an estimated yearly growth rate of 4 to 6 percent in energy demand, the Government of **Lebanon** is searching for ways to emphasize energy efficiency instead. A new \$5.4 million project (GEF contribution: \$3.4 million) seeks to reduce greenhouse gas emissions by improving “demand side” energy efficiency. It will create the Lebanese Centre for Energy Conservation and Planning to remove

barriers to energy efficiency and provide engineering and financial services to the public and private sector industries — in time, transforming itself into a private corporation. (UNDP)

Promoting the Adoption of Renewable Energy: **Morocco** imports more than 90 percent of its primary energy in the form of oil and coal. In rural areas, the overexploitation of woody biomass for fuel is contributing to deforestation and land degradation. A new \$5.3 million project (GEF contribution: \$3 million) will help develop the market for solar water heaters, by improving the quality of the heaters, making them more affordable, increasing awareness, and establishing a more favorable policy context. GEF funds will finance a promotional phase, during which 100,000 square meters of solar heating technology will be installed over the next four years. Local investors, public and private, are providing more than \$30 million in associated financing over the longer term. (UNDP)

Reducing the Long-Term Costs of Low Greenhouse Gas-Emitting Energy Technologies: A new \$7.5 million project (GEF contribution: \$4 million) will help co-finance a one-megawatt, grid-connected photovoltaic power plant, which will be integrated into the 80-megawatt distribution network of the Cagayan de Oro Power & Light

Company, a private utility operating on the Philippines' island of Mindanao. This initiative will be the first, full-scale demonstration of the environmental and economic benefits of combining hydroelectric and solar electric power in a developing country. (World Bank/IFC)

INTERNATIONAL WATERS



Waterbody-Based Program: An \$18.3 million project (GEF grant: \$8.3 million) will help identify priority transboundary issues and country-specific actions to address them as part of the Caspian Environment Program, which is funded by countries bordering the Caspian Sea as well as by GEF, UNEP, and other donors. It will develop regional coordination mechanisms, complete an analysis of transboundary water-related environmental issues to guide actions and investments, formulate and approve a strategic action program, and prepare national action plans. (UNDP, UNEP, World Bank)

Integrated Land and Water Program: A \$20.3 million program (GEF grant: \$12.3 million) will contribute to the sustainable management of coastal and ocean resources in the Pacific region. Integrated coastal and watershed management efforts will focus on freshwater supplies, including groundwater, marine protected area development, sustainable coastal fisheries, and tourism development in **Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu**. An oceanic fisheries management effort will target the western Pacific warm pool ecosystem, whose boundaries correspond to the western Pacific tuna fishery. (UNDP)

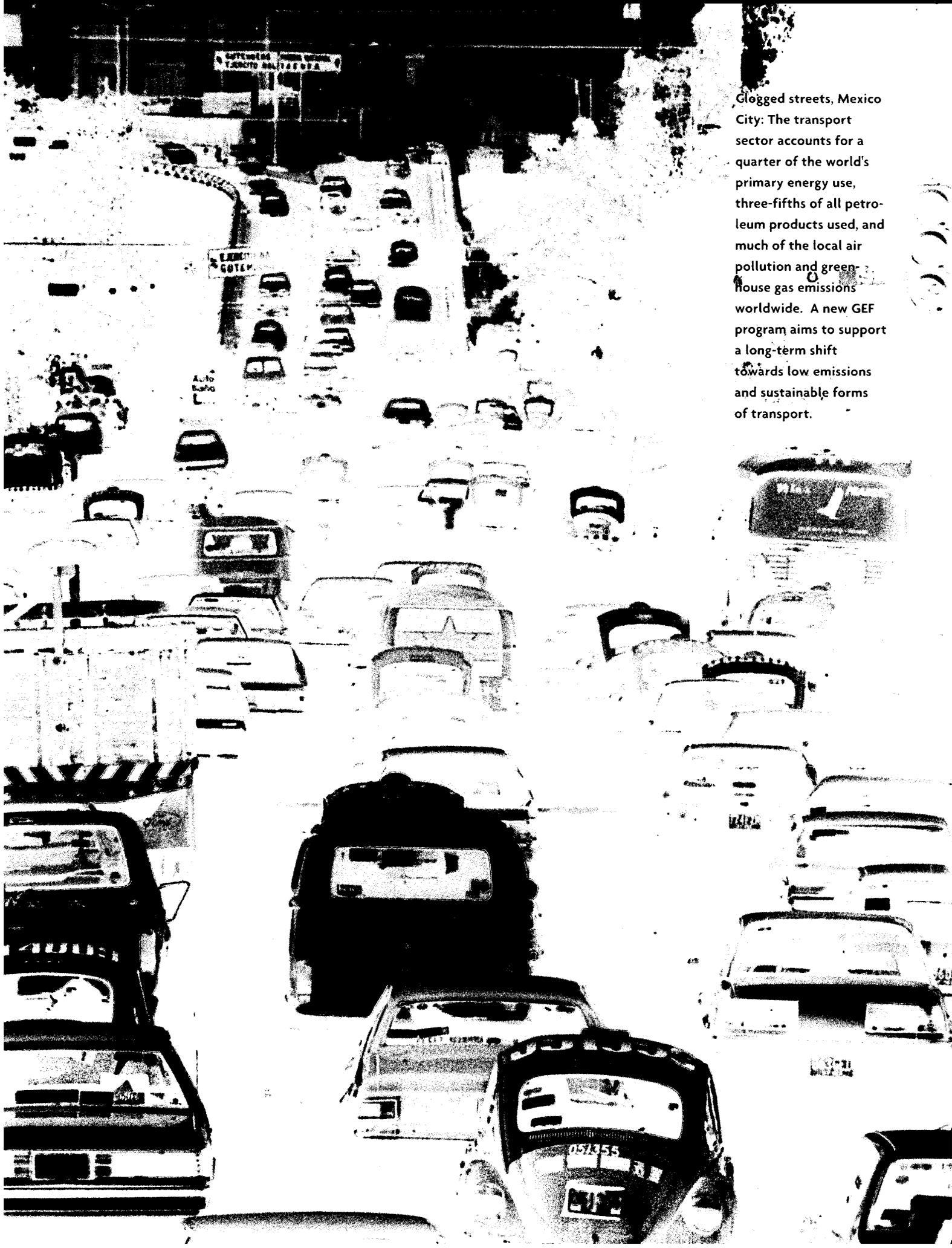
Contaminant-Based Program: A new \$20.2 million project (GEF: \$4.8 million) will fund development of a watershed management program to counteract organic and heavy metal pollution and soil loss in **Brazil's** Rio São Francisco River Basin. The river discharges into the biologically rich, southwest Atlantic large marine ecosystem and Brazil Current. The project is assisting the government in implementing its new national water law in the basin, including a system of pricing for water use. It is also working to implement other policy reforms to achieve more efficient water use and improve environmental quality in the degraded coastal area. This is the first of a series of large river basin/coastal zone projects GEF has agreed to help finance under the Global Program of Action for Protection of the Marine Environment from Land-Based Activities. (UNEP)

New GEF Operational Programs

GEF programs continue to evolve and cover new ground in response to global priorities and country needs. During fiscal 1999, the GEF Council approved two new operational programs on environmentally sustainable transport and integrated ecosystem management, and supported initial development of a third new program on agrobiodiversity.

Transport. The transport sector accounts for a quarter of the world's primary energy use and three-fifths of all petroleum products used. It also generates a substantial portion of the local air pollution and greenhouse gas emissions worldwide. GEF's new program on transport aims to support a long-term shift towards low emissions and sustainable forms of transport for developing countries. Initially, this program will emphasize:

- *Shifts to more efficient and less polluting forms of public and freight transport through traffic management and increased use of cleaner fuels*
- *Non-motorized transport*
- *Fuel cell or battery-operated two and three-wheelers designed to carry more than one person*



Clogged streets, Mexico City: The transport sector accounts for a quarter of the world's primary energy use, three-fifths of all petroleum products used, and much of the local air pollution and greenhouse gas emissions worldwide. A new GEF program aims to support a long-term shift towards low emissions and sustainable forms of transport.



Carrying water, Ghana. Over the next five years, the GEF will double its financial support to water and related land resources activities to one-half billion dollars.

- *Hydrogen-powered fuel cell or battery-operated vehicles for public transport and goods delivery*
- *Internal combustion engine/electric hybrid buses, and*
- *Advanced technologies for converting biomass feedstock to liquid fuels.*

Integrated ecosystem management. Forests, dry and wetlands, coastal areas, aquatic systems, and agricultural landscapes provide a broad range of goods and services important to human development and the global environment. These include food, fresh water, timber, pharmaceutical and biomass resources, flood erosion and water quality control, as well as control of pests that may also serve as disease vectors. As ecosystems are intrinsically linked, changes in one may have significant impacts elsewhere. When management of land, water, or biological resources occurs in isolation, ecosystem degradation and the loss of associated services frequently result.

A new GEF operational program takes a comprehensive approach to promoting the multiple benefits of sustainable ecosystem use. These benefits are expected to encompass sustainable use of biodiversity, carbon sequestration, reduced land degradation, watershed conservation, and less contamination from persistent toxic substances like pesticides and other chemicals.

Agrobiodiversity. It is estimated that nearly 2.5 billion people rely heavily on wild and traditionally cultivated plant species to meet their daily needs. This agricultural biodiversity also furnishes the genetic material farmers and consumers in developed countries depend upon for food security. GEF initiatives in **Ethiopia, Peru,** and the Levantine Uplands of **Lebanon, Syria, Jordan,** and the northern **Palestinian Authority** are already protecting important centers of plant diversity and endemism. Now GEF is widening its work to support sustainable use of biodiversity by developing a new operational program on agrobiodiversity.

GEF's \$11 million (GEF: \$6.2 million) People, Land Management, and Environmental Change project is a global initiative on agrobiodiversity. It aims to pool the best efforts of farmers and scientists and develop improved systems of natural resource management in the tropics and sub-tropics. Villagers and researchers are gathering primary data in on-farm trials in **Brazil, China, Ghana, Guinea, Kenya, Papua New Guinea, Tanzania,** and **Uganda** across a variety of ecosystems (semi-arid, mountain, forest, and wetland). Their work will be

complemented by biodiversity assessments, participatory rural appraisals, outreach and experimental work, and capacity strengthening. (UNEP)

Small Island Developing States & GEF Climate Adaptation Efforts

The best-understood consequences of global warming include a rise in sea level of about 50 centimeters by 2100. Estimates are that sea levels have already risen about 18 centimeters in the past century, primarily from the thermal expansion of the oceans and a smaller contribution from melting glaciers. The implications for islands are obvious, and they include the forced relocation of millions of people and billions of dollars in damage to property.

The ability to adapt is critical to surviving these predictions. To that end, the GEF is financing two regional projects, one involving the Caribbean islands, and the other, island nations in the South Pacific, to determine their vulnerability to climate change and develop adaptation plans.

