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# New Partnerships in the Americas

## THE SPIRIT OF RIO

United States Agency for
International Development

*New Partnerships*
*Working Group*

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# Preface

THE 1994 SUMMIT OF THE AMERICAS IN MIAMI IS THE LARGEST GATHERing of heads of state of the Americas since the Rio "Earth Summit" in 1992. *Agenda 21, The United Nations Programme of Action,* was signed at Rio as the primary international statement of the principles of sustainable development. *Agenda 21* recognizes that new and innovative partnerships are essential to create the fundamental changes and to take the practical actions necessary to surmount the environmental and developmental challenges before us.

Section 3 of *Agenda 21* is devoted to "Strengthening the Role of Major Groups." Whole chapters are dedicated to non-governmental organizations (NGOs), business, youth, women, scientists, workers, farmers, and local authorities. The forces that give voice to these groups are those that brought about and sustain the democratic evolution in the Americas: their achievements represent some of the first fruits of democracy. These groups have produced an explosion of innovative partnerships at all levels and between all segments of society, striving for a sustainable future.

To contribute to the preparations for the Summit, the U.S. Agency for International Development led a working group to examine new environmental partnerships. The result of this effort is *New Partnerships in the Americas: The Spirit of Rio,* a document being released at the Summit of the Americas to celebrate the seemingly spontaneous growth of a broad and dense network of ties between people and organizations of the Americas. The Summit is an opportunity to salute those who are doing something about our environmental challenges. Additionally, the Summit is an opportunity for the governments of the Western Hemisphere to renew and extend their commitments from Rio; to ensure that resource consumption today does not reduce the quality of life of future generations; to halt and reverse environmental degradation and the waste of resources; and to strengthen stewardship of natural resources by increasing the participation of indigenous peoples, local communities, NGOs, and the private sector.

We at USAID, along with those who worked on this report, hope that this preliminary study encourages the development and monitoring of innovative collaboration and financing for projects in alternative development. We suggest that the leaders of the hemisphere gathered in Miami continue to monitor the progress of this informal network, and to discuss it further at the 1996 Summit Conference on Sustainable Development in Bolivia. Recognizing the changing nature of north-south and public-private relations in the Americas, they may wish to study this process in detail and share the lessons learned about low-cost ways to implement *Agenda 21* through innovative partnerships among diverse social groups.

As you will see in the following pages, we have only begun to tap the rich resources of the civil society, whose energy and independence represent the true wealth of the New World.

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# Introduction

*NEW PARTNERSHIPS IN THE AMERICAS: THE SPIRIT OF RIO* REFLECTS AN analysis of the growth of collaborative efforts for sustainable development jointly led by USAID and the Washington-based World Resources Institute (WRI). Together they conducted consultations among key individuals and groups throughout the hemisphere to describe the development of these partnerships, assess the conditions necessary to their emergence, and identify ways in which governments can foster these efforts and fully use their products.

For the purpose of this report, partnerships encompass a wide array of collaborations. They represent cooperative arrangements between and among public and private organizations in the United States, Canada, Mexico, the Caribbean, and Central and South America. The actors involved might be government, business, and not-for-profit institutions, including community-based organizations as well as academic, research, and religious groups. They have come together to address such environmental problems as pollution, the threat to biodiversity, and the unsustainable management of natural resources. Above all, these organizations aspire to establish the necessary conditions, institutions and behaviors for sustainable development.

## Objectives

This study of environmentally-focused partnerships for sustainable development has three objectives. The first is to contribute ideas and information to the Summit discussion, shining a light on development processes in the region that leaders might review for application to their countries. The second objective of this report is to help define actions that will reinforce the effectiveness of partnerships in the future. The third objective is to inform and augment various information-sharing arrangements across borders and sectors. As the project team gathered data, each partner knew that their contribution of information would be returned in kind: this report reflects the current situation in all of their countries, but moreover, the resulting database—which will soon be available to all participants and the general public—methodically cross-references and highlights the organization, objectives, constituents, and issues of these partnerships, thus providing fresh insight into this emergent trend.

## Method, Sources and Collaborators

To cast a wide net in the collection of diverse viewpoints and to reach far into the region, a multi-phase information-gathering system was devised. First, the more accessible NGO community in the Washington, D.C. area was invited to nominate themes

they wished to see highlighted. Then, partners in the region were contacted through these NGOs or by the New Partnerships Initiative (NPI) project team. Next, an official letter announcing the initiative was issued and disseminated throughout the hemisphere, together with a questionnaire that structured incoming information.

Forty international environmental NGOs in the Washington, D.C. area started this data-gathering stage by forming a working group under the aegis of USAID. With their hemispheric colleagues, they added 135 regional contacts to our data base. USAID's Missions provided the names of 14 NGOs cooperating with U.S. bilateral efforts in these countries. The network of the World Resources Institute further increased the number of contacts by 64, and 10 contacts were contributed by organizations such as the UNDP, OAS, and the Inter-American Development Bank. The announcement letter and the questionnaire were also disseminated through electronic mail to 25 contacts. Ninety-five contacts returned written reports.

By no means should this study be construed as an exhaustive review of partnership development in the Americas. Neither is it an attempt to analyze recent successes and failures in detail. Instead, it is an effort to assess the conditions that foster or hinder the creation and growth of partnerships, to sketch their main structural features, and, finally, to anticipate their future development.

The partnerships chosen to illustrate our study share the following characteristics:

- they address environmental and natural resource management issues from a multi-sectoral and multi-disciplinary perspective;
- they consider sustainability to be an important goal;
- they primarily use a problem-solving approach and have specific, tangible objectives;
- they combine the best resources of all participating partners; and
- they craft mandates with a strong social component geared toward the objectives of *Agenda 21*.

Government, NGO, and business partners who have collaborated to produce this report share the belief that a global "association revolution" is afoot, a revolution that a senior scholar describes as potentially "as significant in the latter twentieth century as the rise of the nation-state was to the latter nineteenth." All sectors of society appear to agree that the discouraging realities of the past have stimulated the region's leaders to rethink the requirements for progress and to make "empowerment" the cornerstone of a new paradigm for the 1990s: participatory development. In this transformation, the alliance between the for-profit and non-profit sectors has become a crucial factor in making development more sustainable.

Halfway through this decade, it seems that a new awakening is taking place—a widespread acknowledgment that a commitment to action is required by all. There is a palpable sense of hope that the 1990s might be the transition to a better millennium. This vision is bringing out new ideas that resonate in contemporary public debate and writing on sustainable development. Justice, sustainability, inclusiveness, and other forces associated with functioning democracy are defining principles of authentic development. Growth-oriented objectives persist, but new goals counterbalance the orthodox

view that social and environmental considerations should take a back seat to material growth. In this new vision, civil society advances through partnerships, rather than through adversarial relations.

As a result, governments are increasingly viewed as helpmates in setting guidelines for reducing dependency and enabling people to set their own pace of development. Elected authorities and senior officials are coming to welcome the participation of the non-governmental sectors in seeking solutions to society's increasingly complex and demanding development problems. We should not be surprised that the emergence of an activist civil society has coincided with the generation of democratic principles and institutions throughout the hemisphere. The two are closely related, and without the sense of participation and accountability that has grown out of recent changes, partnerships would still be an ideal instead of a reality.

While there are reasons for optimism, declaring victory would be premature. Many of these partnerships are young and untested. Many set the stage for sustainability but have not yet had measurable impacts. Some are episodic interventions that respond to local, *ad hoc* conditions and are not intended to become part of a permanent establishment. Yet, it is in the spirit of the Summit to call attention to the prevailing conditions that make these partnerships possible. Social, political and economic circumstances have converged to create an atmosphere in which entrepreneurs in all walks of life can initiate activities without fear of unwarranted retribution. Government, business, and non-governmental organizations are increasingly dismantling the barriers that inhibited their pursuit of common goals and objectives. The next step is to translate the individual victories reported here into lasting achievements for the region.

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# Building Consensus for Environmental Planning and Management

SUSTAINABLE DEVELOPMENT IS GAINING INCREASING ACCEPTANCE worldwide as a framework for defining economic policy. It consists of three basic elements: sound environmental management, broad-based economic development, and the equitable distribution of goods and services.[1] Key to sustainable development is the participation of individuals in bargaining over resource use, allocation, and distribution.[2] Especially important is including all social groups affected by decision-making—the poor, women, indigenous groups, young people, municipal authorities, NGOs, workers, business and industry, farmers, and the science and technology community. As the essential role that stakeholders play in pursuing sustainable development is more widely recognized, natural resource planning and management will increasingly be based on mutual interest and mutual responsibilities.[3]

In the Western Hemisphere, democratization within Latin America and the Caribbean over the last ten years has created clear opportunities for broadening stakeholder participation in decision-making. The emergence of a stronger civil society—with its organizations and institutions—as a key actor in development is enabling governments in the region to redefine their own roles. Long charged with making policy, taking decisions over resource allocation, and executing plans, programs, and projects, government can now turn into a catalyst with two complementary functions: creating new, more democratic and flexible policy-making institutions and methods; and nurturing a new culture of negotiation, conflict resolution, and consensus building among different segments of society.[4] These changes will make it easier to forge partnerships among government, business, and the organizations of the civil society, so that together they can begin to face the challenges of sustainable development.

Building consensus among stakeholders with different and often opposing interests and views is not an easy task. However, building consensus through the participation of a variety of stakeholders in policy dialogue is a key element in achieving more sustainable forms of development. As the partnerships described below show, the first step in resolving inherent conflicts and taking action on a particular issue is to hold open discussions among all interested parties to find common ground on which to build further consensus. Policies crafted in this way not only enjoy wider support, but also invite practical commitment to make them work.

# Crafting a Regional Approach to Forest Management

JUAN CARLOS CRUZ BARRIENTOS*

ONE OF THE CHALLENGES CONFRONTING THE AMERICAS IS THE NEED to promote the conservation and sustainable management of its important forest resources. Forest products provide substantial economic and cultural benefits and services to society, including fuelwood for cooking by 80 million Latin Americans, lumber, paper, medicines, watershed protection, and soil erosion control. Although these benefits are increasingly appreciated, the survival of forests will require innovative solutions and concerted actions, which must include a diversity of technical, social, economic, institutional, and political initiatives and reforms.

Such an initiative was taken in Central America to reverse the pace of tropical deforestation in that region, which since the 1980s had been increasing to about 416,000 hectares annually, or 48 hectares per hour. Of the total forested area, 13 million hectares have already been deforested, while 19 million hectares remain untouched or only minimally affected.

The effort by the region's governments and civil society to find alternative conservation methods and use forest lands sustainably crystallized as the Regional Convention for the Management and Conservation of Natural Forest Ecosystems and the Development of Forest Plantations. Signed in 1993 during the Sixteenth Summit of Central American Presidents in Guatemala, this Convention was the culmination of a regional participatory process by the Central American Commission of Environment and Development (CCAD), which started with the Tropical Forest Action Plan-Central America (TFAP-CA).

## The Fruits of Broad Participation

Building consensus among stakeholders both within government and between governments and civil society seemed key to the TFAP-CA planning process because pressures to convert tropical forests to other land use came largely from outside the forest sector—from agricultural, livestock, population, and energy practices and policies. Another essential element had been participation in TFAP-CA negotiations by representatives of the most disadvantaged sectors of society, especially the rural poor. Their survival activities may have lasting impact upon forest resources, and in the end agrarian communities are the ones hardest hit by ecosystem degradation, loss of biodiversity, deteriorating water quality, and increased flooding, droughts, and erosion brought on by deforestation.

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The TFAP-CA planning process spanned 18 months from May 1990 to September 1991. From meetings with a variety of stakeholders—including the presidents of the Central American countries, national legislators, universities, NGO representatives, women's groups, indigenous ethnic groups, peasant organizations, the regional forest industries chamber, regional ambassadors, ministers of foreign affairs, TFAP national coordinators, and the CCAD—came feedback on planning goals and objectives and on criteria for selecting the best implementing agents. In addition, over 450 personal consultations and satellite meetings were held by the TFAP-CA coordinating unit. This massive mobilization cost only $420,000, compared with $700,000 for the national TFAP exercises.

Several donor agencies (FINNIDA, ICRD, UNDP, USAID) and international NGOs (WRI, World Council of Indigenous Peoples, and IUCN, among others) have supported both the planning process and its outcomes—some 22 projects with a budget of about $160 million focusing on regional approaches to information exchange, professional training, the redirection and strengthening of forestry extension services, the systematization of land-use categories, multinational watershed conservation units, population and environment, and a regional financing strategy based on debt swaps.

## Finding a Regional Common Ground

Building on the work and success of TFAP-CA, the Convention for the Management and Conservation of Natural Forest Ecosystems and the Development of Forests Plantations signed in October 1993 by the Central American presidents is also the result of a consensus-building exercise. The convention emerged as a policy framework for revising the forestry codes and institutions of the region to reflect new thinking put forth in *Agenda 21* and the forest principles agreed to at UNCED.

Central America's convention encompasses regional commitments to consolidating systems of protected areas, reforestation and rehabilitation of degraded lands, concentration of management activities and forest production in secondary forest areas, and the effective participation of all stakeholders in formulating and implementing forest policy. This forward-looking convention also seeks to control illegal trafficking in flora and fauna, to recognize and respect the rights of indigenous peoples and other groups that depend on the forests, to strengthen intersectoral coordination and promote capacity–building, and to create the legal conditions conducive to carrying out environmental impact assessments of all activities affecting the forests.

Upon ratification of the convention in October 1993 the Central American Council on Forests (CCAB) was created to implement it. CCAB brings together the region's national forest service directors and TFAP coordinators. In early 1994, full CCAB membership and voting rights were granted to the regional network of farmer's unions, forest industries, and women's groups working on gender issues and forestry that had been active in the development of TFAP-CA.

## Practicing the Principles

One sensitive issue considered under the convention is forest concessions policy. The need for regulation emerged after popular protests occurred in Guatemala, Honduras, and Nicaragua in 1992 concerning forest concessions on public lands to both international and local private investors. During the fall of 1992, TFAP-CA commissioned case

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**Reforestation and rehabilitation of degraded lands are among the objectives of Central America's Forestry Convention. (Credit: Philip Wolmuth/ Panos Pictures)**

studies on forest-concession policy and popular protest. These studies were subsequently debated in Guatemala, Honduras, and Nicaragua in public forums coordinated by national TFAP offices and attended by national legislators, government officials, the press, and more than 100 representatives of environmental, indigenous peoples, farmer, and business interest groups.

As a result, the forestry codes of Guatemala and Nicaragua were revised in 1993 and 1994 to incorporate recommendations from the public forums on forest concession policy. In Nicaragua, the intersectoral working group that emerged after the public debate was formally endorsed as a consultative body of the national forestry administration: now it reviews all proposals for forest concessions prior to their approval by government. Similarly, in Guatemala and Nicaragua, successful negotiations among national forestry administrations, concessionaires, and local communities led to the establishment of pilot projects to test the revised forest concession policy and decision-making procedures.

The commitment to the sustainable use of forest resources has also led decision-makers to explore such incentives as eco-labeling and certification. In June 1993, a regional workshop for Latin America held in Honduras by the CCAD and the Forest Stewardship Council explored criteria and mechanisms for forest-product certification and eco-labeling. CCAD emerged with a strong mandate to advance eco-labeling standards and verification in Central America.

In research, TFAP-CA is aiming for the efficient and effective use of regional resources. For example, Costa Rica's consolidated leadership in forest research and field trials in basic science and advanced engineering by institutions such as CATIE (Center

for Tropical Agriculture Education and Research) and IICA (Inter-American Institute for Agricultural Cooperation) will help accelerate the horizontal transfer of technology.

### Toward an Alliance for Sustainable Development

Integration has long been a subject of discussion among Central Americans, especially since 1988 when the region's Presidents got together in Esquipulas, Guatemala, to find ways to solve the Nicaraguan civil conflict. The quest for environmental integration is crystallizing in the "Alliance for Sustainable Development," a strategy approved by Central America's heads of state in October 1994. This initiative for cooperation and mutual understanding among Central Americans will materialize as a regional forum to coordinate various interests and help sustain positive change in personal, political, and social attitudes. In the forest sector, the Alliance will advance efforts to consolidate a system of protected areas over the next three years; significantly reduce the rate of deforestation in each country by the year 2000; develop over one year a Central American strategy for combating and preventing forest fires; elaborate technical norms for certifying forest products; and establish a mechanism to ensure the participation of local communities, indigenous peoples, and women's groups in the planning, execution, and evaluation of national and regional forest policies.

It is now hoped that the process that started with the negotiation of TFAP-CA will help improve the quality of life of forest users and of Central Americans as a whole.

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## FOLLOWING UP ON RIO'S AGREEMENTS

THE RIO DECLARATION AND *AGENDA 21* PRODUCED AT UNCED RECOGnized the need to address global environmental issues through effective national environmental institutions. To evaluate the progress since UNCED and review the implementation of *Agenda 21,* National Commissions for Sustainable Development (NCSD) were created. In these forums, all sectors of society can cooperate and develop a consensus on strategies and plans for sustainable development—plans which integrate social, economic, and environmental aspects of development into coherent and sustainable national policies.

As one of two international counterparts to the NCSD, the United Nations Commission on Sustainable Development provides an international forum for discussing sustainable development and reporting on global progress in implementing UNCED's resolutions. The second, the Earth Council, brings together non-governmental institutions from around the world. Its 21 members—acting in their personal capacities—broadly represent most regions of the world and most sectors of civil society. The Earth Council empowers non-governmental organizations to monitor, review, and assess the implementation of the Earth Summit results. As a sounding board for unofficial viewpoints, this council also promotes greater public awareness and support for the needed transition to more sustainable ways of living and doing business.

Differing widely in structure and age, Latin American NCSDs provide a useful glimpse of the progress made so far in the debate on sustainability in each country. A few, like those in Costa Rica, Colombia, and Bolivia, have institutionalized working

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relations between the commissions and environmental ministers, whom they often serve as advisors. To varying degrees, others are struggling to define their roles and identities. As Jonathan Lash, president of the World Resources Institute (WRI) and Co-Chairman of the U.S. President's Council on Sustainable Development (PCSD), puts it, "These are a new species evolving to fill a newly created niche—fragile, experimental, and diverse."

However diverse, these commissions face similar challenges. Since their memberships are varied and unaccustomed to working together, they all need to explore new processes that are consensual, open, and inclusive. As agents of change, all must involve groups from many sectors in their advisory and advocacy work. By mandate, the NCSDs must engender new partnerships that cross established jurisdictions and traditional lines of authority. The rise of these new partnerships in the Americas and their special mandates argue persuasively for strengthening their role in achieving sustainable development.

## Influencing the Legislative Agenda

EFFECTIVE POLICIES AND REGULATORY FRAMEWORKS, IN TANDEM with broad-based public support, are critical for the success of sustainable development activities. Consequently, processes that build participation and consensus and reflect the needs and interests of different constituents are especially needed.

The Peruvian Society of Environmental Law (SPDA) and the Peruvian Foundation for the Conservation of Nature (FPCN), under the sponsorship of the WWF-U.S., started a project in 1992 to promote multi-sectoral participation in the formulation of a new forestry law in Peru. Among participants in this consensus-building exercise have been the Facultad de Ciencias Forestales de la Universidad Nacional Agraria La Molina (academia), the Cámara Nacional Forestal (business), the Asociación de Ingenieros Forestales del Perú (professional), and the Forestry Agency of the Ministry of Agriculture. The main objectives have been to elaborate new legislation conceived through participation and broad debate at the national level and increase the chances that such legislation will be effectively applied. During the process, various sectors involved in forestry activities have agreed on common cutting and replanting targets, which made it possible to submit the forestry bill to Congress as a multi-stakeholder effort.[5]

## Coalescing Around the Everglades

THE PRESERVATION OF RESOURCES ON WHICH VITAL REGIONAL economies and ecosystems depend is key to ensuring the economic, social, and environmental welfare of diverse communities. For the past ten years, state and federal government agencies that make decisions about land use and pollution discharge in the United States have been working in partnership with the National Everglades Coalition, an alliance of 32 state and national environmental organizations, to restore the health and integrity of the Everglades ecosystem.

The Everglades are in jeopardy. Their great beauty, biodiversity, and essential value to the economy of South Florida and the adjacent Caribbean Basin are threatened.

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**The restoration of the Everglades is of essential value to the economy of South Florida and the adjacent Caribbean Basin. (Credit: George Grant/ Department of the Interior, National Park Service)**

Throughout this century, the Everglades have been channelled, diked, and drained into compartments that interrupt the free flow of clean water vital to this ecosystem's integrity. Now, portions of the Florida Keys coral reef system, commercial and recreational fisheries in Florida Bay, and the Everglades National Park are in peril because these interventions have disrupted the timing and delivery of water supply.

In 1985, Florida's former governor Bob Graham worked hard to create a strong national coalition of advocates for the restoration of the Everglades. Members of the Everglades Coalition include numerous Florida-based environmental groups—among them, Florida Audubon, Friends of the Everglades, and Florida Wildlife Federation. Also participating are such national organizations as The Wilderness Society, National Audubon Society, Sierra Club, and the World Wildlife Fund; the coalition has begun to involve non-environmental interests in the campaign, including urban and business groups in greater Miami and representatives of the recreation/tourism industry. The coalition is co-chaired by representatives based in Miami and Washington, D.C., so it can work closely on Everglades restoration with both federal and state governments.

This unusual and highly innovative set of partnerships unites two levels of government, the national environmental community, and numerous state conservation groups to provide a better understanding of the problems confronting the South Florida Everglades ecosystem and the degree of action and commitment needed to solve these problems.

The most pressing question now is how best to restore the ecosystem. Not surprisingly, participants disagree about strategy, feasibility, costs, and the speed with

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which restoration can be achieved. One guiding principle, though, is that any action taken must benefit both the economy of South Florida and urban water users as well as the ecosystem.

Members of the partnerships work together, but they also have well-defined roles. The federal government is the leader in figuring out the changes in water flow and improvements in water quality needed to protect, enhance, and revitalize the Kissimmee River/Lake Okeechobee/Everglades/South Florida ecosystem. The state of Florida and its South Florida Water Management District are responsible for sharing the planning and cost of these environmental improvements. In addition, they work as a close partner with the U.S. Army Corps of Engineers to alter the water flow in south Florida as necessary. The environmental community, for its part, continues to define the vision of what a restored south Florida Everglades should be and to monitor progress and vigorously support specific government actions.

The partnerships, in and between the coalition and the two levels of government, have made significant achievements toward restoring the Everglades ecosystem. The federal and state governments have made large investments toward expanding Everglades National Park, Big Cypress National Preserve, and several important federal and state wildlife refuges through land acquisitions. More recently, the Clinton Administration has applied a new management approach that views the entire area of South Florida and Florida Bay as one ecosystem. Most notably, the appropriate timing and delivery of fresh water to the Everglades and Florida Bay has been restored.[6]

## Common Concerns, Common Solutions

PROTECTING VITAL NATURAL RESOURCES FROM THE NEGATIVE IMPACTS of economic activity is imperative in an era of rapid industrialization and transboundary migration of peoples. The Río Grande/Río Bravo Basin on the U.S.-Mexican border is among the areas experiencing rapid economic and population growth, both of which place severe demands on limited surface and ground-water resources. Planning for the development of these areas must pay careful attention to issues such as the carrying capacity of the basin and ensure that the basic needs and priorities of local communities are fully factored into decision-making processes.

The Sustainable Development Initiative for the Río Grande/Río Bravo Basin (a partnership created in 1992 by El Colegio de la Frontera Norte, the Houston Advanced Research Center, the Universidad Autónoma de Nuevo León, the University of New Mexico, and the University of Texas, El Paso) involves local people in finding longer-term, sustainable solutions to water and development problems in the basin through consensus building and other participatory processes. Through this mechanism, local stakeholders form or expand sub-basin working groups and a basin-wide network. Each working group includes irrigators, business leaders, *maquiladora* workers, public and elected officials, grassroots organizations, wildlife specialists, small farmers and ranchers, teachers, and researchers.

By uniting previously isolated groups and establishing basin-wide discussion, the initiative builds on common concerns to reach common solutions. Shared objectives include self-determination, the preservation of the river and its biodiversity, and awareness raising. The process is expected to yield concrete action and results, and all five sub-basin working groups (Upper Basin, Paso del Norte, Central Border, Río San Juan,

and Lower Basin) have already begun defining and implementing sustainable development projects in their areas. Priorities forged at the May 1994 Conference on Sustainable Development for the Río Grande/Río Bravo Basin include preparing plans for a basin-wide coalition, strengthening existing local and sub-basin working groups and developing new groups in the main tributaries, addressing the need for basin-wide public institutions, developing an education program on sustainability in the basin, and linking research to sustainable development.[7]

In the United States, a similar initiative involving multiple productive sectors is taking place in Minnesota. The Minnesota Sustainable Development Initiative brings together 105 business, environmental, and civic leaders to chart a sustainable course for the state in agriculture, energy, forestry, manufacturing, minerals, recreation, and human settlements. Its seven teams received the same brief: to come up with a 50-year vision for each sector, elaborate sustainability principles, identify the main barriers to achieving the vision, and develop strategies for overcoming those barriers. In late 1993, this ambitious exercise resulted in a report entitled *Redefining Progress: Working Toward a Sustainable Future*, which contains the reports of the seven teams. During 1994, participants have been working on a strategic, six-year sustainable development plan for Minnesota and on omnibus legislation that will begin to codify and institutionalize many of the initiative's proposals.[8]

## Building Consensus to Improve the Urban Environment

With political decentralization taking hold throughout the Americas, consensus building and participatory planning processes are increasingly important to cities. As municipalities begin to restructure themselves and to find new ways to execute policy, local authorities are trying to create partnerships with actors in the civil society to increase the pool of resources, skills, and capacities. One of the most important consensus-building efforts to emerge from UNCED on the urban environment is the Local Agenda 21 Initiative sponsored by the International Council for Local Environmental Initiatives (ICLEI). Announced during the 1992 Earth Summit in Rio, this initiative was launched to help local authorities implement *Agenda 21* by establishing ongoing local sustainable development-planning processes. One prong of the initiative is the Local Agenda 21 Model Communities Program, a research effort aimed at developing tools and models of sustainable development planning. Twenty-one municipalities throughout the world are to be selected to design, test, and evaluate their planning approaches and experiences. In Latin America, six municipalities from Brazil, Colombia, Ecuador, and Peru have already been chosen to participate in the program. The second prong, the Local Agenda 21 Communities Network, is a larger network of local governments and their partners undertaking sustainable development planning. Through this network, members will exchange experiences and information.

The Local Agenda 21 Model Communities program is already underway in Buga, Colombia, a city of about 90,000 people in the Cauca River Valley; in Quito, the capital city of Ecuador; in the Province of Cajamarca in the Peruvian highlands; and in the municipality of Santos, Brazil. In all, the emphasis is on participatory planning and multi-sectoral partnerships. Planning efforts in these venues will both support and test

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newly created administrative structures. More important, a permanent institutional capacity that permits planning and program implementation to take place with neighborhood input and involvement will be created.

Among the key challenges facing these municipalities and the Local Agenda 21 effort is the need to integrate "bottom-up" planning approaches with metropolitan or region-wide "top-down" development strategies.[9]

## THE "SYNDROME" OF CONFLICT RESOLUTION

SOLUTIONS TO ENVIRONMENTAL AND ECONOMIC PROBLEMS CAN HELP strengthen the civil society when they are characterized by local empowerment and the establishment of institutions for consensus-building and conflict resolution. This truth became apparent in Ecuador in 1994, when two key sectors of the Ecuadorean economy clashed over whether possible contamination in the coastal zone

**Sustainable practices in the banana and shrimp industries of Ecuador will help strengthen the national economy. (Credit: David Mangurian/IDB)**

from pesticides used in nearby banana plantations was connected to the $70-million decrease in Ecuador's shrimp production. The importance of these two key industries and their impacts on coastal ecosystems drew the attention of Futuro Latinoamericano, an NGO fostering sustainable development in Latin America. In July 1994, Futuro sponsored a dialogue on "Sustainable Development Policies for the Taura Syndrome Case" for the main stakeholders. That dialogue led to agreements committing the two sectors and the government of Ecuador to carry out programs to study the protection of coastal environments and research pesticide use.

Fundación Futuro Latinoamericano organizes dialogues such as this to "overcome traditional obstacles—institutional, communication-related, and others—that have made it difficult to incorporate strategies of sustainable development in public policy in Latin America."[10] Futuro uses these dialogues to catalyze regional consensus building, thus helping Latin America strengthen its interests vis-à-vis the rest of the world. A case in point is the process of consultation and consensus building that Futuro sponsored in 13 Latin American cities in preparation for the Summit of the Americas. In national dialogues, representatives of the civil society drafted a common agenda used by the governments to define their own positions.

Futuro sponsors sectoral and inter-sectoral dialogues at the national and regional levels, always with a view to fostering conflict resolution. It also promotes discussion and the search for alternatives based on both democratic principles and sustainability. The foundation is particularly interested in advancing innovative ways for citizens to participate in decision-making.

## Chile's Encounters with the Environment

THE IDEA OF HOLDING DIALOGUES AMONG VARIOUS SECTORS OF SOCIety "with the purpose of integrating environment and development—instead of simply opposing the latter—and of advocating negotiation over confrontation so that consensus can be built among participants" was proposed in Chile by the Center for Environmental Research (CIPMA) in 1983.[11] Since then, Chile's National Encounters on the Environment have been taking place every three years, bringing together the scientific community, NGOs, business, and government agencies. The encounters have been sponsored by the Chilean Academy of Sciences (since 1983), the Chilean Association of Businessmen (since 1989), and the National Environmental Commission (CONAMA) (since 1992).