The *Pacific Islands Climate Change Assistance Program* encompasses the **Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Solomon Islands, Tuvalu, Vanuatu, and Western Samoa**. By participating in training, institutional strengthening, and planning activities, these nations will be able to identify their climate change mitigation options. Among the project's expected results are the countries' first national communications to the UN Framework Convention on Climate Change (FCCC), an inventory of greenhouse gas sources and sinks, an evaluation of mitigation and adaptation options, and national vulnerability assessments and implementation plans. (UNDP)

In GEF's Planning for Adaptation to Global Climate Change project, the members of the Caribbean Community (CARICOM) are working to develop strategies to cope with the adverse effects of global climate change, particularly sea level rise. Most of the members of CARICOM, which includes **Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, and Trinidad and Tobago**, are small island states with fragile coastal ecosystems. This project will identify cost-effective ways to adapt to climate change, particularly where sea level rise is most likely. Staff are being trained to monitor and analyze climate and sea level dynamics and trends and to assess and recommend policy options and instruments. CARICOM members are collaborating on a sea level/climate change monitoring network, databases, and information systems, and are inventorying coastal resources and uses. Selected states will test pilot approaches for monitoring coral reefs, assessing coastal vulnerability, assigning economic values to coastal and marine resources, and formulating economic and regulatory proposals. (World Bank)

New Projects in Fiscal Year 1999 (Allocations in Millions)

BIODIVERSITY

Global, GEF Implementing Agency (IA): UNDP/UNEP, Project Name: *Biodiversity Planning Support Programme*, GEF Allocation: \$3.43, Total Costs: \$4.23

Africa, GEF IA: UNDP/UNEP, Project Name: *Management of Indigenous Vegetation for the Rehabilitation of Degraded Rangelands in the Arid Zone of Africa*, GEF Allocation: \$9.05, Total Costs: \$13.38

Bangladesh, GEF IA: World Bank, Project Name: *Aquatic Biodiversity Conservation*, GEF Allocation: \$5.00, Total Costs: \$60.84

Belize, GEF IA: UNDP, Project Name: *Conservation And Sustainable Use of the Barrier Reef Complex*, GEF Allocation: \$5.36, Total Costs: \$7.37

Bolivia, GEF IA: World Bank, Project Name: *Sustainability of the National System of Protected Areas*, GEF Allocation: \$15.30, Total Costs: \$46.70

Cambodia, GEF IA: World Bank, Project Name: *Biodiversity and Protected Area Management Pilot Project for the Virachey National Park*, GEF Allocation: \$2.75, Total Costs: \$5.00

Côte d'Ivoire, GEF IA: World Bank, Project Name: *National Protected Area Management Program*, GEF Allocation: \$16.50, Total Costs: \$68.22

Cuba, GEF IA: UNDP, Project Name: *Priority Actions to Consolidate Biodiversity Protection in the Sabana-Camaguey Ecosystem*, GEF Allocation: \$3.89, Total Costs: \$19.91

Ethiopia, GEF IA: World Bank, Project Name: *Conservation and Sustainable Use of Medicinal Plants*, GEF Allocation: \$1.91, Total Costs: \$6.81

Georgia, GEF IA: World Bank, Project Name: *Integrated Coastal Management Project*, GEF Allocation: \$1.30, Total Costs: \$8.10

Georgia, GEF IA: World Bank, Project Name: *Conservation of Forest Ecosystems*, GEF Allocation: \$9.05, Total Costs: \$33.15

India, GEF IA: UNDP, Project Name: *Conservation and Sustainable Use of the Gulf of Mannar Biosphere Reserve's Coastal Biodiversity*, GEF Allocation: \$7.84, Total Costs: \$26.93

Indonesia, GEF IA: World Bank, Project Name: *Maluku Conservation and Natural Resources Management*, GEF Allocation: \$6.00, Total Costs: \$10.60

Malawi, GEF IA: World Bank, Project Name: *Mulanje Mountain Biodiversity Conservation Project*, GEF Allocation: \$5.30, Total Costs: \$6.83

Malaysia, GEF IA: UNDP, Project Name: *Conservation and Sustainable Use of Tropical Peat Swamp Forests and Associated Wetland Ecosystems*, GEF Allocation: \$6.30, Total Costs: \$12.97

Mozambique, GEF IA: World Bank, Project Name: *Coastal and Marine Biodiversity Management Project*, GEF Allocation: \$4.08, Total Costs: \$9.21

Pakistan, GEF IA: UNDP, Project Name: *Mountain Areas Conservancy Project*, GEF Allocation: \$10.60, Total Costs: \$16.80

Papua New Guinea, GEF IA: World Bank, Project Name: *Forestry and Conservation Project*, GEF Allocation: \$17.30, Total Costs: \$55.50

Paraguay, GEF IA: UNDP, Project Name: *Paraguayan Wildlands Protection Initiative*, GEF Allocation: \$9.20, Total Costs: \$12.70

Peru, GEF IA: UNDP, Project Name: *In situ Conservation of Native Cultivars and their Wild Relatives*, GEF Allocation: \$5.22, Total Costs: \$6.42

Peru, GEF IA: World Bank, Project Name: *Indigenous Management of Protected Areas in the Amazon*, GEF Allocation: \$10.35, Total Costs: \$24.35



Mountain gorilla: GEF support for more than a dozen conservation trust funds strengthen critical protected areas, such as Uganda's Bwindi Impenetrable National Park and Mgahinga Gorilla National Park.

Philippines, GEF IA: World Bank, Project Name: *Coastal and Marine Biodiversity Conservation in Mindanao*, GEF Allocation: \$1.25, Total Costs: \$6.05

Suriname, GEF IA: UNDP, Project Name: *Conservation of Globally Significant Forest Ecosystems in Suriname's Guayana Shield*, GEF Allocation: \$9.54, Total Costs: \$18.33

CLIMATE CHANGE

Global, GEF IA: World Bank/IFC, Project Name: *Efficient Lighting Initiative*, GEF Allocation: \$15.23, Total Costs: \$50.23

Global, GEF IA: World Bank/IFC, Project Name: *Solar Development Corporation*, GEF Allocation: \$10.00, Total Costs: \$50.00

Benin, GEF IA: World Bank, Project Name: *Decentralized Rural Energy Project*, GEF Allocation: \$1.14, Total Costs: \$5.75

China, GEF IA: UNDP, Project Name: *Energy Conservation and GHG Emission Reduction in Chinese Township and Village Enterprises (TVE), Phase 2*, GEF Allocation: \$8.00, Total Costs: \$18.55

Kenya, GEF IA: UNDP, Project Name: *Removal of Barriers to Energy Conservation and Energy Efficiency in Small and Medium Scale Enterprises*, GEF Allocation: \$3.19, Total Costs: \$8.64

Lebanon, GEF IA: UNDP, Project Name: *Barrier Removal for Cross Sectoral Energy Efficiency*, GEF Allocation: \$3.40, Total Costs: \$5.40

Macedonia, GEF IA: World Bank, Project Name: *Development of Mini-Hydropower Plants*, GEF Allocation: \$1.50, Total Costs: \$6.40

Malawi, GEF IA: UNDP, Project Name: *Barrier Removal to Malawi Renewable Energy Programme*, GEF Allocation: \$10.72, Total Costs: \$6.40

Mexico, GEF IA: World Bank, Project Name: *Renewable Energy for Agriculture*, GEF Allocation: \$8.70, Total Costs: \$26.20

Morocco, GEF IA: UNDP, Project Name: *Market Development for Solar Water Heaters*, GEF Allocation: \$2.97, Total Costs: \$5.37

Morocco, GEF IA: World Bank, Project Name: *Solar-Based Thermal Power Plant*, GEF Allocation: \$43.90, Total Costs: \$114.36

Philippines, GEF IA: World Bank/IFC, Project Name: *CEPALCO Distributed Generation PV Power Plant*, GEF Allocation: \$4.03, Total Costs: \$7.53

Poland, GEF IA: World Bank, Project Name: *Geothermal and Environment Project*, GEF Allocation: \$5.40, Total Costs: \$84.70

Slovak Republic, GEF IA: World Bank, Project Name: *Chemosvit Cogeneration Project*, GEF Allocation: \$2.20, Total Costs: \$18.40

Slovenia, GEF IA: UNDP, Project Name: *Removing Barriers to the Increased Use of Biomass as an Energy Source*, GEF Allocation: \$4.40, Total Costs: \$12.34

Thailand, GEF IA: World Bank, Project Name: *Building Chiller Replacement Program*, GEF Allocation: \$2.50, Total Costs: \$90.50

Togo, GEF IA: World Bank, Project Name: *Decentralized Rural Energy Project*, GEF Allocation: \$1.14, Total Costs: \$5.75

Tunisia, GEF IA: UNDP, Project Name: *Experimental Validation of Building Codes and Removal of Barriers to Their Adoption*, GEF Allocation: \$4.36, Total Costs: \$8.13

INTERNATIONAL WATERS

Global, GEF IA: UNDP, Project Name: *Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries*, GEF Allocation: \$7.61, Total Costs: \$11.44

Global, GEF IA: UNDP/UNEP/World Bank, Project Name: *Strengthening Capacity for Global Knowledge-Sharing in International Waters*, GEF Allocation: \$5.25, Total Costs: \$10.05

Africa, GEF IA: World Bank, Project Name: *Western Indian Ocean Islands Oil Spill Contingency Planning*, GEF Allocation: \$3.16, Total Costs: \$4.29

Asia/Pacific, GEF IA: UNDP, Project Name: *Building Partnerships for the Environmental Protection and Management of the East Asian Seas*, GEF Allocation: \$16.22, Total Costs: \$28.55

Asia/Pacific, GEF IA: UNDP, Project Name: *Implementation of the Strategic Action Programme (SAP) of the Pacific Small Island Developing States*, GEF Allocation: \$12.29, Total Costs: \$20.35

Asia/Pacific, GEF IA: UNEP, Project Name: *Reversing Degradation Trends in the South China Sea*, GEF Allocation: \$18.59, Total Costs: \$35.86

Asia/Pacific, GEF IA: World Bank, Project Name: *Mekong River Basin Water Utilization Project*, GEF Allocation: \$11.10, Total Costs: \$17.95

CE Europe/ Former Soviet Union, GEF IA: UNDP/UNEP/World Bank, Project Name: *Addressing Transboundary Environmental Issues in the Caspian Environment Programme*, GEF Allocation: \$8.34, Total Costs: \$18.32

Latin America/Caribbean, GEF IA: UNDP, Project Name: *Environmental Protection of the Rio de la Plata and its Maritime Front: Pollution Prevention and Control and Habitat Restoration*,
GEF Allocation: \$6.01, Total Costs: \$10.81

Latin America/Caribbean, GEF IA: UNDP/UNEP, Project Name: *Demonstrations of Innovative Approaches to the Rehabilitation of Heavily Contaminated Bays in the Wider Caribbean*,
GEF Allocation: \$9.41, Total Costs: \$35.26

Brazil, GEF IA: UNEP, Project Name: *Integrated Management of Land-Based Activities in the São Francisco Basin*, GEF Allocation: \$4.77, Total Costs: \$20.21

Brazil, GEF IA: UNEP, Project Name: *Integrated Watershed Management Program for the Pantanal and Upper Paraguay River Basin*, GEF Allocation: \$6.62, Total Costs: \$16.40

Georgia, GEF IA: World Bank, Project Name: *Agricultural Development Project II*,
GEF Allocation: \$2.50, Total Costs: \$8.25

Poland, GEF IA: World Bank, Project Name: *Rural Environmental Project*,
GEF Allocation: \$3.00, Total Costs: \$14.40

MULTIPLE FOCAL AREAS

Global, GEF IA: UNDP, Project Name: *Small Grants Programme (Second Phase)*,
GEF Allocation: \$31.62, Total Costs: \$61.62

Global, GEF IA: UNDP/UNEP/World Bank, Project Name: *GEF Country Dialogue Workshops*,
GEF Allocation: \$3.51, Total Costs: \$4.62

OZONE DEPLETION

Russian Federation, GEF IA: World Bank, Project Name: *Ozone Depleting Substance Consumption Phase-Out Project*, GEF Allocation: \$31.30, Total Costs: \$108.20

Uzbekistan, GEF IA: UNDP, Project Name: *ODS Phase-Out Programme*,
GEF Allocation: \$3.32, Total Costs: \$3.47



Stakeholders in the
future. (Rule number one
of GEF operations is that
they support a country's
own actions for sustain-
able development – and
recipient governments
are the number one co-
financiers of GEF projects.