Each encounter reflects the various stages Chile has gone through in the environmental debate. In 1983, the emphasis was on raising environmental awareness and the importance of conservation within the framework of economic and social development; by 1986, the focus was on citizen participation in attaining economic growth with equity and conservation; in 1989, the discussion centered around the potential contribution of Chilean scientists and other professionals in applying the concept of sustainable development to the sectoral and regional policies of the first democratic administration after 17 years of military dictatorship. Finally, in 1992, participants discussed the potential contribution of scientists, business, and NGOs to the improvement of environmental management.

In each encounter, agreement is reached on the issues to be debated after a multisectoral consultation process spanning two to three months. Once the main topics and

# Canadians at the Table

IN MATTERS OF BUILDING CONSENSUS ABOUT the environment and development debate, Canada pioneered the idea of holding round tables at which stakeholders aim to close gaps between groups with differing interests and perspectives. The Canadian National Round Table on the Environment and the Economy (NRTEE), created in 1987, was mandated by the Canadian parliament to "act as a catalyst to promote the principles and practices of sustainable development in all regions and in all sectors of Canadian society."[12] NRTEE works to forge new consensus, relationships, and partnerships among competing interests so that they can jointly act on complex environmental, economic, and social problems. The recommendation to create round tables came from a National Task Force on the Environment and the Economy, and within three years, all provinces, the two territories, and the federal government had established round tables.

Membership is drawn from government, large and small industry, environmental groups, labor, academia, and aboriginal groups. All the actors representing particular interests who have a stake in the outcome of a decision are considered stakeholders.

Integrated decision-making among these diverse—and diverging—interests is a process of working together as equals without imposing the views or authority of one group upon another. The process does not necessarily resolve all differences, but at best it can "crystallize the discussion, clarify the underlying issues, identify the options for dealing with outstanding disagreements."[13]

Among the guiding principles developed by the Canadian round tables to "build awareness, understanding, and interest in using the consensus process to achieve a sustainable future," six stand out:[14]

- people will participate only if there is a purpose and reason for doing so;
- flexibility should be built into the process to incorporate feedback and changes;
- equal access to relevant information and the opportunity to participate effectively must be available to all parties. This means acknowledging that not all participants can readily afford the time and expenses;
- diverse interests are accountable to their constituencies, who must receive timely feedback and reporting, and be informed on development and outcome of the process, and
- commitment to implementation and effective monitoring is essential.

Although round tables do not fit a single mold, they all share three common features: 1) they work to promote sustainable development 2) by consensus-based decision-making and 3) through a multi-stakeholder process.[15]

While the guidelines suggest that the procedure is straightforward, certain underlying obstacles are difficult to overcome. For instance, some communities have

subtopics have been defined, working groups of about ten individuals are created to focus on each. Every group prepares a report. Meanwhile, independent researchers and other experts are invited to submit papers on these same topics, and their findings are incorporated in the report of each working group. Conclusions and recommendations on each of the topics are debated during the encounter by 400 (1983) to 790 (1992) participants.

The result of this effort after ten years is reflected in the quantity of information collected and processed in more than 1,000 documents and research papers, and in the

been reluctant to get involved in a government-sponsored local round table. Some round tables have found that they need an impartial person who can mediate and offer training on consensus-building and negotiating skills. Despite these obstacles, many round tables have reached consensus and have created programs with tangible results. The Salmon River Watershed Round Table (which consists of about 130 members including landowners, aboriginal groups, citizens, government representatives, businesses, and others who "share a vision of sustainability of the watershed"[16]) has created a watershed resource center to provide information for people with interests in watershed development, the Salmon River Restoration Planning Project, restoration projects involving riverbank stabilization and erosion-control measures, and water-use survey and water-quality assessment projects. Because of their influence on the attitude and structure of this round table, the involvement of aboriginal groups was key to its positive results.

The success of holding round tables for consensus-building on environmental issues has not gone unnoticed across Canada's border. In Minnesota, the Council of Great Lakes Industries (CGLI), which involves U.S. and Canadian enterprises, is proposing a round table to examine technology, policy, and management options in hopes of developing more sustainable approaches to energy production and use. The round table will critically examine the strategies that businesses are using to minimize energy consumption, including conservation, lifecycle-based process or product changes, and research and development aimed at breakthrough technologies. Another topic of discussion is whether businesses can develop specific economic signals that, once instituted by government, would push the market voluntarily toward efficient sustainable approaches to energy production and use. Because the Great Lakes region is a binational natural resource base, the sustainable energy round table is also figuring out whether trade in energy can be used to reduce trans-border pollution and consumption of natural resources, as well as to promote sustainable economic development.[17]

Obviously, building consensus among interest groups is not easy. Some are traditional adversaries who will not readily change their views and the assumptions that they make about each other and their respective interests. But though on occasion stakeholders from both the public and private sectors have felt that their vested interests were threatened, eventually most round tables have reached a consensus that most participants find satisfactory. Indeed, new cooperation among old rivals is a key selling point of the round tables.

Overall, round tables have encouraged governments to make decisions based on the integration of economic, social, and environmental considerations. And, in a few cases, sustainable development has emerged as the cornerstone of a local government's economic agenda.

—SUSAN LIEBERMAN

institutionalization of the environment as an integral subject of discussion and policy-making. Indirectly, the encounters have also underscored the importance of the environment—an issue that has broken through ideological and partisan barriers. Still, room for improvement remains. The relationship between the business sector and grassroots organizations could be stronger, as could collaboration between these two groups. In addition, the organizations of the civil society hope that the government will further decentralize and allow NGOs more participation in policy-making and implementation.[18]

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## Building Consensus for Environmental Planning and Management

| Partnership | Participants | Objectives |
|---|---|---|
| Central America's Regional Convention for the Management and Conservation of Natural Forest Ecosystems and the Development of Forest Plantations | Governments, NGOs, universities, community-based organizations (CBOs), women's groups, businesses | Forest management: consolidate system of protected areas, rehabilitate degraded lands, management activities of forest production in secondary forest areas, stakeholder participation in formulation and implementation of policy-making. |
| National Commissions on Sustainable Development | Governments, NGOs, business | Follow up on the implementation of agreements reached at the United Nations Conference on Environment and Development (UNCED). |
| United Nations Commission on Sustainable Development | Governments | Follow up on UNCED's agreements. |
| Earth Council | NGOs | Follow up on UNCED's agreements. |
| Everglades Coalition | Governments, NGOs, businesses | Ecosystem restoration. |
| Sustainable Development Initiative for the Río Grande/Rio Bravo Basin | NGOs, research center, university, businesses | Ecosystem restoration. |
| Minnesota Sustainable Development Initiative | NGOs, CBOs, business, government | Planning for sustainable development. |
| Local Agenda 21 | Government, NGOs, CBOs, business | Urban participatory planning. |
| Sustainable Development Policies for the Taura Syndrome Case | NGOs, business, government | Conflict resolution for natural resource management. |
| Chile's National Encounters with the Environment | NGOs, government, business | Environmental awareness within framework of the market economy. |
| Canada's National Round Tables on the Environment and the Economy | Government, business, NGOs, CBOs | Consensus-building for sustainable development. |
| Minnesota's Round Table on Energy | Businesses | Consensus-building on sustainable approaches to energy use. |

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# Financing Environmental Activities

IN THE AMERICAS, TRUST FUNDS AND ENDOWMENTS HAVE EMERGED AS mechanisms for converting commercial and official debt to environmental capital. In Costa Rica, Bolivia, and Ecuador, international NGOs such as The Nature Conservancy (TNC), the World Wildlife Fund-U.S. (WWF-US), and Conservation International, as well as USAID, have provided technical assistance and financial support to help national NGOs build endowments through debt-for-nature swaps.[1]

Several trust funds and endowments in the region have evolved within the framework of the Enterprise for the Americas Initiative (EAI) launched by the United States government in 1990. Under the EAI, countries qualifying for official debt relief could repay some of their remaining obligations in local currencies. In turn, these monies could be used to finance environmental projects selected by committees composed of representatives of the debtor country, the United States, and national NGOs.[2] Because projects are to be financed by the interest accrued on the fund, keeping the principal untouched, this approach is sustainable over the long term.[3] National Environmental Funds (NEFs), as well as the GEF-sponsored Small Grants Program and the UNDP-supported Local Initiative Facility for Urban Environment (LIFE), are among these new financing tools.

In June 1994, the World Conservation Union (IUCN), TNC, WWF-US, UNDP, the MacArthur Foundation, and the C.S. Mott Foundation sponsored the first Global Forum on National Environmental Funds. The meeting in Santa Cruz, Bolivia, was attended by the managers of 21 environmental trust funds in 20 countries and by collaborators from NGOs and donor institutions. Most of the funds represented at the meeting have been in operation for only one or two years. Although their structures vary, all NEFs are governed by boards representing several sectors of society, all attract and manage financial resources from a variety of sources, and all base their programs on national environmental and sustainable development policy guidelines. Born amid Latin America's drive toward democratization, NEFs are also committed to participatory decision-making, flexibility, transparency and accountability, and to political independence. In addition, NEFs pay particular attention to institutional capacity-building for themselves and their grantees and to sharing expertise and exchanging information with their peers, with government agencies, and with NGOs.[4] In policy-making and financing, all NEFs play twin roles:

- Because they can convene a variety of interest groups—NGOs, grassroots organizations, donor institutions, and the private sector—NEFs can facilitate consensus among stakeholders on environmental issues.

- NEFs make strategic planning possible by providing long-term, sustainable financial support to organizations working on environmental issues and natural resource management.[5]

The following close-up look at Bolivia's Fondo Nacional para el Medio Ambiente (FONAMA), the oldest NEF in Latin America, and at innovative or particularly interesting elements of other NEFs in the region, is complemented by descriptions of financing models, such as GEF's NGO Small Grants Program and UNDP's Local Initiative Facility for Urban Environment. Together, these portraits show that, though it is still too early to evaluate NEFs' performance and impact as partnerships, as financial mechanisms, and as agents of change, these innovative mechanisms promise to help countries face their most pressing environmental issues.

# Investing in Bolivia's Environment

AMANDA DÁVILA*

SINCE 1990, THE ENVIRONMENT HAS BEEN HIGH ON THE AGENDA OF THE Bolivian government. Policy design and planning have been undertaken to restructure comprehensively all environmental and natural resource activities, and the National Environmental Fund (FONAMA)—the first of its kind in the Americas—has been set to arrange all investments in Bolivia's environment.

## Giving Nature a Break

Between 1985 and 1990, the exploitation of natural resources and the exportation of raw materials intensified as Bolivia tried to fulfill its international financial commitments under its program of structural adjustment. The activities of the lumber companies, migrant populations in search of agricultural land, and private groups devoted to hunting all contributed to the unsustainable exploitation of forest resources. Independent reports and government findings indicated that Bolivia was losing 1,400 square kilometers of forest annually, while only minimal reforestation was being carried out. An estimated 38 percent of the soil had been heavily eroded as forest cover was eliminated.

On January 11, 1990, the government adopted emergency measures, declaring an "Ecological Pause" of five years so it could reorganize the processes that were jeopardizing Bolivia's natural resource base. A moratorium was placed on new forest concessions, more than 1 million hectares were transferred from forest-sector businesses to

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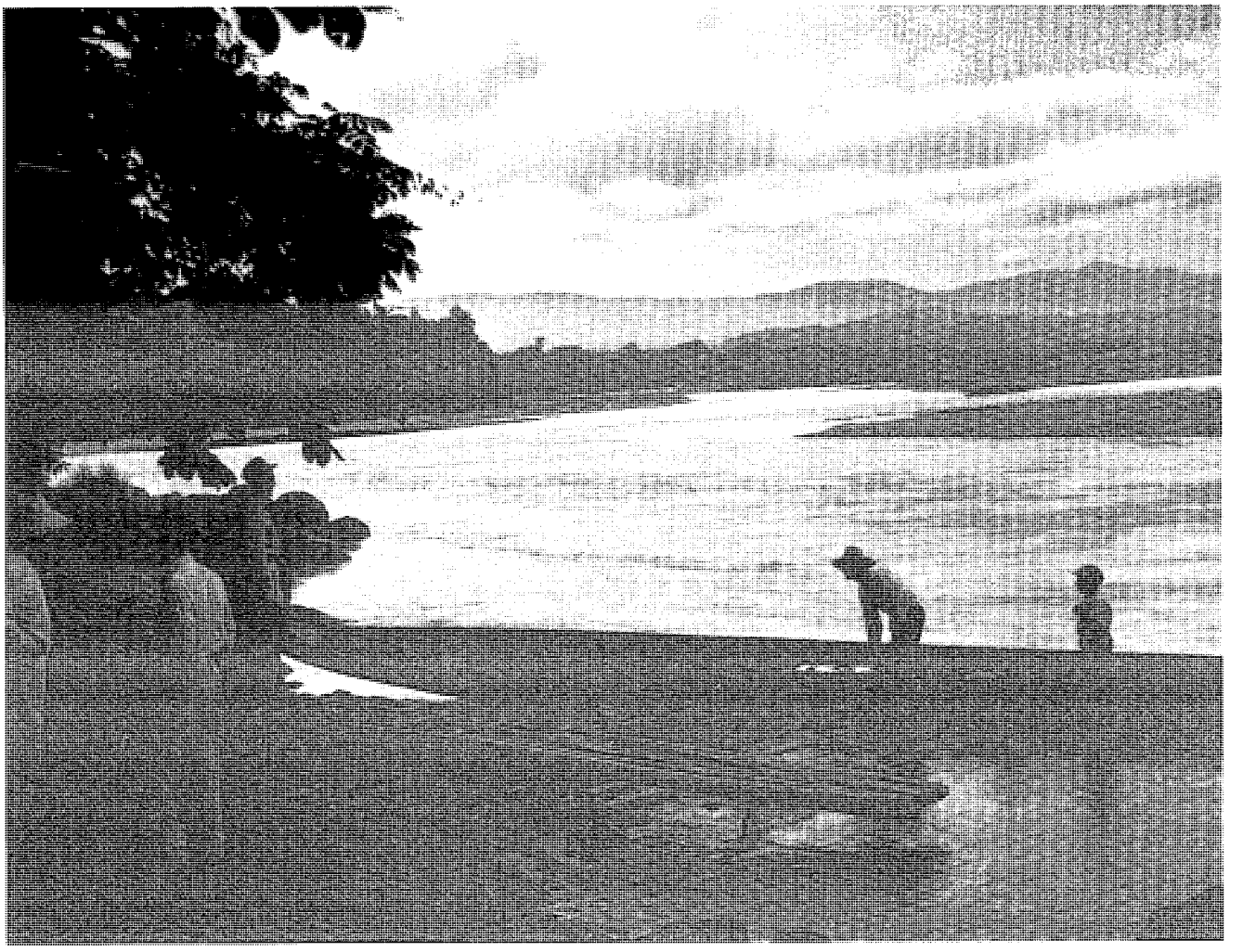
the Bolivian government, and measures aimed at conserving natural resources and the habitat of indigenous peoples were implemented.*

The Pause by itself was removed from the Bolivians' every-day lives. Not so the 600-kilometer, 34-day march on August 15, 1990, of some 800 indigenous people from the Beni region in southern Bolivia to La Paz to protest the destruction of forests in their territories by private enterprises. The Bolivian government recognized the legitimacy of the indigenous peoples' claim, but its coffers were empty. International cooperation for the protection of natural resources was limited to scattered projects, and at that time a national environmental policy was lacking.

From the government's perspective, the main obstacle to environmental protection was the absence of institutions and adequate mechanisms to obtain and manage the financial resources needed to carry out conservation and sustainable development projects. The first task was to organize the forest sector and other natural resource activities with the participation of the state, NGOs, donors, and other affected parties. This effort coincided with the United States Government announcement in June 1990 that the environment sector would figure prominently in official debt reduction and restruc-

*In Bolivia, the majority of the population belongs to two main indigenous groups: Quechua and Aymara. There are, however, at least 53 additional ethnic groups, mostly scattered throughout the Amazon region.

**FONAMA-supported projects will help some indigenous people and peasants such as these in the Alto Beni of Bolivia to manage natural resources sustainably. (Credit: IDB)**



turing within the framework of the Enterprise for the Americas Initiative. The idea of a national fund for environmental activities took shape, and on December 12, 1990, FONAMA was created.

FONAMA emerged as an autonomous body in charge of organizing, procuring, and managing funds for sustainable development and the environment. It was also designed to support projects by government agencies or non-governmental organizations, including grassroots and indigenous peoples organizations, unions, and academic and research institutions. Five priority areas for support were established within the framework of Bolivia's Environmental Action Plan: the use of renewable natural resources; watershed management; research and environmental education; management of protected areas and biodiversity conservation; and developing indigenous and peasant communities affected by or depending on conservation and sustainable development projects.

## Designing a Flexible Structure

FONAMA is governed by a board that oversees the program of environmental investment, making sure the entity follows the environmental action plan closely and approving annual budgets and operational plans. Three of the board's seven members represent the government, and four represent the civil society. FONAMA's technical, administrative, and fund-raising units and their small professional staffs depend directly on the board.

FONAMA's modular and highly flexible financial structure encompasses two main accounts—the Enterprise for the Americas account, and a World Bank/GEF/Government of Switzerland account—and 16 sub-accounts, each with different objectives and management structures tailored to the donor and the purposes of the funds raised. The EAI account, for example, must be used exclusively to support NGO activities. Each account has an administrative council that consults and makes decisions on investments. Composed of one representative from the Bolivian government, one from FONAMA, one from the implementing organization or project beneficiaries, one from the funding agency, and one account coordinator, each council approves project proposals, controls the financial resources of their projects, and supervises their implementation.

## Positive Assessment

At first FONAMA mainly managed debt-for-nature swaps. More recently, its role has expanded so it now raises and manages funds from various sources for investment in conservation, sustainable development, and environmental quality. In fact, the fund now organizes all investments in the environment in Bolivia, seeking to integrate government activities with those of NGOs and other organizations of the civil society. As of August 20, 1994, FONAMA had secured commitments of $52.3 million for environmental activities. Of this amount, $37.1 million is already earmarked for projects. A sum of $15.1 million has already been disbursed, of which $7.2 million has been allocated to regional and national projects affecting Bolivia's 6.4 million people.

Cesin Curi, FONAMA's former director, points out that in its early days, "the fund had the virtue of capitalizing on an environmental awareness process developed and nurtured by research institutions and environmental NGOs led by the Environmental Defense League (LIDEMA)." [An umbrella organization bringing together about 30 environmental NGOs]. Cecil B. de Morales, who represents LIDEMA in one of FONAMA's

administrative councils, states that "the participation of different stakeholders in the definition of priorities has been an important achievement in the field of environmental management, and more so considering that it is a relatively new activity." De Morales also notes that FONAMA has devoted a tremendous effort to obtaining resources that enable civil society to participate in environmental planning and sustainable development activities.

For María del Carmen Rocabado, the fund's executive director, one of FONAMA's principal virtues is its ability "to operate efficiently and effectively as a coordinating mechanism of government, donor, and NGO activities, thus ensuring the coherence of their proposals."

## Making a Difference for Bolivia's Environment

FONAMA has approved more than 57 projects. Of different sizes and scopes, these are now at various stages of execution. The largest is Bolivia Forestal (BOLFOR), a $20-million project aiming at the sustainable management of the country's forest. BOLFOR's objective for the next 10 years is to improve the forest sector's capacity to balance payments favorably and to offer an alternative to mining.

The Program of Biodiversity and Ecosystem Conservation in Bolivia's Protected Areas (PCBB), which develops and implements a National System of Protected Areas (SNAP), is also among the largest of the programs supported by FONAMA. This $15-million program has already attracted funding from the GEF and the government of Switzerland, a pledge from the German government, and technical support from the U.S. and Canadian governments and the UNDP. PCBB has so far defined and delimited nine priority protected areas (among Bolivia's estimated 32) encompassing 6 million hectares representing the country's various regional ecosystems. The next step is to structure the system and equip it with technical and management instruments so that projects for alternative natural resource use can be developed. To ensure the effective long-term operation of SNAP, an estimated $35 million will be needed to establish a trust fund yielding interest of $1–2 million a year.

The Environmental Technical Assistance Project, with funding of $5.3 million from the World Bank/IDA and a $315,000 donation from the Japanese government, is FONAMA's third largest investment. The project's components include legislation, institutional strengthening and capacity-building, environmental quality, and environmental training and education. Several related bills have already been approved: the General Environmental Law and its regulatory framework, a revised General Forest Law, environmental impact assessment regulations, and environmental quality standards. Biodiversity-conservation legislation has also been proposed. For the next phase, beginning in 1995, new legislation and regulatory measures regarding water, mining, and hydrocarbons are envisioned. At the same time, institutional capacity-building in key sectors is expected to shift into high gear.

In a little over three years, FONAMA has turned into an efficient financial institution with an agile structure. According to FONAMA's estimates, for each dollar that the fund invests in obtaining financial resources, $53 have been raised, $90 have been pledged, and $1,333 dollars worth of bilateral debt and $40 of debt servicing eliminated. Furthermore, the debt-for-nature swaps structured and managed by FONAMA have enabled Bolivia to reduce its bilateral debt with the United States by $372 million (10 percent of Bolivia's total bilateral debt). In turn, the government has committed $22 mil-

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lion over the next 14 years to environmental activities. Bolivia's FONAMA has been advising El Salvador, Chile, Argentina, and Ecuador on how to establish their own NEFs.

Due to government restructuring under the administration of President Gonzalo Sánchez de Lozada, FONAMA is still changing. Most important, FONAMA is no longer attached directly to the presidency. Under the new Ministry of Sustainable Development and the Environment, FONAMA is expected to preserve its autonomy and flexibility—two keys to its success—and to continue carrying out environmental protection activities and promoting sustainable development through the well-established partnership between the government and the civil society.

## BUILDING A DEMOCRATIC MEMBERSHIP ORGANIZATION IN COLOMBIA

COLOMBIA'S NEF, ECOFONDO, WAS BORN FROM A FUND-RAISING INITIATIVE that went sour. In 1992, government representatives and NGOs got together to discuss the possibility of using a rebate of the 4-percent import tax on Europe-bound Colombian coffee to fund an NEF. The European Community was to collect the rebate and return it to the country for environmental grants. In the end, the proposal proved unworkable, but the idea of the fund endured and crystallized when Colombia qualified for official debt relief with both the United States—within the framework of the EAI—and Canada.

Today, Corporación Ecofondo's membership is comprised of 253 organizations (226 NGOs and 27 governmental entities), giving it the largest membership of any environmental organization in Latin America. Growth is expected to continue since an additional 180 NGOs have requested membership. (To qualify for funding, however, applicants need not belong to the corporation.)

According to its bylaws, its legal status, and its managerial structure, Ecofondo is a non-governmental corporation. Its policies, management, and resource allocations are set by its member organizations. Ecofondo is governed by a seven-member board of directors, five of whom are NGOs selected by the General Assembly, in which all members participate; the others are the Minister of the Environment and a representative of the National Planning Department.

Ecofondo's long-term objectives are to foster knowledge about environmental issues and strengthen environmental management and the sustainable use of natural resources by supporting NGO activities. A major focus is improving NGO managerial and technical skills. Because Ecofondo is not large enough to meet all the financial needs of its member organizations, the corporation is also building NGO capacity to obtain additional funding from other national and international sources. Committed to decentralization, Ecofondo is also strengthening its 11 regional units and information centers.

In early 1994, more than 450 organizations submitted project profiles to the fund's Technical Assistance and Institutional Strengthening Unit. Of these, 270 were asked to submit proposals. In July, Ecofondo announced that 38 projects would receive funding. All will be run by small organizations experienced in community development and

working on watershed management, biodiversity conservation, urban environmental management, sustainable agriculture, or environmental education.

Although it is still too early to assess Ecofondo's success in strengthening NGOs or the results of the projects it has funded, the corporation has commanded national and international support. Between 1993 and 2002, Ecofondo is due to receive approximately $53 million in U.S. and Canadian debt relief. Other contributions have come from such international NGOs as TNC, WWF, and IUCN and from such Colombian organizations as Fundación Natura, ENDA, CODESARROLLO, Corporación Penca de Sábila, and CINEP. Since Ecofondo will not be able to satisfy the funding needs of hundreds of Colombia's environmental NGOs, decision-making and resource allocation are likely to be at least somewhat contentious even if the rules of the game are clear to all.[6]

## Exploring Creative Fund-Raising Mechanisms

BROADENING THE FUNDING BASE BY FINDING INNOVATIVE WAYS TO raise financial resources appears vital to ensuring that NEFs are viable partnerships to help finance environmental activities in the Americas. Belize's Protected Areas Conservation Trust is intended to channel into a trust fund the resources raised by a $8-per-tourist tax for conservation activities in protected areas. In addition, 20 percent of all site-entry fees, recreation-related licenses and permit fees, and concession fees collected at protected areas will feed the trust. The funds, held in local banks, can be invested, though around 95 percent of the funds raised in a given year will be spent in that year or the next.[7]

Honduras' Fundación VIDA, a private non-profit entity that provides financial and technical support to the Honduran environmental movement, has attracted funds from bilateral and multilateral agencies and the government of Honduras. In keeping with its goal of increasing national participation in environmental activities, funds are also collected through membership fees paid by the associates of the General Assembly, Fundación VIDA's governing body. Fund-raising campaigns at the national level are also being planned.[8]

In the Dominican Republic, the Fondo Integrado Pro Naturaleza (PRONATURA) was created in 1990 as a coalition of NGOs and government agencies to coordinate their programs in biodiversity conservation, natural resources management, environmental protection, and the preservation of the nation's historical and cultural patrimony. PRONATURA has evolved into a technical and advisory body that helps NGOs and government institutions working on environmental and conservation activities with information exchange, capacity-building, proposal design, and fund raising. PRONATURA has been involved in a debt-for-nature swap with the Puerto Rico Conservation Trust and TNC, and it has raised funds for such projects as the Parks in Peril Program, a coastal management plan, and a support network for protected areas. PRONATURA's principal achievement has been to bring together public and private organizations that have common interests and missions, as well as complementary skills, so that they can increase their impact.[9]

In Peru, the National Fund for State-Protected Natural Areas (PROFONANPE) is a trust fund supported by the GEF/World Bank and bilateral agencies, including the

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German GTZ and the Canadian IDRC. PROFONANPE channels its investments into the protection of Peruvian natural areas. Funds are allocated to NGOs, universities, and local and regional governments through public bidding, and these organizations execute the projects that they propose. However, priorities are set within the framework of a master plan for SINANPE (National System of State-Protected Natural Areas). Among the major challenges facing PROFONANPE are developing a policy to foster both debt-for-nature swaps and donations, strengthening the financial and managerial capabilities of government agencies in charge of preserving Peru's national patrimony, and encouraging more public-private collaboration.[10]

Although Mexico's Fondo para la Conservación de la Naturaleza was established only in early 1994, it has an ambitious target: a $50–100 million endowment. The goal of the fund is to provide mid- and long-term funding to strengthen NGO capacity to conserve biological resources and natural ecosystems. Unlike the other funds in Latin America spearheaded by environmental NGOs, Mexico's fund was commissioned by the government, which has appealed to prominent individuals from Mexico's business sector. Funding is expected from the Mexican government (which has deposited $1 million out of a $10 million commitment), from USAID, international organizations, and multilateral and bilateral agencies including the GEF, private banks, and Mexican business.[11]

Trust funds destined to protect a single ecosystem or foster a single environmental activity are also becoming common in the Americas. In Trinidad and Tobago, for example, the Pointe à Pierre Wild Fowl Trust started as far back as 1966 as an effort to con-

**Mexico's Fondo Para la Conservación de la Naturaleza will strengthen NGOs' capacity to conserve natural ecosystems. (Credit: Ron Giling/Panos Pictures)**

serve the island's wetlands and wetland fauna after a recreational hunter reported the decline of certain species. Since 1977, the trust has focused on environmental education, advocacy, and lobbying. It also conducts research on wetland habitats and ecosystems, and breeds endangered wetland avian species for reintroduction into the wild. The trust is located on a wetland area within a complex owned by the Trinidadian Petroleum Refining Company, Petrotrin. The land is leased from Petrotrin, which also provides security for the area and makes an annual contribution for project support. Funding for activities also comes from the trust's 800 to 2,000 members, who pay annual dues. A significant portion of the Trust's money is raised in-country through entrance fees—some 16,500 people visit the trust every year—and corporate partners and sponsors. Grant funding comes from the Inter-American Development Bank, the Organization of American States, and the MacArthur Foundation. [12]

## THE GEF SMALL GRANTS PROGRAM

THE GLOBAL ENVIRONMENT FACILITY PROVIDES GRANTS AND CONCESsional funds to developing countries for projects and activities related to climate change, biological diversity, international waters, and the depletion of the ozone layer. Responsibility for implementing GEF's activities is shared by UNDP, the United Nations Environment Program, and the World Bank, which is the depository of the trust fund.[13]

Within GEF, the Small Grants Program (SGP) managed by UNDP provides financial assistance to grassroots groups and NGOs for projects in the four priority areas. Emphasizing decentralization, risk-taking, and community involvement, the SGP exemplifies government-NGO collaboration and participatory decision-making while providing access to small NGOs and grassroots groups. Currently, 250 community-based projects are being sponsored in 32 countries, including nine nations in Latin America and the Caribbean. Global funding for the program's pilot phase, totaling $13 million, is allocated from $10 million in GEF core funds and a $3-million grant from USAID. Grants range from as little as $560 to as much as $50,000.

The SGP has also set out to explore and promote new partnerships within the pilot countries and globally. Means include expanded collaboration with government agencies and other sources of scientific and technical assistance, closer links to the GEF's in-country program and NEFs, and co-funding arrangements either for the SGP at the national level or at the project level within participating countries. The SGP also intends to fund subregional and regional NGO projects that involve community-based activities in more than one country, thus contributing to capacity-building.[14]

## UNDP'S LOCAL INITIATIVE FACILITY FOR URBAN ENVIRONMENT (LIFE)

LIFE SUPPORTS LOCAL INITIATIVES BY NGOS AND GOVERNMENT AUTHORities to fight urban environmental problems, especially those harming the poorest groups. Issues include water supply and sanitation, solid waste management, air and water pollution, and occupation of hazard-prone areas. The program is being conducted in eight pilot countries worldwide, including Brazil and Jamaica.

## Financing Environmental Activities

| Partnership | Participants | Objectives |
|---|---|---|
| FONAMA, Bolivia | Government, NGOs | Investing in environmental activities. |
| Ecofondo, Colombia | NGOs, government | Financing environmental activities and capacity-building. |
| Protected Areas Conservation Trust (PACT), Belize | Government, NGOs, business | Generating local funds for the trust, in addition to international monies. |
| Fundación VIDA, Honduras | NGOs, government, business | Financing environmental activities with some self-financing mechanisms. |
| PRONATURA, Dominican Republic | Government, NGOs | Investing in management of protected areas and coastal zones. |
| PROFONANPE, Peru | Government | Investing in protected areas, channeling funds through organizations of the civil society. |
| Fondo para la Conservación de la Naturaleza, Mexico | Business, government, NGOs | Strengthen NGO capacity to conserve biological resources and natural ecosystems. |
| Pointe à Pierre Wild Fowl Trust | NGOs, business, government | Wetland preservation and environmental education. |
| Global Environment Facility (GEF) Small Grants Program | Government, NGOs, community-based organizations (CBOs) | Financing NGO and CBO activities related to climate change, biological diversity, international waters, and ozone depletion. |
| UNDP's Local Inititative Facility for Urban Environment (LIFE) | Local government, NGOs, CBOs | Financing urban environmental activities (water supply and sanitation, solid waste management, air/water pollution, occupation of hazard-prone areas). |

Because each of the local actors has a unique and complementary role to play in improving the urban environment, partnerships among NGOs and local authorities are encouraged. Each LIFE program has a national coordinator, who is the chief facilitator of these partnerships. The program sponsors in-country national consultations, as well

as participatory workshops at the provincial or city level, to establish priorities and discuss action plans. Projects are selected by a committee that includes community-based organizations (CBOs), NGOs, and local authorities, and representatives of central governments, bilateral agencies, and UNDP.

LIFE's work methodology is defined as "a process of participation and partnership of the local actors to improve the urban environment of low-income settlements." This process catalyzes dialogue, strategies, and support; identifies effective collaborative small-scale projects; and sparks national and international information exchange and dissemination through regional and inter-regional networks, especially concerning successful approaches to urban environmental improvement.[15]

The promise of NEFs and similar financial mechanisms in strengthening environmental activities in Latin America and the Caribbean is clearly enormous. Yet, the resources available cannot begin to respond to the region's environmental needs, so additional sources of support will be necessary. The partnership between governments and NGOs within the NEFs could be extended to the business community, as Mexico is doing. Indeed, business' practical commitment to the environment appears to be a prerequisite to making significant progress toward attaining the goals of sustainable development.

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# Upgrading the Urban Environment

REDUCING THE IMPACT OF OVERCROWDING ON THE URBAN ENVIRONment while improving quality of life has become critically important for the Americas. In metropolitan areas of Latin America and the Caribbean, where close to 70 percent of the region's population now live,[1] and where two out of every five residents are poor,[2] the issues of environmental degradation and poverty have fused.

Underscoring this fusion, UNCED's *Agenda 21* calls for actions geared toward creating sustainable human settlements that focus on the poor, greater community participation in planning and decision making, and partnerships among governments,

**Tapping into electricity lines. Some poor urban communities opt for taking matters into their own hands. (Credit: Liba Taylor/Panos Pictures)**

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businesses, and the citizenry so they can contribute their resources and skills to efforts that respond comprehensively to poverty and environmental issues.[3] Most needed are collaborative schemes in waste disposal, sanitation, and housing, as well as health, education, and social well-being.

In responding to the growing needs of the urban poor, municipalities have often been challenged by administrative problems. Local authorities would benefit from both decentralization of management functions and greater control over budgetary resources and revenues. Meanwhile, industrial pollution, solid waste disposal, and sanitation needs require more attention than municipal authorities can give. Small wonder that they find it difficult to keep pace with urban growth and respond to escalating demands for infrastructure and services.[4]

In housing, for instance, *de facto* land occupation has given way to illegal settlements that eventually become legal and obtain basic services. Yet, most lands occupied in this way are unsuitable—hazard-prone or ecologically fragile areas where landslides follow heavy rainfalls, particularly if soil-gripping vegetation has been cleared to make way for construction. This trend, combined with land degradation and deficient drainage, makes these areas more vulnerable to environmental disaster. [5]

Still, grassroots action has not gone unnoticed, and many agencies, organizations, and institutions at the local, national, and international level now realize the potential for, and importance of, community participation in urban development and environmental protection. As the partnerships featured below show, community involvement is not just an element of policy-making. Rather, it is the foundation of any successful attempt to respond comprehensively to the challenges posed by urbanization.

Equally important is the catalytic role that local authorities can play as decentralization proceeds and resources are transferred from central governments to municipalities. In the well-known case of Curitiba, in Brazil, municipal authorities have responded with full force to the problems facing most Latin American cities—among them, the availability of public recreational space and the need for waste collection, recycling, low-cost housing for the poor, and mass-transit systems.[6] In business, opportunities for both financial and human investment abound. Sharing managerial experience and skills with city managers and citizens' groups would help build the capacity needed to reduce poverty and upgrade the urban environment.

# Creating a "Culture of Recycling"

PATRICIA ARDILA*

IN THE PROVINCE OF ANTIOQUIA IN COLOMBIA, WASTE DISPOSAL AND recycling are at the center of a multi-sectoral partnership involving public and private institutions, provincial and local authorities, and the citizenry of 124 munici-

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palities. This massive effort started seven years ago to respond to the lack of waste disposal infrastructure in the small towns of Antioquia and to facilitate recycling activities by various segments of the community, including self-employed workers who make a living out of collecting reusable materials.

## The Dentist, the Mayor, the Glass Company, and the City Planner

In 1987, the Corporation "Love for Medellín" (the capital of Antioquia) and the city's Chamber of Commerce undertook the "Medellín Loves Antioquia" program to promote civic values in the province's municipalities. The first step was to ask the mayors of Antioquia what type of contribution they could make to the campaign to convert civic values into action. The mayors agreed that waste management was becoming a priority for most growing urban settlements. The mayor of El Retiro (a municipality near Medellín) mentioned that in his town, Cristalería Peldar—Colombia's largest glass manufacturer—was sponsoring a recycling program with the local hospital and suggested that perhaps other municipalities could undertake similar activities.

El Retiro's glass-recycling program started when the town's dentist contacted Peldar and proposed that the company purchase glass donated by community organizations and business to the hospital so that an oral health campaign could be carried out on behalf of local children. The dentist's idea was to provide schools with dental floss dispensers and toothbrushes for all students to prevent cavities and other oral hygiene problems. The experience, as recounted by the mayor of El Retiro to the other mayors, was so appealing that within a couple of years Peldar would be sponsoring recycling programs for health prevention in 102 municipalities. For Peldar as an industry, glass had to be recovered "at the source" before being dumped, mixed with refuse, and contaminated if the company was to compete internationally in green markets by using increasing percentages of recycled material in its products.

The Corporation "Love for Medellín" and the Chamber of Commerce then invited Peldar to help them design a program that responded to both municipal waste disposal and recycling needs. For Peldar, however, the issue was not only recycling glass but also conserving the value of all recyclables by separating them at the source, which would also minimize waste. The company therefore proposed that other institutions with similar objectives be invited to join the project, and thus was born the Committee for Inter-Institutional Action. Members of the committee were Antioquia's Planning Department, the Corporation for Regional Development (CORNARE), Smurfit/Cartón de Colombia, S.A., a large paper manufacturer, Antioquia's Health Department, and Empresas Varias de Medellín, the city agency responsible for waste collection and disposal.

## Political Will, Consensus-Building, and Community Action

The Committee's initial work was two-pronged: technical training and capacity building for local authorities and community leaders, coupled with community education and participation. Educational materials on solid waste management and recycling were produced by the program's sponsors for distribution throughout Antioquia to make communities aware of their responsibilities. Municipalities organized workshops for community leaders so they could disseminate among their constituents the educational materials produced by the program's sponsors.

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At these workshops, several presentations were made. Antioquia's Planning Department explained how to build a manual landfill and what is needed to do it. CORNARE described how to develop an education and mobilization campaign among the citizenry. Peldar (glass), Smurfit/Cartón de Colombia (paper and cardboard), and Simesa (metal) told how industrial recycling works and how to return recyclables to the industries that produced them for conversion into raw materials for new products. In addition, a simple manual was developed describing what a manual landfill was, the steps to build it, and a list of institutions that could provide technical construction advice and support (members of the Committee for Inter-Institutional Action and its Support Group). The first manual landfill was built in Marinilla, and once the Ministry of Health approved the technology as safe and sound for waste disposal in small municipalities of 40,000 to 50,000 inhabitants, the process was repeated throughout the province.

Two key events facilitated the evolution of the program. First, Antioquia's Planning Department—eager to do something about the problem of municipal waste disposal—lobbied the Provincial Assembly to allocate the financial resources municipalities needed to build their landfills. As a result, in January of 1987 the Assembly issued Ordinance No. 32 stating that the provincial administration would contribute up to $12,396 per municipality for landfill construction for solid waste disposal. The second event was in 1988, when for the first time in Colombia mayors were elected by popular vote instead of being appointed by the governors. The democratization of mayoral elections helped the waste disposal and recycling program significantly because newly-elected mayors wanted to begin delivering immediately on campaign promises.

In just over five years the goal set by Antioquia's Planning Department of providing all 124 municipalities with manual landfills by 1994 has been reached. By the end of 1993, 81 municipal landfills were in operation, 9 were under construction, 2 had secured land and developed a design, 12 had purchased land, 4 had the landfill design in hand, and 18 had been selected to start the planning process.

According to Peldar's spokeswoman and director of the recycling program, María Manuela Uribe, three elements have contributed to its success. First, several like-minded institutions engaged in consensus building to carry out the program. Second, the community responded to the educational campaign by taking civic responsibility for waste disposal and began to separate recyclable materials from refuse. Third, the provincial and municipal authorities (councils and mayors) had the necessary political will and commitment to carry out the program. Indeed, "without political will by the local authorities," says Uribe, "the program would simply have not been possible."

## Profiting from Recycling

Peldar's nationwide educational campaigns on the importance of recycling paid off: the company has increased the percentage of recycled raw materials used in its production process from 10 percent in 1981 to 50 percent in 1993, mainly because people are responding and organizing to make recycling not only good for the environment and profitable for various industries, but also for themselves. "The key element," warns Uribe, "is a market capable of absorbing and utilizing all the glass collected. With no market, recycling would not work." Between 1981 and 1992, for example, Peldar purchased 736,910 tons of used glass, the equivalent of 2.7 billion new containers. Through recycling at this volume, the country has preserved over 884,292 tons of non-renewable

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natural resources, including mined sand, limestone, and feldspar. Over the same period, glass factories have saved the country 6.5 million gallons of fuel—enough to supply 29,700 households annually.

The sum paid by Peldar over the last decade to sellers of used glass totals $43 million. In 1993 alone, the glass purchased by Peldar from micro-entrepreneurs, cooperatives, street peddlers, the Red Cross, charities, community action boards, hospitals, schools, environmental NGOs, and scouts amounted to $5.8 million. Similarly in 1993, some 1,137 individuals and organizations were registered as glass suppliers to Peldar; they are sending reusable material to the company's factories from over 600 municipalities across Colombia. The amount of glass Peldar purchased from community organizations, solidarity groups, cooperatives, and micro-enterprises has quintupled in a decade, from 16,500 tons in 1982 to 83,400 tons in 1992. Peldar estimates that it has invested some $850,000 in the recycling program. These funds have been spent on printed and audiovisual educational material, tools and elements for glass management such as collectors and containers, gloves, goggles, and glass grinders, and training programs and consultancy services for more than 800 institutions.

## Businesses' Social Responsibilities

Peldar has set up recycling partnerships with two main groups: charities and other organizations of the civil society that collect and sell recyclables to raise funds for their social programs; and micro-entrepreneurs, street peddlers, and other small business for whom recycling has become the main economic activity. The collection, selection, and classification of reusable materials is a labor-intensive activity that can help create an increasing number of jobs.

However motivated it is, Peldar could not have launched its massive recycling program with the waste-disposal infrastructure that Colombia had 20 years ago, when glass collection was basically conducted by the poorest of the poor in urban dumping grounds. Since 1982 the company has for this reason set out to help informal recyclers by developing "source separation" and collection systems in supermarkets, restaurants, bars, hotels, shopping malls, country clubs, and public markets, among other places, and by providing these groups with the technical training and tools needed to organize their collection and marketing activities.

Twenty-one cooperatives, 39 pre-cooperative groups, and 7 associative enterprises have grown out of this program. Among them is Cooperativa Progresar of Bogotá; receipts from the 45 tons of glass that members collect each month pays their salaries, covers social security, and finances educational programs for them and their families. One notable personal success story is that of Flor María Chaparro, Progesar's manager, who spent 25 years scavenging in El Cortijo, Bogotá's largest dumping ground. Today Chaparro is a proficient accountant who watches over the interests of Progresar's 26 members.

In Medellín, Recuperar, an "associative enterprise" that collects recyclables and provides various environmental services, started in 1983 when the city closed its largest dumping ground and 350 recyclers found themselves out of work. With support from Empresas Varias de Medellín, Recuperar began recycling activities with 20 associates to preserve the recyclers' source of income. Today, Recuperar has 950 associate-owners, an operating budget of $2 million, capital of $545,000, assets of $967,000, a monthly payroll of $15,000, and close to $98,380 in annual profits. The monthly wage of a Recuperar associate is $155.66, far higher than the legal minimum wage of $99.62 per month.

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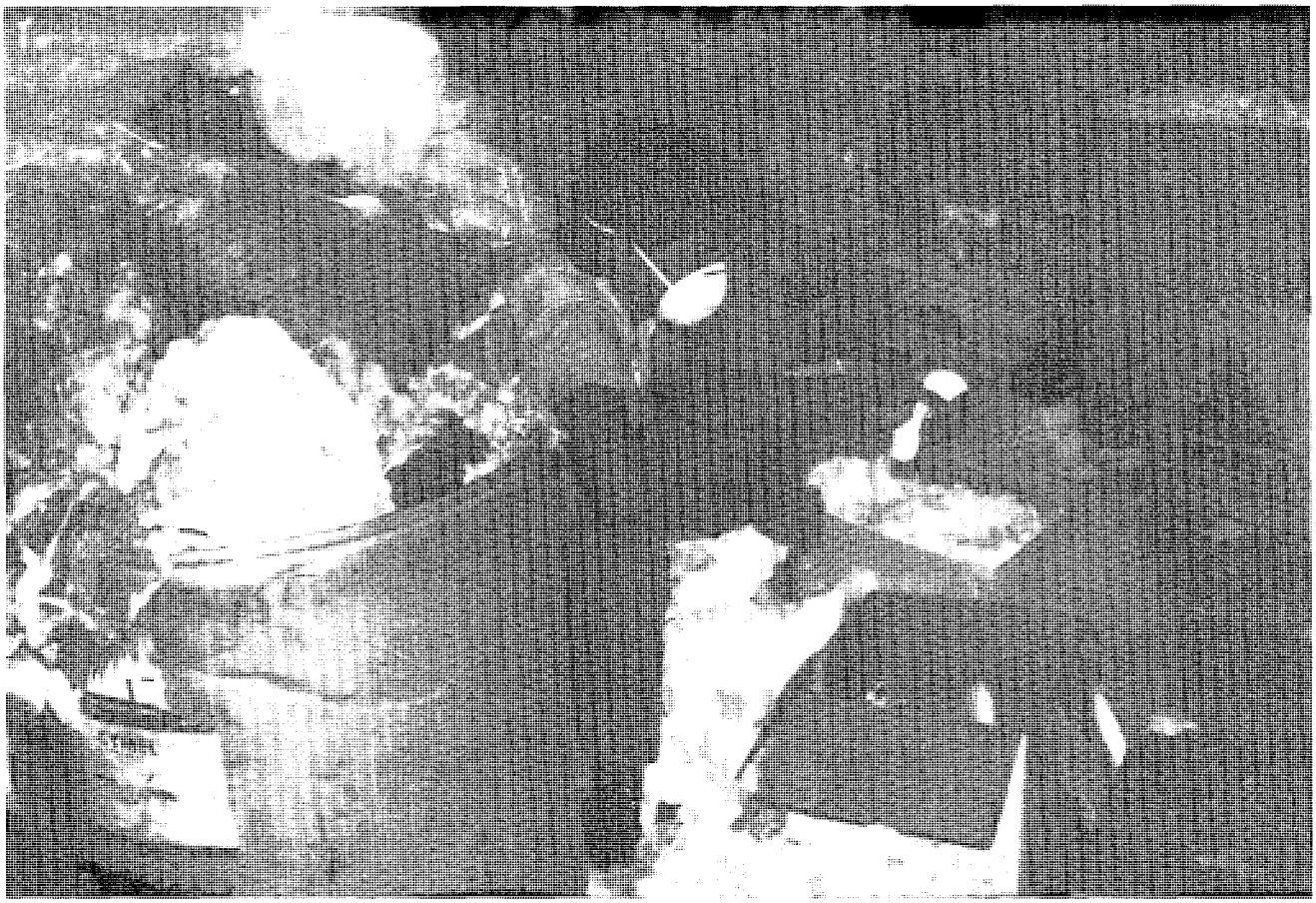

**Recuperar's partner recycling materials from defective products. (Credit: Recuperar)**

Close to 60,000 families make a living collecting recyclable materials in Colombia. Over the last 10 years, many agencies and institutions from the public and private sectors, inspired by Peldar, have developed programs to help low-income people set themselves up in the recycling business. Among them are Grupo Social, Fundación Santo Domingo, and Fundación Carvajal.

In 1986 Fundación Carvajal started a recycling program with the community of Aguablanca's district (pop. 350,000), one of the poorest in Cali, Colombia's third largest city. The program, which took off in the *barrio* El Poblado, aimed at raising money for road paving. It was also agreed that the cheapest and most effective way to accomplish the task would be through community participation in manufacturing and laying paving stone. Some 204 families organized themselves into 21 committees to do both. Industrial manufacturers such as SIMESA, CONALVIDRIOS, Smurfit/Cartón de Colombia, and Peldar contributed advice on recycling. The city's Department of Public Works, Banco Central Hipotecario, Cementos del Valle and the Instituto Colombiano de Productores de Cemento (representing the cement industry), and the University of El Valle all contributed technical knowledge, cash, or services in kind. Today, El Poblado's roads are paved, and the community has learned the economic and environmental value of recycling: profits that now support other civic endeavors.

The Colombian experience has inspired other countries in Latin America and the Caribbean, including Brazil, Ecuador, Venezuela, and Puerto Rico, where recycling campaigns for a variety of services testify to the replicability of Peldar's model.

# MICRO-ENTERPRISES FOR WASTE COLLECTION

BECAUSE OF UNPRECEDENTED AND UNPLANNED GROWTH IN LATIN American cities, the capacity of municipal governments to deliver services has been strained. Waste collection and disposal top the list of needs for improving city life, especially in newly settled areas and low-income districts on the urban periphery.

New efforts in waste collection and management have been conducted since the late 1980s with the cooperation of bilateral development agencies and international NGOs, municipal authorities, and the communities themselves through the creation of micro-enterprises for environmental management of urban solid wastes. Since 1989 work has begun in Lima, Peru, in collaboration with the Instituto Peruano de Economía Social (IPES) and the sponsoring of MISEREOR; in Cajamarca, Peru, with the participation of the consulting firm Rutas S. A., Compañía Minera de Yanacocha, S.A, and Catholic Relief Services/Peru; in Bolivia, in the cities of La Paz, El Alto, Cochabamba, Oruro, Potosí, Santa Cruz, and Tarija, in collaboration with the Fondo Nacional de Desarrollo Regional de Bolivia, the local office of the Pan-American Health Organization (PAHO), and the German Development Agency (GTZ); and in Colombia, within the framework of bilateral cooperation with the German government in primary health care.

Fourteen of these micro-enterprises (9 in Bolivia, 1 in Peru, and 4 in Colombia) have developed the capacity to offer a permanent twice-weekly waste collection service to over 500,000 city dwellers (about 50,000 people in each project). As consultant Ricardo Giesecke puts it, these micro-enterprises aim at sustainability in three areas:

- economic and financial—they generate reasonable rates of return at an acceptable cost for the large majority of the population served (the current cost is about $1.00 per family per month);

- cultural and social—they select micro-enterprise members from candidates proposed by the communities themselves after bidding open to any community member and therefore waste collection and management micro-enterprises are comprised by as many women as men, and

- environmental and ecological—by taking care that the processes of collection and final disposal reduce health risks for the communities, these micro-enterprises make the urban area healthier and safer.

Interestingly, experience so far shows that the privatization of municipal services can have a clear social purpose (each micro-enterprise creates 15 to 17 jobs among low-income people) beyond managerial and economic efficiency and profitability. It also shows that municipal administrations can conquer once-overwhelming problems by relying on their own citizens. As for the role of local authorities, they do well to carry out research on the final disposal of wastes, facilitate licensing, and ensure that billing and fee collection take place in an organized manner so that the municipality can fulfill its contractual agreements with the micro-enterprises. [7]

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# De-Inking the Urban Forest

IN THE SOUTH BRONX, A NEW YORK INNER-CITY neighborhood confronted by widespread unemployment and urban decay, an exceptional partnership is emerging between a national advocacy environmental group, the Natural Resources Defense Council (NRDC), and a community organization—the Banana Kelly Community Improvement Association. The partnership hopes to create a recycled paper enterprise that addresses waste management and a series of other issues facing large urban centers—poverty, illiteracy, unemployment, and the lack of health care and day-care facilities.

The Bronx Community Paper Company plans to build a recycling plant that will use the latest de-inking technology to turn office paper into high-grade pulp. This pulp can be combined with virgin pulp to make top-grade recycled paper elsewhere. Plant construction is slated for the spring of 1995, after $260 million has been secured in investments. When complete, the facility will be the first recycling plant of its type in an urban center and the only major manufacturing plant anywhere co-owned by a community group. Most enterprises of this type are located in rural areas or in Midwestern industrial parks where land and labor costs are comparatively lower. Higher costs faced by the company, however, have been gradually reduced because NRDC has spent time and energy coordinating New York state and city agencies. Moreover, there will be lower transportation costs because of the abundant local supply of discarded paper from New York City offices. The company will also benefit from an executive order signed by President Clinton on October 20, 1993 requiring federal agencies to use recycled paper and other recycled products to reduce solid waste, build markets for recycled products, encourage new technologies, and protect the environment.

The Bronx project represents a new wave of urban environmentalism in the United States. Increasingly, actions combine advocacy and pragmatism, resulting in economic programs that benefit both deprived communities and the urban landscape. By targeting the source of production—the investment community—such ventures influence the process so that it is sustainable. This type of profit-generating investment produces both social and environmental benefits.[8]

The idea for the company came from two people from different backgrounds who were thinking on similar tracks. The first person was Yolanda Rivera, head of the South Bronx Banana Kelly Community Improvement Association (named after a street in the Bronx shaped like a banana). She was working with others in her organization to attract South Bronx businesses with a commitment to the community's future. According to Rivera, the community, about 55 percent Latinos and 40 percent African-Americans, had been a victim of disinvestment and environmental abuses in the past and lacked the power and the money needed to drum up meaningful investments or stave off pollution-intensive industry. Rivera realized that this pattern needed to be broken, without keeping away industry altogether. The South Bronx Banana Kelly Community Improvement Association found what they had been looking for in NRDC's Recycling and Sustainable Communities Initiative—an effort to clean up urban areas, protect virgin resources, handle waste management better, and create jobs and other social service benefits.

The second person was Allen Hershkowitz of NRDC. He initiated the project by getting Modo Paper Company of Sweden to invest, and Modo brought in S.D. Warren, a subsidiary of the U.S.-based Scott Paper Company. Modo and S.D. Warren have since provided $550,000 and some technical staff resources, and NRDC has provided $770,000, while the State of New York has contributed $1.1 million. Modo has been running a recycling mill in Europe using the same de-inking technology. The two paper companies are interested in producing high-grade paper using the best emerging technology. This technology is not yet found in domestic markets in the United States.

According to Hershkowitz, the companies are also interested in the project because of their commitment to social progress. For Modo, investing in a project with a social commitment is not new. In a country like Sweden, with a population of only about 8 million, corporate obscurity is impossible, so industry tries hard to benefit

various sectors of society. For U.S.-based companies like S.D. Warren, the project represents a private sector opportunity to use the best technology available and at the same time provide social and environmental benefits. It is also an important opportunity for the environmental community and the paper industry, traditional adversaries, to begin building bridges.

Entry risks have been greatly reduced for the investors since Banana Kelly and NRDC have provided 80 percent of the development funds. They have also handled the politics, public relations, and permitting procedures, frequently a headache for any company. Banana Kelly and NRDC are also galvanizing community support, absolutely essential for a project of this nature, by holding public meetings and disseminating information about the project.

The problems facing U.S. inner-city neighborhoods and developing countries are similar. As Venice Miller, director of the environmental justice program for NRDC, points out, the mortality rate in the South Bronx for children under five years old is one of the highest in the Americas. Similarly, unemployment can reach 75 percent among teenagers and young adult males. Answering desperate local needs, the Bronx Community Paper Company is creating an estimated 250 jobs, including 100 jobs in health-care facilities and other community projects that will come along with the mill.

Several social service projects have been earmarked to receive $6.2 million of the $260 million needed to build and equip the recycling plant. The funds will support a dormitory for homeless and youth at risk of dropping out of high school; a family learning center to bring vital health care, child care, literacy, employment, and housing programs under one roof; a library-adoption program and bookstore; a community retail center; a loan program for micro-enterprises, and an endowment to help school children develop key values, skills, and attitudes. Some of the $6.2 million will partially fund successful programs already underway.

Besides improving the quality of community life, another benefit of the mill is that it will expand solid waste management options in a city that is reaching its capacity in landfill space. The water-intensive recycling process uses "greywater" in a new way, and this use of waste-water will enable the South Bronx to create a new, more progressive rate structure for water use. The project will also use 100% post-consumer paper and a non-chlorine bleaching process.

This landmark effort will also bear the distinctive signature of Maya Lin, architect of the Civil Rights Memorial in Alabama and the Vietnam Memorial in Washington D.C., who will design the mill. Overall, the project will enable people from differing ethnic and cultural backgrounds to work together to give a common meaning to the term sustainable development.

—SUSAN LIEBERMAN

## MINDING THE URBAN ENVIRONMENT

IN 1992, A JOINT EFFORT BETWEEN NGOS AND UNIVERSITIES, COUPLED with support from municipal agencies, enabled the community of San Miguel Teotongo—an unincorporated settlement of 80,000 in the Federal District of Mexico City—to have city planners acknowledge their *de facto* occupation and include them in municipal planning.

In 1982 the Unión de Vecinos de San Miguel Teotongo (UVST), the local community organization, began to work out an urban development plan for itself with help from the Universidad Nacional Autónoma de Mexico (UNAM) and the Universidad Autónoma Metropolitana (UAM). At that time, it was agreed that 44 percent of the settlement—

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which spans 260 hectares—would be allocated to dwellings, 25 percent to access roads, and 31 percent to green areas. Similarly, the community began addressing problems stemming from poor or non-existent infrastructure and services: potable water is available only once or twice a fortnight, and waste collection and disposal is totally lacking.

The process accelerated in 1991 when squatters began to invade some of San Miguel's "idle" lands: that is, the green zones that its inhabitants agreed should be set aside for recreational and environmental purposes. This conflict prompted the community of San Miguel to seek a way to control the settlement's development.

Taking advantage of article 24 of the Urban Development Code, which allows Mexico City's communities to propose programs for urban improvement to the municipal authorities, the people of San Miguel submitted an urban/environmental development plan that clearly specified land use, and requested that their settlement be declared a Zone of Controlled Development (ZEDEC).

The project was designed through participatory planning from its inception, when the community gathered to set its priorities. In addition to San Miguel's inhabitants and their organizations, the NGO Fomento Solidario de la Vivienda (FOSOVI) was involved throughout the planning stage in providing technical assistance. Ground research for the plan was conducted by the Unión de Vecinos de San Miguel Teotongo with collaboration from the population, following guidelines designed jointly with FOSOVI.

The plan features four components: (1) definition of land use for the 16 sections into which San Miguel is divided; (2) updating urban development plans on the basis of an environmental assessment of the settlement; (3) projects such as the Ecological Park (with a water treatment plant, recreational areas, playgrounds, and a museum that will house artifacts of San Miguel's history and disseminate information on environmental issues of local interest), and (4) a regional conservation project involving the Sierra of Santa Catarina.