Catalyst for Sustainable Development



Acting alone, countries can't do all that is required to heal the ozone layer, reverse the degradation of international waters, address climate change, promote clean energy, or stop plants and animals from disappearing. Neither can they unilaterally overcome the poverty and lack of opportunity still so apparent in much of the world. By working together, they can.

The GEF safety net is constructed from a web of partnerships, with each partner contributing what they do best at the local, national, and international level. While money is important to accomplishing GEF's mission, cooperation is what counts most in the long run.

The first rule of GEF operations is that they align with and support a country's own actions for sustainable development. Each country has designated an operational focal point, an individual responsible for acting as the primary contact point for all GEF activities. These operational focal points, listed starting on p. 43, review project ideas and concepts, endorse their consistency with respect to national programs and national priorities, facilitate broad-based as well as project-related consultation, and provide feedback on GEF activities.

During the past year, the GEF worked to strengthen the "country-driven" nature of its portfolio and policies by:

- *Providing additional support to operational focal points in their communication efforts*
- *Developing country dialogue workshops to increase the flow of ideas and funds*
- *Pursuing a simpler method for considering what constitutes incremental costs — i.e., that portion of a project's price tag which is eligible for GEF funding (see box p. 21)*
- *Streamlining the project cycle*
- *Mobilizing the scientific community at the country level in partnership with UNEP and GEF's scientific and technical advisory panel*
- *Partnering with UNDP to craft a global capacity development initiative.*

DETERMINING GEF'S SHARE

GEF brings limited resources to the table, so the portion it pays is carefully calculated to cover only the added (or "incremental") costs of making planned development projects "globally green" or "Earth friendly." This is a recognition that development undertaken with global environmental protection in mind sometimes, but not always, costs more. Recipient governments are the number one co-financiers of GEF projects, providing well over \$2 billion in additional funding since GEF began.

Example: A new \$20 million energy conservation project in **China**, co-implemented by UNDP and the United

"Meeting basic needs must include the environment."

Ibrahim Abdelgelil, Head, Egyptian Environmental Authority

“Our sensitivity to global environmental phenomena is growing... we suffer their effects directly. The case most evident is the thinning of the ozone layer and the consequent increase in ultraviolet radiation over the southern cone of Punta Arenas in the Magellan Straits, where a large number of people are exposed to this risk.”

*Benjamin Concha,
Ambassador to India,
Chile*

Nations Industrial Development Organization, is seeking to reduce greenhouse gas emissions from township and village-level enterprises.

The building material, coking, and metal casting sectors provide key inputs to China’s economic development and have been major contributors to China’s economic growth over the last 20 years. Township and village enterprises provide more than half of the total output from these sectors — but they also account for one-sixth of China’s total emissions of carbon dioxide, substantial local air and water pollution, and health hazards for employees.

GEF is contributing \$9 million to address policy and enterprise-level barriers (including lack of access to commercial financing) to increasing energy efficiency in the brick, cement, metal casting, and coking sectors. China’s national, village and township, and local governments; the Agricultural Bank of China; and other commercial banks are supplying the remainder. The global benefit is a reduction in greenhouse gases. Locally, enterprises will be modernized to cut pollution, improve workplace safety, and introduce value-adding systems and processes.

REPLICABILITY

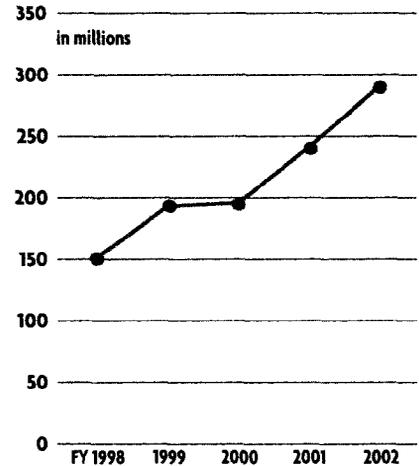
Another key principle that comes into play in all GEF partnerships is the potential to build on lessons learned in the project area to benefit an entire country or region.

Example: A new \$26.9 million GEF project in southeast India will help conserve globally significant coastal and marine biodiversity — more than 3,600 plants and animal species, including 17 species of mangrove and the endangered marine mammal known as the dugong. It will also support the development of alternative sustainable livelihoods for many of the 100,000 people living around the Gulf of Mannar biosphere reserve.

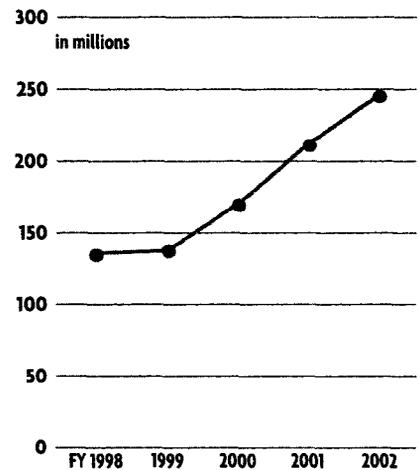
GEF funding of \$7.8 million will help expand the park’s infrastructure and strengthen its operations (i.e., develop species and habitat management plans, ecotourism, and educational and media outreach programs) and establish a trust fund mechanism for longer term conservation efforts. A portion will also help finance village-based marine conservation plans and a mariculture cooperative marketing venture.

By demonstrating how to integrate biodiversity conservation into coastal zone management plans that address habitat destruction, over-harvesting of marine resources, and civic pollution, the project promises to become a model for the state of Tamil Nadu and for India as a whole. (UNDP)

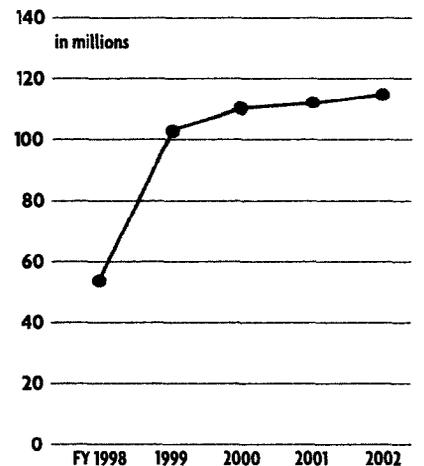
Biodiversity Spending Current and Projected



Climate Change Spending Current and Projected



International Waters Spending Current and Projected



A SIMPLIFIED PROCESS

While it is an important principle of GEF's work, the process of determining incremental costs has often proven complicated in practice. In response to the GEF Council's request to "clarify and simplify" this concept, the GEF Secretariat has formed an incremental cost working group in collaboration with country partners, the implementing agencies, and convention secretariats. A meeting with key players in the project cycle — including project directors, country focal points, and non-governmental organizations — was held in London during the spring of 1999. Participants considered a number of paths, including focal area specific approaches for incremental cost estimation.

Principles agreed upon include:

- *Full involvement at the country level*
- *Differentiated, but shared, responsibilities along the project cycle for project proposers (and other local actors), the GEF operational focal points in each participant country, and GEF's secretariat and implementing agencies*
- *Early and substantial feedback from the secretariat*
- *Transparency in the incremental cost negotiation and agreement process engaged in by the implementing agency and project proposer, and in all secretariat reviews*
- *An emphasis on the quality of the incremental cost reasoning and not the numbers arrived at*
- *Integration of incremental cost estimates into the "logical framework analysis" conducted during project development*
- *Project proposer access to certain minimum information on the GEF's procedures for calculating incremental costs.*

QUICK GUIDE TO CALCULATING INCREMENTAL COSTS

- *Identify the global environmental problem of concern*
- *Analyze the root causes and threats that give rise to the problem*
- *Identify activities to address the threats and their underlying causes (to formulate the GEF alternative)*
- *Identify activities that address the same threats and underlying causes and would occur regardless of GEF involvement (considered national sustainable development responsibilities)*
- *Identify the activities that are incremental (i.e., do not form part of the baseline activities)*

GEF COUNTRY DIALOGUE WORKSHOPS

Good projects depend on good ideas, and the best ideas come from those who are closest to the problems and are in a position to address them.

To strengthen the grassroots character of its work, GEF is developing a series of country dialogue workshops. As a joint effort by GEF's secretariat and implementing agencies, this program seeks to:

- *Engage a broad-based national audience in a dialogue about their priorities and GEF's mission, strategy, policies, and procedures*
- *Facilitate country-level coordination and sharing of information on country needs*
- *Provide practical information on how to access GEF resources and how to propose, prepare, and implement GEF-financed activities, including dissemination of information on best practices and lessons learned.*

Fifty workshops—most national but some regional where efficiencies merit — will take place over a three-year period, beginning in 2000.



Water lily: GEF projects help countries conserve and sustainably use the rich biological diversity found in coastal, marine, and freshwater ecosystems.

Support for the Conventions Emerging from Rio



As the financial mechanism for the two global environmental treaties signed at the 1992 Earth Summit in Rio de Janeiro—the Convention on Biological Diversity and the U.N. Framework Convention on Climate Change—GEF has worked to keep the promise embodied in these conventions. GEF programs and projects also support the goals of other important global environmental treaties and agreements.

Biodiversity. Since its establishment as a pilot program in 1991, GEF has allocated \$991 million in grants and mobilized an additional \$1.5 billion in co-financing (from recipient countries, bilateral agencies, other development institutions, the private sector, and non-governmental organizations) for biological diversity projects. Total financing for 64 new biological diversity activities (including enabling activities) during fiscal 1999 exceeded \$553 million, of which GEF provided \$193 million in grant financing and over \$360 million was mobilized in co-finance.

Climate change. From 1991 through June 1999, GEF allocated \$884 million to 227 climate change projects and enabling activities, matched by more than \$4.7 billion in co-financing. Fiscal 1999 financing for 46 new climate change initiatives exceeded \$543 million, of which GEF provided \$135.9 million in grant financing and roughly \$407 million was leveraged.

International waters. GEF initiatives to reverse the degradation of international waters are informed by, and help to realize the objectives of, a mosaic of regional and international waters agreements. From 1991 through June 1999, the GEF allocated close to \$360 million to international waters initiatives. In fiscal 1999, GEF allocated \$116.3 million to 16 new initiatives and leveraged \$150.9 million, for total financing of \$267.2 million.

Ozone depletion. From 1991 through June 1999, GEF allocated more than \$155 million to enable the Russian Federation and nations in Eastern Europe and Central Asia to phase out the use of ozone destroying chemicals in partnership with the Montreal Protocol of the Vienna Convention on Ozone Layer Depleting Substances. In fiscal 1999, GEF allocated \$35.1 million to three new initiatives and mobilized \$77.1 million in co-finance, for total financing of more than \$112 million.