The most significant result of this effort is that in 1992 the people of San Miguel succeeded in obtaining legal recognition from the municipal authorities as a ZEDEC for a period of 20 years, during which time they will be able to manage their own development. In addition, the Secretary of Government of the Department of the Federal District approved the construction of the Ecological Park, and committed part of the resources needed to do it. Equally important, however, the people of San Miguel emerged from the participatory planning process much stronger as a community and much more aware of the importance of environmental issues in the context of urban development. They are currently negotiating with the Mexican government about participating in conservation activities involving Sierra Santa Catarina. Another important lesson of this partnership between a grassroots organization and an NGO: the best way to strengthen people's capacity to participate in planning process is by empowering them to do it.[9]

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## Upgrading the Urban Environment

| Partnership | Participants | Objectives |
|---|---|---|
| Waste Management and Recycling, Colombia | Business, government, NGOs, CBOs | Waste management and glass recycling. |
| Micro-Enterprises for Waste Collection, Bolivia, Peru, Colombia | Government, NGOs, CBOs | Waste collection. |
| Neighbors Union of San Miguel, San Miguel Teotongo, Mexico | NGOs, CBOs | Community planning for land use and development. |
| Bronx Community Paper Company, United States | NGO, CBO, business | Recycling, waste management, income generation and social services for the community. |

## Endnotes


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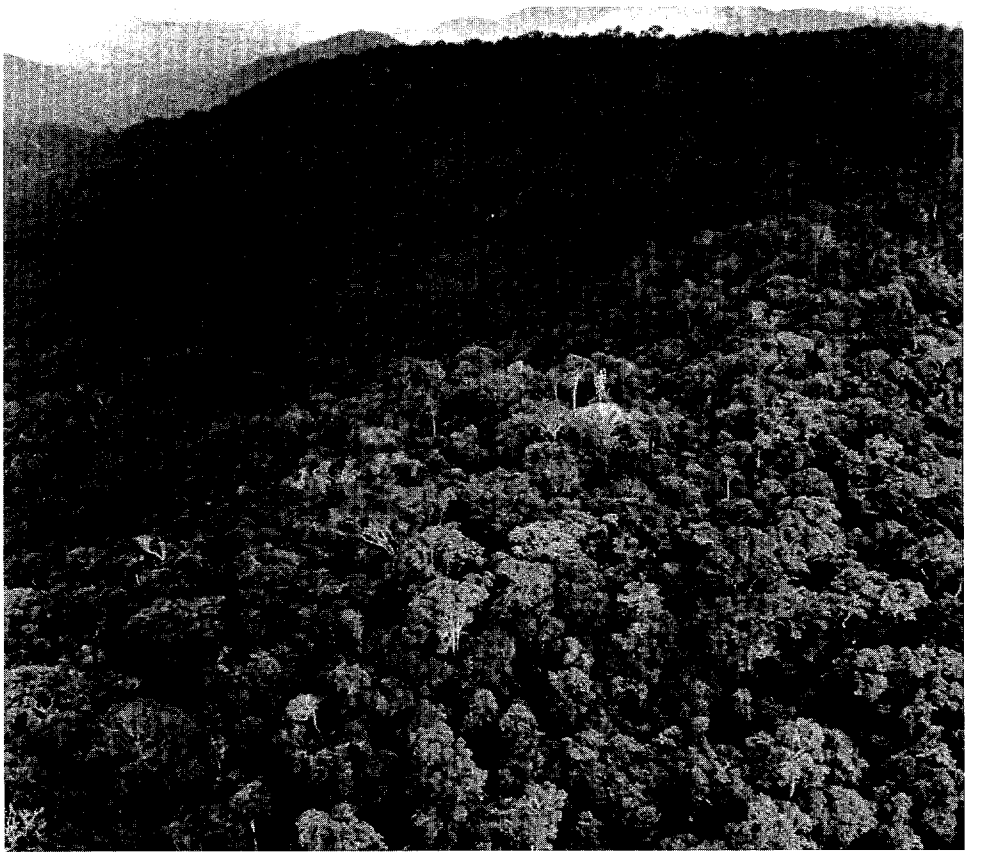
# Biodiversity Conservation and Sustainable Use of Natural Resources

THE FATE OF BIODIVERSITY IS INTIMATELY LINKED TO THE FATE OF forests. Tropical forests, for instance, not only contain at least half the world's biodiversity, but they also help regulate hydrological cycles ensuring stable supplies of clean water and lock up some of the heat-trapping carbon dioxide that would otherwise accumulate in the atmosphere.[1]



**An untouched area of the Brazilian Amazon. Tropical forests contain at least half of the world's biodiversity. (Credit: Marcos Santilli/Panos Pictures)**

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Although the challenges to protecting and preserving the forests and biodiversity are real and great, nations of the Americas are trying hard to manage these environments properly while meeting local needs in ways that promote both economic growth and environmental stewardship. Governments in the region are aware that the consequences of biodiversity loss and unsustainable resource depletion are inescapable: increasing poverty, social instability, and conflicts over resource use. Therefore, efforts are being made at the local level to establish sound environmental and economic policy frameworks, strengthen institutions, and foster collaboration among government agencies, NGOs, the private sector, and local groups. Special attention is being given to indigenous peoples, who often depend on the forest ecosystem for their livelihood and manage it accordingly. For centuries, many indigenous cultures have used forest resources for multiple purposes—including water supply, recreation, wildlife, cultural and spiritual needs, and timber production. Their knowledge and experience in sustainable forestry and natural resource management are indispensable.

Recognizing the importance of conservation to the Western Hemisphere, most countries in the Americas have been strengthening their systems of parks and protected areas and promoting sustainable economic use of natural resources. Numerous partnerships have emerged among multilateral and bilateral institutions, national governments, and NGOs to develop sustainable economic uses of biological resources, build local capacity to manage biodiverse areas, support innovative conservation and research programs that involve indigenous peoples and local communities at every stage of decision making, and help set conservation priorities that respect the rights of indigenous peoples.

All these activities are helping countries meet their commitments under the Convention on Biological Diversity, which was signed by 158 countries at the United Nations Conference on Environment and Development in 1992. Recognizing the intrinsic value of biodiversity, its importance to human welfare, the sovereign right of states over their own biodiversity, and their responsibility for conserving it, the Convention also notes the importance of the role of women, indigenous peoples, and NGOs in biodiversity conservation.

# RECA: A Truce Between the Chainsaw and Nature[2]

MARY HELENA ALLEGRETTI*

INNOVATIVE PARTNERSHIPS FOR SUSTAINABLE DEVELOPMENT ARE NOT only the result of international cooperation. Those constructed "brick by brick" by local communities leave a lasting legacy close to home. Project RECA[3] is an

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example. Poor migrants, originally from the south of Brazil, with no prior bonds to each other and isolated in the interior of the Amazon forest, understood that to survive they needed to create solidarity among themselves. Pressed by necessity to produce food for their families, they transferred to the tropical forest the technology from the temperate areas from which they came, and they failed. Only when they allied themselves with nature itself—imitating the logic of the forest—did they find success.

## Struggling for Survival on the Frontier

The people who migrated from southern Brazil to the Amazon left their homes in search of a better life. The farmers' ultimate destination was the western state of Rondônia, where land plots of up to 100 hectares were being distributed through the National Institute of Colonization and Agrarian Reform (INCRA). They opened thousands of clearings in the forests of Rondônia to plant rice and beans to feed their families, unaware that what they were cutting down was worth more than what they were putting in its place. Soon, the natural fertility of recently deforested lands that had enabled these migrants to make a reasonably good living for a few years became exhausted. As a result, some migrants returned to the south, others moved to marginal urban areas, and still others forged further into the frontier, repeating the same dead-end cycle in unpenetrated jungle areas.

Among those who chose to stay were about 100 men who, in July 1984, got on three buses and left Cacoal, in Rondônia, for a place called Santa Clara along BR 364, the highway that links Acre with southern Brazil. There they found a gas station, an old

**New settlement in Rondônia, Brazil. The natural fertility of recently deforested lands lasts only for a few years. (Credit: Marcos Santilli/Panos Pictures)**

restaurant, and five houses. With no plan and no official title to the land, these migrants got off in front of what was to become the boundary line for the settlement, an area subject to a jurisdictional dispute between the states of Acre and Rondônia. It was Nova Califórnia, an old rubber estate expropriated and demarcated in 700 lots after a long conflict between INCRA and the owners.

In September 1984 INCRA joined with the village to create the Agricultural Cooperative of Alto Abunã, which would collapse in two years despite the dedication of some of the associates. When it did, some people abandoned the land, but one group of 12 families decided that the settlement would not fail. They had nowhere to go and had to do something.

## Imitating Nature

In 1988, this migrant group's initiative began. By this point, they had carefully analyzed the ecosystem, the ways the rubber tappers had adapted to it, and the reasons behind the failure of the type of agriculture that they had been practicing. According to Sérgio Roberto Lopes, RECA's first President, people in the area had started discussing since 1986 issues of what today is called sustainability:

> Rice, beans, and corn have no future here. This land cannot withstand mechanization. The clearing and burning must stop. In the rainy season, there is a lot of water; it washes everything, turns it into mud. In the dry season, there is a lot of sun; it burns everything. The rubber tappers aren't so lazy as people thought. The rubber tappers are right. The sun is very hot here. In the south, even women work in the fields. Here they have to work in the shade.

As this passage shows, the migrant community of Nova Califórnia began to perceive that the best way for people to survive is through a system that protects the land. With this truth in mind, they proceeded to experiment. They imagined working with native Amazonian plants. They tried to think of a product that they could market and that could be grown on the same now-degraded lands they had cleared earlier to plant beans, rice, and corn.

Lopes began on his own. At first, he planted coffee and cacao. He took a liking to rubber, and planted rubber trees amid the coffee. It turned out that there was no market for cacao, so he planted orange, avocado, and mango trees to bring in money. The state of Acre was giving out seeds to grow *guaraná*, a native shrub whose seeds have medicinal and nutritional value, so he planted these seeds among the orange trees. He got some *cupuaçú* seedlings—a fruit native to the Amazon jungle—from a rubber tapper and planted them among the orange, avocado, and mango trees. Says Lopes: "I didn't know what combined planting was, what an agroforestry system was. Today, we identify ourselves as agroforesters, but at the time we didn't know there was such a thing. We went there to work, to make money and earn a living."

In early 1988, 84 farmers came together to form RECA. Lopes' experience motivated the others, who decided to begin a new system with *cupuaçú*, even though most of them had never tasted the fruit when they planted it for the first time. When they went to Manaus and Belém and found out that it was used to make sherbet, juice, ice cream, candy, and custard and that the rubber tappers used the seed to make chocolate *(cupulate)*, they concluded that it was a "rich fruit" worth cultivating.

After planting the *cupuaçú*, they found out the hard way that it needed permanent shade. When they heard a technical expert list *pupunheira* among a series of strange names, they discovered that this shade palm tree produced fruit to eat, heart of palm, and food for animals. They planted *cupuaçú* to sell and *pupunha* for shade. For financing, they turned to the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the government's environment agency. IBAMA was promoting reforestation with the Brazil nut tree, which was protected by law because of its environmental and social value. They placed nut tree seedlings recommended by IBAMA between the other plants. Now the combined planted area imitated nature.

And that is exactly what RECA means: Reflorestamento Econômico Consorciado e Adensado (literally, Economic Reforestation Based on Combined Planting that is Denser than the Natural Forest). Each member of the association understands the meaning of the acronym because only through lengthy discussions did the group reach this model of farming. "Reforestation is the same as rebuilding because we plant in degraded areas; it is economic because we use plants that have a market value; we call it *consorciado* because it is not monoculture but polyculture; and *adensado*, because the result is denser than what occurs naturally in the forest." In other words, RECA means intense but environmentally sensitive cultivation of a small area with good economic results, which avoids irrational clearing, keeps the agricultural producers in one place, and improves their quality of life.

RECA's pest-control methods also imitate nature. Marcírio Sordi, current President of RECA, explains: "We already discovered which insects attack *cupuaçú* and *pupunha*. For us, it's clear that biodiversity can solve the problem. If we place other crops in the cleared area, the insect leaves the *cupuaçú* and *pupunha* alone, and goes for the cut heart of palm that is rotting at the core, or goes for the cut banana tree, which is also rotting. So you have to bring the biodiversity of the forest to the cleared areas."

## The Partners and the Journey

Some 274 families organized in 14 groups comprise RECA's membership. In all, some 1,400 people who live along Highway BR 364 between Acre and Rondônia benefit from RECA's activities. The project includes 872 hectares of combined reforestation with *cupuaçú, pupunha,* and Brazil nut, financed partly by RECA (572 hectares) and partly by participating families (300 hectares). Planting each hectare costs about $3,000. Participants receive financing of $958 per hectare, while each contributes $2,000 in labor and other services.

The first *cupuaçú* plantations began to produce in 1992 in a small volume, with production totaling ten tons. In 1993 production rose to 84 tons, with projections of a 340-ton harvest in 1994. *Pupunha* production came to 120 tons in 1993; the 1994 harvest is expected to top 600 tons. In addition, RECA has been marketing seed, mainly *pupunha;* in 1994, more than 40,000 seeds were sold, which shows that it is developing a following.

In 1988, to buy seeds and start up the project, the farmers of Nova Califórnia, mostly Catholic and associated with Christian Base Communities, took out a loan of $5,000 from the Catholic Church of Acre and Purus, in Rio Branco. With the backing of Bishop Moacyr Grechi, that same year they received a three-year grant from CEBEMO (a Dutch development cooperation agency affiliated with the Catholic Church) for $460,000. Less than 14 percent of all the money received was used for administrative

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costs, even though the project acquired an office and a motor vehicle. The rest went straight to the farmers.

The CEBEMO money was used for cofinancing. It was delivered to RECA members together with a contract recorded in the notary's office for the sum of $958 per hectare, divided into four parts. Roughly one-fourth was to be disbursed after a farmer had been selected as a member of the project, the second payment came once the combined crops were planted, and the last two would come in the next two years. Farmers got seven years to pay the money back to the project through "merchandise-currency" (the output marketed by the association.) In 1994, their first returns came to $12,000, and this figure is expected to rise to $19,000 in 1995.

Membership growth made it impossible to keep the same policy for everyone. To accommodate 68 extra families, RECA turned to governmental sources—the Project for the Protection of the Environment and Indigenous Communities (PMACI) and the Ministry of Agriculture.[4] Receiving $400 per hectare, these families planted native forest trees, thereby recovering lands that had been burned or otherwise cleared and adding to the traditional combination high-value species, such as the copaiba tree, the crab-tree, mahogany, cedar, cherry, and tonka-bean tree.

As the crops expanded, RECA began to give marketing its due. At first, members cut the pulp of the *cupuaçú* with a scissors, kept it in home freezers, and sold it in Rio Branco and Porto Velho. When they decided that they needed to have local value added, they built a small factory of 302 square meters at a cost of $20,000. The CCFD—a French Catholic organization that each year organizes a special campaign for one country—donated $18,750, which was complemented by member resources. RECA obtained a machine on loan from a government agency, EMATER, and with a $20,000 grant from the Foundation for Nature (FUNATURA), a Brazilian NGO, they undertook market research and bought a cooling chamber. During this period, two Italian forest engineers volunteered their work, while the Movement of Laypersons for Latin America (Movimento de Leigos para América Latina) gave RECA a computer.

RECA is a success. In ten years, its members went from being landless migrants to reasonably prosperous agroforesters. Nobody is getting rich, but as Sérgio Lopes says, "Some people have made very good use of the money from RECA. Today, most have homes with plenty of food, have the agroforestry system in place and producing, and have a cow and draft animal. Those who worked well, about 60–70 percent, are fine. Our farmers are now somewhat better than average for the region."

Besides transforming the methods of cultivation and creating a sound relationship with nature, RECA has built a resilient internal organization and a durable partnership. Members call it the *caminhada*, or long journey—the process by which a farmer becomes a RECA member.

To qualify for this membership, farmers must have no more than 200 hectares (though the size of the combined planted area that will be financed per individual depends on the number of family members), must live on the land, and must have lived at least a year in the region. Beyond that, the project candidate has to participate in a sub-group *(ramal)* and help keep the area clean. After one year of *caminhada*, the group asks the coordinating body for final approval of prospective candidates who have shown that they can get along with others and participate actively.

Within RECA, decisions are made within the community, and small groups are the basis of the project. Each group has a leader responsible for the work at the community level and a coordinator who represents the group at the management level. RECA

believes it is easier to discuss problems in small groups, and people who know each other well can select coordinators from their own ranks.

In practice the farmers elected are those who render the most service to the community, and the groups assume responsibilities together with their representatives. According to the by-laws, the group must compensate, in work, the leader and coordinator for the days they dedicate to providing services to RECA.

RECA's experience shows that deforestation can be arrested in the Amazon if ways are found to keep farmers on the land and recover degraded areas. RECA has become a model for the region, sparking similar experiments: Projecto PREPAM (Projecto de Reflorestamento para Ajuda Mútua), administered by ASPRUVE (Assosiaçao de Produtores Rurais Vencedora) in the municipality of Extrema in Acre; CPT (Comissao Pastoral da Terra), which trains small farmers in different municipalities of Acre and Amazonas; and SINPASA (Sindicato de Pequenos Agricultores, Seringueiros e Assalariados Rurais do Acre), which is starting small experiments in the Acre River Valley.

## Lessons for the Future

RECA's main challenges today are adding value to its products through local processing, and gaining access to markets. Financing has yet to be obtained for working capital, machinery acquisition, market research, and product design. CEBEMO, which supported the initial phase of the project, suggested that RECA seek new resources from Brazilian development institutions. And they have tried, but without much success. In some cases—such as Banco da Amazônia S.A (BASA), the Fundo Constitucional do Norte, and Procera (a credit line from the Banco do Brasil)—one agency covers Rondônia and the other Acre, so the jurisdictional dispute between the two states has hindered access to financial resources. RECA also tried the Banco do Brasil, but after years cutting through red tape in an enormous bureaucracy the project was initially rejected and then approved, but inadequately funded. Even though all RECA needs to finish setting up the processing factory is a small investment of $100,000 at most, at this point small farmers growing innovative crops in Brazil cannot qualify for loans of this size.

Unfortunately, RECA cannot store or market the yields it is now obtaining. Its members salvaged the 1992, 1993, and 1994 harvests without profits just to keep the enterprise afloat. But if they do not get a freezer tunnel and a cooling room in the truck in 1995, they will lose the harvest. No matter how motivated the farmers are, processing and marketing 340 tons of *cupuaçú* and 600 tons of *pupunha* (the harvest projected for 1995) will not be possible without adequate infrastructure.

As for markets, the products RECA grows are not well-known, and RECA members lack marketing experience. Processing *cupuaçú*, packaging the heart of palm from the *pupunha*, and drying the seeds could all undergird local agroindustry. But RECA farmers cannot realize their dream without national partnerships. Technology demands attention too. No machines are available for processing RECA's products. They need to experiment, adapt, and create. Finally, since neither Acre nor Rondônia acknowledge full jurisdiction over Nova Califórnia, the community's ability to access technical and financial assistance has been hindered.

RECA's considerable success so far stems from the tenacious participation of members in long-term learning: step by step, each farmer becomes a technical expert and gets used to taking the initiative. At the same time, the cooperative learns to make partnerships with different institutions, to frame requests with each institution's specializa-

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tion clearly in focus, and to get their partners to follow the priorities defined by the project. RECA's clear division of responsibilities between members and their leaders, transparent membership and management rules, and growing environmental expertise also bode well for its future.

## INTEGRATING CONSERVATION AND DEVELOPMENT

TO BE SUCCESSFUL, ACTIONS AND POLICIES FOR CONSERVING BIODIVERSITY must take into account the needs of local communities who depend on natural resources for their livelihood and provide them with income-generating opportunities through sustainable use of natural resources. Examples of this approach are sometimes called integrated conservation-development projects (ICDPs).[5] Biosphere reserves, one type of ICDP brought together in a global network by UNESCO, are core areas (often parks) surrounded by buffer zones and transition areas where some human activity is permitted. The total area managed for biodiversity conservation extends beyond the core into the transition area and buffer zones. Biosphere reserve management focuses on imposing stricter controls on resource extraction within protected areas and making extraction activities in the buffer zones more efficient to obtain higher and more productive yields in ways that do not threaten the integrity of the core areas.

An increasing number of partnerships between northern and southern NGOs—often in collaboration with government agencies and in-country research centers—have been formed to take on a wider array of management activities in biosphere reserves and national parks. In the Noroeste Biosphere Reserve in Peru and the Sierra de las Minas Biosphere Reserve in Guatemala, for instance, the U.S.-based World Wildlife Fund is involved in integrated conservation and development programs in partnership with local organizations.

The Noroeste Biosphere Reserve houses tropical dry forests and coastal mangrove ecosystems in four protected areas. Communities surrounding the reserve extract resources, especially firewood and construction timber and shellfish and shrimp larvae, from the protected areas to make a living. In 1987 WWF began working with Fundación Peruana para la Conservación de la Naturaleza (FPCN) to promote sustainable management of some of the protected areas, and in 1988 the Peruvian Park Service and FPCN got support from WWF to analyze the threats to the Noroeste Biosphere Reserve. Today, the partnership is focused on equipping the core area with the infrastructure needed to improve protection. Work with the buffer-zone communities concentrates on developing more sustainable levels of resource extraction of forests to produce higher and more productive yields of a number of products including firewood, construction materials, and fodder for goats. In Guatemala, WWF is working with Defensores de la Naturaleza, a Guatemalan NGO, to assist with the management of the Sierra de la Minas Biosphere Reserve. Partners are encouraging sustainable agriculture and the sustainable management of timber and non-timber forest products in the buffer zone.[6]

In the Maya Biosphere Reserve in the Petén department of Guatemala, Conservation International (CI), the Guatemala National Council for Protected Areas (CONAP), and the local Petén communities have formed a partnership to promote alternatives to

slash-and-burn agriculture, cattle ranching, and destructive logging. The reserve has adopted the biosphere reserve model with different levels of protected zones. In about half the reserve area, only scientific investigation, eco-tourism, and education are permitted. Multiple-use and sustainable economic activities by local people are permitted in the rest and in the 15-kilometer square surrounding the buffer zone, where many conservation groups work on sustainable management projects. Propetén, as this effort funded by USAID/Guatemala and Conservation International is called, is run by local Guatemalans. To meet its objective of becoming self-sufficient, it is using a debt-for-nature swap that generated $1.33 million to form a permanent endowment to fund long-term conservation activities.[7]

## Binational Conservation Areas

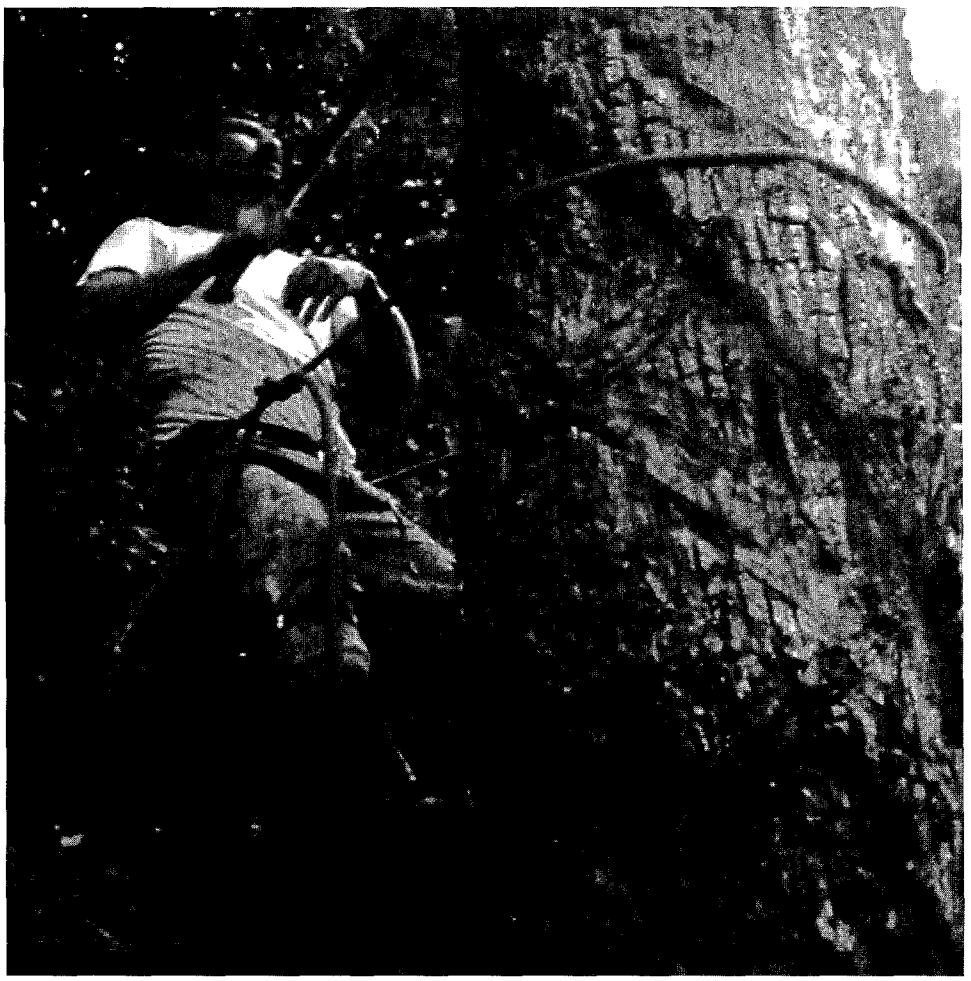
Where two countries share jurisdiction over biosphere reserves or other types of protected areas, cooperation and coordination among governments, NGOs, and communities are needed to unite the area into a single protected zone. Costa Rica and Panama, for example, are bounded by La Amistad Biosphere Reserve, a binational protected area encompassing 2.7 million acres on the border. Once protected by the natural geographic barriers of rugged terrain and a dense jungle, this area is now threatened by operations such as large-scale banana and pineapple plantations. La Amistad Conservation and Development Initiative (Amisconde) is countering those trends by focusing on viable alternatives for rural development within buffer zone communities in the reserve. A partnership including Conservation International, Clemson University, McDonald's Corporation, the Tropical Science Center in Costa Rica, and the Foundation for Sustainable Development of Panama (Fundespa) is bringing conservation experience, scientific and educational credentials, and corporate expertise together to launch an integrated effort. Liliana Madrigal, a project manager from Conservation International, credits corporate partners with pitching in both financial resources and hands-on management.[8]

On the U.S.-Mexico border, the new International Sonoran Desert Alliance works to link biosphere reserves in the United States with those adjacent to the border in Mexico to create an international transfrontier park. The alliance aims to develop a comprehensive and international approach to natural resource management, community development, and environmental education in the Sonoran Desert.[9]

## Buffer Zone Activities

In the buffer zones of biosphere reserves and other types of protected areas, the extraction of nontimber forest products is becoming a popular alternative to intensive natural resource extraction. In Belize, for example, the Nature Conservancy (TNC), the Program for Belize, USAID, the Massachusetts Audubon Society, and Coca Cola Foods have formed a partnership in the Rio Bravo Conservation and Management Area, where *chicle* is harvested by native *chicleros* for international chewing gum manufacturers.[10]

The introduction of high-value crops more suitable to local soil types is another alternative used in the buffer zones of protected areas. In Paraguay, TNC worked with the



***Chicle* extraction from trees is one income-generating activity encouraged in the Maya Biosphere Reserve in Guatemala. (Credit: Haroldo Castro)**

World Bank International Finance Corporation, USAID, the Government of Paraguay, and the Moisés Bertoni Foundation (FMB) to establish the 148,000-acre Mbaracayu Nature Reserve, where *yerba mate* (a tea-like infusion popular in Argentina, Paraguay, and Uruguay) and heart of palm plantations are being established in buffer zones.[11] The harvesting of medicinal plants and chicken farming are also encouraged. In La Amistad Biosphere Reserve, Conservation International and its partners are pushing farmers to increase production of *naranjilla*, a fruit that grows on a perennial bush. At the same time, the Organization of American States, the United Nations Environmental Programme (UNEP), and their local community partners are focusing on *pejibaye (Guilielma gasipaes)*, a nutritious small fruit with a coconut-like consistency. Groups promoting sustainable agriculture have found that local communities will take up the challenge of growing sustainable crops only if there is an adequate market for the products, so the NGOs have made market research and development a priority.