Land degradation. Dozens of projects cutting across GEF's four focal areas (collectively valued at more than \$350 million) address land degradation, primarily deforestation and desertification, taking into account the objectives of the Convention to Combat Desertification.

"We have witnessed the GEF's evolution into a dynamic body which has established itself as one of the most important financial mechanisms for redressing global environmental problems."

*Ambassador Dan Pillay,
South Africa*

“The GEF has proven to be an efficient mechanism for the implementation of the Rio Conventions. Long before the adoption of operational protocols to the conventions, it facilitated the elaboration of national reports and strategies in recipient countries, as well as the spread of cutting-edge environmental technologies.”

*Philippe Roch,
State Secretary,
Swiss Agency
for the Environment*

CAPACITY DEVELOPMENT

Without the right combination of people, institutions, and practices at the country level, GEF's global environmental agenda cannot hope to succeed. During fiscal 1999, GEF has paid increasing attention to the capacity development aspects of its portfolio and pursued new opportunities to do more.

PROJECT-BASED CAPACITY BUILDING

GEF has found that in many cases there is no better way to build capacity than through projects themselves—through the doing, as it were.

For example, a fiscal 1999 review of 84 GEF climate change projects found numerous instances of individuals and institutions gaining critical technical, financial/business, and regulatory skills. These projects develop the skilled personnel and institutional capacities that are widely recognized as important for technology diffusion, by targeting capacity building for public agencies, private sector firms, financiers, consumers, community organizations, and non-governmental organizations. A few examples:

- *A GEF project in China trained the national Coal-Bed Methane Company to apply coal-bed methane technology. It also trained geology companies, research institutes, and coal-mining administrators in vertical well drilling techniques for coal-bed methane recovery. The Chinese Ministry of Coal has since negotiated joint exploration agreements with a number of companies.*
- *In the Russian city of Vladimir, district heating companies, gas companies, and major local private enterprises were trained to conduct financial and economic analysis and feasibility studies of energy efficiency projects.*
- *GEF's solar hot-water project in Morocco assisted the government in reviewing the overall policy/regulatory framework and recommending possible changes, such as value added tax and import duties, electric utility regulation, energy price changes, public sector procurement guidelines, and equipment standards and codes.*
- *Personnel at Peru's Center for Energy Conservation were trained to provide advice and support to clients in the public and private industrial sectors on potential energy efficiency and conservation savings.*

ENABLING ACTIVITIES

GEF's enabling activities program continues to grow and evolve, strengthening the foundation for national action to address the loss of biological diversity and the risks posed by climate change.

Biodiversity. These projects support country-driven conservation and sustainable use of biological diversity. This is accomplished through the compilation and assessment of existing information, and the development of national priorities, strategies, and action plans. Activities build national capacities, enhance public awareness, and assist countries to prepare for the implementation of the Convention on Biological Diversity.

Biodiversity enabling activities covering 26 countries were approved during this fiscal year and additional resources were made available to assist 36 countries to participate in a best practices information clearing-house.

A 1999 review of biodiversity enabling activities found that, while progress has varied considerably from country to country, most appear to have “undertaken a worthwhile and cost-effective national biodiversity planning process” and that GEF's three “implementing agencies have played major positive roles in supporting the planning and implementation.” The full report is available from the secretariat (and on the World Wide Web at www.gefweb.org).

Climate change. Some 21 new enabling activities in climate change were approved during fiscal year 1999. Most eligible countries have now received financial assistance to prepare their first national communications to the climate change convention, and GEF is also working, through UNDP and UNEP, to provide the necessary technical support by means of its national communications support project.

During fiscal 1999, the Council authorized revisions to allow countries to earmark enabling activity funds for: capacity building for assessing technology needs; participating in systematic observational networks;



Hurricane Mitch's aftermath, Honduras. The most significant impacts of climate change on humanity may be more subtle and indirect, including declines in coral reefs and wetlands.

preparing a national program to address climate change; conducting national activities for public awareness; designing, evaluating, and managing projects; or facilitating access to information.

A review of experience in GEF's climate change enabling activities will be completed in 2000.

CAPACITY DEVELOPMENT INITIATIVE

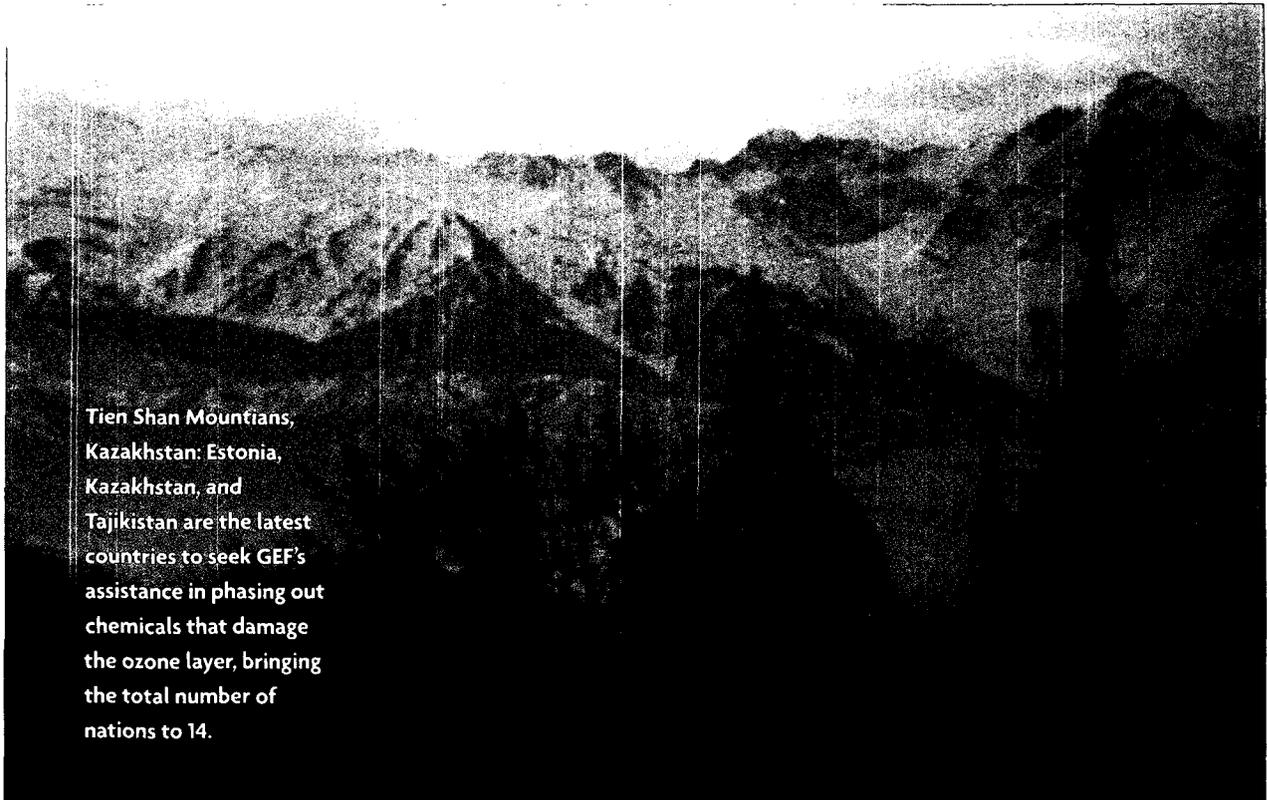
During fiscal 1999, the GEF Council approved a strategic partnership with UNDP to produce a comprehensive approach for developing country-level capacities to meet the challenges of global environmental action. This 18-month initiative will consider lessons learned in capacity development to date, drawing on the experiences of GEF's three implementing agencies, and numerous other partners. A related effort by GEF's monitoring and evaluation unit involves identifying approaches to monitor and evaluate the impacts of capacity development initiatives.

Objectives of the capacity development initiative include mobilizing funding from a variety of donors and broadly addressing the need to develop capacity to meet challenges in the biodiversity, climate change, and land degradation areas.

Complementing the Work of the Montreal Protocol

Phasing out substances that deplete the ozone layer is a proven means of achieving global environmental benefits. While developing countries receive assistance from the Montreal Protocol fund to make the transition to more benign substances, the nations of eastern Europe and the former Soviet Union look to the GEF for this critical support.

During fiscal 1999, the GEF Council approved grants to the **Russian Federation** (the third of a three-part project), **Turkmenistan**, and **Uzbekistan**, bringing the total number of countries receiving GEF funds to 14 (encompassing **Azerbaijan, Belarus, Bulgaria, Czech Republic, Hungary, Latvia, Lithuania, Poland, Russia, Slovakia,**



Tien Shan Mountains,
Kazakhstan: Estonia,
Kazakhstan, and
Tajikistan are the latest
countries to seek GEF's
assistance in phasing out
chemicals that damage
the ozone layer, bringing
the total number of
nations to 14.

Slovenia, Turkmenistan, Ukraine, and Uzbekistan). Together, these countries have received more than \$138 million for 121 initiatives in the solvent, foam, aerosol, halon, and refrigeration sectors. Three more countries (**Estonia, Kazakhstan, and Tajikistan**) are preparing their country programs and are expected to start implementation in the near future.

IMPACT

A 1999 review of GEF ozone layer protection projects found that, in addition to financial assistance, GEF played "a crucial role in the phase-out process" by "making available technical expertise, supporting learning and dissemination of project lessons within each country and in a regional context, and assisting in establishing suitable legal frameworks. The institutional strengthening components part of each GEF project have been instrumental in this respect."

As a result, participating countries have implemented various supportive and innovative policies and measures. Ten of the 14 recipient countries have either already implemented some kind of economic instruments or are planning to do so (taxes, emission charges, import fees, etc.). In addition, other proven policies and measures, including import bans on ozone depleting substances (ODS) and products containing ODS, use bans, and import and export licensing systems, have been widely applied.

According to Montreal Protocol reports, total consumption of ODS in economies in transition has decreased from about 190,000 metric tons in the second half of the 1980s to less than 15,000 metric tons in 1997, a drop of more than 90 percent. GEF's ozone portfolio has played a part in bringing the total number down, helping to phase out more than 18,000 metric tons of ozone depleting pollutant (ODP).

Russian Federation. As one of the major consumers of ozone depleting substances worldwide, Russia's GEF project accounts for close to half of all resources committed by the GEF (\$60 million) and more than 60 percent of the total GEF impact (11,800 ODP metric tons). It contains 22 subprojects: six subprojects address the aerosol sector, seven the refrigeration sector (including three recovery and recycling subprojects), three the foam sector, and two the solvent sector.

The approach taken by the GEF in the ozone area — characterized by the development of a country-wide approach to the problem in close cooperation with the government and country expertise, the elaboration of sector strategies, and an integrated environmental assessment of the alternative technologies employed — provides a model for other global environmental ventures.