Agroforestry is another buffer zone activity encouraged in most biosphere reserves. In the Darién Biosphere Reserve on Panama's southern border, TNC is working with the Panamanian National Association for Nature Conservation (ANCON) and the Institute for Renewable Resources (INRENARE) to train the Embera indigenous communities in sustainable agroforestry techniques. The Embera work on ANCON's agroforestry farm in the buffer zone of the Darién, and receive health and sanitation services.[12]

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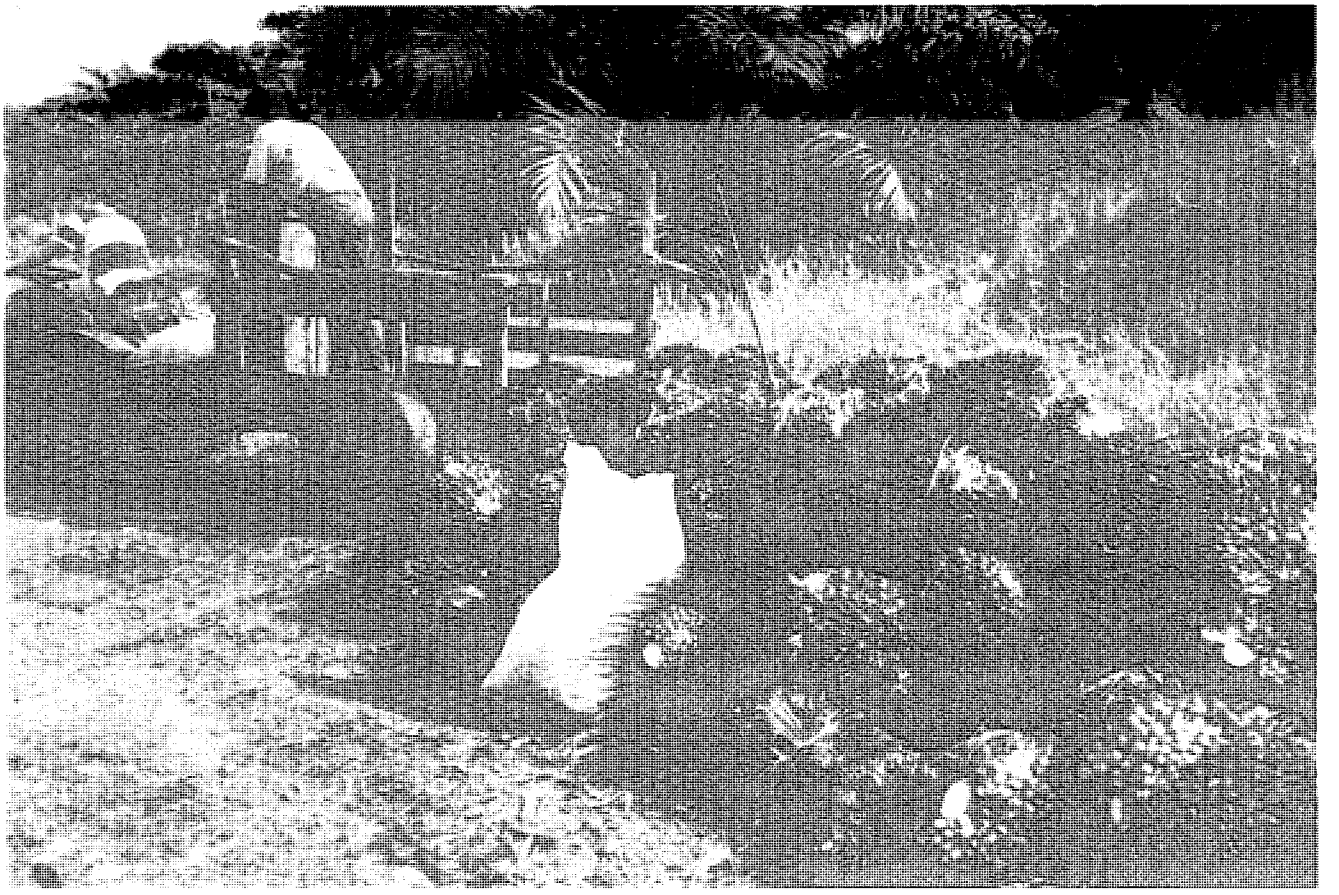

**In the buffer zone of La Amistad Biosphere Reserve on the Costa Rican-Panamanian border, the OAS and UNEP encourage local communities to produce *pejibaye (Guilielma gasipaes)* fruit. (Credit: Juan José Castro/ OAS)**

# EXTRACTIVE RESERVES

IN 1992, THE BRAZILIAN GOVERNMENT ESTABLISHED EXTRACTIVE RESERVES in the Amazon Basin to help relieve tensions between traditional forest users such as rubber tappers and indigenous tribes, and ranchers, farmers, and other colonists whose activities were often causing widespread deforestation. By acknowledging and implementing a structure of communal property rights already familiar to indigenous peoples and other traditional forest dwellers, the Brazilian government has helped strengthen their centuries-old, sustainable resource management practices.

The National Center for Sustainable Development of Traditional Populations (CNPT) was created by the Brazilian Institute for the Environment and Natural Renewable Resources (IBAMA) in 1992 to manage and develop the reserves in collaboration with local populations. Reducing conflicts over land rights and increasing sustainable harvests while helping to protect the integrity of Brazilian Amazonia are the ultimate aims.

Brazil's nine *reservas extrativistas*, or extractive reserves, are on federally owned land set aside for the exclusive use of reserve residents. On the reserves, products such as *chicle*, latex, fruits, and nuts are harvested from the trees. Timber extraction is strictly prohibited.

Based on an innovative socioeconomic concept promoted by the late Chico Mendes and the National Council of Rubber Tappers, the reserves were originally designed to be "conservation units" that would sustain rubber tappers—a test of the feasibility of harvesting renewable forest resources in an environmentally sustainable way. So far,

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however, legal and political difficulties, especially the challenge of setting up a complex system requiring the expertise of an array of technical advisors, have stalled implementation of many of the reserves.

In the Chico Mendes extractive reserve, one of the nine original units, two NGOs—the U.S.-based Cultural Survival and the Brazil-based ECOTEC—have helped establish and maintain the Xapuri nut-processing plant, which has increased local incomes by 100 percent. The once impoverished rubber tappers in this area, where the illiteracy rate was 93 percent and there was a complete lack of medical and dental services in 1992, have now organized and funded their own school using profits from the sale of nuts and from the nut-processing plant.[13]

Other international environmental NGOs are also involved in the development of Brazilian extractive reserves. WWF, for example, has been working with residents along the Cajari and Marac Rivers in Amapa, the northeastern Brazilian Amazon, to establish hearts of palm processing. The most common method of harvesting the heart of the Assai palm often destroys the palm stands, so WWF is promoting a more sustainable extraction and processing system. WWF and the local residents also work together to improve the river transport system and have held a public hearing to discuss the impact of a road bisecting the reserve area. WWF has provided training sessions in reserve resources management, carried out forest marketing studies, evaluated the land-tenure situation, compared options for sustainable community forest resource management, and put up working capital that has enabled local residents to start selling Brazil nuts in Belém. Through this project, local residents can directly enter Brazilian and global markets and receive better prices for their products. The local community directs its efforts to sustainable resource extraction because of a realization that the rain forest is the source of its future economic growth.[14]

In another project, Conservation International is working with Croda, Inc., a worldwide leader in processing raw materials for cosmetics, to develop a new line of personal care products derived from oils and botanical extracts. CI harvests cohune oil, jaboncillo extract, and allspice extract in the Petén department of Guatemala, while Croda develops the materials in its lab. CI and Croda are also working with Candela, a Peruvian NGO, to harvest Brazil nuts from the province of Madre de Dios in Peru to produce Brazil nut oil, an emollient used in skin- and hair-care products.[15]

In one of its best-known multi-party efforts, CI has allied itself with a Quito-based community development organization, CIDESA, to harvest and market *tagua*, an ivory-like palm nut that is used to make buttons, jewelry, arts, and crafts. CI and CIDESA are working with members of the Comuna Rio Santiago Cayapas to collect and sell *tagua* to coastal Ecuadorean factories in Manta, where the nuts are dried and processed into disks for export.[16]

## Biodiversity Prospecting

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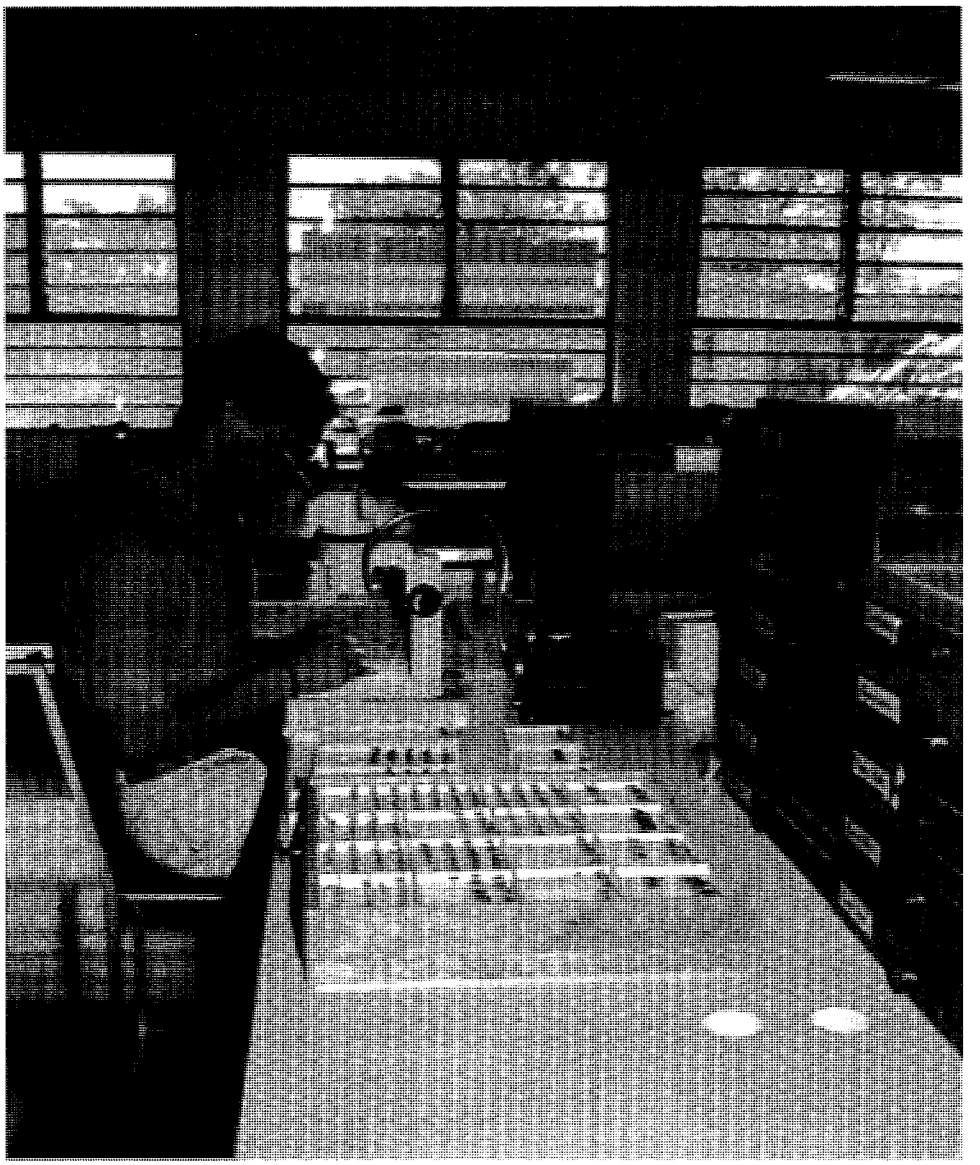
THE EXPLORATION OF BIODIVERSITY FOR COMMERCIALLY VALUABLE genetic and biochemical resources—"biodiversity prospecting"—was first introduced as a viable alternative to tropical forest development through a partnership between Costa Rica's National Biodiversity Institute (INBio), a private, non-profit organization, and Merck & Co., Ltd, the U.S.-based pharmaceutical firm. Under an agreement announced in September 1991, INBio provides Merck with chemical extracts from

wild plants, insects, and micro-organisms from Costa Rica's conserved lands for Merck's drug-screening program. In return, Merck is to give INBio $1,135,000 for a two-year research and sampling budget, and royalties on any resulting commercial products.[17]

INBio's primary objectives are to complete an inventory of Costa Rica's biodiversity and use this knowledge and the biodiversity itself to generate income to help preserve and maintain the country's ecosystems and to increase human capital and economic development. Originally created under the auspices of the Ministry of Natural Resources (MINIREM), INBio is also tightly linked to the university community, to scientifically-oriented NGOs in Costa Rica, and to national and international business. Costa Rican professionals and technicians carry out the biodiversity inventory, with the help of rural "para-taxonomists" and university graduates. Including rural populations and the indigenous communities is a key factor to completing the inventory because their knowledge of medicinal plants dates back centuries. The INBio-Merck experience has inspired other partnerships in Latin America, and in the rest of the world *(see Box)*.

**INBio staff member completing Costa Rica's inventory of biological diversity. (Credit: Walt Reid)**



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Throughout 1992 INBio's efforts to inventory Costa Rica's biodiversity and put the findings into a database were supported by $3 million in grants from private foundations, international environmental NGOs, the government of Costa Rica, and the governments of the United States, Sweden, and Norway **(See Chapter 5, p. 81).**

## SUSTAINABLE USE OF FOREST RESOURCES

CONVENTIONAL WAYS OF HARVESTING TIMBER AND PROCESSING FOREST products have proven to be unsustainable. Therefore, the timber industry is beginning to reform its methods. In the Eastern Brazilian Amazon, a partnership for the sustainable management of timber has emerged among the Amazon Institute for People and the Environment (Imazon), WWF-US, USAID, Caterpillar U.S.A., and a local timber company, the Santo Antonio Sawmill. In Paragominas, in the state of Pará, these institutions are comparing current logging practices with "best practices." The analysis will be presented in a forestry manual for federal and state Brazilian public agencies, and the timber sector. Imazon and WWF-US also plan to collaborate with IBAMA, and the Federal and State Secretariats of the Environment on a prototype Forestry Monitoring and Extension Service in Paragominas. The project has been jointly funded by WWF-US and USAID's Global Climate Change Program.

The initiative came about after an Imazon study showed that though logging and wood-processing activities are very lucrative, waste and ecological damages in harvesting are enormous. Estimates are that for every cubic meter of saw wood produced, 4 cubic meters of wood are unnecessarily destroyed.[18] Logging damages could be reduced and tree growth encouraged through post-harvest silviculture treatment, but the timber industry lacks the technical know-how, and state and federal regulations have not been effectively implemented. The decision by the Santo Antonio Mill and Caterpillar to work with research and conservation NGOs to make forestry in the region more sustainable has been a breakthrough.

In the Peruvian Amazon WWF, the Comité de Productores de Arroz de la Provincia de Maynas (COPAPMA), and several communities are working together to improve agroforestry techniques in the region. WWF and COPAPMA have collaborated with several communities to obtain legal title to community forest reserves, design management plans for those reserves, and, with the help of forestry students from the Universidad de la Amazonia Peruana who do field work and research, develop agroforestry practices for use in fallow fields and secondary forest. Participating institutions have helped take inventories of communal forest resources, establish demonstration plots for model agroforestry and secondary forestry management practices, and produce several thousand seedlings of a variety of native species. They have also engaged satellite communities bordering a proposed forest reserve in dialogue and the coordination of resource management.[19]

In Argentina's Valle de Punilla—a valley lodged between the Sierra Grande and Sierra Chica mountain ranges in the province of Córdoba—overgrazing, burning, and improper harvesting of wood have become serious problems. The Sierra's native forests have been largely degraded, and the resulting losses of biodiversity have prompted local citizens to take up reforestation. To help change unsustainable land-use practices and boost environmental quality in the Valle de Punilla, Los Algarrobos, a local NGO, has set up an environmental education program, conducted community tree planting pro-

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grams, and established three community nurseries. Ten million trees will be planted to improve watershed protection and stimulate organic soil recuperation. Los Algarrobos has also organized groups of municipalities to work together in planning, conservation and rehabilitation.

Los Algarrobos has marshalled an impressive array of partners to work on reforestation. The Ministries of Agriculture, Economy and Finance, Education, and Social Welfare have all contributed money or aid in kind. Nationally, Los Algarrobos has obtained the full endorsement and active support of the National Agency for Agriculture and Forestry, the National Council for Science and Technology, and the National Secretary for Environment and Natural Resources. The U.S. Peace Corps has assigned an increasing number of volunteers to the program, and the United States Department of Agriculture has subcontracted with Texas A&M University and the University of Cordoba to develop local NGO management expertise. Other contributions have been made by USAID, the U.K. and Canadian Embassies in Argentina, Canadian IDRC and CIDA, and such private corporations as American Express. The United Nations Environment Programme and the United Nations Development Programme are also considering continued multilateral cooperation with Los Algarrobos.[20]

Since the late 1980s, the Institute of Environmental Studies for Sustainable Development (IDEADES) of the Javeriana University of Bogotá, Colombia, has been collaborating with the government-sponsored Integrated Rural Development (DRI) Program and local authorities and communities in a project involving reforestation, watershed management, and sustainable agriculture. Supported by the European Union, the project covers 17 municipalities (some 230,000 hectares and 140,000 inhabitants) in the northern part of the province of Boyaca. Objectives include conducting an environmental impact assessment of the region; identifying ways of integrating conservation with agricultural production; managing forest resources and conserving soil to help stabilize regional ecosystems and improve agricultural productivity; and lending technical and organizational support to local government agencies and community organizations to carry out these activities. This partnership is based on a multidisciplinary approach to resource management and the exchange of knowledge among partners.[21]

Deforestation in the state of Quintana Roo in the northeastern part of the Yucatán Peninsula has left standing only 30 percent of the tropical forest that blanketed the region at the turn of the century. Under Mexico's *ejido* system of communal property rights most forest areas were allocated to resident indigenous communities or to landless peasants during the 1930s and 1940s, but management rights did not come with the rights of ownership. Therefore, the private sector obtained most of the financial benefits of timber extraction, and government institutions continued to allocate concessions for logging rights.

Ten years ago, however, the Mexican government agreed to support a pilot program in which ten communities in Quintana Roo were authorized to manage their own plan of forest protection, timber harvesting, and sales. The primary goal of the Forest Pilot Plan is to empower *ejido* residents and increase their economic returns from forest resources.[22] Sharply different from the traditional, concession-based approach to forestry in the state, the plan has greatly fortified forest conservation in the region.

Diverse governmental and non-governmental organizations are taking part in the Forest Pilot Plan: the Mexican Secretariat of Agriculture and Water Resources, the State Government of Quintana Roo, four forest products businesses, the Regional Council of Xpuji, the Mexican Secretariat for Sustainable Development, the MacArthur Founda-

tion, the World Wildlife Fund, and the Overseas Development Agency of the United Kingdom. Fifty *ejidos* from Quintana Roo (70,000 residents) and 30 from the neighboring area of Calakmul/Xpuji-Campeche (30,000 residents) are covered by the project.

The *ejidatarios* receive technical assistance under the Mexican-German Agreement initially signed by the German Ministry for Technical Cooperation (GTZ) and the Mexican government to set the Plan in motion. GTZ provides technical assistance to the *ejidos,* training residents in such forest management activities as sustainable harvesting of high-value mahogany timber and helping them develop uses for scrap wood. The *ejidos* are grouped according to what they grow. Each group is assigned a technical unit—essentially the unofficial equivalent of the State Forestry Service—hired and paid for mostly by the group itself. In each *ejido*, a permanent forest area is designated; in these zones, land is conserved and managed exclusively for forestry production. Because natural resource endowments and population densities vary greatly from area to area and even from *ejido* to *ejido*, each technical unit must be tailored to meet its clients' needs.

The technical expertise imparted to the *ejidatarios* by these units has helped end the destructive timber harvesting practices that prevailed in Quintana Roo before the inception of the plan. Training in forest management has also significantly increased the negotiating capacity of the *ejidatarios*, who have watched their political influence mount as a result.

Through another innovative process, Central American women are organizing to integrate and support gender equity in forest planning, policy, and management. Building on their grassroots experiences in community forestry and agroforestry, these women are collaborating with scientists and planners in decision-making processes related to the Tropical Forestry Action Plan and other forest policies.

**Poor women are often responsible for fuelwood collection and other tasks related to forest management. (Credit: Juan José Castro/OAS)**

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Poor women in this region have long been responsible for collecting fuelwood and carrying out many tasks related to forest management and productivity. Capitalizing on the clearly gender-based division of labor in forest activities and the freedom it allows, women are taking initiatives in their own domain. Many NGOs are collaborating with community-based groups in reforestation, tree nurseries, agroforestry schemes, and the distribution of seedlings. Indeed, a recent survey of NGO environmental activities in the region revealed that about 20 out of 35 conservation groups surveyed carried out forest resource-related activities that benefit women.[23]

One particularly innovative effort is taking place in a relatively dry pine forest area at 1,500 meters elevation in San José de Cusmapa, in the Madriz State of Nicaragua. In 1988 the community addressed deforestation and drought problems head on through a consultative process for project planning. It then formed a cooperative consisting mainly of women, to manage about 1,440 hectares of forests. One upshot was the construction of a small sawmill primarily for manufacturing furniture.[24]

Other project activities are the management of the pine forest on 910 acres, the construction of an oven for charcoal production, training for local communities, technical assistance from forest professionals from the National Institute of Natural Resources, and raising public awareness on women's integration into forest management. Supported by the Swedish International Development Agency and coordinated by a nine-member community board (seven women and two men), the project has generated 23 permanent jobs. The members of the forest association maintain the nurseries, distribute and plant seedlings, and work in the furniture industry. Through these activities, they have learned valuable skills, earned income, and developed their organizational capacities for managing forest resources and small-scale businesses.

In the past few years, the Regional Consultative Council of Women and Forestry in Central America has held two workshops to examine experiences such as Cusmapa's. Opportunities for incorporating gender concerns into natural resource management policies and programs were identified along with limitations. In the span between the workshop held in 1992 and a follow-up in 1994, some of the women had made remarkable advances in leadership capacity, self-confidence, and the ability to clearly articulate their gender concerns and interests as they relate to forestry.[25]

## Making Agriculture Sustainable

Agricultural production has become ever more efficient over the past several decades, but both environment and human health have suffered because of unsustainable practices. Intensive agriculture, coupled with the movement toward commodity agriculture and away from traditional subsistence farming, has frequently led to increased pesticide use.[26] Although the introduction of pesticides and other agro-chemicals has greatly boosted yields, indirectly it has also made crops more vulnerable to pest attacks. Moreover, pesticides pose potential threats to wildlife, plant life, soil, and bodies of water.

To reduce reliance on agro-chemicals, partnerships have formed in the Americas around alternative agriculture practices involving such new methods as Integrated Pest Management (IPM). IPM attempts to capitalize on natural biological factors that limit pest outbreaks, using chemicals only as a last resort.[27] In Peru, USAID, CARE (Cooperative for American Relief Everywhere), and the International Potato Center are

examining and introducing the use of IPM on potato crops in four Andean communities. They are studying how reducing agro-chemicals use affects sustainable economic growth and crop productivity.

The International Potato Center is training Andean farmers in integrated control practices step by step in four ongoing CARE project areas. Farmer-oriented training materials feature sample kits, posters, bulletins on insect biology and behavior, and videos. The IPM concept is being introduced in participating communities to provide an overall framework for promoting economic and non-chemical responses to crop pests—in this case, mainly the Andean potato weevil and the potato tuber moth.[28]

In Zamorano, Honduras, the International Food Policy Research Institute, the Escuela Agrícola Panamericana, and the International Development Research Center of Canada have joined forces to develop a methodology for participatory research on sustainable hillside agriculture. The partners will map community resources to indicate how maintenance has improved or degraded the hillsides, as well as how policies affect these trends. By educating the communities in ways of monitoring sustainable agriculture policies, the partnership helps build local expertise and increase the community's capacity for political negotiation.[29]

**Restoring degraded hillsides is key to sustainable agriculture in Latin America and the Caribbean. (Credit: Philip Wolmuth/Panos Pictures)**

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# Managing Aquatic and Coastal Resources

While most of the examples introduced above deal with ongoing attempts to protect terrestrial diversity, the preservation and sustainable use of marine and freshwater ecosystems are equally important for biodiversity conservation. In Ecuador, the Coastal Resource Management Project (CRMP) is introducing new ideas and methodologies for sustainable development and integrated coastal resource management to conservationists and the public. With funds from USAID and the IDB and implementation assistance from the University of Rhode Island, the CRMP furthers Ecuador's first multi-agency, integrated coastal management scheme.

CRMP's cornerstones are local participation and feasibility testing. At the start of the program in 1985 the staff held open meetings to explore site-specific problems, yielding recommendations to improve management of shrimp mariculture and mangrove protection and profiles for each of Ecuador's four coastal provinces. Responding to these recommendations, Ecuador established its National Coastal Resources Management Program by presidential decree in 1989, the country's first multi-agency coastal management effort. The project's three components are: developing management plans for five specially-designated zones known as "ZEMs" *(zonas especiales de manejo)*, establishing seven Ranger Corps (a coastal law-enforcement unit comprised of local government officials, citizens, and resource user groups), and creating the National Coastal Management Commission (a coordinating body of seven ministries chaired by the Office of the President, that develops and executes national coastal policy).

In 1993, ZEM committees comprised of local government officials, resource user groups, and community members were formed to oversee the implementation of the ZEM management plans. That same year, the Coastal Resource Management Program documented its experience in 15 review and policy papers. Thanks to the program, citizen reporting to government authorities of illegal mangrove cuttings has risen sharply, along with pressure on the Ranger Corps to enforce coastal protection laws.

In the Amazon, the sustainable exploitation of fishery resources could also prove to be a viable alternative to clear-cut logging and ranching. In Brazil, WWF is working with three Amazonian riverine communities near Santarem, in the state of Pará, to develop a long-term, ecologically and economically sound plan to manage their fishery resources. WWF is also involved in a similar project at the Mamirauá Ecological Station in the state of Amazonia in Brazil, the country's only protected area in varzea habitat, a unique floodplain ecosystem that has fertile and productive fishery resources. This project got off the ground after the state government of Amazonas created the Lago Mamirauá Ecological Station in 1990 and recognized the needs of the local communities who depend on the reserve's fisheries and timber and other natural resources for food and shelter. WWF's partnership with the local people demonstrates that protected areas can be established with local needs in mind. Through the project, WWF monitors area fish markets to evaluate the impact of closing the reserve, studies catfish migration in the main channels to determine whether catfishing could be an economic alternative for fisherman in the reserve, and works with the state government to set the rules of the reserve.[30]

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# Preserving Biological and Cultural Diversity

SURINAME, A SPARSELY POPULATED COUNTRY with only 5 percent of its interior inhabited, constitutes one of the world's last and largest tropical rainforests. The Suriname Biodiversity-Prospecting Initiative (SBPI) was designed to protect the country's rich forest biodiversity by promoting new economic alternatives to logging, mining, and other destructive land uses.

SBPI—a partnership among indigenous and local people, NGOs, pharmaceutical companies, and research institutions and universities from both Suriname and the United States—identifies and screens plants for potential medicinal uses on an international scale. Under a contractual agreement, royalties from new drugs discovered are disbursed to the people of Suriname through a "Forest People's Fund" administered by indigenous and local peoples. SBPI's objectives are to identify, classify, and research medicinal plants internationally, placing particular emphasis on HIV- and cancer-fighting pharmaceutical derivatives, to financially compensate Suriname and its inhabitants for the use of these substances, to establish the value of the Surinamese rainforest as a potential source of new and valuable medicinal discoveries, and to recognize the rights of indigenous peoples as experts on plant use and forest conservation. SBPI is also among the first working projects to implement the standards of the Convention on Biological Diversity.[31]

Suriname's geographic, demographic, and cultural landscape color SBPI. Located on South America's northern coast, the country is a melting-pot of ethnic groups descended from colonists from various countries. The population is 3 percent native Indian, 10 percent Surinamese African (Bushnegroes), 3 percent Chinese, 32 percent Creole, 35 percent Hindustan, 15 percent Javanese, and 2 percent other. These geographic and cultural factors make the country a rich source for ethnobotanical research and biodiversity prospecting, though so far the project is identifying only the plants used by one of the indigenous Bushnegro tribes, the Saramaccaners.

Participating institutions in this partnership are Conservation International (CI) and its affiliate in Suriname, CIS; Bristol-Myers Squibb, a multinational pharmaceutical company; the Suriname Company of Pharmaceutical Provisions (BGVS); the University of Surinam and the National Herbarium; the Forest People's Fund; Virginia Polytechnic Institute and Virginia State University; and the Missouri Botanical Garden. CIS applies an integrated approach to this project. The knowledge and experience of highly trained Surinamese conservationists are coupled with Conservation International's "on-the-ground" experience gained in 22 other developing countries. Another Conservation International project in Suriname that ties into the SBPI is the Shaman's Apprentice Program, a research and educational effort aimed at preserving indigenous knowledge of tropical plants for the benefit of the local population. This year, CIS is expected to publish a handbook on the medicinal plants used by the Tirio, an indigenous tribe in Suriname. Printed in the language of the Tirio, it will preserve the tribe's own traditions while promoting the use of the group's native tongue.

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**Tirio Indian of Suriname using medicinal plants to cure earache. Preserving indigenous knowledge of tropical plants is one objective of CIS' Shaman Apprentice Program. (Credit: Mark J. Plotkin)**

Bristol-Myers Squibb, the multinational pharmaceutical company, provided $1 million in equipment. The Suriname Company for Pharmaceutical Provisions, BGVS, a local partner, contributes expertise and staff who analyze potential medicinal extracts and undertake microbiological investigations. Findings are sent to Bristol-Myers, Virginia Polytechnic Institute, and Virginia State University for further research and refinement. By providing equipment, training, and pharmaceutical technology to BGVS, these partner institutions help expand Suriname's capacity to discover drugs to treat local diseases. What is more, all the project's scientific findings are donated to the University of Suriname to broaden knowledge and improve the collection of local plant species at the National Herbarium. The Missouri Botanical Garden in the United States is also involved in the collection of plant extracts for the initiative.

In this endeavor, Surinamese interests have been carefully taken into account. The national patrimony is guarded because co-signatories to the agreements are legally bound to protect Surinamese natural resources. Like the INBio-Merck partnership in Costa Rica, SBPI protects the tropical forests's biodiversity, offers market opportunities to multinational pharmaceutical companies, and provides a sustainable income to local communities. In short, the initiative has created a new industry for Suriname based on natural resource preservation.

—IONE MUNTSLAG-ORMSKERK

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## Biodiversity Conservation and Sustainable Use of Natural Resources

| Partnership | Participants | Objectives |
|---|---|---|
| RECA | CBO, church | Restoring degraded forest areas and generating income for the community through agroforestry. |
| Noroeste Biosphere Reserve, Guatemala | NGOs, CBOs, government | Conservation of protected areas and development activities with local communities. |
| Maya Biosphere Reserve, Guatemala | NGOs, CBOs, government | Sustainable agriculture in buffer zone. |
| La Amistad Biosphere Reserve, Costa Rica and Panama | NGOs, university, research center, business, government | Management of reserves on the Costa Rica-Panama border and sustainable rural development in buffer zones. |
| International Sonoran Desert Alliance, United States and Mexico | Government, NGOs | Promotes the creation of an international biosphere reserve cooperative program on the U.S.-Mexico border. |
| Río Bravo Conservation and Management Area, Belize | NGOs, government, business, CBOs | Buffer zone activities: *chicle* harvesting for income generation. |
| Mbaracayu Nature Reserve, Paraguay | NGOs, CBOs, government | *Yerba mate* production and chicken farming for income generation. |
| Darién Biosphere Reserve, Panama | NGOs, indigenous peoples, government | Sustainable agriculture. |
| Extractive Reserves, Brazil | NGOs, CBOs, government | Sustainable extraction of non-timber forest products. |
| Extraction of raw materials from forests for personal care products, Guatemala and Peru | NGOs, business, CBOs | Extraction of raw materials for personal care products as an income generating activity among local communities. |
| *Tagua* Project, Ecuador | NGO, CBO | Harvest and market *tagua* from forest for buttons, jewelry, arts, and crafts. |
| INBio, Costa Rica | Government, business, NGOs, university, research center, CBOs | Sustainable extraction of commercially valuable genetic and biochemical resources from the forest. |

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## Biodiversity Conservation and Sustainable Use of Natural Resources

| Partnership | Participants | Objectives |
|---|---|---|
| Sustainable Timber Extraction, Brazil | Government, business, NGOs, university, research center | Studying how to improve timber extraction to make the industry more sustainable. |
| WWF and COPAPMA Agroforestry, Peru | NGO, university, CBO | Management of forest resources and agroforestry. |
| Los Algarrobos, Argentina | NGO, local communities, government, business | Reforestation and environmental education. |
| Forestry Development for the Rio Chicamocha Watershed, Colombia | NGO, government, CBOs | Assess the environmental status of the region, identify ways of integrating conservation with agricultural production, and manage forest resources. |
| Pilot Project, Mexico | NGO, local communities, government | Sustainable harvesting of forest resources to increase returns for *ejidatarios.* |
| Women's Reforestation Project, San José de Cusmapa, Nicaragua | NGOs, CBOs, government | Reforestation and timber processing for income generation; women's participation in forestry policy. |
| Integrated Pest Management (IPM), Peru | Government, NGO, research center | Use of IPM in potato crops by Andean communities. |
| Sustainable Agriculture, Zamorano, Honduras | NGOs, university, CBOs | Sustainable hillside agriculture and capacity-building among communities. |
| Coastal Resource Management Project, Ecuador | Government, CBOs, university | Design of methodologies for sustainable development and integrated coastal resource management. |
| Management of freshwater fisheries, Brazil | NGO, CBOs, government | Development of management plan for fisheries resources. |
| Biodiversity Prospecting, Suriname | NGO, business, government, university, research centers | Biodiversity prospecting for medical products. |

## Endnotes

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# The Business of Sustainable Development

BUSINESS COMMITMENT TO ENVIRONMENTAL AND SOCIAL GOALS WITHIN the framework of a market economy is essential to achieving sustainable development. In the Americas, collaboration among business, governments, and other parts of civil society is already happening. In urban community projects—recycling, waste management, service infrastructure—businesses are providing technical and managerial know-how, as well as capital and other resources. In natural resource management, the business sector is beginning to adopt sustainable practices.

The examples included below show that most business partnerships for sustainable development are focusing on eco-efficiency and technology cooperation. Eco-efficiency aims at increasing added value in goods and services, while continuously reducing pollution, waste, and the use of energy and resources. Technology cooperation implies an enduring North-South collaboration to ensure that industrializing countries can adopt and adapt the technologies that will let them build eco-efficiency into their expanding industrial sectors. In other partnerships, governments and/or the environmental community encourage business to adopt sustainable practices through such market incentives as eco-labeling and certification. Finally, as the lead story of this chapter illustrates, some new business ventures are taking up the challenge of adopting environmental, economic, and social sustainability as both the starting point and final objective of their manufacturing operations.

## Adding Value to the Forests

SEAN F. TAYLOR*

MANY INDUSTRIAL OPERATIONS ARE SWITCHING IN MIDSTREAM TO clean technologies and introducing environmentally friendly production processes. In Guyana, a furniture factory called Liana Cane Interiors was conceived in the quest for sustainability. Liana is the generic name for forest epiphytes, twining vines that attach themselves to towering tree canopies while their roots and

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multiple offshoots drape down to the forest floor. Similar in look and texture to the rattan and bamboo of Far Eastern countries such as the Philippines, the *kufa* and *nibbe* vines and a byproduct of the *ite* palm called *tibisiri* are extracted by Liana Cane Interiors from the Pomeroon River area and Northwest District of Guyana. *Kufa* furniture is unique to Guyana, where native South American Indians have utilized these special raw materials for thousands of years. During the 1930s, small cottage-type industries flourished in various parts of the country. Today, several small companies turn out this durable and widely admired furniture.

As the commercial pilot phase of this operation nears its end, output stands at 300 units per month, and Liana Cane Interiors has become the most advanced part of a network that directly benefits ten indigenous village communities. Counting middlemen, truckers, boatmen, and roughly 500 Amerindian cane reapers, the purchase of raw materials provides sustenance for some 5,000 people in Guyana's hinterland.

Reapers of the *nibbe* and *kufa* lianas and *tibisiri* straw must observe the principle that Liana Cane Interiors holds cardinal: reap with regeneration in mind. According to Frank Alphonso, Liana's raw materials coordinator, "Once we get wind of trees being felled to supply the lianas, we check." On occasion, the company has actually stopped purchasing raw materials from environmentally reckless suppliers.

*Tibisiri* straw production is highly labor-intensive. The meticulous work, which takes weeks for each harvest, is undertaken principally by women from the St. Cuthbert's Mission and the Upper Mahaica Creek. Young *ite* palm leaves are cut before they unfurl and spines are painstakingly removed by Amerindian women. Then the pulp is ex-

**Transporting *kufa* and *nibbe* vines from the Pomeroon River area in Guyana. (Credit: Liana Cane Interiors)**

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tracted and boiled over an open fire. Once dry, the decorative *tibisiri* straw used to accent the *kufa* product line is woven on the workers' thighs.

A problem with this traditional method is that the younger generation of women is not interested in mastering it. Recognizing this cultural change, Liana Cane Interiors has approached technical experts to design and make a hand device for rolling the twine to simplify the craft and keep it alive.

## Searching for the Highest Rate of Return

In the words of the project founder, Jocelyn Dow, "Liana Cane Interiors is not merely a furniture manufacturer. We market a philosophy. We are about an approach to our forests and the value that must accrue to the Guyanese from them." Dow firmly believes that the Guyanese have the right to use their timber for their own benefit while recognizing global and local concerns about over-logging. But she is also convinced that approaching natural resources from the perspective of sustainability will help Guyana realize more profits, provide jobs, and create a space in the international marketplace: "We must begin to look at logs as the lowest rate of return and therefore the last option, and to see lianas, biodiversity and the habitat itself as offering the highest rate of return. And we intend to demonstrate that in whatever modest way with our furniture."

In business and socio-political circles in Guyana, as well as internationally, Dow is considered a gregarious and maverick feminist who founded and coordinates the Red Thread, a women in development program in Guyana. After the buyout bid of a local manufacturer went sour, Dow decided to chart out "a course with a difference." In 1990 she commissioned Desmond Cody, an Irish industrial engineer and cane/wood industry specialist, and UNIDO writer, to conduct feasibility studies on establishing Liana Cane Interiors in Guyana. Cody's study, the first real impetus for the project, showed that if the raw materials were properly managed and access to skills, training, and know-how was adequate, Guyana could produce furniture as good as rattan and wicker.

Liana Cane Interiors' manufacturing facility is located in the outskirts of Georgetown in a village called Plaisance. Each day, 55 trained employees and supervisors, mostly local, apply and hone their skills in producing designer furniture and accompanying accessories. The 15,000-square foot facility houses a pole-preparation area where the vines are air-dried, machined, and sanded; a molding and assembly division equipped with three steam boilers for making the poles supple and destroying insect larvae; a binding and weaving area where decorative work is done; and a sanding and surface finishing section where the products are treated to prevent insect infestation and custom-finished for marketing. According to Liana's factory manager, John Dow, one environmental challenge on the premises has been turned into an achievement: the newly commissioned boilers play a unique role in managing the factory's waste, recycling it to generate steam for the boiler. "Eventually," says Dow, "we will place a steam coil from the boiler to the drying room for greater efficiency."

However, all is not smooth sailing. Picking an appropriate insecticide, for instance, has been tricky. Forest products, whether rattan, bamboo, *kufa*, or otherwise, are prone to attack by common beetles. While steaming in the boiler cooks the larvae, it does not guarantee against re-infestation, so insecticide must be applied before the final finish. After much research and consultation with experts abroad, a low-toxicity, EPA- and U.K.-approved insecticide was chosen instead of chlordane, used elsewhere. Since it must be painted on by hand, it is quite costly. Even so, with sustainability in mind, Liana

is working with an entomologist to identify all the insect pests that might infest the material so that the factory can guarantee the safety and life of its products.

By the end of 1995 the plant will double in size to 32,000 square feet and output will peak at 1,500 units per month. Already, Liana's products have been exported—mainly to the Caribbean, with smaller orders to North America. As the commercial pilot phase winds down, Liana is developing a product line and an interior decor look with a distinct Caribbean flavor. Top Caribbean artistic and designer names such as Stanley Greaves, Mervyn Awon, and Kamal Matthews have already signed on.

## Cultivating the Market

But forest-chic and modern design are not what Liana Cane Interiors is all about. According to Jocelyn Dow, Liana's designers are taken into villages to expose Amerindian and village craftsmen to other streams of inspiration. She adds, "We must be market-conscious, not merely traditional." Dow, whose pursuit of excellence takes her across Asia, the Caribbean, and Europe, knows only too well that Liana faces worldwide competition. "Discerning market taste is critical," she says, and "this can be difficult with a small population and limited infrastructure." However, Dow remains confident that accessorizing the furniture and designing interiors with a distinct Caribbean and Guyanese signature will get the company's products into the upper niche of the sizable international market. The world market for rattan and cane furniture totals nearly $1 billion, and last year alone, the Caribbean region purchased $60 million worth.

Because the company's future depends on developing and marketing a look, the Liana project influences the artisanal line and crafts of indigenous and urban artists: "We must take indigenous production of crafts and art to another international level," says Dow. With this principle in mind, 2 percent of earnings go toward craft development.

The Liana project has received support from UNDP and the government of Guyana, as well as from a diverse group of technical experts, including Dante Austria, a Filipino designer; Francisco Borromeo, an experienced cane furniture production engineer; and Carlos Tuyogan, a finishing specialist. Six rattan specialists from the Dominican Republic are providing hands-on training on the factory floor.

But this is still not enough. Dow feels strongly that technical assistance is still required: "You cannot develop an industry without know-how, without larger support mechanisms or without financial windows. In the old days, the forestry division was able to give more support. We have had to do a lot more ourselves." An immediate need is making an inventory of all the lianas and *ite* palm in Guyana's rainforest. Technical studies, says Dow, should be conducted in the interest of long-term, Amerindian community-driven development. And what about the bottom line? Given relatively high interest rates in the local banking sector, the Liana project requires access to cheaper sources of financing.

These days, when mergers and acquisitions are popular, Dow has some reservations: "For me, even your partners are important when it comes to the question of sustainability. If you talk to me about a project that is sustainable, the sustainable aspect is not just the use of the product in a friendly way, but the product itself must be friendly to its producers. It must provide them with a sustainable livelihood... We must conceive of sustainability in a total sense, otherwise we'll be confronted with what is common nowadays, where the bottom line is the only consideration. What we need presently is a transfer and sharing of skills plus financial resources." In the Liana

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project, the role of an overseas partner would mainly help with marketing and some product development.

Given Guyana's small population, sustainability is not an issue of competition, but of organization and know-how, so Liana plans to factor in the human element in a greater way. Worker participation and public shares in 40 percent of the company are envisioned for the future. As for immediate expansion, Liana and partners in neighboring Suriname are already discussing establishing a plant facility that would, according to a Surinamese apiculturist and agriculture teacher, Stanley Dover, help to "reverse the trend of deforestation through a similar, positive, innovative initiative. Given its friendliness to the forests and its peoples, the value-added features, and the rich artistic skills from our multicultural milieu, the prospects for Suriname are good."

### Unfriendly Competition

According to Frank Alphonso, Liana's raw materials coordinator, "The problem for us is the competition with the logging companies. Once the tree is cut, it's gone." Alphonso says that the forest materials that Liana Interiors needs are completely renewable. Although some trees can take a century to mature, for liana vines and roots a mere three to five years is enough.

"Unlike logging, we do not require heavy-duty trucks. Also, the bulk of the money stays here." Alphonso explains. For every tree felled in the forest, the government and people of Guyana receive a royalty of G$140, equivalent to US$1.00. In this one-shot deal, regrowth is not part of the package. Comparatively speaking, every liana-bearing tree carries roughly six to eight 60-foot lengths of vine. "We pay G$3.00 per foot. This translates to over G$1,000 per tree to the reaper and supplier." In other words, the tree is preserved, the vines come back fully in three to five years, and earnings are ten times the royalties. Further, says Alphonso wryly, "A tree, which is purchased in Guyana for G$140 per board meter, is said to be worth $600 in Malaysia. And when this is converted into solid timber furniture, the value multiplies several times. For a finished table in the United States, the cost could be as high as $3,000. If you're paying $1 per tree, surely you can give me the dollar and leave the tree in the soil."

The pressures and opportunities for logging in Guyana—and neighboring Suriname—are great. However, the Liana project offers an interesting alternative. This new, bold people-business partnership, if replicated, can meet the needs of indigenous peoples, technical experts, scientists, artists, skilled urban workers, craftspersons, businesspeople, and global market specialists alike and respect nature's limits at the same time.

## A Business Angle on Sustainability

To put the environmental challenges of development into a business perspective, the Business Council for Sustainable Development (BCSD) was created in 1990 by Swiss industrialist Stephen Schmidheiny. Two years later, it submitted a report, *Changing Course,* to UNCED in Rio, acknowledging the role of the private sector as essential in making development sustainable. After the Earth Summit, the BCSD identified policy issues and projects based on eco-efficiency

and technological cooperation.[1] The BCSD, all of whose members are chief executive officers from corporations around the world, recognized that to be truly effective it could not simply collect data on issues, but must offer conclusions, recommendations, and guidance. According to Andrew Mangan, chairman of the BCSD-Gulf of Mexico, the group aims to meet the challenge of sustainable development in terms that can be "seen, measured, and evaluated." With this in mind, the BCSD has developed projects such as Environmental Benchmarking and the City Services program, among others.

Developed by the BCSD-Gulf of Mexico, the Environmental Benchmarking Program is predicated on eco-efficiency.[2] Although one method of becoming eco-efficient is by internalizing environmental costs, which governments can do through regulations or economic instruments, BCSD favors a market-based approach in which costs and benefits are carefully weighed in the selection of technologies and methods for meeting pollution standards. In either case, using the internal environmental cost information will allow managerial decision making to become more effective.

The BCSD commissioned the Institute for Corporate Environmental Management (ICEM) at the University of Houston, the Monterrey Technological Institute of Mexico, and the U.S.-based Pilko & Associates to develop an environmental cost-accounting approach. Promoting "Cooperative Benchmarking," the team brought partner companies together to discuss environmental issues and problem areas and how to improve environmental management. Seven companies from the U.S.-Mexico border area—three from Mexico and four from the U.S.—are participating in the study.

Cooperative Benchmarking—derived from Environmental, Health & Safety Benchmarking—involves a small number of companies in a series of two-day meetings with experts and facilitator to identify:

- what companies are doing in cost accounting for the environment;
- lessons learned from other companies in environmental management and cost accounting;
- guidance from authorities on environmental cost accounting;
- the basis for cooperation between Mexican and U.S. participants in this area;
- baseline environmental cost information from participating companies; and
- guidelines for building environmental accounting systems.

In the initial study, the two industrial sectors participating were the refinery and petrochemical businesses.

The BCSD Project Management (BPM) program, another outgrowth of the concept of eco-efficiency, was established to develop and structure eco-efficient projects.[3] BPM's centerpiece is the City Services program, designed to bring safe water, sewerage and waste removal, and reliable energy to developing countries. Together, the BCSD, other business organizations, public agencies, and local communities mobilize resources through new public-private companies that tangibly improve people's lives. They mainly support projects in capacity building, including training, technology, adaptation, and development.

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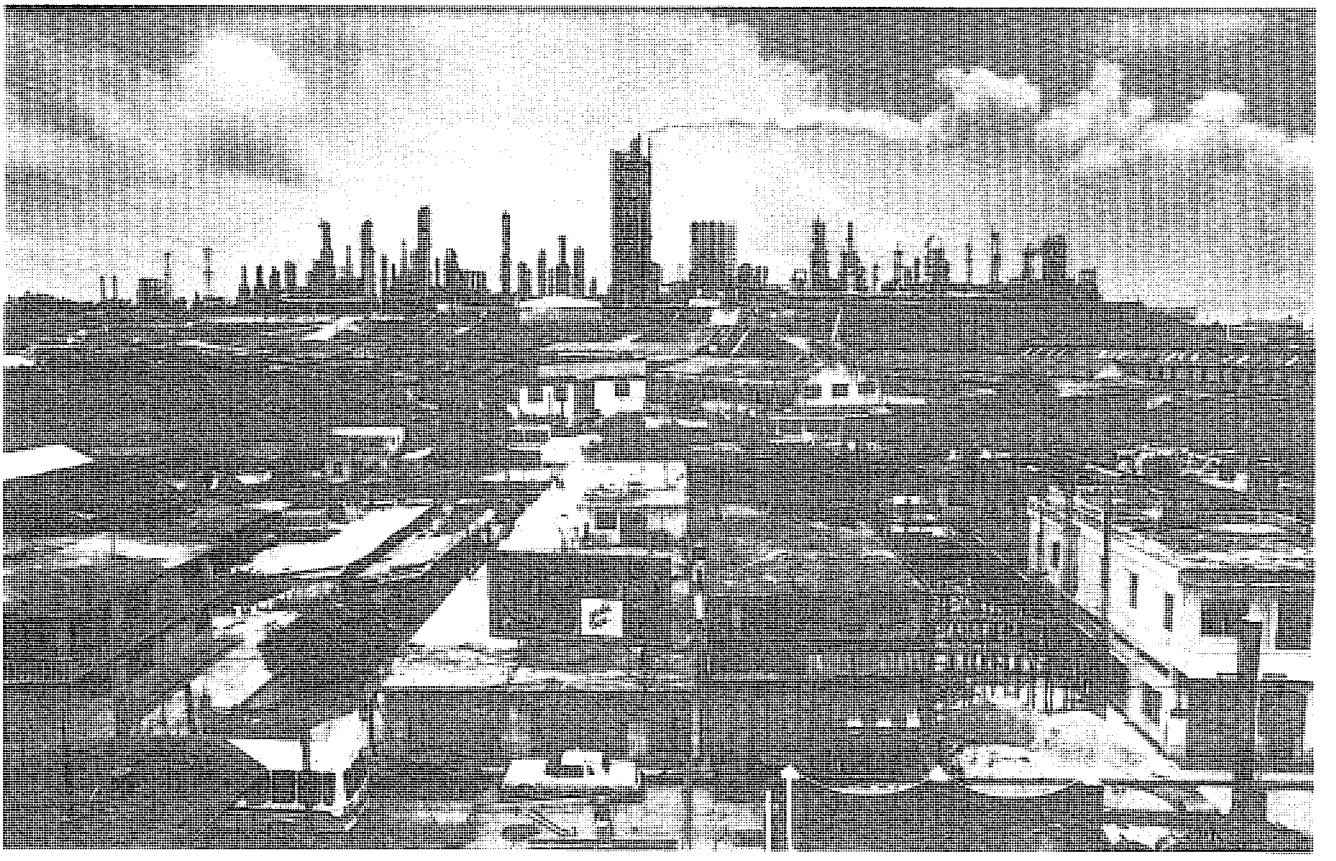
One of the first projects is being developed in the city of Manizales, Colombia, where a new public-private company has been formed to supply water-treatment equipment to coffee processors and operate a water-treatment plant. The new company will reduce the river pollution largely created by the coffee industry and improve the city's drinking water supply. Project partners include the local NGO, Fundacolón, the local coffee processor—Comité de Cafeteros de Caldas (Empocaldas)—the local water authority, other local and international companies, and the Inter-American Development Bank.

## Tackling Industrial and Municipal Waste Disposal

INDUSTRIAL ACTIVITIES DIRECTLY CAUSE MUCH OF THE POLLUTION that degrades the environment. Industries striving to make their practices sustainable agree that reducing waste or pollution at the source is more efficient and less costly than attempting to clean up later. Other approaches focus on end-of-pipe technologies, such as incinerators and water-treatment facilities that remove or detoxify wastes. U.S. industries take this tack with *maquiladoras* in Mexico, which treat their wastewater before releasing it into the sewage system. Using this approach, an unusual partnership promoted by General Motors between local and national Mexican authorities and the *maquiladoras* provided the whole city of Juarez, Chihuahua, with wastewater-treatment facilities for the first time.

**Many of the pollutants that degrade the environment are produced by industrial activities. (Credit: Ron Giling/ Panos Pictures)**



Without public facilities to handle municipal waste, *maquiladoras* operating in Juarez—including General Motors sub-assembly plants—were discharging their treated wastewater into a sewer system full of raw sewage, wasting effort and money. This realization led GM to propose that *maquiladoras* combine their own funds with those of the Mexican government to build a wastewater-treatment plant for all of Juarez. A 35-member Juarez Wastewater Task Force, including stakeholders ranging from the city mayor to the National Wastewater Commission, as well as 15 *maquiladoras*, met in August 1992 to reach an agreement covering the design, implementation, and operation of the proposed wastewater-treatment facilities.

Originally, the *maquiladoras* insisted on recovering their investments through concessionary users' fees for the first few years—an idea that made some Mexican officials uncomfortable. But because the Mexican government had announced a water-privatization program in July 1992, the task force and the water authorities realized that now they would be in a position to make the contractor chosen bear most of the constructions costs, so the *maquiladoras* ended up with a limited financial role. In July 1993, the Degremont Construction Company was chosen to build and operate the plants: the Secretariat for Urban Development and Ecology (SEDUE) pays 25 percent of construction costs and Degremont finances the remaining 75 percent. The wastewater-treatment system, consisting of two treatment plants and expanded sewage collectors, is expected to be in full operation in 1995.[4]

## Targeting Small and Medium Enterprises

Because small and medium businesses help drive economic and social progress in Latin America and the Caribbean, their adoption of processes and technologies that further sustainable development is crucial. To do their part, they require institutions that channel resources from governments, multilateral institutions, civil society organizations, and the business sector itself toward programs that help them factor environmental concerns into their business operations.

One such institution is PROPEL (Promoción de la Pequeña Empresa Ecoeficiente Latinoamericana), a partnership among donors, sectoral and multi-sectoral business associations, and management and environmental experts based in Bogotá, Colombia. Through business associations, PROPEL promotes the development of small and medium Latin American enterprises with social and environmental responsibility within the framework of a market economy. By analyzing technology, productivity, and the impact of production processes on occupational safety and health and the environment, PROPEL helps businesses improve eco-efficiency through the optimal use of materials and energy, the substitution of renewable for non-renewable resources, minimization of emissions and waste, recovery and commercialization of byproducts, use of appropriate methods of waste disposal, and the reduction of health and environmental hazards. PROPEL utilizes incentives such as certificates of compliance to encourage businesses to improve environmental performance. It also advises financial institutions on how to take environmental issues into account when evaluating credits to the productive sector.[5]

PROPEL's scope is regional, focusing primarily on Central America and the Andean countries. In eight productive sectors, including leather manufacturing, food processing, and the flower industry, between 50 and 250 business partners help maintain or improve the competitiveness of key employment-generating industrial sectors.

Obstacles encountered by PROPEL in helping small and medium businesses improve their managerial and environmental performance include capital shortages, outmoded production equipment, lack of environmental awareness, limited technical and managerial capacity, and lack of information on technology options, their costs, and sources. PROPEL's actions would have greater impact if there were voluntary compliance with sectoral plans for environmental improvement, voluntary or compulsory disclosure of environmental impacts and risks by sector and by business, further development of such market instruments as environmental certification, and the promotion of eco-efficiency through the financial system.[6]

A similar partnership operating out of Caracas, Venezuela, is Program Bolívar, which emerged to help Latin America and the Caribbean move toward sustainability through competitiveness and innovation. By establishing partnerships among business, financial institutions, universities, government agencies, and NGOs, Program Bolívar expects to use resources strategically within and outside the region to support both. Program Bolívar aims to catalyze joint ventures and other partnerships among business and other institutions in Latin America and the Caribbean and in other regions, improve or generate products, processes and services to capture new markets, and promote development policies that are compatible with the need to protect the environment and human health.

Currently, the program's network of multi-sectoral national commissions lobbies for policies aligned with its mission. Meanwhile, its network of national liaison offices in 14 countries of Latin America and the Caribbean brokers proposals and searches for partners. Yet another series of program-related networks comprise the League of Banks (currently with 74 financial institutions), which devises financial instruments to match the scope and dimension of the partnerships proposed; a juridical network that provides legal support; and a network of universities and research centers that develops technological innovations and supports project management. Most of the 75 business partnership proposals with strong environmental components that have so far been channeled through the national liaison offices mainly cover eco-efficiency, the adoption of clean technologies, and research.[7]

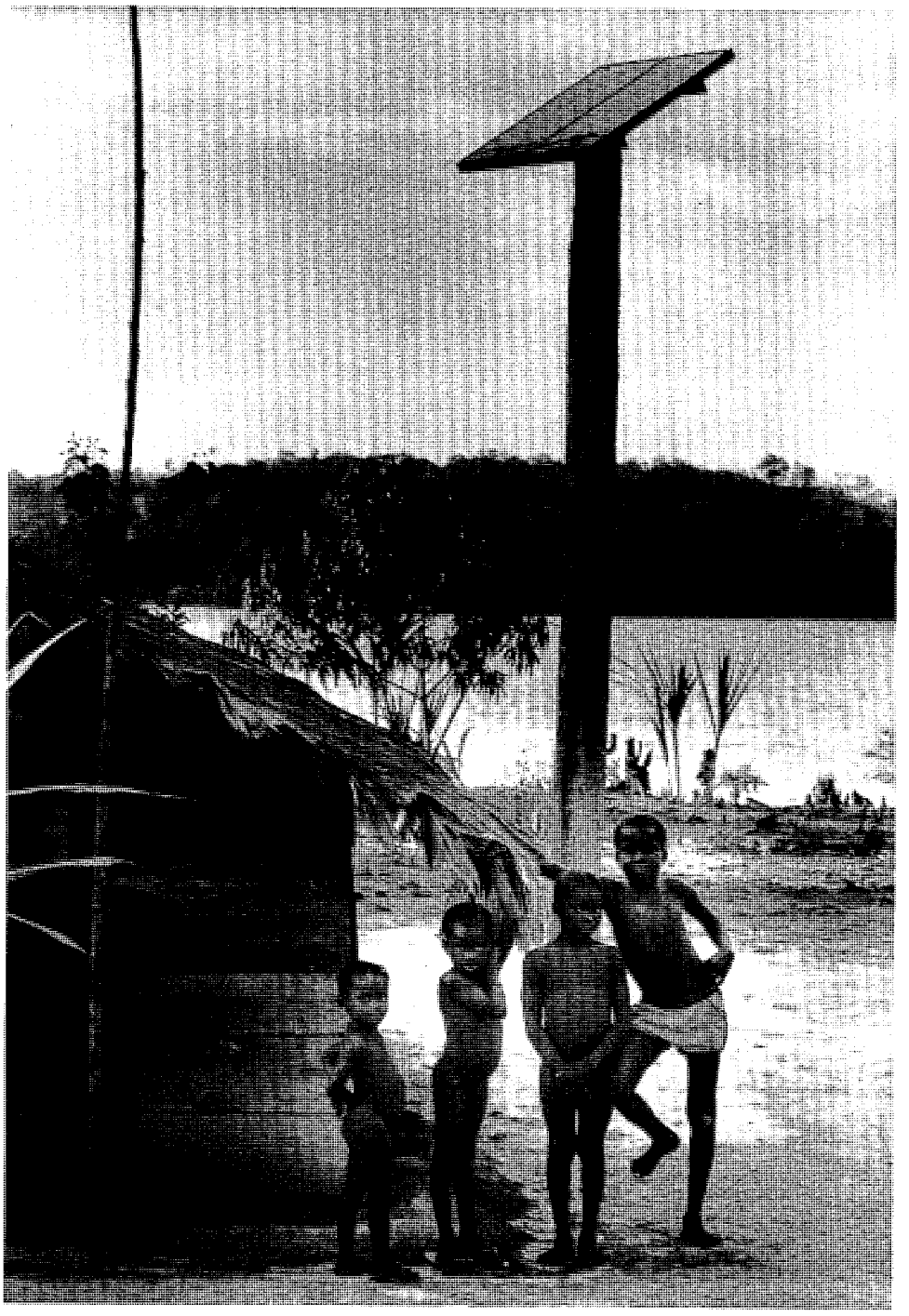
## Supporting Alternative Technologies

Alternative sources of energy, especially in the rural areas, are badly needed in many regions of the Americas. Standing in the way are capital shortages and institutional barriers to developing new energy technologies, such as photovoltaic (PV) systems. To help scale such barriers, Enersol Associates, Inc., a U.S.-based NGO, supports the development of indigenous energy supply, service, and financing mechanisms and also helps new producers respond to a market-driven demand for household PV systems in the Dominican Republic. Using donor grants, Enersol is training a network of local entrepreneurs to assemble, market, install, and service alternative energy systems. It is also setting up community-based solar NGOs to manage revolving loan funds for individual energy users and help local community-development and financial NGOs develop full cost-recovery approaches to paying for the system. With donor grants, Enersol is replicating the Dominican entrepreneur/professional training and NGO loan model in Honduras and Guatemala as well.