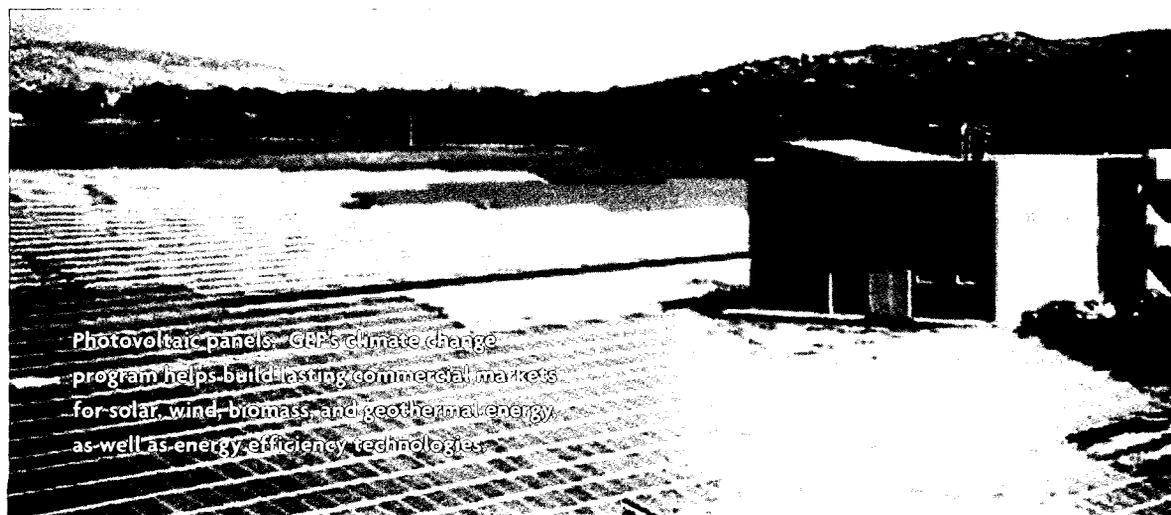
Opening Doors for New Energy Technologies



From 1991 to mid-1999, the GEF approved grants totaling \$706 million for 72 energy efficiency and renewable energy projects in 45 countries. The total value of these projects exceeds \$5 billion when co-financing and other resources from governments, other donor agencies, regional development banks, the private sector, and the three GEF project implementing agencies are factored in. An additional \$121 million has been approved in grants for 20 climate change “short-term response measures.”

While these resources are still small in comparison with the problems, they are generating an impact in terms of reduced greenhouse gas emissions — and making a difference in quality of life at the local level. GEF energy projects are often the first of their kind in the countries concerned. The portfolio as a whole, going back eight years, represents an extensive knowledge base with a diverse range of approaches. In-country experience and expertise are incorporated into project designs, along with substantial technical reviews. Approved projects reflect innovative, experimental attempts to promote technologies through new approaches and best practices.

Programs are designed to build sustainable commercial markets, leverage financing from public and private sources, and facilitate technology diffusion. Direct project beneficiaries include government agencies, private sector firms, community organizations, households, and providers of public services.



Photovoltaic panels. GEF's climate change program helps build lasting commercial markets for solar, wind, biomass, and geothermal energy as well as energy efficiency technologies.

“The provision of energy is crucial for development. More than two billion people lack access to modern energy services. We all know what this means for hard-toiling women collecting fuel wood from far away. As long as this situation prevails, there will be no breakthrough out of poverty.”

*Mats Karlsson,
former State Secretary
for International
Development
Cooperation, Sweden*

“The GEF has a very important role to play in the road towards sustainable development... Countries like Maldives are among the most vulnerable to the predicted impacts of climate change. With over 80 percent of our land area just one meter above sea level, a rise of one meter could entirely submerge our country.”

*Abdul Rasheed Hussein,
Minister of Planning,
Human Resources, and
Environment, Maldives*

IMPACT

A fiscal 1999 review of these projects found impacts particularly visible in GEF-supported solar home systems, grid-connected wind and biomass power, energy efficient lighting, and fuel switching and production/recovery initiatives.

Solar power. Solar home and rural energy systems installed as a direct result of 20 GEF projects promise to put in place more than one million systems over the next few years, significantly expanding the numbers currently installed in developing countries, now estimated at between 300,000 and 500,000.

These projects pilot private sector delivery models and credit mechanisms that make systems more affordable, pay “first cost” subsidies, build capacities of public agencies and private sector firms, enact codes and standards, and put in place certification and testing institutions.

In **Zimbabwe**, as a direct market impact of GEF’s Zimbabwe Photovoltaics for Household and Community Use project, 10,000 solar home systems were installed with all but 300 provided by private sector dealers. In the **Sri Lanka** Energy Services Delivery project, about 500 solar homes systems had been installed by mid-1999. The project’s goal of 30,000 systems by 2002 may be accomplished, with assistance from two larger companies who are considering entering the market.

Three subprojects in **Bangladesh**, **Vietnam**, and the **Dominican Republic** under GEF’s small-and-medium-size enterprise program (administered by the International Finance Corporation) are also beginning to show impacts on markets for solar home systems.

Grid-connected renewable technologies. Thirteen GEF projects incorporate grid-connected renewable energy technologies for generating electric power from wind, biomass, bagasse (a sugar cane by-product), mini-hydroelectric, and geothermal resources. These projects:

- *Demonstrate technologies and their commercial and economic potential*
- *Build capacities of project developers, plant operators, and regulatory agencies*
- *Develop regulatory and legal frameworks that encourage independent power producers and establish transparent, non-negotiable tariff structures*
- *Create financial mechanisms for project developers.*

For example, GEF’s India Alternate Energy project helped catalyze market changes by raising awareness among investors and banking institutions of the viability of wind power technology and helping to push for lower import tariffs for wind systems. In parallel with direct project impacts (more than 270 megawatts of wind power), a total of 968 megawatts of wind farms were installed and operating in India by 1998, of which more than 900 megawatts is privately installed commercial power. New suppliers entered the market. Before the project there were three major companies involved in the wind industry; by 1998, as many as 26 were engaged in the wind turbine manufacturing industry, many with foreign partners.

Efficient lighting. In **Jamaica**, **Mexico**, **Poland**, and **Thailand**, GEF has funded projects that promoted high efficiency lighting. The Poland and Mexico projects are fully complete, having together sold more than 3 million compact fluorescent light bulbs (CFLs). The Thailand project has had significant impacts on the Thai market for ordinary fluorescent tube lights, as well as CFLs. In Jamaica, a CFL sales program by the utility began slowly with mail solicitation only, but participation greatly accelerated once applicants could interact with a customer service representative.

Fuel-switching and production recovery. GEF has approved 15 projects to demonstrate the commercial and technical viability of fuel switching from coal to gas and of fuel production/recovery. Only one (China Coal-Bed Methane) is complete, but another three (**China** Sichuan Gas, **India** Bio-methanation, and **Poland** Coal-to-Gas projects) are substantially completed with documented impacts.

The Future. GEF continues to pioneer other technologies with particular relevance for developing countries. Its December 1999 work program included support for a new solar thermal plant in **Mexico**, and the introduction of fuel cell buses in **Brazil** and electric buses in **Egypt** — these last two projects providing mobility while cutting back on health-threatening air pollution in heavily populated urban areas.

Chopping wood for charcoal: Solar powered kitchen
like those supported by the Small Grants Programme
in Botswana, can lessen the demand for fuel wood.



Integrating Land, Water & Biodiversity Conservation

“The Niger River and its associated ecosystems are dangerously fragile because of the break in rainfall patterns and because of the pressure from low-income people

who have no alternatives.”

Soumalia Cisse,
Minister of Finance, Mali



In Africa alone, 36 countries are affected by dryland degradation or desertification. However, the geography of land degradation is global, leaving no continent unaffected. Its environmental, social, and economic impacts are felt in more than 110 countries, including more than 80 developing countries, where over one billion people are at risk from the effects of serious declines in productivity and livelihood.

More than \$350 million in GEF funds, and additional co-financing of more than twice that amount, have been allocated to combat deforestation and desertification. This funding is supporting dozens of projects addressing land degradation issues in the biodiversity, climate change, and international waters focal areas.

BIODIVERSITY PROJECTS

A project in **Turkey** is developing on-farm approaches to protect wild crops (wild wheat, chickpea, lentil, barley), and woody species (pear, apple, walnut, chestnut, olive, pistachio) in the semi-arid region of Eastern Anatolia.

In the Fertile Crescent (**Lebanon, Jordan, and Syria**) and in the oases of the Maghreb countries (**Morocco, Algeria, and Tunisia**), project activities focus on conserving genetic diversity of important food crops.

The **Ethiopia** farmer-based approach to conserving African plant genetic resources integrates farm-level conservation efforts with national and international gene bank programs.

In Southeast **Zimbabwe**, a project supports transborder management of the Gonarezhou National Park located on the border with **Mozambique** and **South Africa**, to stimulate community wildlife management and ecotourism.

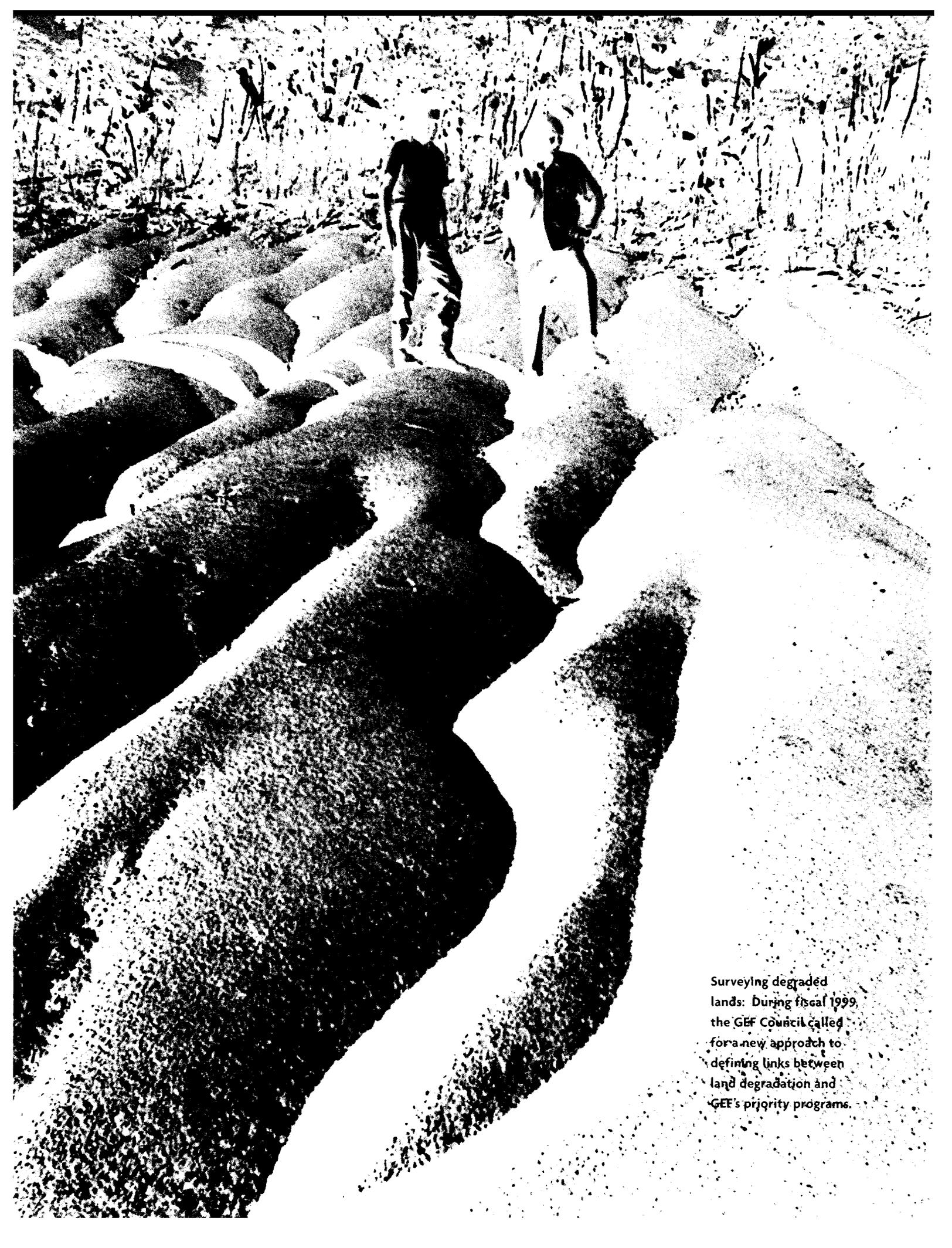
Wetlands within drylands (e.g., Hadejia-Nguru in **Nigeria** and Cuatro Ciengas in Coahuila, **Mexico**) serve as indispensable nesting and breeding grounds for migratory species, but they are vulnerable to land degradation.