This partnership exists to develop an "open-ended" self-sustainable program for solar-based rural electrification and, eventually, to integrate solar technologies into rural

societies in Latin America. Starting in 1985 with six systems, by 1993 the program had grown to over 2,000. The total number of Enersol-associated systems is expected to surpass 2,400 in 1994, with the help of a GEF grant and a $55,000 "bridge fund" provided by the Rockefeller Foundation. Richard Hansen, Enersol's founder, attributes this partnership's success to the use of simple and economical stand-alone systems, an emphasis on training and local human resources development, village-level focus and control, local capital generation to garner community responsibility and support for the projects, and the parallel development of credit program service enterprises and of technical and organizational human resources.

**Solar-based electrification is an environmentally sound energy alternative for rural societies in Latin America and the Caribbean. (Credit: Ron Giling/Panos Pictures)**



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## Speaking the Language of Business

Until recently, environmentalists mainly used pressure tactics—product or industry boycotts, for instance—to force businesses to adopt environmentally friendly processes or to reduce the negative environmental effects of their operations. Now, however, environmental NGOs are increasingly trying to give businesses market incentives to adopt better practices. Consider the case of the ECO-O.K. Certification Program of the Rainforest Alliance (RA), which certifies tropical agricultural products that are grown with minimum adverse environmental impacts.

In the ECO-O.K. Banana Project, initiated in 1991, RA works with Fundación Ambio of Costa Rica, and in Ecuador with Corporación de Conservación y Desarrollo (CCD). In Guatemala, the ECO-O.K. Coffee Project (started in 1994) is a joint effort among RA, the Fundación Interamericana de Investigación Tropical (FIIT), and the Central American Coffee Company (CACC). The ECO-O.K. standards—used to evaluate the environmental management of banana and coffee plantations—have been negotiated by environmentalists, industry, government representatives, and researchers. Rather than imposing standards on industry from outside, the sponsors of the ECO-O.K. projects decided to work directly with industry and to have the program carried out by a disinterested third party. In this way, industry is not pressured by exporting or importing countries to enroll in compulsory certification programs, and complaints about violations of trade barriers can be avoided.

Engaging consumers to send market signals to industry is key to the ECO-O.K. program's success. Educated U.S. and European consumers will, as this logic goes, reward companies by selecting foods grown in ways that do little environmental damage. For this reason, the program also tries to increase the awareness of U.S. and European consumers of the true environmental costs of tropical agriculture.

Getting industry to embrace change has not been easy; yet, some innovative companies have been willing to learn how their activities affect the environment and to make the necessary changes—a breakthrough by any reckoning.[8]

## Merging Taxonomic Expertise with Computer Know-How

The biodiversity management information system (BIMS) grew out of a business partnership between Costa Rica's National Biodiversity Institute (INBio)—responsible for cataloguing the nation's biological diversity—and Intergraph Corporation, the world's largest manufacturer of interactive computer graphic systems. The system will combine INBio's taxonomic and specimen-inventory expertise with Intergraph's vast knowledge of computer tools and database management, geographic information systems, and image management. Under a contract signed in November 1992, Intergraph will provide $750,000 in hardware, software, development, maintenance, and training, and INBio will provide the expertise for the system design, as well as two software developers to work on-site at Intergraph for six months.

If the jointly-developed BIMS product is sold commercially, revenues will be equally divided between INBio and Intergraph. In turn, INBio will divide its take equally

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## The Business of Sustainable Development

| Partnership | Participants | Objectives |
|---|---|---|
| Liana Cane Interiors, Guyana | Business, indigenous communities | Sustainable extraction of forest resources for furniture manufacturing. |
| Environmental Benchmarking, United States and Mexico | Business, research center | Develop an environmental cost accounting approach to improve environment management within the private sector. |
| City Services Program, developing countries | Business, government, local communities | Provide safe water, sewerage, waste removal, and reliable energy to cities in developing countries. |
| Wastewater treatment system, Ciudad Juarez, Mexico | Government, business | Construction of wastewater treatment facilities in Ciudad Juarez, Mexico. |
| Propel, Bogotá, Colombia | Businesses | Promotes the development of small and medium-sized enterprises that are socially and environmentally responsible. |
| Programa Bolívar | Businesses, universities, banks | Promotes the development of business enterprises that are socially and environmentally responsible. |
| Enersol, Dominican Republic | NGOs, business | Promotes the use of alternative energy in rural areas. |
| Eco-labeling, Costa Rica, Ecuador, Guatemala | NGOs, government, business | Environmentally sound production practices through market incentives. |
| Telegraph and INBio, United States and Costa Rica | Business, research center | Use of interactive computer graphic system to make a database for a biodiversity inventory. |

between the operating costs of the BIMS and the management costs of Costa Rican parks and protected areas. The initial agreement is for 18 months, but the revenue agreement continues for the life of the software.

The system was created to run on Intergraph UNIX workstations and PCs, but also runs under X-windows on Macintosh, and was completed in November 1993. The

BIMS system will be able to convert large volumes of data into useful information and format it for users from diverse technical and non-technical backgrounds. With this system in hand, INBio has a biodiversity-management system that can accommodate its ten-year country-wide inventory of Costa Rica's biodiversity (a total of about 500,000 species of organisms being classified at a rate of approximately 20,000 per month), and Intergraph can provide biodiversity-management systems built on this model to various types of consumers. Moreover, this agreement marks the first time that a high-technology computer company and a developing-country institution working on biodiversity have exchanged technology bilaterally.[9]

## Endnotes

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# Information Exchange and Capacity-Building

OPEN AND PARTICIPATORY PROCESSES, POLITICAL DECENTRALIZATION, and environmental policy-making are all welcome signs of the recent democratic trend in the Americas. To strengthen and deepen this democratic transition, attention needs to be given to economic and social development programs that mandate participation, transparency, and accountability. For this reason, there is a need to create or strengthen the institutions of national government, local government, and civil society that are working to advance sustainable development.

The technical and managerial capacities needed to design and implement sound environmental policy not only depend on the ability of governments to make and enforce laws and regulations, but also on their ability to involve civil society in policy-making and implementation. For their part, these NGOs, grassroots organizations, professional associations, universities, and research centers must "be capable of generating discussion and criticism of government action and inaction, and of participating in finding and carrying out policies that respond to environmental problems."[1] Similarly, further defining their roles and corresponding skills, focusing on strategic planning and project implementation, and joining forces with others to confront common problems will help environmental organizations gain influence and impact.[2]

To spark changes in the way natural resources are managed and used, NGOs are getting involved in information production, analysis, dissemination, and exchange, as an increasing number of NGO networks and consortia throughout the Americas have formed to do. Because such environmental problems as water contamination and air pollution do not respect political boundaries, groups from different regions and sometimes from different countries are facing them together. Government agencies in the Americas are also seeking stronger cooperation in information exchange and capacity-building. Indeed, as the examples described below show, capacity-building and information exchange appear to be highly fertile grounds for innovative partnerships, whether among NGOs, among governments, or among governments, NGOs, and community organizations. The potential for all types of cooperative partnerships is enormous.

# Bringing the Right to Know and Other Cross-Border Issues to Light

LAURA BROOKS*

ENVIRONMENTALISTS WORKING TO CURB POLLUTION ON THE U.S.-Mexican border face a challenging milieu of bureaucratic red tape and cultural, political, and legal conflicts. Since 1991, however, a new partnership of five non-profit groups and a string of researchers and activists on the border has made headway against these constraints. The Border Health and Environment Network, known as "La Red" (Spanish for "network"), helps collect and spread information on environmental issues and also promotes communication among those studying the border.

## Border Industrialization and NAFTA

The network took root in 1991 amid widespread debate over rapid growth on the U.S.-Mexico border. Since the mid-1960s, when Mexico created the Border Industrialization Program to stimulate its industrial base, earn foreign exchange, and create jobs, hundreds of *maquiladoras* have sprung up in Mexican border towns. *Maquiladoras* are built by foreign subsidiaries to assemble products for export. They also can provide major benefits to local economies. In June 1992, Mexico had more than 2,000 foreign-owned *maquiladoras* manufacturing electronics, transportation equipment, and many other products. It is estimated that *maquiladoras* bring close to $3 billion a year into the Mexican economy. They rank second only to oil as foreign exchange earners.

One result of the program has been rapid population growth from the influx of workers. During the 1980s the border population doubled, and the number of *maquiladora* employees grew to about 360,000. As factories multiply, so may the use of hazardous materials, creating potential pollution and health problems. Border cities can be hard-pressed to provide sewer and water systems to the growing number of unplanned settlements.

Debate over the North American Free Trade Agreement (NAFTA) helped bring border problems into focus: the passage of the NAFTA has led to pollution prevention and cleanup programs, as well as disclosure of information about hazardous materials. Demand for information grew. In 1991, about a dozen researchers, academics, environmentalists, and health providers from five organizations met in Hermosillo, Sonora, and agreed to create a non-profit information network based in Hermosillo. Members began meeting several times a year and seeking funding to support their activities. In 1993 the Ford Foundation granted $150,000 to set up an office and fund the three Mexican groups in the network—Enlace Ecológico, in Agua Prieta; Comité Cívico de Divulgación Ecológica, in Mexicali; and Proyecto Fronterizo de Educación Ambiental, in

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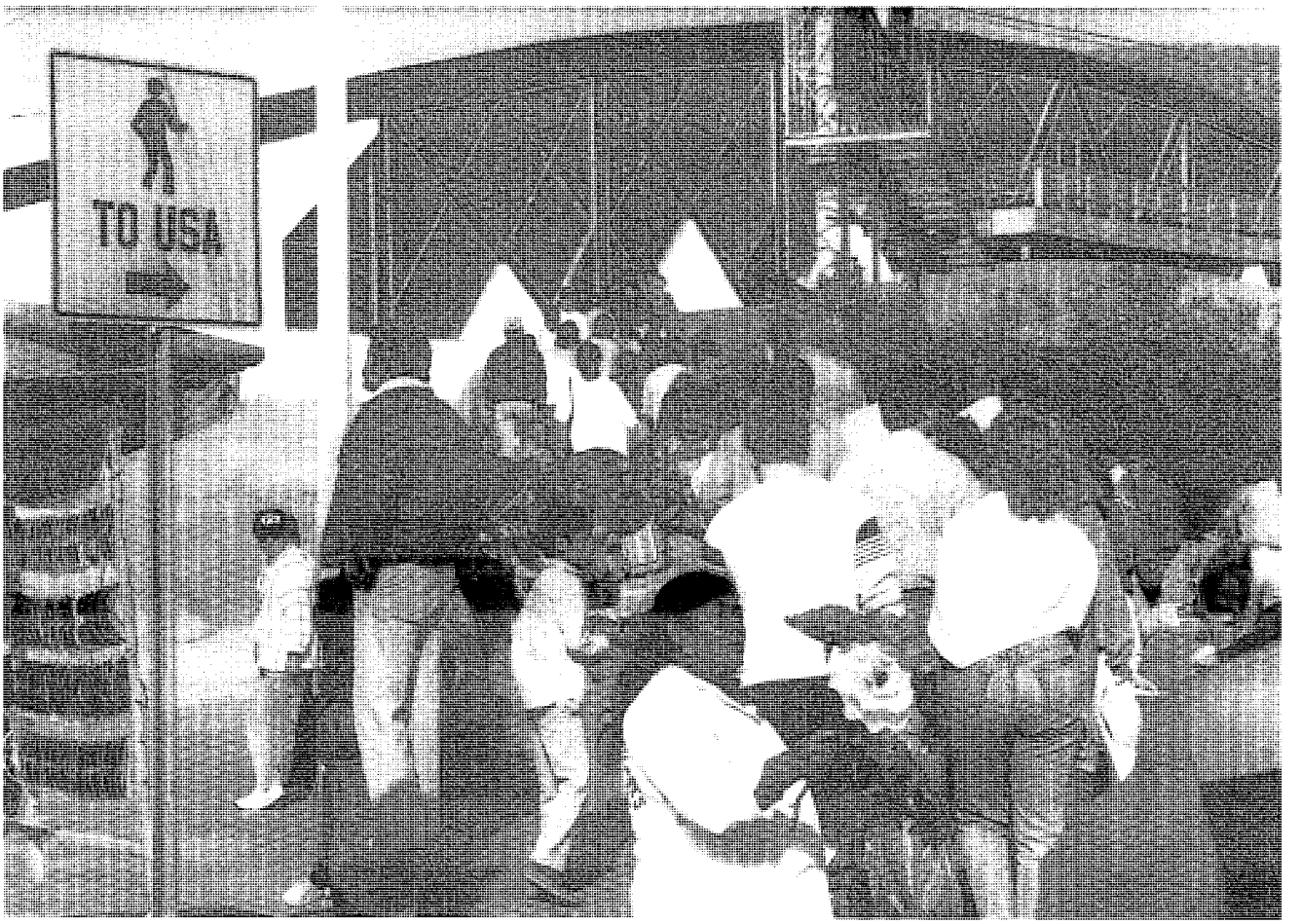


**Tijuana, Mexico. The *maquiladora* industry along the Mexico-U.S. border has attracted large numbers of people to the area. (Credit: Liba Taylor/ Panos Pictures)**

Tijuana. Arizona Toxics Information and the Border Ecology Project are the two U.S. partners.

The network has focused on Mexico and supports citizens' access to data. "The concept [of open access to information] has been imported," says Laura Durazo, director of the Tijuana environmental education project. "It has yet to be defined. The way we're promoting it is pretty much the way it's being done in the U.S."

## Taking Inventory of Potential Risks

"The beginning point for any kind of environmental protection is knowing what you're dealing with," says Michael Gregory, director of Arizona Toxics Information. "And that means you do an inventory." In 1993, Arizona Toxics and Enlace Ecológico conducted two hazardous materials inventories in Mexico as a pilot project for the network. Researchers surveyed pesticide use on small farms in Fronteras and Santa Cruz in northeast Sonora, and collected data on *maquiladora* use and release of materials in Agua Prieta in northern Sonora. The $70,000 study took 18 months and was funded in part by grants from the W. Alton Jones, Charles Stewart Mott, and Jesse Smith Noyes Foundations. The two groups carried out the study on their own, but turned often to the network for help.

"We were having a good deal of trouble finding out what [pesticide] laws are in Mexico," says Gregory. But the Baja-based Comité Cívico volunteered to get the informa-

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tion on federal pesticide laws. In Agua Prieta, Enlace's director, Gildardo Acosta-Ruiz, helped win cooperation for the study from city and plant officials.

At the same time, the network's promotion of the right to know helped persuade the state Civil Protection Office, Ministry of Social Development, and the City of Agua Prieta to endorse the study. Without such endorsements, researchers can find it difficult to gather data and conduct interviews. "We know that the network did talk to people in state government and there was a general encouragement and promotion of right to know," Acosta-Ruiz says. "That kind of pressure from the grassroots up creates a climate for change."

In the study, researchers questioned 26 plant managers (out of 34 asked to participate) about types and quantities of materials used at their plants. "We're interested in what's going into the air and water in the community," Gregory says, adding that such data are useful for emergency planning, and health and safety issues. "The only way you can get that is through this kind of integrated monitoring."

One discovery was of a disparity between chemicals released, as calculated from materials balances, and chemicals actually reported in monitoring and emissions. The pesticide study provided data about chemical types and amounts, and it exposed a severe lack of training among farm families about the proper use and hazards of pesticides.

"This is the first concrete result of the push for right to know on the border," says Gregory, adding that he has sent copies of the study to almost 200 people, including the media, researchers and officials. "In that respect I think it is an important model." Inventories based on this model are being conducted in Tijuana and other areas. Gregory hopes that these citizen-initiated studies will help spur the government to develop a national integrated inventory system.

## Making Policy Recommendations

The network itself is "a very new idea," says Irasema Coronado, a network member who studies water and other environmental issues at the Colegio de la Frontera Norte. "It's not something that policy makers or politicians are used to dealing with. I don't think it is a threat, but it's a whole new way of doing business...In Mexico you work through political parties, labor organizations, industry groups. This is a broader-based sort of entity that is not hierarchical. It's more horizontal."

Members say the network's binational "hands-on" approach is a model for what the government should be doing on the border. "Local groups know what the problems are," says Gregory. "So it makes sense to empower the locals, but governments...tend to think in terms of top-down solutions. They advocate separate bodies, rather than binational bodies."

Members admit, however, that the network has shortcomings. Lack of funding creates some tensions among participating groups. "There have been arguments," Gregory says. "You've got money and you're trying to figure out where it goes, who gets a piece of it." Dick Kamp of the Border Ecology Project agrees. "Finding an identity as a network, and providing support to groups who are struggling financially isn't easy. It's very difficult to figure out how you can be supportive to everybody. How do you resolve funding issues when it's a very small pie?"

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The network also struggles with its political conscience. While it now refrains from taking stands because its members hold diverse views, some believe that the group could eventually offer policy options on environmental, economic, and trade issues. "I

don't think we would take a political stand," says Coronado. "But I think we are on the way to making some very serious policy recommendations in terms of right to know and hazardous wastes."

Network members hope the future will also bring more partners from both sides of the border into the fold. "That's how we envision the future—to link the border," says Coronado. "I would like to see groups in Texas and California get involved. Unilateral solutions to these environmental problems will not work, and we are still trying to overcome that. The network is trying to sell the notion of binational solutions."

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## BUILDING IN-COUNTRY EXPERTISE

COLLABORATION TO STRENGTHEN INSTITUTIONS OR DEVELOP TECHNICAL capacities should promote self sufficiency. In some instances, this means that strategic short-lived interventions can yield long-term impacts.

A case in point is the Katalysis North-South Development Partnership founded in the United States in 1984 to support NGO efforts to help low-income people become self sufficient. In Katalysis' beneficiary-driven efforts to build capacity, all projects are designed to meet the self-expressed needs of locals; beneficiaries pay for part of the cost of the services they receive and manage the projects; full disclosure of information, accountability, and open communications are required; and all members of Katalysis at all levels of the organization participate fully in decision-making.

Katalysis' partners are four indigenous self-help organizations in Belize, Honduras, and Guatemala that assist communities in, for instance, micro-enterprise development, natural resource management, sustainable agriculture, and women's community banking. Typically, these partners provide technical advice, training, and credit extension to groups hardest hit by poverty—indigenous peoples, women, children, small-scale farmers, and small-business owners. The partners help upgrade food production and income-generating capacity and encourage personal savings and sustainable agricultural practices aimed at self sufficiency.

Belize Enterprise for Sustained Technology (BEST), Katalysis' first partner, provides technical assistance, management training, and credit to more than 11,000 members of community-based initiatives ranging from women's banks to small fishing and farming cooperatives. A tiny professional staff of Belizeans trains communities in sustainable natural resource and agricultural management, provides financial and marketing advice, and promotes organizational capacity building. The Honduras partner, the Organization for Women's Enterprise (ODEF), has helped women in 60 communities get more than 2,000 small businesses off the ground since it was established in 1985. The Cooperative Association for Western Rural Development (CDRO), one of the Guatemalan partners, is an all-Mayan organization that provides technical assistance, training, and credit to more than 6,000 Mayans.[3]

Boosting self-sufficiency is also the main goal of Water for People (WFP), a nonprofit NGO in Denver, Colorado. Water for People provides financial assistance and highly skilled volunteers to help people worldwide sustainably obtain safe drinking water. The group does not run projects. Rather, it helps partners set priorities, define needs, and carry out projects.[4] It supports projects that will be self-sustaining technically, econom-

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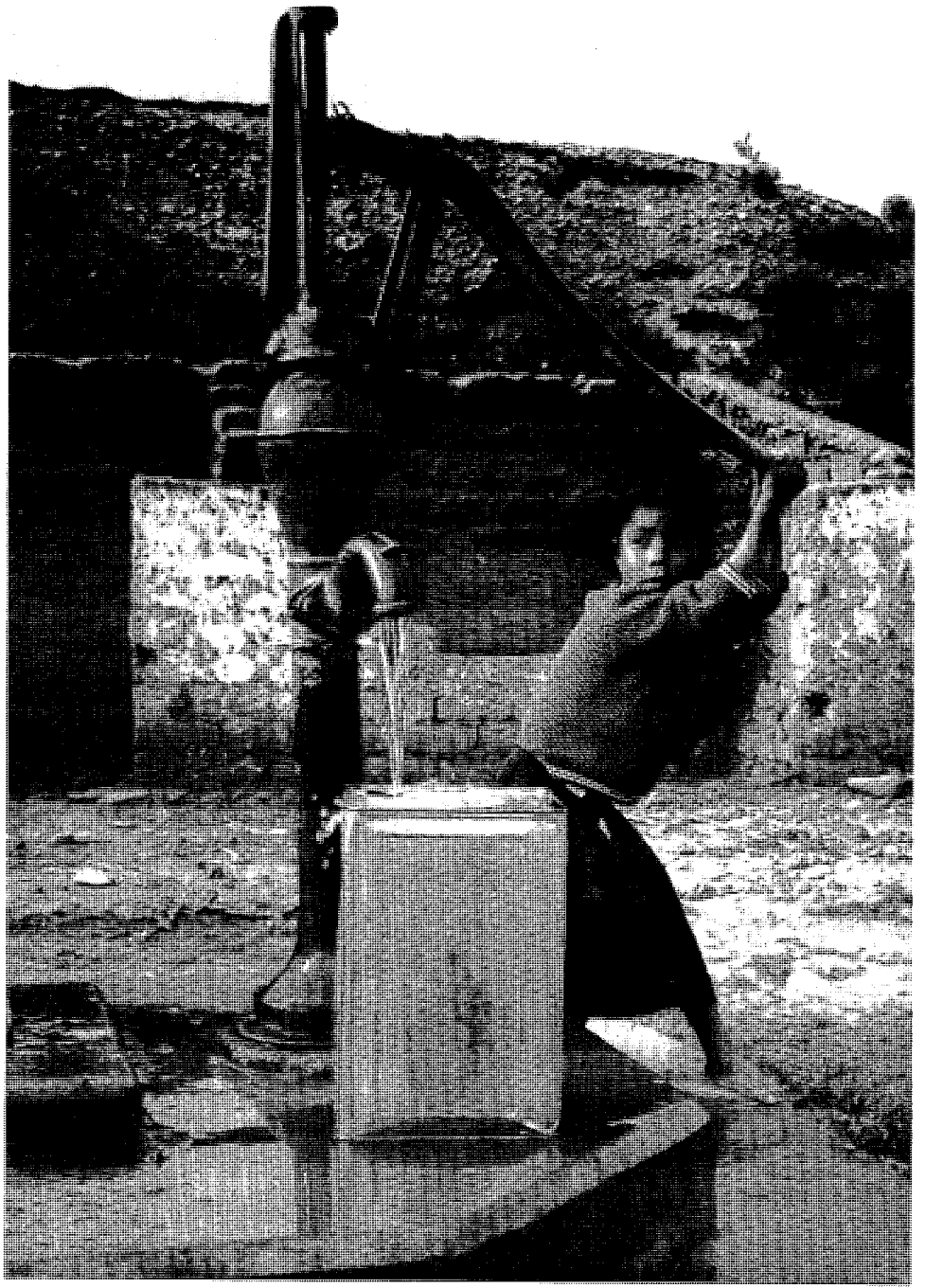

**Water for People supports self-sustaining projects that facilitate community access to safe drinking water. (Credit: WHO)**

ically, and environmentally after WFP assistance ends. Water for People was established in 1991 by the 55,000-member American Water Works Association (AWWA), one of the oldest organizations of water professionals in the world. Members raise money for projects and, more important, volunteer their time and technical expertise to projects adopted by local AWWA chapters.

Water for People's activities range from workshops on simple chlorination or gravity-fed village water systems workshops to utility management training and water resource planning. All of the local projects backed by WFP involve community participation and commitment, health education, operation and maintenance, and appropriate technology. In Latin America WFP works with Peace Corps volunteers in Bolivia, Nicaragua,

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Honduras, and Ecuador, where their partners include local nongovernmental organizations, local health communities, international aid agencies, and in-country municipal water/wastewater utilities.

## TRAINERS OF TRAINERS

IN-COUNTRY CAPACITY-BUILDING HAS ALSO BEEN THE MAIN OBJECTIVE OF the partnership between the Washington-based World Resources Institute (WRI), a research and policy organization, and the Group of Environmental Studies (GEA), a Mexican NGO. GEA now provides technical assistance on participatory planning with grassroots groups to other Mexican nongovernmental organizations.

The project was originally conceived as a two-year partnership during which time the two groups would jointly test and adapt a handbook and other materials on Participatory Rural Appraisal (PRA) to Mexican conditions. However, GEA took only 12 months to develop the capacity to apply the methodology and provide technical assistance to others, so WRI turned all training activities on PRA and participatory planning methods over to GEA early on. The partnership expanded when the Mexican Program for the Protection of Tropical Forests (PROAFT) asked the two groups for technical support to train local groups in PRA techniques and to help it define, through consultation, long-term policy guidelines for tropical forest management in Mexico.

Overall, the partnership between WRI and GEA resulted in the production of practical and culturally sensitive materials (methodological guidelines, case studies, and other "how to" manuals) that can be widely used in communities throughout Mexico. More importantly, this effort met its objective of developing in-country capacity to continue adapting and working out responses to local needs as they arise.[5]

A new project to support capacity-building and collaboration between agricultural research institutions, government research and development agencies, and NGOs working on sustainable agriculture has been launched by WRI's Center for International Development and Environment. The project's three objectives are to fortify collaboration between farmers' groups and research organizations, resolve conflicts between sustainability and economic productivity, and make agricultural research and development more responsive to farmers and resource conditions. The World Resources Institute is assessing in detail four or five cases where agricultural research, extension services, and farmers' groups are changing course through collaborative efforts.

Capacity-building for planning and managing natural resources at the grassroots level is also at the heart of a collaboration between Oxfam America and the Coordinating Body of Indigenous Peoples in the Amazon Basin (COICA). Oxfam is an international PVO (private voluntary organization) supported primarily by grants and contributions, while COICA is a forum of Amazonian tribes supported by the Inter-American Foundation and other organizations. Oxfam and COICA have together carried out an ambitious investigation of the economic strategies of the indigenous communities of the Amazon Basin to identify how to plan and manage resources in ways that do not undermine indigenous cultures and ways of life. This work has enjoyed a high degree of participation by indigenous peoples, who brought their perspectives and experience to bear in the implementation of the project. The research component was very broad in scope, consisting of several case studies on how unusually successful indigenous communities have adapted within the struggling national economies of Brazil, Bolivia, Colombia,

Ecuador, and Peru. Almost 25 economic projects emphasizing economic and ecological viability, self-sustainability, and cultural preservation have been designed.

Even before the studies were completed, indigenous communities began to mobilize. They held workshops to identify issues, problems, and key actions regarding economic development and define the relationship between the communities of the Basin and international funding agencies.[6]

In the region of the lower Caquetá River, in the Colombian Amazonia, a partnership has emerged among a research NGO, the Puerto Rastrojo Foundation (FBRP), the National Institute of Renewable Natural Resources (INDERENA), and the Bora-Miraña, a group of local indigenous communities, to improve the latter's capacity to manage forest resources. The project, supported by the International Tropical Timber Organization (ITTO), is being implemented in the Cahuinarí National Park. The Park is used as a training and demonstration center. Research is being conducted on the composition of the local forest ecosystem in order to identify plant species with potential commercial, nutritional, and industrial value. At the same time, the partnership holds workshops for indigenous groups to involve them in the planning and implementation of forest management activities. The project is the result of a formal agreement between the Colombian government and indigenous groups to jointly manage the park. This effort draws on both traditional indigenous knowledge and scientific research to improve the management of forest resources.[7]

## Organizational Strengthening through Capacity-Building and Education

THE WORKERS' CENTER OF AMAZONIA (CTA), BASED IN ACRE, BRAZIL, establishes partnerships with community organizations in the Amazon Basin to promote self sufficiency. CTA's Seringueiro Project (SP) sponsors educational programs in environment, health, forest management, and sustainable economic development that help the indigenous peoples of the Amazon rainforest achieve a sense of self-confidence and pride in their cultures and way of life.

SP primarily seeks to educate indigenous peoples in the principles of sustainable development so they can then apply these principles to their own situations. SP's curriculum reflects the social, economic, and geographical realities of the region's poor. The programs themselves are mainly conducted on the extractive reserves, a testing ground where harvesting practices can be reconciled with the principles of sustainability. The work of SP now touches the lives of some 4,000 people living on the *reservas*.

CTA maintains ties with the education departments of towns scattered along the Branco River and with the Federal University of Acre, drawing on their technical expertise whenever possible. Through education, SP also attempts to strike at the roots of such grave social problems as violence, the disintegration of the family, prostitution, the mass exodus of rural populations to the cities, and urban decay by teaching the indigenous peoples of the Brazilian Amazonia how to create promising economic opportunities for themselves that will not destroy their culture or their resource base.[8]

In Tarija, in southern Bolivia, a similar effort is being conducted by the Center of Regional Studies for the Development of Tarija in partnership with Guaraní indigenous

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organizations that represent 38 communities of the Itika Gusu region (some 3,000 people). The aim is to improve the quality of life of the indigenous population through building organizational capacity, promoting the conservation and sustainable use of the region's natural resources, and lobbying for environmental legislation that encourages participatory planning and protects the rights of indigenous peoples.[9]

To offer young Mexicans an opportunity to learn about their environment and develop leadership skills while practicing conservation and environmental protection, the Mexico Conservation Corps (MCC)/Cuerpos de Conservación Mexicanos (CCM) was started by Partners of the Americas, a non-profit NGO that promotes economic and social development while fostering inter-American friendship and cooperation. The new Mexico Conservation Corps was inspired by the Partners' 1991-93 Mexico-U.S. Conservation Leadership Program (MUSCLE), implemented in national parks in Guadalajara, Mexico; California, and Texas.

MUSCLE was an intercultural exchange program that brought people between the ages of 16 and 19 together from Mexico and the United States to learn about natural resource conservation, receive leadership and conservation training, and to increase cultural understanding.

The pilot project for MCC took place the summer of 1994 in Oxkutzcab, Yucatán, Mexico. There, 60 Mexicans between the ages of 15 and 35 restored Tabi, an historical sugar plantation recently designated as a natural reserve. They worked in sustainable agriculture and forestry projects and in landscaping and trail construction. They planted a botanical garden using local medicinal plants, and helped with recycling efforts. Corps members were trained by Mexican staff who had themselves been recently trained by California Conservation Corps, the U.S. program used as a model.

The Mexican Government's Secretaría de Desarrollo Social (SEDESOL) promoted the program with environmental NGOs through two informational seminars. SEDESOL will continue providing education and training materials through its Procuraduría General del Medio Ambiente, a project supported by USAID, the United States Information Agency (USIA), and such private corporations and foundations as American Express Mexico, Compañía Nestle S.A. de C.V., and J.P. Morgan Mexico, among others. The MCC pilot project is showing that a program developed in the United States can be replicated in an adapted form Mexico.[10]

## STRENGTHENING SKILLS AND POOLING RESOURCES TO PROTECT THE ENVIRONMENT

COOPERATION IN CAPACITY-BUILDING BETWEEN LOCAL GOVERNMENT agencies and organizations of the civil society with complementary resources and skills can improve environmental management expeditiously. In Guatemala, the Coordinadora Regional Ambiental was created in 1993 to coordinate environmental activities involving government agencies, NGOs, and grassroots organizations in the North-East region (departments of El Progreso, Zacapa, Chiquimula and Izabal). Members of the Coordinadora have joined forces to capitalize on their complementary strengths, thus avoiding duplication of efforts and waste of resources. The partners are three national NGOs (Fundación Defensores de la Naturaleza, Proyecto Ambiental Para Centroamérica, y Cooperativa Americana de Remesas al Exterior),

three local NGOs (Asociación Ecológica de Oriente, Fundación Victoria, and Asociación de Supervivencia Zacapaneca), and two government agencies (Comisión Nacional del Medio Ambiente and the Consejo Nacional de Areas Protegidas).

The principal objective of the partnership is to assist, advise, and coordinate environmental activities by different sectors of society. The five main activities are:defining and applying an environmental education strategy throughout the region; conducting seminars and workshops to establish a regional network of environmental NGOs; building environmental management capacities among local governments, as well as regional and local development councils; coordinating and supporting environmental research in universities and research centers; and organizing environmental promotion and extension activities in the biosphere Reserve Sierra de Minas.[11]

## Governments and Scientists Working Across Borders

CAPACITY-BUILDING CAN ALSO STRENGTHEN PARTNERSHIPS BY REDUCING asymmetries among partners—especially regarding skills and expertise—while enhancing self sufficiency. Two initiatives by the U.S. National Oceanic and Atmospheric Administration's (NOAA) Office of Global Programs have been launched to serve this objective. The Inter-American Institute for Global Change Research (IAI), a joint effort involving NOAA and the National Science Foundation, was formed as a regional partnership to advance sustainable development in the Americas by generating environmental data, scientific research, and policy-relevant information within the region. Key issues are coastal zone management, food and energy supply, the availability of fresh water, and land-use changes and degradation. Signed by 16 countries of the Americas, the agreement to establish the IAI entered into force in March 1994 following the ratification by eight of the signatories.

To ensure that this new partnership yields tangible returns, efforts have been made to develop a sense of regional ownership of the institute. Most of the funding will come from the United States and the Global Environment Facility, but countries will provide data, knowledge, expertise, scientific infrastructure, and some financial resources. IAI is meant to be the result of a "new paradigm whereby all countries participate as equals."[12]

The second initiative consists of launching a multinational climate-prediction institute to extend technical capacity in climate forecasting and create a worldwide network with "end-to-end" capabilities in climate science and applications in support of sustainable economic growth. This initiative is known as the Seasonal-to-Interannual Climate Prediction Program (SCPP), and its multinational research core is referred to as the International Research Institute (IRI) for the SCPP. The IRI will generate and distribute global forecast information to regional application centers that will tailor the forecasts to local use and combine forecast information with knowledge of physical, social, and economic conditions, thus giving countries the chance to anticipate and mitigate the impacts of droughts and floods. Regional partnerships are proposed with countries in the Americas, and pilot applications in the region are likely to involve Brazil, Argentina, Paraguay, Uruguay, Venezuela, Colombia, Mexico, Costa Rica, Panama, and Cuba.[13]

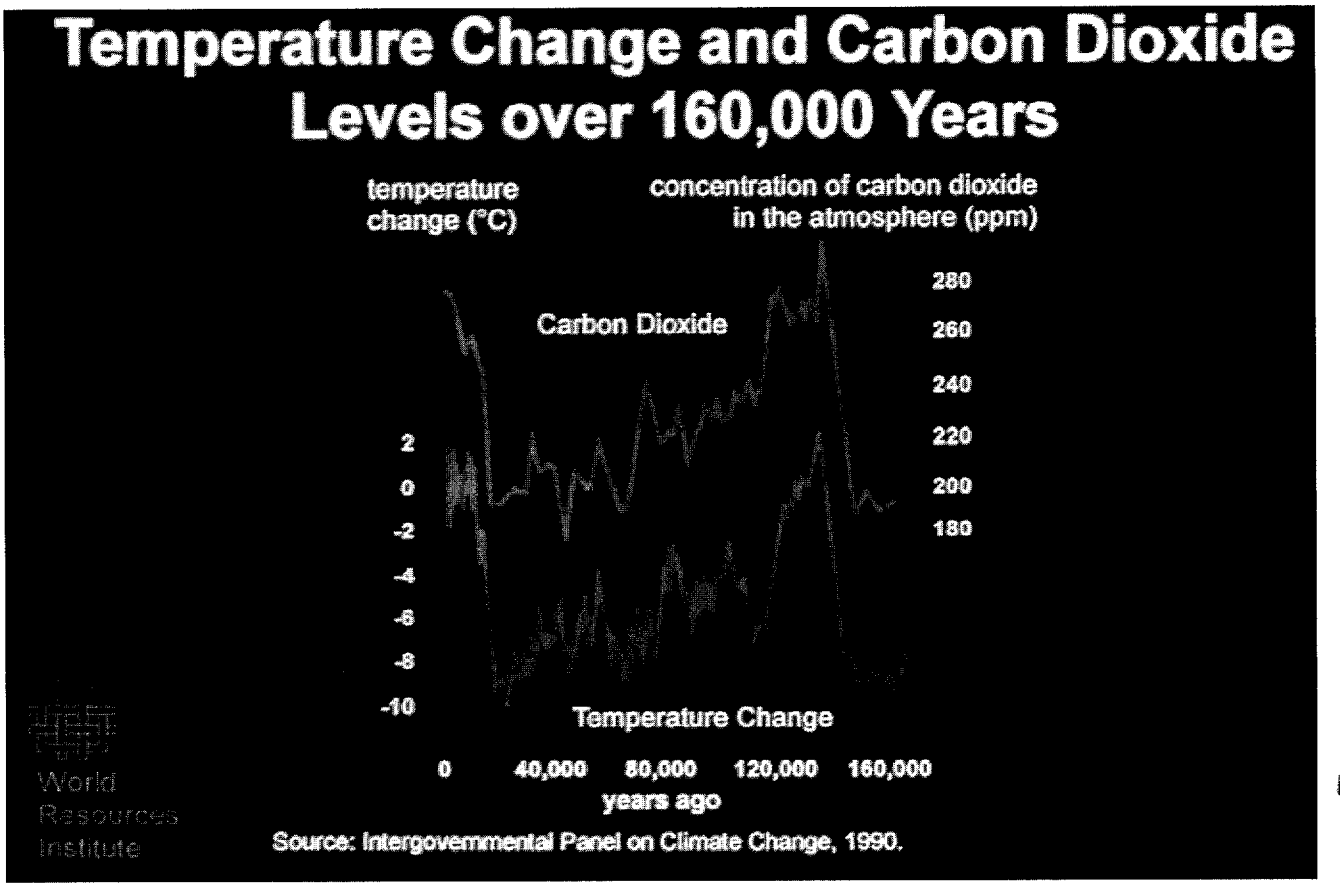
Having the technical and institutional capacity to handle and mitigate the impact of natural disasters caused by hurricanes, floods, volcanic eruptions, and other types of nat-

ural disasters is key to sustainable development. The Organization of American States' Department of Regional Development and Environment coordinates a Caribbean Disaster Mitigation Project (CDMP) with multi-institutional partners in the Dominican Republic, Haiti, Jamaica, Belize and the Eastern Caribbean countries. The program was initiated in September 1993 with an agreement between the OAS and USAID to provide US$5 million in technical assistance for disaster mitigation in these nations.

The project is designed to address the following problems: 1) unsafe location and construction of the built environment; 2) limited ability to identify hazard prone areas; 3) inadequate technology transfer and institutional development required for disaster mitigation; 4) inability of the insurance industry to adequately assess catastrophic risk; 5) insufficient preparedness and prevention in the nongovernmental sectors, and lack of coordination with the public sector. Project participants include local architects, engineers, bankers, builders, artisans, professional associations, insurance and reinsurance companies, finance institutions, governmental agencies, NGOs, and community groups.

Among the seven pilot programs is a natural hazardous assessment and risk mapping project. Hazard and risk information is derived from descriptions of past events, existing topographic and thematic maps, satellite imagery and other specialized sources. The information is presented in traditional and computer-based maps. These maps are designed to incorporate hazard mitigation in planning and location of physical development, and to determine more accurately natural hazardous risk by insurance and lending institutions. In Jamaica, one of the locations for this pilot project, a set of storm

**The US-Costa Rica Agreement on Joint Implementation will facilitate the formation of private-public partnerships to reduce global carbon emissions. (Credit: WRI)**

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hazard maps are being completed for the Montego Bay area. Project partners include the Office of Disaster Preparedness and the National Meteorological Service, the Natural Resources Conservation Authority, the College of Arts, Science, and Technology, the Mayor's Office of Montego Bay, and the Jamaica Broadcasting Corporation.[14]

A bilateral effort to address climate change issues has been launched by Costa Rica and the United States through the U.S.-Costa Rica Agreement on Joint Implementation. Signed on September 30, 1994 by U.S. Vice President Al Gore and Costa Rican President Jose María Figueres, it is a pioneering effort to facilitate activities that reduce global carbon emissions through private-public partnerships. Education and training will be under its umbrella for private and governmental personnel working on energy and land use, the upgrading of information networks, and the expansion of current relevant intergovernmental initiatives. The projects will encourage the market deployment of technologies to reduce greenhouse gases, the greater diversification of energy sources, the conservation, restoration and enhancement of forest carbon sinks, and reduction of other pollutants.

The agreement gives U.S. companies a mechanism for expanding climate-protection initiatives beyond their own borders—a way to meet more stringent emission requirements at home. For Costa Rica, the agreement provides a mechanism for controlling such local and regional environmental problems as water loss and contamination, soil and air pollution, biodiversity loss, and unsustainable land-use practices that influence climate change.[15]

A similar private-public partnership has evolved in response to the Montreal Protocol on Substances that Deplete the Ozone Layer, which requires the elimination of most human production of chlorofluorocarbons (CFCs) by century's end. Some of the largest industrial users of CFCs who have developed CFC replacements have formed a partnership with the U.S. Environmental Protection Agency called the Industry Cooperative for Ozone Protection (ICOLP) to start sharing the appropriate technology with users in industrialized and developing countries.[16]

Inter-government collaboration in forest management is also growing. The Sister Forest Program of the U.S. Department of Agriculture (USDA) Forest Service is based on the "twinning" concept, wherein two distant institutional units exchange information, resources, and ideas.[17] The partnership benefits both sides because it is based on integrative problem solving for ecosystem management issues. Currently, there are nine sister forest pairs between the USDA and counterpart agencies in Latin America.

The program has allowed on-the-ground managers to get to know their colleagues in other countries.[18] Additionally, the program has benefited from the involvement of NGOs who help implement ground-level projects. Because NGOs often earn the trust of rural residents, they may have greater flexibility in providing materials or services.

Similarly, the Cooperation in Fire Science and Management Program brings together the USDA/Forest Service and the Brazilian Federal Institute of Renewable Natural Resources and the Environment (IBAMA) to contain damages from agricultural burning and wildfires in tropical savanna and forests. The program's goal is to enhance Brazil's institutional and technological capacity to manage its natural resources. The program is expected to help reduce greenhouse gas emissions, thus decreasing the harm they do to biodiversity and ecosystem productivity. Building on high-level government-to-government negotiations, short-term technical exchanges, and one-time scientific missions, this partnership is expected to become a long-term, sustained effort.[19]

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## THE ROLE OF UNIVERSITIES AND RESEARCH CENTERS

UNIVERSITIES AND RESEARCH CENTERS HAVE BEEN COOPERATIVELY building capacity and exchanging information on environmental matters for longer than any other type of institution. In 1990, the Universidad Autónoma de Tamaulipas (UAT) in Ciudad Victoria, Tamaulipas, Mexico and Miami University (MU) in Oxford, Ohio, United States initiated a cooperative arrangement to improve scholarly research and educational interchanges in the environmental sciences. In a comprehensive ecological assessment of El Cielo Biosphere Reserve in Mexico, the study team will look at how the designation of the biosphere reserve has affected extractive logging, eco-tourism, and the development of ornamental palms as export products. The goals are to provide an ecological and social assessment of the project and to educate and train local and international field researchers in environmental sciences.[20]

Other organizations focusing on educational and technical training for environmental professionals are the Organization for Tropical Studies (OTS) and the Management Institute for Environment and Business (MEB). In Costa Rica, the OTS educates and trains ecologists, resource managers, and policy-makers in tropical ecology, agroecology, ecosystems management, and environmental policy. Environmental policy courses are targeted toward Latin American decision-makers who influence decisions that have environmental impact. These courses have attracted legislative aides, key congressional representatives, and such high government officials as a Costa Rican Supreme Court judge, a senator from Paraguay, a Bolivian congressman, and dozens of other Central American legislators.

The Management Institute for Environment and Business (MEB) works with U.S. business schools to generate and test innovative educational techniques that school graduates in environmental issues. The Business-Environment Learning and Leadership (BELL) Program launched by MEB in early 1994 brought together 25 business schools to conduct faculty training and seek support from their institutions for program development. In a BELL conference in August 1994, business school faculty met with corporate representatives to ensure that environmental issues are being presented in ways that will be useful to the companies that hire these business school graduates. MEB will develop a similar program in Latin America in partnership with the Nature Conservancy and the Consejo Latinoamericano de Escuelas de Administración.[21]

## NORTH-SOUTH NGO INFORMATION EXCHANGE

MANY NORTHERN NGOS CAN OBTAIN, PROCESS, AND DISSEMINATE STAtistical and factual information far more easily than southern NGOs. This gap—likely to disappear as southern organizations gain access to resources and technology—has shrunk somewhat already thanks to collaborative efforts to provide information and strategic services. For instance, the Bank Information Center, an independent Washington-based NGO, facilitates the flow of information among organizations concerned with how projects financed by multilateral development banks affect the environment. The information center also supports developing-country

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NGOs that want to participate in environmental policy reform at the multilateral banks by helping them formulate strategies for questioning the banks' policies.

The information center typically waits for a request from a southern NGO before it begins investigating a project. If the information collected shows that the appropriate environmental assessment impact has not been conducted or that the research warns against implementing a particular project, the information center lobbies the governors of the MDBs, the U.S. Congress, or other U.S. agencies involved with MDBs to change the course of action. While the Bank Information Center clearly works in oversight, over time it has earned the respect of lenders, who often cooperate with its information inquiries.[22]

WorldWIDE Network: Women in Development and Environment, based in Washington, D.C., is another channel through which northern and southern organizations exchange ideas and information. Networking through newsletters, conferences, publications, and a directory of women's organizations involved in development and environment work, WorldWIDE brings the role of women in development and environment to the attention of policy-makers. By sponsoring environmental programs and projects, WorldWIDE chapters help protect natural resources, provide environmental education and training, and include women in the development process.

Through its Washington office, WorldWIDE chapters around the globe communicate their initiatives and achievements, as well as share ideas and information. This office also contributes seed money for local chapters to hold National Assemblies of Women and the Environment, patterned after WorldWIDE's 1991 Global Assembly of Women and the Environment—a conference that showcased 218 successful environmental projects led or managed by women. Focal points were energy use and climate change; environmentally friendly systems, products, and technologies; waste management, and water supply.[23]

## Meeting on the Information Superhighway

For most academic, research, and government institutions, as well as for NGOs, Internet is an essential tool for developing partnerships and exchanging information. In particular, the Infoterra network is popular with environmental professionals. This network was initiated in 1977 by the United Nations Environment Programme after the United Nations Conference on the Human Environment (Stockholm, 1972) called for the creation of an international mechanism for exchanging environmental information. Operating through a worldwide network of national environmental institutions, Infoterra ranks among the largest providers of environmental information. In this referral system, users are connected to expert sources to answer queries. The network handles more than 29,000 queries a year on every aspect of the human and physical environment; more than 85 percent of the queries are answered with substantive information. The logic behind Infoterra is that environmentally sound decisions cannot be made in an information vacuum. If the problem is how to obtain access to this information, networks like Infoterra and others like it may provide the answer.[24]

Three other examples of information exchange through the Internet are the Consortium for Information on Sustainable Development (CISD); IPMnet, which specializes in Integrated Pest Management; and the Inter-American Dialogue on Water Man-

agement. The three networks facilitate the systematic collection, management, dissemination, and use of information on what works, what does not, and why. CISD focuses on scientific, technical, social, and economic issues related to sustainable development.[25] IPMnet stores the growing international expertise on integrated pest management and provides the information needed to implement more environmentally sensitive crop protection.[26]

The Inter-American Dialogue on Water Management, an NGO network supported by the Organization of American States, was created to address water resource issues in the Americas. The priorities for the network were hammered out at a conference in Miami, Florida in late 1993, where over 450 representatives from 19 countries in Latin America, the United States, and the Caribbean met to discuss water resource problems in the Western Hemisphere. This new computer network enables water-resource professionals to seek advice from counterparts in other countries with similar problems. In addition, it will provide a base for further cooperative efforts, including on-site visits, internships, and the publication of a handbook on best water-management practices.[27]

The Environment in Latin America Network (ELAN), a similar information exchange, is an open discussion group over the Internet designed to link researchers, activists, academics, and other parties with interests in the region. The wide-ranging, multi-disciplinary discussions on ELAN cover political and economic issues associated with ecosystems use or protection in Latin America. The ELAN network also enables researchers to discuss data sources, contacts, books, and resources on the region. The listserver was established in July 1993 by the Environment and Natural Resources Working Group of the Latin American Studies Association.[28]

These networks represent only a few of the dozens of networks that have evolved to handle environment and development issues in the Americas. But even with this wealth of channels, organizations and people who want to ride along the information superhighway still face some roadblocks. Many NGOs and other developing-country institutions cannot afford the computer technology that makes the free use of the Internet possible. As traffic on the Internet thickens and this communications web spreads, technology access will be a key element of most innovative partnerships.

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## Information Exchange and Capacity-Building

| Partnership | Participants | Objectives |
|---|---|---|
| La Red, Mexico and the United States | NGOs | Collect and disseminate information on hazardous waste problems on the U.S.-Mexico border. |
| Katalysis and BEST, ODEF, and CDRO; in Belize, Honduras, and Guatemala, respectively | NGO, CBOs | Help low-income people become self sufficient through management training, as well as technical and credit assistance. |
| Water for People, Bolivia, Nicaragua, Honduras, and Ecuador | NGOs, CBOs | Provide technical and financial assistance to attain safe drinking water. |
| WRI-GEA Participatory Rural Appraisal (PRA), Mexico | NGOs | Provide training to create in-country capacity for PRA. |
| Partnerships for Sustainable Agriculture, Central and South America | NGOs, local government, local farmers | Conduct a study on how to make agriculture research and development more responsive to farmers and resource conditions. |
| OXFAM and COICA, Peru, Brazil, Bolivia, Ecuador, Colombia | NGO, CBOs | Research on sustainable economic strategies for indigenous communities. |
| Consolidation of indigenous territories in Amazonia, Colombia | NGO, government, indigenous communities | Research on the structure and composition of the forest ecosystem to identify species with commercial, nutritional and industrial value; involve indigenous communities in decision-making and planning. |
| Workers' Center of Amazonia, Brazil | NGO, CBOs, universities | Promote self-sufficiency through educational programs in environment, health, forest management, sustainable economic development. |
| Center for Regional Studies for the Development of Tarija, Bolivia | NGO, CBOs | Community education on conservation and sustainable use of natural resources; lobbying for environmental legislation. |
| Partners of the Americas, Mexico Conservation Corps | Government, NGOs | Environmental education for young people by having them do conservation work. |

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## Information Exchange and Capacity-Building

| Partnership | Participants | Objectives |
|---|---|---|
| Regional Environmental Coordinator, Guatemala | Governments, NGOs, CBOs | Coordinate environmental activities regionally among government agencies, NGOs, and CBOs. |
| Inter-American Institute for Global Change Research, United States, Latin America, and the Caribbean | Governments | Generate environmental data, scientific research, and policy relevant information on coastal zone management, food and energy supply, freshwater resources, and land-use degradation. |
| Seasonal-to-Interannual Climate Prediction Program, International Research Institute; United States, Latin America, and the Caribbean | Governments | Generate and distribute global forecast information to regional centers to enable countries to anticipate and mitigate the impact of droughts and floods. |
| Disaster Mitigation Project, Caribbean countries | Governments, NGOs | Build technical and institutional capacity to handle and mitigate man-made and natural disasters. |
| U.S.–Costa Rica Agreement on Joint Implementation | Governments | Facilitate activities that reduce global carbon emissions through private-public partnerships. |
| Industry Cooperative for Ozone Protection; industrial and developing countries | Governments, business | Share the appropriate technology to eliminate CFCs as called for by the Montreal Protocol on Substances that Deplete the Ozone Layer. |
| Sister Forest Program, Latin America and the United States | Governments | Promote integrative problem-solving for ecosystem management issues. |
| Cooperation in Fire Science and Management Program, United States and Brazil | Governments | Training of IBAMA workers by U.S. Department of Agriculture to build capacity to contain damages from agricultural burning and wildfires. |

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## Information Exchange and Capacity-Building

| Partnership | Participants | Objectives |
|---|---|---|
| Cooperative arrangement between Miami University of Ohio, U.S. and the Universidad Autonoma of Tamaulipas, Mexico | Universities | Complete an ecological and social assessment of El Cielo Biosphere Research, and provide education and training for field researchers. |
| Organization for Tropical Studies, Costa Rica | NGO, university | Education and training for ecologists, resource managers, and policy-makers. |
| Management Institute for Environment and Business/Business-Environment Learning and Leadership Program, United States | Research center, universities, business | Work with business schools and business leaders to develop environmental education curricula. |
| Bank Information Center, United States | NGOs | Facilitate the flow of information to NGOs and others concerned about the environmental effects of projects financed by multilateral banks. |
| WorldWIDE Network | NGOs | Exchange of ideas and information among those involved in women and development work. |
| Infoterra | Multilateral government agencies, universities, research centers, NGOs, business | Use of Internet to disseminate and exchange environmental information. |
| Consortium for Information on Sustainable Development | Universities, research centers, NGOs | Use of Internet to disseminate and exchange environment and development information. |
| IPMnet | Government, universities, research centers, NGOs, business | Use of Internet to disseminate and exchange Integrated Pest Management (IPM) information. |
| Inter-American Dialogue on Water Management | Government, universities, research centers, NGOs | Use of Internet to disseminate and exchange information on water issues. |
| Environment in Latin America Network | Universities, research centers, NGOs | Use of Internet to disseminate and exchange environment and development information. |

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## Endnotes


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# Taking Stock and Looking Ahead

THE NATIONS OF THE AMERICAS ARE INCREASINGLY UNITED THROUGH A shared dedication to democracy and a commitment to sustainable development. Sustaining this progress will require all nations in the hemisphere to deepen our support for open, participatory, and transparent processes, to build indigenous capacity, to enhance participation, and to encourage decentralization and the resulting empowerment of communities and individuals. The active involvement of all segments of society are crucial to the success of these efforts. The new partnerships described here demonstrate the significant contributions these groups can make to sustainable economic and social growth.

The close connections among environment, economic growth, and social development are increasingly appreciated. More and more institutions are rejecting the false dichotomy between environment and development. As U.S. Under-Secretary of State Timothy Wirth put it, "In as much as economic activity depends upon the environment and its underlying resource base, the economy is a wholly-owned subsidiary of the environment." Action based on this thinking demands new partnerships among new allies, as none of us individually has the breadth or stature to seamlessly weld development to conservation. It is in this spirit that the Business Council for Sustainable Development forms public-private coalitions to improve municipal services and prevent industrial pollution, that INBio promotes biodiversity and pharmaceutical research in equal measure, and that the Rainforest Alliance connects coffee and banana growers in Latin America to North American and European consumers by certifying products that are sustainably produced. These partnerships have evolved to fill a niche created by our expanding recognition of interdependence.

Governments are actively encouraging the growth of these new associations. Increased openness, decentralization, and transparency has empowered local government, community groups, women's cooperatives, NGOs, resource users, and other stakeholders. Free, fair, and informed decisions are the basis of both democracy and sound natural resource management. If central governments initially dispersed control to the local and regional levels to lighten administrative and financial burdens and increase participation, they continue to do so because the new systems work. On the coasts of Ecuador, in Brazil's extractive reserves, in the South Bronx, and in Canada's Salmon River Basin, people are increasingly bound to their local, national, and hemispheric neighbors.

One of the most conspicuous features of successful partnerships is that they coalesce at the local level in response to specific problems. As demonstrated in the lead stories of this document, this singular ability to focus makes these partnerships responsive and effective. Most of the partnerships reported here are quite new, but it is clear that many of them will persist and can be replicated. The Canadian Round Tables are a model for resource planning, while the FONAMA example is already being adapted by National Environmental Funds across the region.

Where conditions are appropriate, these partnerships have proven that they can move beyond their initial mandates to meet more demanding objectives. For example,

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Brazil's RECA evolved from a self-help effort geared to provide a basic livelihood to its individual partners into a highly creative partnership working in harmony with nature. Once ignited, it is not easy to quench the kind of vigor that turned an oral hygiene program in El Retiro, Colombia, into a multi-million dollar recycling program. Once a partnership has achieved its primary goal of consensus, the opportunities for action give them unlimited potential to grow, transform, change, and revive along a path of realistic goals.

Governments have a role in nurturing the growth of partnerships. From the village to the multilateral organization, governments are helping provide the conditions in which the energy of citizens, the creativity of NGOs, and the initiative of the private sector can join to advance the public good. As appreciation of the potential of such partnerships grows, local and national leaders and the international community are likely to promote the formation of partnerships for sustainable development even more actively.

Opportunities for governments and international organizations to support and advance innovative partnerships are as diverse as the associations themselves. Most important, partners need recognition and respect. Acknowledgement alone can often confer legitimacy on a group and enable access to outside resources. For example, the Ecuadorean government gave enormous support to coastal alliances through a presidential decree, and official recognition of the GEA-World Resources Institute capacity-building project in Mexico had an inspiring and invigorating effect on GEA's ability to help address sustainability problems.

The next critical level of governmental support is to implement policies that are broadly supportive of partnerships. Case studies demonstrate that much can be done through purely private undertakings, as in the example of Katalysis's support of small businesses in Belize and Guatemala. However, it is equally clear that governmental policies can lower the obstacles confronting the development of young enterprises through specific programs, such as the new U.S. Government requirement for recycled paper that can potentially increase demand for the products of the Bronx Community Paper Company.

The hemisphere would benefit from continued exploration of these issues. Enhanced understanding and greater encouragement of collaborative efforts will allow the people of the Americas to take fuller advantage of their efficiency, energy, and economy. Those who have contributed to this report hope that leaders of the hemisphere will continue to support and utilize innovative partnerships.

Free, independent, and creative, the peoples of the region are joining in an Alliance of the Americas that can fulfill the promise of the New World for ourselves and for posterity. Together, we are furthering the continental quest for sustainable development, the perfect partnership between nature and society.

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