In the Baoule National Park and Biosphere Reserve in **Mali**, a GEF project addresses problems of overgrazing, burning of vegetation by herders and settlers, and poaching.

CLIMATE CHANGE PROJECTS

Solar home systems and rural energy services: alternative, off-grid energy systems, such as micro hydro mini grids and solar battery charging in **Lao PDR**; 800 households with hybrid PV/solar systems in **Ghana, Sri Lanka, and Indonesia**; and solar thermal-based rural energy in **Morocco**.

Biomass-based energy systems: efficient use of biomass fuels from the sugar industry through construction of a power plant supplied by bagasse during the crop season and coal in the off season in **Mauritius** and



Surveying degraded
lands: During fiscal 1999,
the GEF Council called
for a new approach to
defining links between
land degradation and
GEF's priority programs.

Child in doorway: GEF's Second Beijing Environment project will directly involve a municipally owned investment company to provide technical and financial intermediation.



construction of a globally replicable prototype unit on a commercial scale for the cogeneration of electricity, based on the gasification of wood chips or sugar cane bagasse in **Brazil**.

Biomethanation technologies: biomethanation technologies and utilization of biogas to abate methane emissions from industrial, municipal, and agricultural waste in **India** and demonstration of methane recovery technologies in agricultural sites in **China**.

INTERNATIONAL WATERS PROJECTS

Regional seas and transboundary waters: catalytic action and support for inter-country coordination, including agreements and joint programs, to control land-based pollution and water contamination from agriculture and deforestation.

Integrated coastal zone management: community-based and intersectoral approach to management of coastal and marine areas that facilitate linkages with agriculture and watershed management, such as the East Asian Seas project's two pilot sites in **China** and the **Philippines**.

Freshwater management: In North Africa, the Sahel, and Southwest Asia, international aquifers are exploited beyond their recharging capacity and continue to be heavily polluted. GEF support is aimed at increasing sub-regional cooperation in managing shared aquifers, such as the **Senegal** and **Mauritania** project.

Watershed management: In the Bermejo River Basin of **Argentina** and **Brazil** and in the Zambezi Action Plan and the East African Regional Seas Action Plan, project activities support agreements to manage transboundary watersheds, mountain areas, coastal sites, and drylands.

Tangible Partnerships



Partnerships are critical as the GEF continues to explore and adopt new strategic and policy directions. For example, the GEF is considering how to further engage the private sector at both project and strategic levels; contingent financing is being piloted as a way to reduce technology financing risks without the need for direct grants; new strategic partnerships with GEF's implementing agencies and other institutions are being formulated; and new ways for non-governmental organizations and other stakeholders to participate in projects are being considered.

PRIVATE SECTOR. Recent growth of the global economy and ongoing privatization have enormously increased the influence of private sector activities on the global environment. Investments in the energy sector in developing countries, for example, are now estimated to be \$100 billion annually, much of it privately financed. The trend toward privatization of state-owned electric utilities means that decisions about the carbon intensity of power plants will be made on the basis of private sector criteria. Business also affects, and in turn is influenced by, biodiversity concerns, including policies on the use of lands and natural resources critical for habitat, rights to plants with potential application as medicinal drugs, and preservation and regulation of genetic resources for agriculture.

To get the leverage necessary to make significant progress on daunting environmental problems, GEF must work with the private sector as a partner, just as it insists on local public involvement and the involvement of the NGO community. Effective involvement of the private sector results in projects that are commercially viable and replicable — and support the GEF mission.

Example. GEF's partnership with the International Finance Corporation (IFC) of the World Bank Group will help launch the Renewable Energy and Energy Efficiency Fund (REEF) for developing countries and economies in transition. Up to \$30 million in GEF resources have already leveraged \$65 million in equity contributed by IFC and other private and bilateral financiers for investments in commercial renewable energy and energy efficiency projects, with GEF financing targeting smaller and riskier projects. A parallel debt facility of up to \$100 million from IFC and commercial bank sources is also expected to be available.

During fiscal 1999, the GEF secretariat and its implementing agencies reviewed experience in projects with significant private sector involvement, analyzed road blocks to forming new partnerships, and outlined ways in which GEF and the business community can work together. Four specific means were identified to help increase the range and number of successful private sector experiences. GEF will:

- Continue to stimulate private sector involvement indirectly, through activities that remove barriers to the creation of, entry to, or transformation of markets that support global environmental objectives
- Pursue a range of non-grant financing modalities, including concessional and contingent finance, loans, and guarantees

"Most important will be the need to make environment a people's movement — with the close participatory involvement of the local communities, governmental bodies, non-governmental organizations, international bodies like the GEF, industry, and economic service providers. History has shown that all good ideas begin to make the desired impacts only when they become mass movements..."

Atal Bihari Vajpayee,
Prime Minister, India

- Concentrate on the front end of investment (namely alternative bankable feasibility studies), leaving the private sector to respond to the financial incentives that those studies reveal
- Engage private entities in longer term partnerships, where information is continuously shared, so that individual decisions can be made progressively and expeditiously.

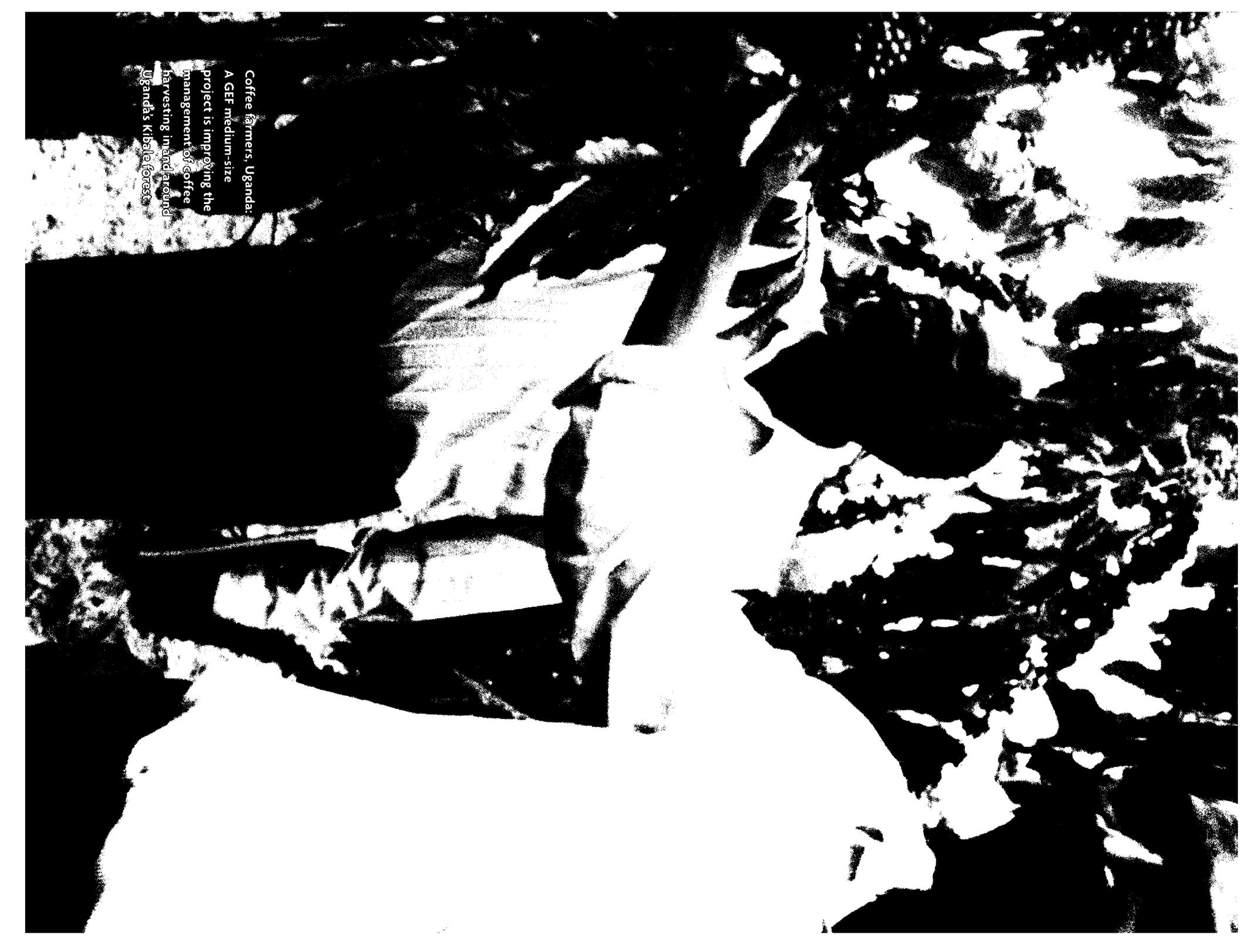
Almost all GEF projects involve the private sector at least as a provider of technology, goods, or services — typically awarded in a competitive bidding process where they respond to a request for proposal. The private sector significantly co-financed several GEF projects in the December 1999 work program, in particular the China and Mexico climate change projects and the Venezuela biodiversity project.

It is important however to seek opportunities to work with the private sector much earlier and more strategically. The December 1999 work program illustrates some ways in which this can be done.

- *The Brazil: Promoting Biodiversity Conservation and Sustainable Use project is being developed with the active participation of all key stakeholders including private sector timber operators. The project is being co-financed by Peugeot and Banco Axial and is supported by commercial timber operators.*
- *Beyond working with the local Warao communities residing in the biosphere reserve, the Venezuela: Conservation of Biological Diversity in the Orinoco Delta Biosphere Reserve and Lower Orinoco River Basin project establishes an extensive and explicit plan to involve the private sector directly (notably the petroleum, palm heart, and tourism sectors). The large co-financing in Venezuela reflects the project's ability to engage two of the largest investors in the region, Petroleos de Venezuela and the Corporacion Venezolana de Guayana, as well as the cooperation of the palmito industry.*
- *The Costa Rica: Ecomarkets project provides an effective model for a variety of private sector interventions that will help finance conservation and sustainable use. The project implements a program that will develop markets for environmental services provided by forest ecosystems. Key stakeholders directly benefiting from the project are small and medium-sized landowners; private sector water and electricity utilities will be paying for ecological services.*
- *The Thailand: Removal of Barriers to Biomass Power Generation and Cogeneration project will partner with the private sector by establishing a core unit in an existing financial institution. This will ensure that projects are commercially viable and that an entity with a vested interest in replicating project experiences has the capacity to identify and develop additional projects without the need for GEF financing.*
- *The China: Second Beijing Environment project will directly involve a municipally owned investment company to provide technical and financial intermediation. The project will also aggregate boiler buyers in cooperative procurement arrangements to foster demand-based markets for more efficient technology.*
- *The Morocco: Transhumance for Biodiversity Conservation in the Southern High Atlas project involves industry associations in Morocco (mountain tourism companies).*
- *The Guinea: Rural Energy project builds on the lessons provided by earlier GEF rural renewable energy projects, such as Zimbabwe and Argentina. In light of the experience gained, emphasis has shifted to private entrepreneurial activities. Increased initial transaction costs of investments have been identified as a key barrier to private sector-driven rural market development. These barriers could be addressed by providing a declining interest buy-down on mainstream loans in the initial years for market development. Innovative means will be explored during appraisal, including blending GEF support with commercial financing.*

SMALL AND MEDIUM-SIZE ENTERPRISE PROGRAM. The IFC small and medium-size enterprise program has helped pioneer new commercial endeavors involving non-governmental organizations. The funds are provided as loans rather than grants and to date both international organizations (like Conservation International and World Wildlife Fund) and local NGOs have been involved.

SMALL GRANTS PROGRAMME. Geared to grassroots support for non-governmental organizations and community groups, GEF's Small Grants Programme (administered by UNDP) provided grants of up to \$50,000 in 46 countries during fiscal 1999. The program recognizes the essential role that households and communities, applying locally appropriate solutions, can play in conserving biodiversity, reducing the likelihood of adverse



Coffee farmers, Uganda:
A GEF medium-size
project is improving the
management of coffee
harvesting in and around
Uganda's Kibale forest.

Fishermen, Colombia: Over-fishing is among the many problems addressed by GEF's Small Grant Programme, administered by UNDP.



climate change, and protecting international waters. Since its inception in 1992, it has funded over 1,200 projects in Africa, North America and the Middle East, Asia and the Pacific, Europe, and Latin America and the Caribbean. GEF small grants are:

- *Supporting conservation and restoration of wild apple forests at the foothills of the Ili Alatau Mountains in Kazakhstan and creating jobs through the manufacture of high-quality natural apple vinegar*
- *Underwriting low-impact aquaculture in Mexico's Bay of Celestun, a protected area and noted bird habitat*
- *Promoting solar-powered kitchens in rural Botswana*
- *Addressing over-fishing and promoting alternative occupations in Thailand's Mekong River valley.*

A workshop for national coordinators was held in San Jose in 1999, providing the basis for coordinators to brief members of the national steering committees upon their return. It was preceded by a field trip to share first-hand some of the experiences of the more than 60 small grant projects in Costa Rica alone.

MEDIUM-SIZE PROJECTS. Over \$21 million was allocated by Council to medium-size projects in fiscal 1999. This category of GEF support, developed in partnership with non-governmental organizations, provides funding on an expedited basis (approval takes six months on average). These projects receive expedited funding of not more than \$1 million. Examples include:

- *A new \$750,000 grant will fund activities to redirect commercial investment decisions to cleaner technologies by means of a technology transfer clearinghouse.* In developing countries, local and international development and commercial banks provide local investors with venture capital for many energy-related industrial and commercial investments. Most loan officers in these institutions have little practical experience in evaluating applications involving energy efficiency and renewable energy technologies. This project is providing appraisal services for alternative technologies carefully targeted to private sector borrowers and their lenders. This approach could prove replicable in other markets and sectors, and form the basis for a broader strategic partnership between the private sector and the GEF. (UNEP)
- *A \$750,000 grant to develop best practices and dissemination of lessons learned for dealing with the problem of*

invasive species, ranked second among global threats to biodiversity. This project leverages substantial co-financing, twice the GEF allocation, in a joint venture with SCOPE (Scientific Committee on Problems of the Environment) and IUCN-The World Conservation Union (IUCN) to address the loss of biodiversity due to invasive exotic species through a scientifically based global strategy and action plan. (UNEP)

- A \$960,000 grant to develop partnerships to conserve and sustainably use the rich biological diversity of Venezuela's inland prairies known as "los llanos." This project will bring environmental groups, business representatives, and citizens organizations together to coordinate their respective conservation efforts and improve dissemination of information to key actors. (World Bank)
- A \$750,000 grant to develop effective and replicable mechanisms for enabling public participation in transboundary pollution reduction in the Danube River basin. (UNDP)
- A \$900,000 grant to empower communities in Aleipata and Safata district to protect and manage some of Samoa's finest coral reefs, mangroves, and lagoons—and thereby conserve local fisheries which are the principal source of protein. Communities will establish and manage small marine protected areas to better conserve marine species and habitat and develop alternative livelihoods consistent with sustainable use of marine resources. (World Bank)
- A \$750,000 grant to regulate coffee harvesting in and around Uganda's Kibale forest, confining it to buffer zones and creating incentives to adhere scrupulously to tight control of location, timing, technique, and volume of extraction. The project seeks to conserve the globally important biodiversity of the forest by creating a financially sustainable partnership with local villages. (World Bank)

SCIENTIFIC COMMUNITY. Meeting in New York in September 1998, GEF's scientific and technical advisory panel (STAP—see p. 59) identified mobilization of the wider scientific and technical community in GEF work as one of its major priorities for fiscal years 1999-2000.

Activities include: convening national, regional, and sub-regional meetings with the scientific and technical community in developing countries; sponsoring expert group workshops to contribute strategic advice to the GEF; strengthening relationships with existing scientific and technical networks; and making recommendations to the GEF on how to further integrate science into GEF operations through targeted research and/or regular GEF projects. STAP's efforts aim to:

- *Contribute to the strategic advice which STAP presents on GEF operations and programs*
- *Contribute to the development of methods of assessing the efficacy of ongoing GEF programs*
- *Assist in building capacity in and enabling developing countries to design and implement programs/projects that would further GEF objectives*
- *Strengthen the scientific underpinning of GEF projects mainly through the inclusion of targeted research and monitoring components in the projects.*

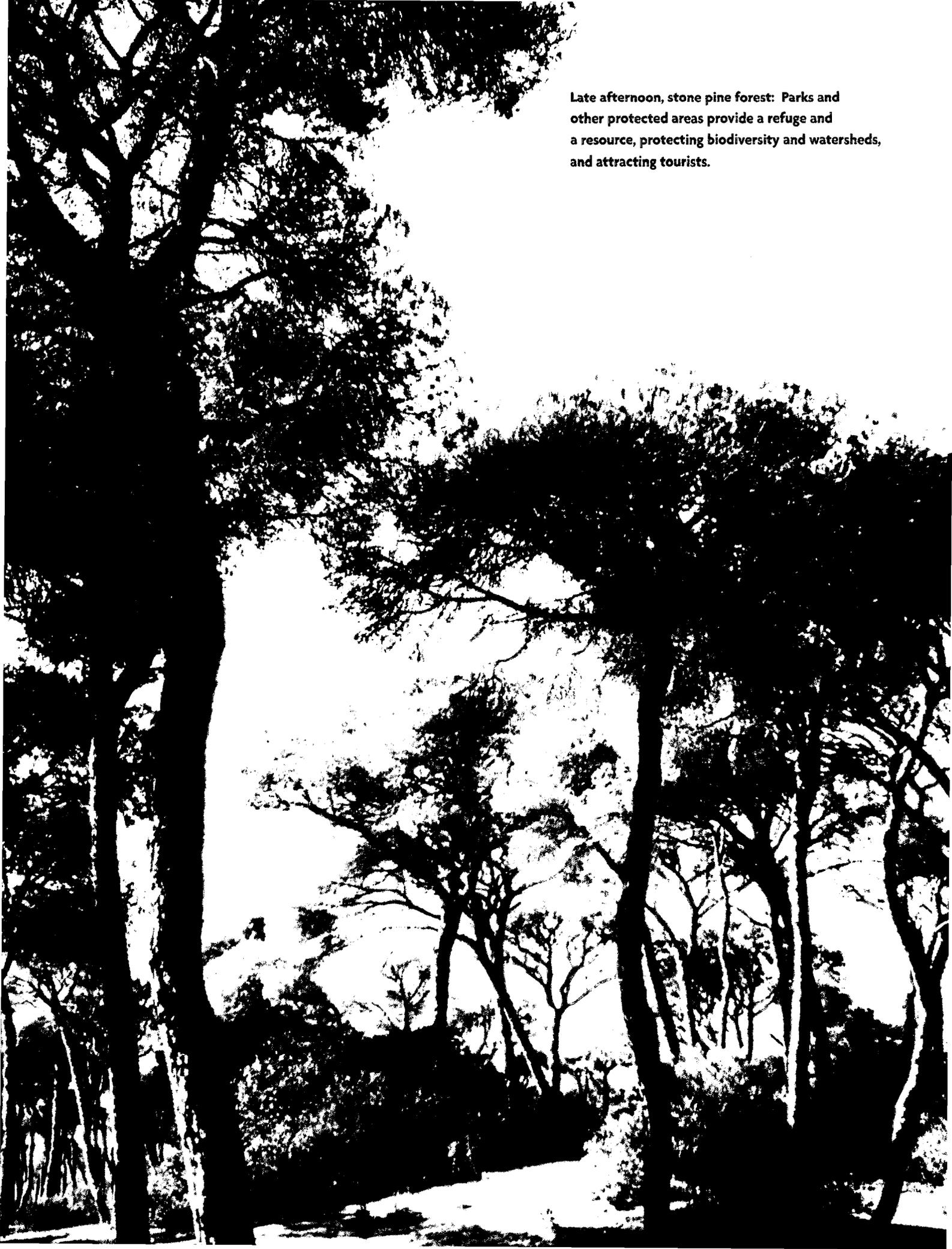
The first in a series of meetings was convened in Rio de Janeiro in 1998. It took the form of brainstorming sessions, in collaboration with the Brazilian Academy of Sciences and the National Research Foundation of Brazil on the theme, "Integrating Science and Technology into GEF Work." The meeting was attended by scientists affiliated with scientific and research institutions in Brazil, Chile, Argentina, and Uruguay as well as Brazil's Ministries of Science, Technology, and Environment.

A second meeting took place in Chennai, India, in 1999, held in collaboration with the Committee on Science and Technology Cooperation in Developing Countries (COSTED). This workshop attracted representation from global and regional scientific and technical organizations, associations of scientists, and global research programs with major activities in developing countries, as well as individual scientists and technologists.

Recommendations from both meetings are helping to shape GEF's outreach efforts.

During fiscal 1999, STAP also led a global effort to outline potential efforts involving production forests and contributed expert advice to GEF's work in the area of freshwater resources.

Late afternoon, stone pine forest: Parks and other protected areas provide a refuge and a resource, protecting biodiversity and watersheds, and attracting tourists.



A Streamlined Organization



GEF as organized today is the product of ongoing experimentation and feedback, beginning with its three-year pilot phase in 1991 and further reflected in its reshaping as the “restructured GEF” in 1994. Five years later, GEF is continuing to develop and refine its structure, strategies, programs, and partnerships to improve performance and increase its cost-effectiveness in support of the global environment.

Governance. GEF is an independent international financial entity. Its Assembly, composed of all 166 participating countries, meets every three years.

GEF's 32-member governing Council convenes twice each year for three days and also conducts business by mail. All decisions are taken by consensus. Sixteen Council members represent developing country constituencies, 14 represent developed country constituencies, and two represent constituencies of countries with economies in transition.

Each Council meeting is preceded by an “NGO consultation.” Representatives of non-governmental organizations from all regions of the world gather to consider and comment upon agenda items. They also designate NGO spokespersons to make interventions during the Council meetings themselves.

During fiscal 1999, the Council:

- *Approved an action plan to follow up on the findings of The Study of GEF's Overall Performance*
- *Approved resources for field offices to assist national focal points and Council members*
- *Approved elements for an action plan to strengthen country-level coordination and a strategy for greater outreach and communication*
- *Expanded opportunities for regional development banks to prepare and execute GEF projects and their access to project development resources*
- *Considered plans put forward by GEF's three implementing agencies—UNDP, UNEP, and the World Bank—to integrate global environmental objectives into their regular programs and operations and called for annual progress reports*
- *Approved a series of steps to make the process of determining the incremental costs of GEF projects more transparent and its application more pragmatic*
- *Supported the efforts of the GEF secretariat and the three implementing agencies to design strategic partnerships that advance GEF objectives by building on the comparative advantages of each agency*
- *Requested the secretariat to submit a plan, in consultation with the U.N. Convention to Combat Desertification, to better define the links between land degradation and the GEF focal areas*
- *Welcomed a new inter-agency partnership on land and water degradation*
- *Approved the application of a fee-based system to determine implementing agencies' fees with respect to GEF projects.*

“An organization which successfully thrives and grows is one that learns, adapts, and constantly strives to better fulfill its objectives. The GEF is such an organization.”

*Margaret McDonald,
Ambassador for the
Environment, Australia*

GEF Council Members, Alternates & Constituencies*



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- Averchenkov, Alexander* (Russia), Alternate: *t.b.d.*
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- Bentancour, Carlos* (Uruguay), Alternate: *Garcia-Ghirelli, Jose* (Argentina)
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- Carruthers, James* (Canada), Alternate: *Parker, Charles* (Canada)
Constituency: Canada
- Chipato, Charles* (Zimbabwe), Alternate: *Nchunga, Mushanana L.* (Botswana)
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- de Fontaine Vive, Philippe* (France), Alternate: *Garreta, Catherine* (France)
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- Di Maro, Raffaella* (Italy), Alternate: *Pettinari, Paola* (Italy)
Constituency: Italy
- Echirk, Djamel* (Algeria), Alternate: *t.b.d.* (Morocco)
Constituency: Algeria, Egypt, Morocco, Tunisia
- Escudero, Javier Moral* (Spain), Alternate: *Cordeiro, Helena* (Portugal)
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- Furui, Toshiyuki* (Japan), Alternate: *Shindo, Yusuke* (Japan)
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- Haque, Inaamul* (Pakistan), Alternate: *Shamsedin, Ezzedin* (Lebanon)
Constituency: Afghanistan, Jordan, Lebanon, Pakistan, Yemen
- Hosseini, Pirouz* (Iran) Alternate: *Asadi, Bagher* (Iran)
Constituency: I.R. Iran
- Jayanama, Asda* (Thailand), Alternate: *Ibrahim, Shukri* (Malaysia)
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Constituency: China

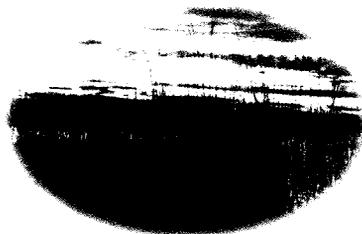
Yershov, Artemiy (Ukraine), Alternate: *Sharabidze, Merab* (Georgia)

Constituency: Albania, Bulgaria, Croatia, Georgia, Moldova, FYR Macedonia, Poland, Romania, Ukraine



Flamingos feeding, Ecuador: Populations in East Africa recently have been hard hit by pollution in the form of industrial runoff, with hundreds dying daily near Kenya's Lake Bogoria.

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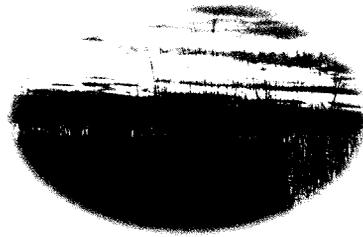
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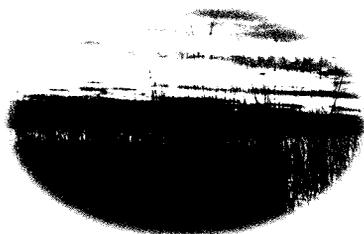
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Global Environment Leadership Award



The 1999 Global Environment Leadership Award was presented jointly to Professor Bert Bolin, former chairman of the Intergovernmental Panel on Climate Change (IPCC), and Ambassador Bo Kjellén, former Swedish ambassador for the environment and chief climate change negotiator for nine years.

In presenting the award, GEF CEO and Chairman Mohamed T. El-Ashry noted that: "During Mr. Bolin's tenure, the IPCC quickly became the principal actor on the global climate change scene. As chairman, he sought to base findings strictly on scientific evidence and peer-reviewed articles, and to achieve consensus within the scientific community, refusing to be derailed by ideologues on either side. He provided extraordinary environmental leadership in carrying the two IPCC assessments to their conclusions and ensuring that they played a pivotal role in the climate change negotiations..."

"Ambassador Bo Kjellen has played a very prominent role as chairman of numerous working groups within the climate change negotiations. In particular he was instrumental in bridging the gap between developing countries and developed countries to reach equitable solutions..."

"Ambassador Kjellen has also played a pivotal role in the effort to come to grips with the problems of land degradation and desertification. He was elected chairman of the INC for the Convention and became the first chairman of its COP. He has exhibited great environmental leadership during almost ten years in the nexus of global environmental diplomacy."

Nominations for the Year 2000 Award will be reviewed by a selection panel of prominent international environmentalists, including:

Henrique Cavalcanti, former Minister of the Environment in Brazil and Chair of the U.N. Commission on Sustainable Development

Birgitta Dahl, Speaker of the Parliament and former Minister of the Environment in Sweden

Istvan Lang, Science Policy Advisor to the Hungarian Academy of Sciences in Budapest

Thomas Odhiambo, Managing Trustee of the Research and Development Forum of Science-led Development in Africa (RANDFORUM), based in Nairobi, Kenya

Maurice Strong, Special Advisor to the Secretary-General of the United Nations and Chairman of the Earth Council

M.S. Swaminathan, Leader of the "Green Revolution" in Asia and Chairman of the M.S. Swaminathan Research Foundation in Madras, India

Mostafa Tolba, former Executive Director of the UN Environment Programme and current President of the International Centre for Environment and Development (ICED), in Cairo, Egypt.

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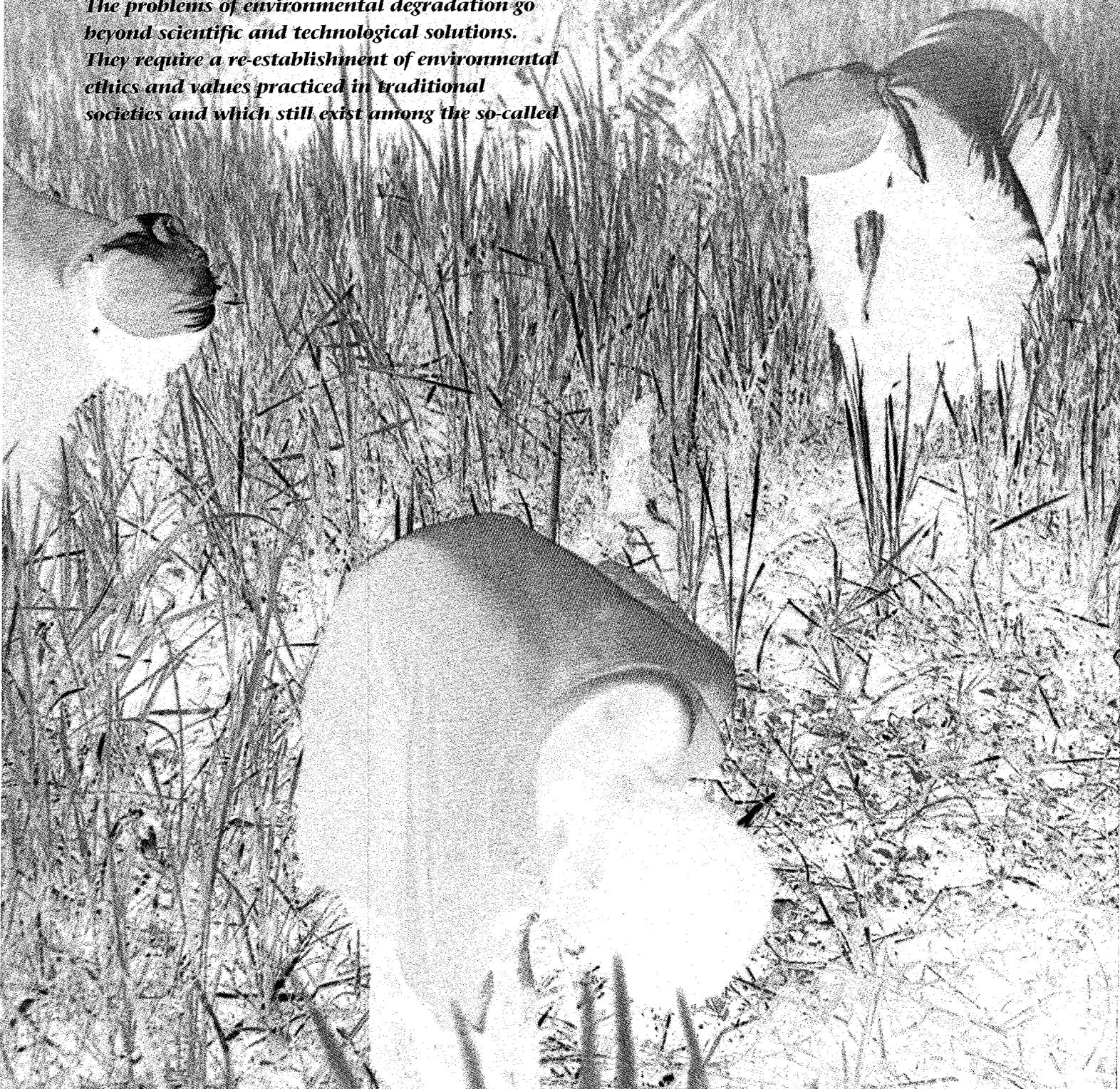
One cannot love what one does not know...

In the society where I grew up, knowing the environment was part of a lifelong education. In order to survive, one had to learn the names, uses, and dangers of plants, insects, birds, animals, and soils. Rivers, lakes, mountains, forests, rocks, and big trees were respected and sometimes worshipped.

The problems of environmental degradation go beyond scientific and technological solutions. They require a re-establishment of environmental ethics and values practiced in traditional societies and which still exist among the so-called

indigenous and traditional people of Africa, Asia, and Latin America. We have to re-examine their respect for nature and their philosophy on the co-existence of human beings, animals, plants, the soil, the water, the air, the sun, and the moon.

Ambassador Gertrude Mongella,
Tanzania





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